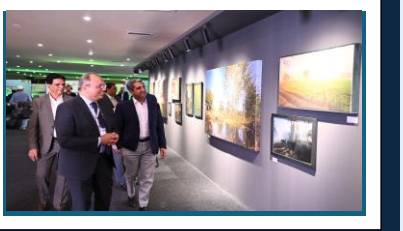
Pakistan Agricultural Coalition's

Agri-Connections 2025 Conference & Expo

February 12th & 13th 2025

Conference Proceedings



THE WORLD BANK

CONTENTS

Introduction to the Conference & Expo

Ladies and gentlemen, I have the honor of hosting the inaugural Agri-Connections Conference in 2023 and I've been hosting them every year since then. It's truly been inspiring to witness the remarkable growth and impact of this event and of Pakistan agricultural coalition over the years. Agri-Connections 2025 here in Karachi is our most expansive conference yet, featuring over 60 distinguished speakers including a significant number of progressive farmers, senior government officials, visionary business leaders, representatives from donor institutions, academics and experts from both local and international arenas.

But last and not least, you, our delegates, have gathered in greater numbers than ever before. We recognize the World Bank Group as a lead partner of the conference segment for day one and for bringing international experts to make substantive presentations on corporate agriculture, seed, national agri-commodity market and the policy framework for growth and agriculture. UNDP is our partner for the carbon credit session and the United Nations Food and Agriculture Organization, FAO, has brought farmers from Balochistan to the expo.

This year, Agri-Connections 2025 boasts an impressive expo segment with major businesses and donor institutions showcasing their ground-breaking projects aimed at advancing Pakistan's agriculture. Equally important is the glory of SIN's extraordinarily beautiful farms that is on display through the amazing photo exhibition supported by Pakistan Agricultural Coalition's patron IBL. This is the work of the documentary photographer Mehmood Ali, curated by the award-winning photographer Malika Abbas.

You must spend some time at that photo exhibition. It is right at the entrance. Just so everybody knows, these photos are available for purchase.

We would encourage you, if you can, to please purchase your favorite photographs from this exhibition. The proceeds from these purchases will go to the Pakistan Agricultural Coalition. This will be a great way to support the work carried out by the organization.

Additionally, Pakistan Agricultural Coalition is proud to present this year's edition of our agri-startup competition, ZarZaraat. This is sponsored by the Bank of Punjab in collaboration with the Pakistan Business Council and the Pakistan Banks Association. This initiative is designed to nurture emerging agri-tech entrepreneurs who will pitch their businesses to some outstanding investors.

OPENING SESSION

Speakers:

Mr. Kazim Saeed, CEO, Pakistan Agricultural Coalition

Mr. Syed Qasim Naveed Qamar, Special Assistant to Chief Minister Sindh on Investment and Public-Private Partnerships

Mr. Muhammad Nassir Salim, President and CEO of HBL

Mr. Ali Rathore, CEO of Engro Fertilizers

Ms. Salma Butt, Minister Punjab on Commodities Management

Mr. Kazim Saeed, CEO Pakistan Agricultural Coalition

Mr. Kazim Saeed: "Pakistan's agriculture sector is to salvage the macroeconomy"

Good morning, ladies and gentlemen.

On behalf of the patrons of Pakistan Agricultural Coalition, on behalf of our board and our team, and on behalf of our conference partner, the World Bank Group, I welcome you to Pakistan Agricultural Coalition's Agri-Connections 2025 Conference and Expo. This is Pakistan's premier agri-investment event. This is a time of momentous change and great promise for the agriculture sector.

Globally, we see changes in the geopolitics making way for new commodity flows. With US and EU sanctions on Russia and anticipated US tariffs on China, Mexico, and Canada, new flows, new economic arrangements present new opportunities for Pakistan. And within Pakistan, notice that the policies and economic structures set up in the 1960s and 1970s, which became the envy of the world, are now collapsing.

These policies and economic structures have gradually become home to dysfunction, and deterioration, exploitation, and finally bankruptcy, which means these changes are here to stay now. This is why you see decades-old policies and fixtures like the wheat procurement policy being abandoned. And this brings change comes difficulty and uncertainty, but it also brings hope for those who want to shift Pakistan's agriculture sector, and indeed its economy, from a government-led structure to a private sector-led direction.

In a way, that is why all of us are here. When Pakistan's leading business groups established Pakistan Agricultural Coalition in 2013, the vision that emerged was for an agriculture sector that is private sector-led, entrepreneurial, technology-driven, and globally competitive. And we knew then, and Arif Nadeem Sahib is here, he helped us understand that we knew then and we understand now that all these cannot be achieved without increasing farmer profitability.

Whichever new mechanisms and tools we bring to the table, they need to bring farmer profitability to a higher level. Hence, our focus on what will benefit Pakistan's farmers in the long run, and in the long run, the focus on farmers will bring benefit to industry and financial entities that are entering agriculture as well. And this is the vision we still stand by today.

If Pakistan's agriculture sector is to salvage the macroeconomy, as many business leaders and policymakers say, we need to accelerate this transition from a sector where government calls the shots, government even was making commercial decisions, to a sector where the private businesses call the shots and drive change and invest. And this is where Pakistan Agricultural Coalition is most active. But this transition has to be mindful of the interests of our farmers, and whom we try to engage at every step.

In fact, we have tried to engage everyone for this effort. Just look around you in this room and you will see farmers, government, business development experts, Pakistan's development partners, business leaders, investors, all under one roof. And this is the spirit of Agri-Connections.

And look at the conference program. We have all of these stakeholders and speakers from Turkey, Italy, Hungary, Peru, Panama, Uzbekistan, France, the USA, and of course, Pakistan. And a warm welcome to all those who have traveled from outside the country.

New business models are to be presented here in these two days. New commercial relationships are to be forged. And new forums for focus on agriculture policy are to be announced. And of course, the best companies of Pakistan are exhibiting their best agri products in the hall next door. I encourage you to visit that. The excitement is palpable.

Finally, I would like to mount a challenge for all of us. If the agriculture sector is to serve a leading role in Pakistan's economic turnaround, we need the kind of ambition that drove Pakistanis in agriculture in the 1960s and 1970s. It's not going to happen in dribs and drabs. We need a moonshot.

So we need to set ourselves targets that may sound impossible, but the world's experience shows that they are quite doable. Let me mention some targets that should be part of our moonshot for agriculture.

Can we deliver a bank loan to every farmer in Pakistan? Let it take the years it takes. We have the tools. The crop insurance is there. The warehouse receipts is there. These are just two things that Pakistan Agricultural Coalition has done. There are 50 other things.

Can we aim to deliver a bank loan to every farmer? Can we bring modern agri warehousing to every part of Pakistan's agri landscape? Let's bring crop and livestock insurance to every Pakistani farmer and bring the best seed to all our farmers. These are just targets that so many developing countries have also achieved. We need to start aiming high and being very ambitious.

These are the kinds of targets that make life worth living. But they require tenacity. They require sagacity.

Most of all, they require investment so that they can deliver the growth. And hence the theme of this conference, investing in agriculture for growth. And all of us sitting in this room have to make that prospect a reality.

So, I wish you two days of promise and achievement here at Agri-Connections and let's innovate, connect and invest. Thank you very much and let's begin the games. Thank you.

Mr. Syed Qasim Naveed Qamar, Special Assistant to Chief Minister Sindh on Investment and Public-Private Partnerships

Mr. Qasim Qamar: “We need to expand access to credit, insurance and infrastructure support to empower small farmers and enhance agricultural resilience.”

Salam, ladies and gentlemen, and a very good morning. I'd like to start by thanking Pakistan Agricultural Coalition for gathering everyone here today over the period of today and tomorrow, getting some of the best minds in the country, the best technology, the banks, the government, everyone together.

I think that's the essence of this ambitious target that we're trying to all collectively achieve. So thank you for having me and it's an honour to be here. Agriculture is the backbone of Sindh's economy, contributing significantly to our GDP and employment.

I feel we call ourselves an agricultural country but we're not really doing ourselves any justice by identifying as an agricultural country. Our yields, depending on the crop, may be at par with neighbouring countries but are we really getting the most out of our produce? Are our farmers getting the benefits in terms of revenue as market prices soar? We keep hearing about global food shortages but what role will Pakistan play to fill this gap? Better yet, how can we pivot our farmers to play a role in this and give them direct access to global markets? These are all questions that actually drove us to come up with more effective and efficient methods to address some of these issues. The Agricultural Department of Sindh, for instance, has several programs to support farmers from subsidized tractors, implement stools, drip irrigation systems and various other machinery.

There are other programs to give direct subsidies to small farmers in terms of financial support like fertilizer, for inputs like fertilizer. In line with President Zardari's vision, the Irrigation Department is lining canals for water conservation across the province. The complete A to Z of support is being doled out by the Government of Sindh and the Federal Government for that matter but to what outcome? I'm a small farmer myself and I know many small and large farmers but I can't say I've really seen them grow exponentially.

Instead, what I have seen is the direct impact of climate change adversely affecting the quality of agricultural land. What we need is to cause a serious disrupt today. In the

way we have traditionally been doing things, where else I fear we may not even be able to survive in this sector.

What we need is strategic investment in advanced farming techniques, precision agriculture and sustainable irrigation methods that can drive productivity and profitability. We need to expand access to credit, insurance and infrastructure support to empower small farmers and enhance agricultural resilience. We need to encourage innovation in agri-tech, climate smart farming and value chain development which is crucial to positioning Sindh and Pakistan as a leader in sustainable agriculture.

We need to focus on value addition to our produce to drive that exponential growth. Although I can't talk about in much detail the PPP unit, Pakistan People's Party and Public-Private Partnership Unit are both collectively trying to come up with some innovative and out-of-the-box solutions to address some of these problems. I mentioned earlier that there's various subsidies being given out to the agriculture department from right from the start from seed development to harvesting but unfortunately what's happening is that all of this is being done in silos.

You might get fertilizer subsidies in Thar and then you can get tractor subsidies in Tandoor-Layar, harvesters may be used in Badin. Imagine if you could collectively have all of this support for a ring-fenced piece of land resulting in approximately a 30% increase in yield at lower input costs. That is what would cause a disrupt in result in exponential growth.

This is the outcome we want to achieve. Do you know that we waste approximately 25 to 20 percent of our tomato crop every single year but do you also know that we import approximately 10 million dollars worth of tomato paste every year? Do you see the irony there? I'm sure everyone, there's some people here from national foods, they know this better than me and I'm glad to see that they've actually done something about it and learning from their model and witnessing the results we want to scale this up to a level where we not only offset our imports but become an exporter of something like tomato paste. I could go on about the lack of value we expect from our mangoes, our bananas, our dates, guava and many other fruits and vegetables.

I feel if we give them the environment, the ecosystem, the tools necessary, we could really cause a huge impact in this sector as well. But I'm happy to state that we're coming up, the PPP unit along with many of the players sitting over here, are coming up with solutions to problems like this and giving farmers direct access to global markets. I also want to mention here that we have the first and only one of its kind wing of the Government of Sindh which is the SEDF.

In times where interest rates were 24 percent, SEDF was paying the interest for small and medium enterprises who were setting up industry for value addition. For something simple like a rice husking plant, to shrimp farming, to agri-tech, to women-led businesses, SEDF has supported over 100 SMEs in various sectors across the province and I encourage you all to visit their stall outside to take advantage of this facility. To conclude, I just want to say that I strongly believe that Pakistan has all the right ingredients from people to natural resources.

What we lack is a collective effort to bring this change and perfect this recipe. What we need is organizations like the PAC, corporates like National Food, Shaan and other such groups, and the government to come together, and banks as well of course I must mention, to come together for this collective target and very ambitious target like Kazim mentioned. So Inshallah, I hope and pray that we can work together to find out-of-the-box solutions for this and I hope that we can get many players over here as partners and give all the support that's necessary from the government side.

Thank you very much. Pakistan Zindabad.

Mr. Muhammad Nassir Salim, President and CEO of HBL

I would first like to thank the distinguished speakers. I think Kazim did a really good introduction around it and then the vision that Naveed Qamar Sahib shared with us I think is truly inspiring. In the last two weeks this is the conference that I'm attending that has either directly 100% something to do with agriculture or a major significant portion was around agriculture.

When we step back and look at the origins of Pakistan Agriculture Coalition, I'm proud to say that HBL was one of the founding members and together this has been a priority and a mission for HBL not just this year or the last five years but over decades. Today we stand as the largest lender to the agri-sector both directly in terms of small farmers, medium-sized farmers, as well as technology and agricultural implements, solarization of tube wells. So there is a whole bunch of work that has been done.

Mr. Nassir Salim: “The first step is improving the productivity, the climate resilience for the crop yields, for the dairy industry, for the livestock.”

However, sadly as pointed out by the Honorable Speaker, we still as a banking sector only penetrate less than 10% of the potential that is there and when we look at interventions that we have done through HBL, HBL Micro Finance Bank, HBL Zarai Services, as well as HBL Asset Management, we do actually see productivity lift of a small farmer in excess of 40%. We do see the financials for that farmer improve by over 110% because the amount of inefficiencies that exist in the supply chain need to be addressed. There are times where the wastage of particular perishable items is as high as 30 to 40% and the result is that the animals are fed with high value crops.

So I think the challenge is that Pakistan's economy and I'll just step back and look at the last two years. The back of the last two years the economy has been challenging and the realization has come in that we do require moonshots. As far as the financial sector is concerned, working with the government of Pakistan, the State Bank of Pakistan, there are three major priorities which directly lie in line with where agriculture is going.

The first is improving the productivity, the climate resilience for the crop yields, for the dairy industry, for the livestock. These three elements are critical for us to ensure not

just exportable surplus but to begin with food security for our own population. When we look at population growth, every year we add the equivalent of the population of two Qatar to Pakistan's population and therefore it is imperative for us to really focus on the supply chain and the weakest link in the supply chain.

The weakest link is really the production piece that we have ignored for very long. So I think the silver lining today of all these challenges is the realization that we do need to give this priority and I can assure you as a bank that has spent decades in this field, this is not an unprofitable venture where we have delivered good results in productivity, we've delivered good financial results for the growers, we've also made reasonable profits from it. This is not a charitable work, this is a business proposition.

I look forward to the two days of dialogue and interaction because there are things that you learn when you talk to foreign partners and others that have done it. I was surprised, I was visiting recently Kenya and I was surprised that their largest export which is tea is not originally from Kenya. The first plantation started in early 1900.

So we also have to not just look at our traditional crops but we also have to look at crops that Pakistan's climate, we run north to south from the mountains to the sea, are amenable for. So, we must look at what is happening outside of as well. Secondly, we need to involve everyone in this.

The livestock fund that HBL Asset Management has launched, we have had in the pilot exceedingly good success in this and we've been successfully able to help 10 farms actually do export of meat from Pakistan through those initiatives. So I look forward to the conversations in conclusion in these two days for additional learning and how do we collaborate together. But whatever solutions we put in, we need to make sure that they are based where the farmer is and in today's era of digitization, it has to be, everything needs to be available at the Dera, at the village, at the center of the Tehsil or the Chak.

And if we can do that, where quality seed, fertilizer, agronomist support, mechanized equipment is available, that is where you start seeing the uplift and the productivity. And therefore, for our HBL Zarai services, we have built this into a concept of a Dera, where it becomes a one window service. It is also supported digitally by our wallets in order to support a wider range where the farmer can access the financing that is granted.

Similarly, we will hear more about what Bank of Punjab has done in terms of the Kisan card and the financing where they have been able to very quickly deploy funding to a very large segment as well. So we need to share these innovations because it's not about competing for, you know, a share from somebody else. If banking sector is only 10% of the agri-economy contributing the finances to it, we have 90% which is available for all institutions to partner join.

Collectively we can make the moonshot that Kazim was talking about successful. I'm very confident that we will do this together with the support of the people in this room. I thank you very much.

Mr. Ali Rathore, CEO of Engro Fertilizers

Mr. Ali Rathore: “It's a partnership between the private sector, the government, and the various components of the private sector...with their inroads into the farming community to really capitalize and increase the yield.”

Salam, ladies and gentlemen. Good morning. I'd also like to start off with thanking the Pakistan Agricultural Coalition that's been doing this event for a few years because it really is a great opportunity for the private sector, for the agronomist, for the folks in technology, the growers to kind of come together, share ideas, and really, like some of the speakers have shared before me, to really make an impact in Pakistan's agriculture sector.

I'm going to start with maybe describing the key issue that we've got in the sector. How do we get here? And then what are we doing specifically in the private sector to solve some of this? To the key issue, I'll start off with the fact that Pakistan is the eighth biggest wheat producer in the world. However, we are number 56. Let that sink in. We're number 56 in terms of yield per acre. How do we get here? I'll start off with compartmentalizing really three main buckets.

Number one, balanced use of fertilizer. There's lack of knowledge, lack of appreciation of micronutrients. The balance between N, P, and K is not optimized.

What is Engro doing in this space? I'll share some of that with you folks. We're developing products, for example, the Zabardast Urea, which takes zinc that's bioactive, that really improves the amount of zinc uptake into the soil, into the plant by 35%. So those are the kind of things that are not only helpful with respect to enhancing the yield, but also providing balanced nutrients to the plants.

What support do we need from the government? Is to progress policies that allow these kind of developments to happen. Allow joint ventures with companies that have been in this space in other countries to share that technology with us, so we can enhance the yield in respect to balanced use of fertilizer, as well as the appropriate application of those micronutrients. So, that's number one.

Number two, I would say, is the use or rather lack of appropriate technology in this sector. You heard some of the initiatives taken by the government recently with respect to providing loan subsidies for tractors. We've got federal government initiatives of sending, I believe, 3,000 odd students to China, so that they can learn from improved techniques and practices.

The government's taking the right steps. What can we do to support those initiatives in the private sector? And again, I'll share an example with you what Engro is doing in that space. So, we've started a mobile app that's called UgAi.

The benefits of that app are that for the first time, the manufacturer can sell directly to the end user. You don't have a dealer in the middle that potentially erodes value. So that's number one, a direct access.

Availability is there for the end user. Quality is guaranteed. There's a lot of product that's not authentic, that's mixed with other things.

That's the number two advantage of this particular app. And then the third advantage is the price is the guaranteed price, as opposed to some other price that allows profiteering to happen through the channel. In addition to that, we've got drone services, satellite services.

And this app, by the way, ladies and gentlemen, is provided for free. We've started off in Sindh with some of the larger growers. But this is what we're doing in this space, trying to push that technology, educate our farmers to see the yields, the benefits, be it soil sampling, better data in real time so that the appropriate measures can be taken to enhance the yield.

That's number two. Number three is the affordability of financing. Interest rates have gone down, but this sector or this particular component of the agricultural sector is a difficult one to crack.

Again, I'd like to recognize the government in terms of the initiatives that they've provided. The Kissan card, for example, a great initiative for the smaller farmers. HBL, with its various products, is doing an excellent job.

This is what the private sector is doing to help support our economy. 250 million people, constantly growing. We're not going to be able to afford to import wheat.

The initiative that the government has taken with increasing the cultivatable land. So it's a partnership between the private sector, the government, and the various components of the private sector, be it financing, be it the tech companies that are bringing their tools to the trade and using companies like Engro with their channels, with their networks, with their inroads into the farming community to really capitalize and increase the yield. I'd like to just summarize what Engro is doing in this space, what the agriculture community is doing in this space, to solve the issues with respect to enhancing the yield.

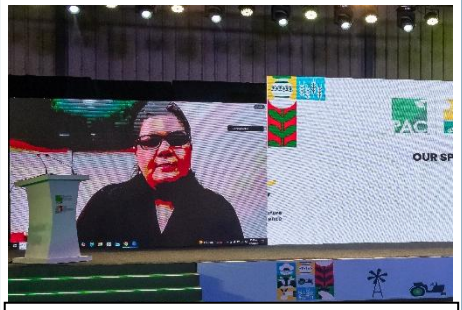
Because if we can do that just one bit, from 56 maybe we can come down to 40th. The possibilities are endless with respect to feeding our nation and, more importantly, exporting. The potential is huge.

So, addressing, educating our farmers, our community on a balanced use, number one, of fertilizer and micronutrients. Number two, using and adopting new technology. And number three, affordable financing.

If we can all work together, I think we can make a huge difference in the daily lives of our farming community. So, thank you, gentlemen, and enjoy the next couple of days. Thank you.

Ms. Salma Butt, Minister Punjab on Commodities Management

First of all, I really want to apologize for not being here in person, which I really wanted to. And initially, we planned it this way to be with you all.



Ms. Salma Butt: “Pakistan is one of the top most climate hit countries and climate change will not wait for us, it's us who need to wake up and be climate resilient.”

But due to a cabinet meeting and then unavailability of flight accordingly, I have to do it online. And thanks to the technology that I can interact and connect with you in some way. But going through the program of this conference and seeing the magnitude and significance of the experts, the eminent individuals, organization, banking sector, corporate sector, K&Ns, National Food, and the Gaya Climate, Turkey-based organization, UNDP, State Bank, World Bank representatives.

I certainly believe that I have missed the opportunity to be there in person. But still, I would like to share with you my observation and my insight while working in this sector for the past six months now. Yes, and when you are the last speaker in a session, so it's tough to, you know, not to go into repetition and say something new because already, we have heard almost the eminent speakers, they've covered all these sectors and all the issues and how we can go forward, the way forward already has been discussed.

But still, I would like to share a few things with you that certainly, we need to focus on one side, we say that we are an agriculture-based economy, and we are a country with the agri-based. And on the other side, it's very, very alarming when we see the reports, which tell us that 30% of our households are food insecure in a country like ours. And secondly, and then there's a definitely unavoidable element of climate change.

And we have not done much in this area as well. And we, Pakistan is one of the top most climate hit countries and climate change will not wait for us, it's us who need to wake up and be climate resilient. And when we look into the impact of climate change into our agriculture sector and onto our crops, so we probably also need to revise or review our yearly calendar, the sowing and harvesting probably, where we need to manage it.

Because I think, from Punjab perspective, as we talk about it, what we need to do is we and what is the vision of the Chief Minister of Punjab or the current government, how it is taking forward things in agriculture sector. We in our Chief Minister and the government, we envision is in a way that we need to improve our growth, and we need to increase our production. And this is how we can get into strong supply chain management.

Ultimately, we need to meet demand and supply side. This is how we can shift ourselves into a sustainable model of a balanced pricing or profit oriented, but

affordable pricing for low income population as well. Because we cannot ignore that segment.

Because we all know that we are a country with a huge bulge of people living below poverty line and people with lower income class. And when you are sitting in a government and from this perspective, you have to, of course, look after these things. And on the other side, now we have become a country who is depending on import for the food security, particularly when you talk about the grains.

We are importing almost 90% grains now, and we were used to be grain export country. Except for rice and wheat and maize or I think now we like the grampals, the chickpeas, masoor dal, moong dal, or the black gram, we are almost on import completely. And then on the other side, we are almost 100% on import when it comes to the palm oil.

And we have a huge consumption of cooking oil and tea. We all know this for a fact. So, with this kind of regime that we are on one side, we are import based, on the other side, we call ourselves agri-based economy and agriculture-based country.

So, there is a conflict between the two. And very rightly said, the speaker before me, Mr. Ali Rathore, that how we have reached here. It also reminded me of a report done by Dr. Kesar Bengali, the Karachi-based economist, the 25 years of roller coaster of economy.

It's just not happened overnight. And we have not reached here in a few months or a year or like this. So, maybe past four decades or maybe more than that have brought us here where we are today.

And then when we come down towards our other crops like tomatoes, onion, all the Punjabis, potato rich and potato surplus, but the perishable items, which was rightly pointed out, perishable items, they go waste like 30% or even more than that. And how what we have done so far and then on the other side, if we look at the world, the agriculture modern world or advanced world, it has gone up to bio farming, mechanized farming, shed farming, tunnel farming, multi-story, multi-layered farming. So, it's doing wonder on the other side.

So, what we need to do is we need to bridge this gap because we have potential, we have agri-land, and we were used to be called a food basket, especially when you talk about Punjab, but it's all gone and it's all lost now. And how we can revive it, no doubt. Currently, we have seen, I would like to share a few steps that government of Punjab has taken in the past one year of its current government.

The Bank of Farmer Loaning, Kissan Card, a green tractor scheme coming back. And then the Kisan Card encompasses not only just loan, but it also provides a fertilizer subsidy. It also provides the other medicines, which are used in agriculture, the subsidy on that.

Then now we have also introduced Livestock Card because we certainly believe that the combination of livestock and agriculture will go hand in hand together. And then reaching out to the small farmers, because in Punjab, another thing we have done is a

mapping of the land, which is available, which has potential to grow crops, but which is lying wasted, which has never been addressed. So, where are those pockets of the lands and where are the small farmers and how we can give that land to those farmers, 5 acre, 7 acre, 10 acre, and how we can encourage that small scale farming for the local crops.

And then the CM also pitching the 3 billion budget to encourage tomato and onion crop to be grown more and out of season as well through the mechanized farming and how we can ensure it. Because from April to June, we get our own tomatoes and onion after we have to import it, either inter-provincial import, or sometimes we have to go to Kabul and we have to go to Iran and for the tomatoes and onions. And we have to go to KP, we have to go to reach out to Synth.

And then because I look into the commodities, supply chain management. So, when I was trying to give a focus on it, like how the dips come in and where are the seasons when the Synth is growing, when the Punjab is growing and in between the two weeks dip is a must. When you shift one crop from one place to another place and you go on to import mode.

So, how we can manage that and how we can go into the tomato if we are, we have potentially, we are a tomato rich agriculture land, we do have. So, how we can go into the further processing of it and how we can introduce processing plants and why can't we have full storage? And if you talk to me, like you ask me in a current scenario, we are insufficient even in full storage, even in processing units. And then on the other side, the world is, you know, going away, far away from us.

But we still see examples in individual pockets, in terms of not only in tomatoes or onions, but in poultry, we have gone, we have seen K&N model, we have seen Sabroso model, they've gone into processing, they've got into export as well. So, and we have gone into meat export as well. So, if we can do that, so why not we can be a crop sufficient, crop surplus, why can't we bring back all these things? For this, I would like not, I don't want to take too much time, but I think we need to focus on two, three things to my understanding.

One is increasing yield, seed quality, how we can work on seed germination and seed quality, how we can ensure that. And then the yield per acre, you rightly mentioned about the wheat yield per acre is quite low. What is happening right now, naturally in areas where the land has this capacity to give us better yield, the wheat yield is better.

But in a natural flow where the land has low yield capacity, we have not done anything. We have not even, you know, thought about it. What we do is we just make an average, and we are happy just to bring an average every year.

This is the average. But why not to mention something? Why not to work on it? Why not to improve the yield? And what we can do towards this, and secondly, how we can make a sustainable supply chain model, why can't we bring it in here and link it with the local market, interprovincial market, and probably then the regional market as well? And secondly, I would like to take this opportunity because I see a lot of investors are sitting here in this conference, and I take this opportunity by sharing with you that this

current CM, Punjab Mariam Nawaz Sharif, she has also introduced a much advanced governance model and governance structure to make business happen easily, the ease of doing business, not just for the sake of saying. What happens is when the investor wants to come in, the tedious and cumbersome process of starting business or investing is one of the major hindrances for an investor point of view.

For that, we really want to shift it over to SWIFT and T model of investment. If you are an investor, you want to invest in Punjab, you plan today and you can begin tomorrow, just to make it that easy in SWIFT. And secondly, we have also done in Punjab restructuring of our departments.

For example, what usually has happened, if I give you an example of my commodities management department, how it has evolved, it's a new department which is raising from scratch before the commodities dealing departments like livestock, agriculture, food department, and industries department was scattered all across. So, if you want to intervene, you have to go through all these five, six departments and there's a slow processing. Now, all the essential commodities are under one group, that is commodities management department.

So, you find your food quality assurance department authority, food department authority, you find your food department, you find your livestock department, you find your agriculture marketing authority. So, you find your market linkages, you find your consumer protection. So, it's under one group now to make it effective and efficient.

The same has happened in other areas, these kinds of structural changes. So, these are the things that I think we also need to share it with people like you. And I think this kind of conference is an opportunity that how we can tell you.

And in the aftermath of this conference even, I would like to, first of all, I would like to congratulate Mr. Kazim and his team for inviting me here and yet again, organizing this kind of much needed conference. And secondly, in the aftermath of this, probably we can explore and open up more opportunities in terms of focusing Punjab. Because when it comes to agriculture, we cannot ignore Punjab.

Punjab has huge potential and it is an ingredient land. And one more thing that we need to do is probably is zoning, crop zoning. Now is the time that, and because the Kisan card, the wheat crop, and we need to go into further detail of zoning, like which part of the land are more conducive, have more potential for a particular crop growing and crop sowing when it comes to weather or when it comes to season and where more potential lies.

So, if we further zone it and then we send our subsidies or our investment targeted to those areas with well-defined crop potential. So, I think we can have better results rather than going to random. So, this is another further process that we are into through this mapping.

And I would also like to cite an example, because last year was the first year when Chief Minister of Punjab, she led in this wheat sector coming out of procurement, which was a big decision because it wasn't happening before since ages in Pakistan. So, when the

government came out of wheat procurement, there was a hue and cry that maybe the farmer would be, this would be a discrimination with the farmer, a farmer would lose its interest to sow wheat again. But we have not seen that happen in this year.

Currently, Punjab wheat sowing is, so far, is between 16 million to 17 million acres. So, I think which is not alarming. The government of Punjab is encouraging not only wheat, but also we have been encouraging canola, sunflower, soybean farming and sowing.

And we have done successful experiments in this. And we're also moving towards shrimp farming and a lot more. It's not just staying to one thing, sticking to one or two or three major crops. So, I would like to welcome, I would like to invite all those who are interested to invest in, to look into Punjab. You can, after this conference, you can contact me, you can reach out to me.

We can connect you and we can open up this entire forum. And then, you know, the ultimate, I think, translation of this conference, probably, I look into it like we can make it economically viable country for our people, for our population and socially livable and personally enjoyable. So, probably to make it happen and to make it a climate resilient country, we need to go definitely hands in hand.

We need to join, you know, we need to open up a public-private partnership model. We need to have investors coming in and we need to offer them a conducive environment. So, whatever in this area or in in this regime, whatever possibly we can do, you are more than welcome to get back to us.

I will definitely ask Kazim after this conference that I would like to meet many of you who are present here from different sectors I've seen and have gone through the program in very much detail. So, wherever there are potential partner or wherever they are, I would like to meet you all. Probably, we can have separate meetings after this conference.

It's just a beginning from the Punjab side and I think it's an opening. So, with this, I would like to thank all of you because I've already taken a lot of time. And on behalf of my department and my secretary, Ajmal Bhatti Sahib, who is also working here and working with me and we invite you to contact us, to reach us or we will also reach you in person on organization base and individually.

With this, I thank you all.

Session 1: Presentation for Adamjee Insurance by Dr. Zeeshan Haider

Dr. Zeeshan Haider: “Crop insurance stabilizes the farmer's income. Once a farmer said, a storm can wipe out my crop, but insurance gives me the strength to plant again.”

Assalamu Alaikum. It's an honor to be here at Pakistan Agricultural Coalition with esteemed experts in the field of agriculture. A big thank you to the organizer, Mr. Kazim and his team for bringing us together to discuss the challenges and opportunities in agriculture.

I am Dr. Zeeshan, representing Adamjee Insurance Company, a leading provider innovative crop insurance solutions. Today, I will be discussing the role of Adamjee Insurance in sustainability of agriculture in Pakistan. By the end, I hope to leave you with the insights on how we can work together to protect farmers and ensure the food security for future generations.

Let's begin with the introduction of Adamjee. 1960 was the year when Adamjee Insurance was established. And in 1972, Adamjee started the overseas operations in UAE. Very important in 1983. About 40 years ago, we started Livestock Insurance in Pakistan. Then in 1991, Adamjee became the first billion rupees insurance company of the Pakistan.

And now in 2024, Adamjee is the first general insurance company with 50 billion premium in the history of Pakistan. Further to this, our product and services we are providing in general insurance, fire and property insurance, engineering health insurance, marine motor insurance, and miscellaneous insurance services. Our presence across Pakistan, in every major city of Pakistan and in UAE.

Next, our accomplishments in the last four years. Most sustainable general insurance company award by the Global Economics in 2024 for Adamjee Insurance. Now, let's continue with the innovative agriculture insurance.

In Pakistan, agriculture is the backbone of the economy. Agriculture contributes about 20% in Pakistan GDP and agriculture generates about 37% employment for the population of Pakistan. Agriculture is a source of providing raw materials for textile industry, for the food industry.

Agriculture also contributes in the exports earning the products like wheat, rice, cotton, and vegetables. They are the significant part of the Pakistan's export. Agriculture ensures the food security and also is a source of supply raw materials to the textile industry and the leather industry and the sugar industry.

Agriculture contributes to rural development as majority of the Pakistan's population lives in the rural areas. Livestock and dairy sector is most important part of the agriculture and it contributes 61% of the agriculture and 14% of the GDP. Livestock plays important role in terms of milk, meat, leather, and other products as a byproduct.

Now, let's look at the challenges the farmers are facing in Pakistan. Water level is depleting day by day and due to the climate change the irregular rainfalls and poor water management is a key challenge for the farmers of Pakistan. Climate change, natural disasters.

As we know, Pakistan is the top 10 countries which are most vulnerable to the climate change. So, rising temperatures, heat waves, unpredictable weather patterns like hailstorms and heavy rains, they are major challenge for the farmers of Pakistan. Pest infestation and plant diseases are also a threat for the Pakistani farmers.

Limited access to the modern technology, due to the lack of technology, not using the technology are focused on the traditional practices. They are also a challenge for the farmer community. Market and poor infrastructure and especially poor harvest losses, like poor storage facilitations and insufficient processing of the products, agriculture products, they are the challenges to the farmers.

What is the role of insurance? The role of insurance in mitigating the risk for the farmers, insurance. Insurance provides protection against the natural disasters. Insurance also safeguards against the plant diseases and pest attacks.

Crop insurance stabilizes the farmer's income. Once a farmer said, a storm can wipe out my crop, but insurance gives me the strength to plant again. Here, I would like to highlight the role of Adamjee in agriculture insurance.

Our mission is to protect the farmers and agribusinesses from financial losses. And our vision is to be leading provider of innovative agriculture insurance solutions. In crop insurance, starting from 2007 and floods of 2010, 11, 13, 14, and then drought of 2018 in Sindh province, the flood of 2022 across the Pakistan.

From 2008 to 2024, we have covered about 2 million of the borrowers and Adamji insurance paid 3.8 billion rupees of claims to the financial institutions under crop loan insurance scheme, which is the highest number of claim payment in Pakistan from any insurance company. As livestock is a vital part of agriculture, if we talk about starting of the dairy industry in Pakistan back from 2007, dairy industry, the imported animals and the dairy sector was supported and is being supported by the Adamji insurance. And we have paid 2.5 billion rupees of claims under livestock insurance to the financial institutions and dairy farms.

As we know, the extreme weather events have increased by 83% in last 20 years. And crops are highly vulnerable to the extreme weathers. Protect the crops.

There is a crop insurance. And in Pakistan, currently there are two types of crop insurance. First segment is the government subsidized segment.

Under this crop loan insurance scheme, which is PAN Pakistan. And second is the Punjab Fossil Bhima, which is only for Punjab province. In private sector, some area yield index and weather index products are in pilot phase.

So let's continue with the crop loan insurance scheme. This is scheme by the State Bank of Pakistan. And it covers the subsistence and economical borrowers.

The natural perils are covered in case of any calamity, natural disaster claim will trigger. Government competent authorities will issue the notification for the calamity affected areas. And this scheme has the maximum indemnity limit.

The insurer liability is the 300% of the premium. That is the maximum liability. Now let's take a look at the innovation in crop insurance.

Adamjee Insurance has introduced a new product, which is a crop input cost insurance. What is a crop input cost insurance? The input expense to be given to the farmer in case of claim. And the beauty of this product is, a single farmer can avail this insurance coverage.

That is a crop input cost insurance. In this product, we are focusing the small farmers with minimum level of cultivated land that is acre. And the sum insured for the crop per acre is the limit set by the State Bank of Pakistan.

This is individual based claim scheme and rapid claim payment to the farmers. The coverages are for the natural calamities like flood, heavy rain, frost, hailstorm, drought, heat wave, cyclone, pest attack and plant diseases. The covered crops are wheat, sugarcane, rice, maize and the potato.

Thank you very much for your time and attention.

Session 3: Investing in Agriculture for Growth at scale with the World Bank Group

Speakers:

Mr. Matteo Lagatti, Senior Agro-economist, FGM International

Mr. Bilal Sidiki, CEO, Terra Crop

Mr. Ulughbek Rahimov, ESG Manager, Indorama Agro LLC

Mr. John McGillicuddy, Agri-Commodity Consultant, IFC

Ms. Ashraf Boujiana, IFC

Mr. Muddassir Shafique, Agriculture Lead Upstream, MCT Region, IFC

Session 3: Investing in Agriculture for Growth at scale with the World Bank Group

Ms. Ashraf Boujiana

Thank you. Hi, everyone. Thank you all for joining this session.

Thank you, Kazim, Rabia and the rest of the PAC team for their really good organization and their support organizing this session. The World Bank Group is really proud to co-host this event today. And as a result, you will hear a lot from us.

We are starting today with this first presentation on corporate and contract farming in Pakistan. The session will be in two parts. The first one, there will be a presentation on the findings of the IFC report that we finalized last year on this very subject.

I know a lot of you have actually helped us when we were going through our fact-finding missions on this subject. And we are very grateful for all of your support. And we are very proud to be able to present the results today.

The presentation will be shared, so please just focus on listening only. And then after that, there will be a panel discussion where you will hear from several stakeholders who have first-hand experience of developing such projects both in Pakistan and abroad. So we have a very packed and very rich agenda for you all.

So as a note, we will not be taking questions as we go. But instead, we have reserved a good amount of time at the end of the panel discussion for all of your questions. If there are any questions that do pop in your mind during the presentation or during the panel discussion, you will be given a QR code where you can input the questions.

And I will be able to share them with the panel, with the speaker at the end of it. If your question is addressed to a specific speaker, you can write their name, and I will know to address them specifically. And now, without further ado, please welcome Matteo Lagatti, a senior agro-economist at FGM International, who has led the development of this study for the IFC.

Interactive Session & Quiz by the World Bank

Mr. Matteo Lagatti

Thank you, Ashraf. Thank you, everybody. Thank you for having us here and giving the chance for the second time to present our study and the work we've been developing with IFC during the course of the last year.

Mr. Matteo Lagatti conducting the interactive session for the World Bank.

And today I'm going to do a really bird's fly over the corporate and contract farming sector in Pakistan, starting with a little bit of a structural and challenges of the national food sector. How large-scale farming can help solve those challenges, the state of play, sorry, a little bit on the contract farming in Pakistan, and a couple of examples of ongoing experience internationally and nationally. We developed during the study a couple of farm models in order to see, you know, what could be a CAPEX structure and a profitability, and then we conclude the study with a little bit of what we gathered from the interviews and what we saw in the country as bottlenecks and missing links to develop fully the sector.

First of all, a little bit of housekeeping. You can scan the QR code that is on the screen if you want to ask some questions. You will see two sections open.

One is the QR, and the other are some quiz that we prepared to introduce the various sections of the presentation. I'll give you a few seconds to do that, and then I'll jump on the other slides. So basically, we prepared the quiz where you ask your opinion or we test your knowledge on the agricultural sector, on the impact of climate change, and on the components of the corporate farming.

When I see nobody with the phone up, I will go further. Otherwise, no point in showing it. Okay.

Ten seconds. So you can now join the quiz, and you will see on your screen the question. Pakistan has a total cultivated area of 22 million hectares.

How much do you think is estimated the culturable wasteland that is in Pakistan, meaning the land that could be cultivated but is not currently cultivated? And I'm waiting for some answers from you. No one voted. Anyway, let's go on.

Pakistan has 9.1 million hectares available for cultivation that are currently non-developed. This is allocated differently among different regions, and the most, you know, allowed, the most of it is in Balochistan, but it's spread all over the country. Since 2000, the government has started the process of setting up a regulatory framework in order to govern and allocate this land for corporate and contract farming activity.

In terms of challenges, of course, climate change is one of the most important, and following the literature, we isolated seven key impacts of climate change, increase of temperature, water scarcity, yield reduction, extreme events, drought frequency, and the shift in growing season of crops, and of course the shift that goes with it of the disease type and distribution. These are just a couple of data on climate change. The graph you

see is the deviation temperature that is expected from the main climate change models in the course of the next 75 years.

We are now, compared to the 60s, almost half a degree above the average temperature, and everything is expected to go between 4 and 6 degrees in the next 75 years. These all have an impact, of course, on agriculture, especially on yields, but also on water availability and on the condition under which agriculture is carried out. I have another little question for you, which is, by what percentage do you think wheat yield will be reduced up to 2080? What the model says on that really, really important metrics for agriculture.

Half of you responded 27%, and the rest is split between 11 and 43. Let's see the answer. The correct answer is 27%, and this is an estimation, of course, gathered from the Woodbank Climate Change Knowledge Portal.

I added also the same prediction for rice and maize, and you can see maize is a high water demanding crop, and of course, under this condition, the drop in yield will be much higher than what is expected on wheat. So, we've been hearing the presentation before mine, and the speeches before mine, talking about yields. That's the reality, probably, that Pakistani agriculture will have to face in the coming 70 years.

Another important aspect is the incidence of floods, or extreme events in general. We've isolated here floods, and you see that from the 70s to the 2000s, there was a big increase of events, and only in the 2020s. So, the last part, 19 events have been already recorded in the first four years, because this was done last year, and we have to remind the 2022 floods that displaced almost 10 million people and caused a lot of damages across the country.

These events are more frequent, and of course, it's something that has to be dealt with from a general point of view by the agricultural sector. What can large scale farming do compared to those challenges? Of course, in terms of production, the economies of scale that they can bring is really important in increasing yields, in using better the farm inputs, and in using modern mechanization and bringing forward new technologies and advanced ways of managing the mechanized part of agriculture. Counterbalancing this, there is a little bit of a lack of skill and manpower in order to manage this modern technology at all levels of the farm, from the machine operator to the management.

Managing a large farm is not simple, and it needs to be done by someone with a lot of experience, and that really takes care of the farmers as if it was their own. In terms of sustainability, the efficient use of resources is enhanced by going large scale, and the contribution that they can bring to food security is really important in terms of volume and also of quality of the products that they come to market. And of course, through the better use of resources, there is indeed a powerful contribution to adaptation to the climate change that we've seen so far.

In terms of market, going large scale, it could open interesting markets for the Pakistani production. Of course, we have to look at the national demand, but there is also exporting opportunities that can be exploited, and going to produce in those wedges in which national production can substitute imports of feedstuff or food that comes from

abroad. And of course, operators, food transformers, food processors in the country can indeed go into large scale farming in order to secure their sourcing and stabilize a little bit the prices that are not as volatile as might be in the global market.

And indeed, contribute through contract farming to the rural livelihood, proposing innovative crops, innovative solutions to small holder and medium holder farmers across the country. And finally, a big contribution on innovation on the possibility to select your own certified seed, and this needs to be addressed, of course, from the regulators to make it a little bit easier to make certified seed access the Pakistani market. The digitalization of operation, the continuous monitoring, weather monitoring, soil monitoring, water management can be enhanced via the large scale economies that large scale farming provides.

And of course, going forward into the innovation, bringing in elements of precision farming, GPS tracking of tractors, of harvesters, and so on and so forth. Another little question for you. How much do you think of the cultivable land that's been allocated to contract farming up to now? Let's see if you have a taste of precising how big is the sector.

4%. Let's see if the vast majority of you responded 4%, and you were right. 4% of it is allocated.

Only 0.4% with an error of estimation is currently cultivated, but 804,000 hectares have been allocated, which is 4% of the total cultivable arable land. We investigated during the study 17 companies, and the vast majority of them are either currently operating or have plans of expanding up to 18,000 hectares in the coming years. What do they grow, those companies? Well, I've highlighted four groups of crops, if you want.

Wheat and corn, of course, staple commodities in the country. Sugarcane and cotton are the two most grown industrial crops, if you want. And then I would like to point out alfalfa and Rhodes grasss, which is an interesting development in recent years.

You know that Sudan was one of the biggest producers of alfalfa, and unfortunately the political situation depressed a lot that market in that country. So Pakistan took over some of this quantity, and they are mainly exported to the Emirates country, which is one of the most profitable markets for that kind of crop. So those kinds of experiences are exploiting and exporting opportunities that are generated in the market due to, in this case, geopolitical and political conflicts in a key producing country.

Now I would like to present a couple of examples. One is international, Al Dahra, and the other one is a national sugar processor, Al Moiz. Two different models, corporate and contract, diversified production in the case of Al Dahra on a 43,000 hectare farm in Egypt, irrigated by center pivot in a climate that, of course, is similar to some areas, for example, in Cholistan desert, are similar to the condition you can find in Pakistan, and is, of course, channel irrigated with the water from the River Nile.

What they exploited in this farm, they started with an export opportunity in alfalfa, as we saw somebody is already doing in Pakistan. And then they catered also to the domestic demand and to other exporting demand, like in the case of mango, citrus, and

grape. So this is an example of a farm that started with a precise mandate to grow alfalfa for the production, and then expanded and used their land in the most profitable way.

We're not talking about a small example, 43,000 hectare is a pretty big farm. On the other side, we have Al Moise, which is one of the most successful contract farming experience in the country. They grow sugar beet and they source their own sugar beet for their own factory.

They do it more or less in 10,000 hectares, which is, let's say, 4,500-5,000 farmers in the KPK and Punjab. The irrigation system, of course, is diversified across the farmer spectrum. The climates are sometimes similar, sometimes different.

It depends on where the farmers are located. And the main objective is to source the raw material for their own transformation. What have we done? We isolated these two examples.

What are the success factors and what determines those successes? In the case of Aldara, it's a core export-bound cash crop production, so with a clear investment rationale. They've been able to diversify and to follow the market signals along the year. And one thing that has to be said about this farm is that they're privileged and they've been, from day one, started with really high operational and, you know, excellence, investing more than farming.

They had a huge problem of soil leveling, for example, in that farm and salinity of the soil that they managed to solve with continuous testing and continuous monitoring. On the other side, the success of Almoiz is mainly due to a good relationship with their farmers. Payments are timely and remunerative for farmers.

That's why they designed really well their contracts and they communicated really well their intentions to the farmers. On the other side, they have a partnership with seed producer, KWS in this case, and they also provide farm inputs to the farmer. That's really important.

That's one of the most attractive bits of the contract for the farmers. They can access really high-producing quality, so high tonnage, high volume and high sugar content on their sugar beet, which means good pay at the end of the season. We developed, and I'm going really quickly, a long set of guidelines.

You can find it in the report if you have access to it. And here we have summarized a little bit the toolbox that those contract farming and corporate farming should have when they start, develop and maintain their project. Realistic and coherent investment, rational, avoid unbalanced approach, maybe start with a key crop and then develop according to the market signal.

And have always the knowledge of your markets really, really well done and really, really dedicate, invest resources on that because it's fundamental if you're operating in such a big market. Design the farm in a way that responds to those objectives in terms of investment. Diversify the crop as much as possible, giving to the fundamental resource in this country, which is water, the right value along the year.

Always leave room to new processes and new crops, test new varieties, develop your own varieties. On the other side, in contract farming, a clear and fair set of rules understandable from everybody is fundamental. You would like, you know, it's really good to propose an innovation, the seeds in the case of Almoist, but there are other examples in the country, PepsiCo and others, that are proposing also innovative varieties.

The rules clear for everybody and transparent reinforced. Start small and try to balance your growth. Don't go immediately to a number of vectors that you don't know how to manage.

You don't know the nitty-gritty of the agricultural production, what will be on the everyday farming. Allow time for the implementation of the project and invest in crop testing, investing in your own varieties and your own seeds. Developing a pilot farm is always important in both cases to see exactly.

I mean, on paper you can make everything you want, but you have to make a trial to see if it really works. And in the case of contract farming, try to catch the fidelity of the farmers through good input provision, good seeds provision and attractive contracts. In terms of operational, it's good to have a good anticipation of what's going on in the farm, having always at hand the succession of operations that has to be performed and fixed access maintained.

Of course, for certain commodities, if not for all, investing in post-harvest solution is really important because some of the farms and some of the production areas are really far away. So you don't want to have too much post-harvest losses. And of course, keep your product viable until they reach the consumer stage.

We developed three possible models and the deciding variety is the amount of water that you have in the first two cases. And then a third one in already exploited land. So the first two models are relative situations like new exploited land in a desert area or in a not exploited land.

The first case, the rationale is to maximize the water available for the production of fodder. For export or for national consumption. The second case, we imagine that we have a little bit more water so we can include corn in the rotation.

And in the third case, we have a base commodity production in which we have contracted to farmers some more value-added production like cotton, camelina, which is a leguminous that is really good for oil production. And in the second case, rhodes grass and mice grain are the core of the rotation, the crop rotation. And in the first case, rhodes grass and wheat that can of course maximize the use of water resources.

The project has been designed to have more or less the same amount of money spent. We are in the range of 35 to 38 million US dollars. This is because of course then we have to compare the results.

And if we would have made a project of 1,100 US dollars and one project of 5 million US dollars, that would be not comparable. So this is by design implemented like this on 1,500 hectares of total surface. And now, what do you think is the average payback

period for those investments? And let me see if we are realistically in tune with an investment in agriculture.

So, a little bit of a split, three years, seven years, 15 years, and of course 30 years was the hard question. The answer is seven years on average. And Yasser won it, responding fast to it all and responding correctly to all the questions, probably.

And this is a little bit the financial analysis. I reported the capex per hectare that of course is more or less balanced across the different farms. The ROI, which if you include of course more diversified production and high added value production, you can reach a little bit higher, 17%.

This is due to the productivity of corn, of course, and 15% is the good prices that you can have for camelina, for example. The payback period, you see it is between, in a large range, between five and ten years, depending on the production and on the farm. And the return on free cash flow is more or less balanced.

Of course, the less you spend in fixed assets, the more you can have a good return from that point. Here, a little bit of a comparison to see if the payback period, especially, not so much the other. Those projects are more or less in line with what we see from other experience in other countries.

This slide is just to say that yields are the most important variable. Since the analysis was performed, you can gain a lot in the financial analysis. You can get a lot in terms of payback and return.

And just to conclude, I'm going to zap this. At the end of it all, we have done a wrap-up on what are the bottlenecks and the missing links in terms of infrastructure. Water distribution in some areas is still to be seen how it will be done.

Utilities also, electricity, gas, for example. And there is a problem, there is an absence of big logistic infrastructure. In terms of regulatory, the first one is water pricing, how much this water will cost.

It depends on how do you bring the water there. How you can register new certified seed. There is a lack of certified seeds in the country.

Not so much for rice, but for the rest of the crop. There are really big import tariffs for machinery. That, in our opinion, should be dealt at national level and not left case by case for each investor.

And some of the companies we interviewed complained about a taxation policy that is not fair between smaller farmers and corporate farming. In terms of missing links, a detailed policy for the sector is still in development. Then the location now is, let's say, various models are competing, various ways of doing it.

And this is something that needs to be a little bit structured into a more coherent approach. There are institutional conflicts in terms of water allocation between the federal, the regional and the local governments. That are, of course, lengthening the time to build and to make those infrastructures viable.

And then, in terms of market structure, we heard about crop insurance. We can add to that, there is no crop insurance for, I mean, there is crop insurance for smallholder farmers, but at this level of scale, it needs to have specific products and tailored products. In the future, there might be the need to have a little bit more efficient future market in order to edge those big productions.

There is a problem of storage and distribution across the new areas that are meant to be put into cultivation. And last but not least, as I mentioned during the presentation, getting a good farm manager, getting a good maintenance operator, getting a good machinery operator, is still not at the level that it should be and that there is in other counties. Those skills are costly and probably implementing a training in your farm would be the best solution for the moment.

And then, with time, as experience goes up, you will have a little bit more skilled and experienced, especially farm manager and crop manager. That's basically it. I hope I haven't been too fast or too slow.

And thank you for your attention. Thank you all for your attention and thank you,

Mr. Mudassir Shafique

Welcome to today's panel discussion on corporate farming. We have a diverse group of panelists, including corporate farmers. International agronomists, ESG specialists, and agriculture economists.

So, let's get deeper into this topic, which is corporate farming. And Bilal, I will start with you. So, what are the benefits of your corporate farming project? And how do you think that others can follow this model? One, and secondly, how this project can attract banking sector to finance such kind of large-scale farming projects.

Mr. Bilal Sidiki

I think one of the biggest benefits that we will derive out of this project is that basically we will give banks and the institutional investors visibility and data. And we hope that this data and visibility will translate into banks opening up lending to this sector.

Farming is, it's a capex-heavy business. And farmers cannot basically deploy this capital, especially for irrigation equipment, which costs a lot of money, you know. So, I think one of the challenges is that we need to open the banks up to finance the agri-sector.

And we hope to provide that blueprint, the data, the credit scoring, and the vision for the banks to open this sector up. So, wherever we are, let's say, putting one pivot up, we hope that within one year, with the data that we've collected, we will be putting up ten pivots via the banks for other farmers. And that's the journey we want to take.

Mr. Mudassir Shafique

I have a different question from you, Maria. Fatma Fertilizer is part of a big consortium, which is currently developing 50,000 acres of corporate farming. What do you think that, what is the motivation behind an input company to get into a corporate farm? Thanks.

Ms. Maria Saleem

Thank you, Mudassir, for this question.

So, first of all, I would like to start, you know, alluding on to the fact that, you know, that's a wonderful presentation by Matthew. He has highlighted some of the very critical elements with regards to corporate farming and has given us a fairly good structure to think about corporate farming from a third person's angle. So, thank you so much, IFC, for arranging that.

I would like to allude to the real challenges in the agriculture sector. And, you know, Matthew already alluded to that. First of all is the growing population, which is in turn increasing the demand for food and feed, you know, for Pakistan.

And as per our estimates, the agriculture sector is required to grow up to 7% to meet this growing demand. Now, this, in a way, was the opportunity for the development of the agriculture sector, but also carries an inherent risk of increasing food security for Pakistan. So, the real purpose of a group like Fatima and its consortium members to enter into corporate farming is to bring the advanced technologies related to agriculture within Pakistan, whether it's related to mechanization or irrigation systems or agronomic interventions.

And to be able to showcase the real impact on yields at a scale that is acceptable for the farmers. And in turn, what will happen is a triple down effect where the technology will be accessible, the knowledge of its usage will be accessible to farmers, given the scale that we already have reached through our fertilizer business. So, that is the real motivation behind it, is to be at the helm of the agricultural transformation in Pakistan.

So, we have our four target areas. The first one is producing more with less, and Mathieu already included some of those factors that can deliver such a success for areas that we are focusing on, especially reduction in import bills to focus on crops that have export potential, as earlier mentioned, in terms of forages and oilseeds. And I think one of the biggest impacts that we intend to create with this particular initiative is the engagement of communities to build their capacity and set them for success for the longer term in the agriculture sector, all while conserving the natural resources while we achieve all of the above.

So, I think that's the real motivation. We want to drive this agricultural transformation for the Pakistani agriculture industry, because we do see that these challenges are going to spur up and somebody has to take the lead in it, and we would like to do that as a consortium and as a department. Thank you very much, Maria.

Mr. Mudassir Shafique

So, Ulughbek, coming to you, tell us something about Indorama Contract and Corporate Farming Project. What were the challenges faced in the initial years of farm development, and how Indorama incorporated these challenges into opportunities?

Mr. Ulughbek Rahimov

We have Indorama Project. This is in Uzbekistan. This project has corporate farming, 50,000 area, and around 25,000 area contract farming.

We are working directly with the farmers, and the farmers grow cotton on behalf of us. So, in Uzbekistan, the agricultural cotton sector was, before it was like under state-led system, where the state provided from seed up to marketing, all the processes before. This is crop allocation, seed variety control, provision of the financing and inputs, and also subsidizing or reimbursing pump and irrigation water up to the field.

And now that process, the garment is slowly moved to the market, to the private sector, and the whole cotton sector is now under the private sector clustering. We have the system clustering system in Uzbekistan. This is where private sector do cotton product processing.

So, in that process, Indorama also participated, and we were one of the first agricultural producers introduced modern technology. We introduced the foraging experience and other old practices. This is one.

And at the same time, we are working with 1,000 farmers. We are leading them, we are guiding them, starting from the cotton variety, characteristics of the cotton variety, up to buying the cotton from the farmers. So, this is about the project, and yes, challenges and difficulties are a lot.

This is not linear, as you can hear. The first challenge was in introducing the modern technology. This modern technology is a good machine that is used in a properly leveled land, which was not there in Uzbekistan.

And if you have a machine but you can't use it, there is low efficiency from that. So, what the company did, we did, we do a redevelopment program. We combined two, three fields together, and we, under the slope, we leveled them.

This is one of the initiatives. Another initiative also is skilled work, I can say here, because the tractors and technology were used by the, I mean, 50 years old operators, not modern machines, and they should be trained on that. So, this is that.

And also, there is a government support as well. I mean, the company is also introducing various conservative technologies, water-saving technologies, and we are also here. We are also, almost 50% of the area is drip irrigated.

Again, there is an infrastructure risk, and because of the support from the government, we are doing that as well. Great. And the lease period for this, the carbon model is 50 years, right, from the government? This is, we started from 2018, this is five, six years.

No, but the total period is 50 years, lease period. This is interesting.

Mr. Mudassir Shafique

We can draw some similarities between Pakistan and Uzbekistan in terms of lease period. So, John, coming to you, I know you have 47 years of extensive experience working in different countries, right from US to Ukraine, Uzbekistan, and also Pakistan. So, I have two questions.

One, what are the critical factors in designing a large-scale farm? And second is, what challenges you observed during your missions in different countries? And plus, you also worked in multi-crop area, in corn, soybean, sugarcane. So, based on your experience, what are the challenges?

Mr. John McGuillicuddy

To address the critical factors, I think we'll start with the challenges, because you want to design your system to overcome the local challenges.

And mostly, one of the failures that I've observed is, in designing the system, we don't get a really critical evaluation of the local conditions, the soils. A big one, if you're setting up a large-scale farm in an arid situation, you need to focus on water availability, but you also need to focus on the timing of that water. When you, they might say, you know, especially in a situation where the government might be regulating the water, I would highly recommend you have a backup source for that critical day when you need the water and the government can't deliver it.

Also, when you get into water timing, recognize the physiology of the crop and how the local conditions affect the uptake and the requirement. To use maize for an example, if you raise the temperature in the canopy of a maize crop from 30 to 35 degrees, you increase the water requirement by a factor of 10. So I need 10 times as much water.

And timing is critical. If, you know, 2 centimeters of water today might be far more valuable than 8 centimeters a week from now because it's too late. So that was one of the first challenges, is are you being critical of the available resources or are you being overly optimistic? And overly optimistic can hurt you.

A next issue is the training of the agronomic personnel who are actually going to have their feet on the ground in the field. The term we use at home is called knees in the dirt, you know. And that, when these large operations start, they forget that you're operating a farm, not a factory.

You don't have a roof over it. Your conditions are constantly changing. And agronomic decisions are not only local, they're conditional and they're temporal.

And every time the time changes, that decision changes. And some of the large operations I looked at, they were trying to write a textbook on how do you raise a crop. And the people in the field knew what the book said, but they couldn't read the conditions in the field that would modify that.

So, you know, they would say, you're going to field cultivate this soil four inches deep. Well, depending on the conditions, four inches deep may be way too deep and it may be too shallow. And the person in the field making that decision needs to have that skill set.

So, the one lesson learned in designing this system is who are your agronomic field personnel going to be? And you should invest in training their decision skills first and then develop your operating procedures from there. And the hard lesson has been,

you're going to pay for that training every year until you do it. Because if those decisions aren't being made well and timely, it's going to get expensive.

And overall, as an industry, we don't do a great job of teaching basic crop physiology. What is this crop trying to do today at this stage of growth? And then the next step is, those field personnel need to be empowered to make that decision. One of the problems I worked with in some very large operations in Ukraine was the decision ladder.

Mr. Mudassir Shafique

Thank you very much. So we can open up the floor for questions, if there are any questions from the audience.

Questions & Answers for the Session

But if you are interested, please do reach out to the team at PAC and they will share them with you. And another housekeeping item, there will be a video recording of this entire session for you to review and share with anyone in your companies that might be interested. Now, on the more technical aspect, Mudassir, you received a question on **what do you think is holding back contract farming from scaling in Pakistan?** Now, Mudassir, you can call on the panel if you want.

Mr. Mudassir Shafique

This is related to contract farming. So, I can maybe answer this question because we don't have much successful examples in Pakistan on contract farming. Matteo briefly mentioned about Al-Moiz and why the contract farming model is successful there is mainly because of the tight supply chain, because Al-Moiz is providing them with good quality seed, they are providing them with all the inputs, financing, and then they are buying it from the farmers.

So that's why, you know, this is a successful example in Pakistan. We don't see much examples from producing companies because they are not investing with the farmers, they are not providing good quality inputs. So that's why this field is still nascent.

But we see big corporates like National Foods coming into this space. And hopefully within the next few years, we will see more examples in this. Thanks.

Do all provincial governments have land lease policies in place for corporate farming?

Well, Ashraf, I'm not too sure, you know, about this, but what I can say is that the SIFC, which is being managed at the federal level, is working with the various provincial governments to make land available for corporate farming. I think this is a great initiative. This is what has sort of enticed us to come into this field and for corporate farming and for us to bring all this tech in and build the best in class teams.

We need scale. We can't do it without scale, given the admin costs that we incur to build these teams and build this. So, I think SIFC and the government of Pakistan have done a great job in actually promoting this.

And I do feel that this is the game changer for Pakistan. We need to take a few more positive steps and we need to build on this, build on these blocks, because if we don't, then we're pretty much going to be doing things the way we've been doing them for the last 50 years. So this change is coming about by what's been launched by SIFC and SIFC, to answer your question, is making all this land available to the corporate sector.

And as far as as far as I know, there are lands available in all the provinces which you can go and see with the SIFC. Another question we received from the audience is, should we target producing high value fruits, vegetables and livestock for export and import the low value crops? It wasn't up to you who takes the question. If I may.

Go ahead, Maria.

Ms. Maria Saleem

There are examples of countries around the world who have focused on such an approach with regards to importing the lower quality crops or produce and exporting high value crops. However, in case of Pakistan, with the growing population, obviously there is an increased demand for cereals and crops that go into food and feed.

And as a as a policy, we want to be self-sustaining in this particular aspect. So this would definitely take some policy interventions if you want to go that route. But at this point in time, because let's say wheat is the most cultivated crop within Pakistan and it is used by every single household, no matter how rich or poor it is.

It becomes extremely critical for us to cultivate going forward as well. However, what we can focus on and it's something that I presented in the last meeting at the Agree Connections conference, was that if we are able to increase the yield, per acre yield of the crops that contribute to the food security, obviously it can leave some land available for us to focus on high value crops and reduce our importers or improve our export for agricultural produce.

And that is one of the reasons why, you know, we talk about corporate farming is that we focus on crops and interventions, whether it's through mechanization, whether it's through irrigation systems or whether it's through agronomy, changes in agronomy, as rightly mentioned to the panel, we can improve the productivity of certain crops that are currently have plateaued within Pakistan. And then that would allow the farmers to opt for crops that are higher in value and then they can leverage that to improve their profitability for the long run. So, we can take a balanced approach for both.

But the first critical factor is to improve per acre yields of critical crops within Pakistan so that we have that kind of liberty to go ahead and focus on high value crops such as vegetables, fruits or livestock, etc. Thank you, Maria. There is one question in the audience now.

Assalamu alaikum everyone. My name is Bilal and I'm in the energy sector. So we look at the sensitivities of cost of feed gas when it comes to urea.

Last year, the KTK government increased the price of per mm BTU of feed gas from 400 to 1597 or something like 1600 rupees. And the cost of a bag of urea in Pakistan would end up somewhere around more than 5500. The question is to you, Maria.

Whereas India is giving subsidy on their fertilizer sector to the tone of 24 billion dollars. My question to you is that they are doing corporate farming. **Would they be able to compete in the international market for the exports?** Thank you.

Ms. Maria Saleem

Thanks a lot for you for this particular question. I'm not an expert on fertilizers and fertilizer business, but what I can respond to you is in terms of whether we are going to be competitive in the international market with regards to productivity or production of various crops that we are targeting from a corporate farming perspective.

As mentioned by one of our panelists that, you know, when you set up corporate farming or farming at scale, there are certain efficiencies that you can build with regards to your operations. As we talk about setting up these large corporate farms, we are talking about investing heavily into irrigation systems. We're talking about mechanization.

All of that will, while increasing our capital expense, also are reducing our operational costs and creating those efficiencies in terms of water use, timing, you know, the agronomic interventions that we intend to take, which will in turn impact the overall ROI for those particular crops that we are going to focus on. So while we are not just comparing the crop profitability within the country, we are also looking at examples from around the world of what cost of productions look like in different countries and how competitive are we going to be versus the rest of the world in the crops that we focus on. So I think that's a conversation that we'll be having two or three years down the road in terms of once we have concluded all of the investments on these grounds and build those efficiencies into our operations.

And that is where we'll be able to reap the benefit of the scale that we are targeting and then in turn be able to capture the markets internationally. I hope I'm able to answer part of your question with regards to fertilizer subsidies. That's not my subject.

So, I apologize for letting go of that part of the question. Thank you. Next question is to John.

Okay, we are basically a textile or cotton exporting country, value adding cotton. Now we are competing with India. We are competing with other cotton producing countries.

If our cost of and right now what is happening is that the cropping of cotton has gone down tremendously and the textile sector is importing because I work with the textile sector, the tycoons here, and they are importing a lot of cotton, the coarse cotton that we require to value add in our spinnings and decomposite units. If we rely on imported cotton and we are unable to produce comparative cotton in the country, what happens to the sustainability of our textile sector? My question to everyone over here. John, please, can you answer? **So the question is, you're importing cotton instead of growing it and how that affects the sustainability.**

Mr. John McGuillicuddy

I'm kind of a free market person. Not everything grows well everywhere. And the one lesson we've learned at home is let the farmer make the decision on what he can grow the most profitable.

And that brings in the most revenue to your economy. And the same issue with urea. If gas is expensive here, it's pretty easy to bring urea in a backhaul grain ship if you're shipping rice outward.

I really think that if you open up the world to your farmers, you let them be profitable, they will answer a lot of these questions for you. And that's definitely been our experience at home. And that's one of the things I want to talk about in the opening session this afternoon.

But I also believe that nothing improves efficiency like competition. And, you know, as far as quality to the consumer, competition, efficiency, I don't believe any amount of regulation will ever come close to what competition can do as far as improving that situation. I'm predominantly an agronomist.

I spend most of my time growing stuff. I kind of let other people worry about the political things. But that's just an observation.

Thank you, everyone.

Session 4: How Pakistan can develop a national agri-commodity market

Speakers:

Mr. John McGillicuddy, Agri-Commodity Consultant, IFC

Mr. Shahid Tawawala, CEO, Meskay and Femtee

Mr. Khurram Zafar, CEO, PMEX

Mr. Agha Jan Akhtar, Progressive Farmer and Ex-Secretary, Agriculture Sindh

Mr. Abdul Rehman Warraich, SECP Commissioner Commodities

Mr. Adil Mansoor, Business Recorder

Mr. Shakaib Arif, CEO, Naymat Collateral

Mr. John McGuillicuddy

Mr. John McGuillicuddy: “If you want a supply and a steady supply, you have to allow the producer of that supply to be profitable.”

As you may have noticed, I'm not from around here. This is my seventh trip to Pakistan. We've been to Layyah We've been to Lahore. We've been up north looking at sugarcane production, corn silage, those kinds of things. First, I'd like to thank you for the hospitality that your country's extended me.

It's been a great privilege to have you and to invite me into your country to work with you on your agriculture. And I've enjoyed every minute of it. I took my first job in agriculture as a high school student in 1972.

At that moment, I knew absolutely nothing about farming. And it immediately became the most fascinating thing I'd ever seen. And I've been involved in agronomics and crop production now for over, I've been employed in it for over 47 years.

I've been in it for over 50. And I've never had a boring moment in my life. So I hope you share that passion because it's an interesting business to be in.

Okay. I was asked to talk about how you can develop a national agricultural market. I want to start with the why.

This is a quote from a gentleman that I knew really well. There will always be a job for the person that knows how to do something that is relevant and needed, but they will be working for the person who knows why it's relative and relevant and needed. I might be biased, but that was my dad.

He was a pretty bright dude. How you're going to do something starts out with why you're doing it and what you're trying to accomplish. And the word moonshot showed up several times this morning in the presentations.

And U.S. agriculture has had several moonshots. I work a lot in corn production. And one of the first moonshots was in 1920s when we started using hybrid seed corn.

Second moonshot was in the middle to late 60s when high quality commercial fertilizer became broadly available. And since those two moonshots, there's been a third one which came from 1975. And what I want to look at is what's changed.

What has changed in agricultural production in the United States during my career from 75 till today? Significant increases in yields, major advancements in mechanization and capacity, major improvements in both storage and grain qualities, dramatically higher surpluses for export, and the other thing that happened during this period was agriculture became a major driver and a major contributor to the overall economy. And the question became why? Why did that happen? What changed? So just to give you some perspective, these are images of what grain storage looked like in the 70s. This is a crib that a farmer would use.

At that point, that was corn that he was saving to feed his livestock. And during this period, we went from producing a lot of small farms with livestock to large farms that produced grains and then specialized production farms that were producing large volumes of livestock. The next step in the storage journey was a farmer's elevator, which was usually built by a group of farmers who would pool their money.

And this gave them access to rail transportation and access to bigger markets. Also, in the 1930s, we had a serious event, two serious events in the United States. One was the Great Economic Depression and the other one was the Dust Bowl.

So simultaneously, our economy crashed and our food production crashed at the same time. And the government created this desire that we had to maintain a food reserve. We couldn't get caught like that again.

And so the government became the holder of the strategic food reserve. And while that was a well-intentioned idea, it was incredibly badly executed. So they built government storage, these closet buildings and these bins, in the 40s.

And they weren't well designed. They were bought by the government, so they had kind of a one-size-fits-all buy it from the low-cost bidder. The grain storage you need in a cool, wet climate like Minnesota is dramatically different than the grain storage you need in a warm, wet climate like Alabama or a hot, dry climate like Texas.

And so they put a lot amount of grain in here. It wasn't their grain, so they didn't watch it closely. The storage wasn't good quality.

So the spoilage and the storage losses were severe. The other problem this created was it put so much overhead in the market that there was never a rise in prices. When the grain prices rise in the United States, it's because the market is uncertain about having enough.

And that's one of the key roles that a national commodity market does, is it signals to your farmers what they should plant. If wheat supplies are tight, the price will go up. That price will tell your growers to plant more wheat.

But when we had this national large grain reserve, that overhead prevented the prices from going up. So the farmers couldn't make any money growing corn, so the government was basically turning itself in a circle. They were holding the reserve that was depressing prices, and then they had to pay price subsidies to the farmer so it would be profitable enough for him to raise it.

And at the same time, they would pay him to idle some of his acres so he didn't have such a big supply. And the whole system was stagnant, to be polite about it. And so 1973, the Secretary of Agriculture in the United States said, we're going to get out of the grain business.

It's going to be far better if we do two things. One of them is let the people that produce the grain make money. If you want a supply and a steady supply, you have to allow the producer of that supply to be profitable.

So the government sold all their grain, they sold off all their storage facilities, the market responded, crop prices moved to a level where you could produce that crop and make money. And in the process, the farmers built their own storage. So we're now holding a larger grain reserve, but it's in high-quality storage that the farmer built himself, and it's his crop, so he babysits it.

So we don't have the storage losses. They're constantly checking these bins, making sure that that grain's in good condition. So this is where we end up now, and this is a typical grain storage facility on a typical farm.

The storage is the property of the grower, and the storage is maintained by the grower, and the grain inside it is owned by the grower. And when you own something, you take better care of it. During that process, the whole level of mechanization changed.

This was typical grain planting in 74. Over here on the right is in today's world. And those advancements, all of these advancements were driven by the simple fact that we let the people growing the crop make money.

Harvesting advanced dramatically. This is a two-row ear picker on the left, and that's a 12-row corn combine on the right. That machine on the right can shell about 5,060-pound bushels per hour, so 30,000 pounds, 15 tons an hour.

Transportation changed. In the process of shifting from elevator storage in local warehouses to on-farm storage, the grower began directly shipping the grain to the processor, and one of the things that did was the consistency and the quality jump. Some of the processors would pay a premium for certain quality targets.

I remember a really memorable day in my career was in the summer of 1981, and we had a group of Japanese grain buyers visit us in Illinois, and we were harvesting at the time, and they would climb up on the sides of the wagons and look at the corn, and the comment we got was, this is beautiful. Why can't we buy this? Because by the time it gets commingled with everybody else's and gets shipped, the quality would drop dramatically. And so that was another window to generate revenue.

So we've made a lot of these advances. Some of the biggest advances has been yield. This is U.S. national corn yields on the left in metric tons per hectare.

1974, average yield was 5.2 tons per hectare. 2024, it was 11.6. Now that's U.S. overall. We raise corn in some good areas.

We raise corn in some poor areas. Where I live in the Midwest is some of the primest soil we have. Our yields there in 1974 were about 7.53 tons.

Now we're up around 17. And interesting comment on that, sometimes high production and intense agriculture gets a bad name environmentally. The nitrogen rates per acre have not changed in that period.

We are now raising 17 tons of corn in the Midwest on an average rate of 160 kilograms of fertilizer nitrogen per hectare. That's almost exactly the same rate we were

running in 1974. But what we've done, and again, this comes back to creating a market situation where the farmer can make profit.

What do they do with that profit? Our farmers are the perfect economic citizen. Almost every dollar that comes into their operation goes back into the economy in the form of machinery, seeds, fertilizers. And any money that doesn't go back into the economy is very likely going to get invested in improving their own production.

And so what happened, the moonshot event in the 70s was when the government got out of grain storage, grain warehousing, and grain pricing, created an opportunity for the farmers to become profitable. All of these benefits came with it. The first one is the farmers became active players in the commodity trade.

Up until then, the farmer's elevator might be trading their own commodities and their own futures. Now the farmers do that directly. When the government exited the grain business, it fundamentally changed our world.

Those national markets are important because they send signals. We have the market, which is processors, millers, shippers, cattle feeders, chicken feeders. They know what they need.

And when the supply gets tight, they signal the producers, the farmers on the other side, to raise the production. When we had that large overhead of government-held grain, we had broken that production connection. Okay, the market never went up to tell, you know, the market couldn't say, we need more wheat because there was all this wheat in the production system.

And so that critical communication that exists between the commodity market and the commodity producer was broken. The thing that we really underestimated was the impact on the general economy. When farmers start making money, they start to expand their operation.

They start to buy more equipment. What they did to drive the economic growth of the entire country was staggering. And I think overall in Pakistan, your farmers are underperforming in what they could do for your economy if they were more profitable.

And that's where good price discovery, if everybody knows what the price is, and the price will vary by location and by local demand, all of those things happen. But if everybody knows what the price is, then they know they're getting a fair price. And when you get into all this, what are the key components of a successful farm commodity market? The first one is there has to be a lot of volume.

The less, the more participants there are in that commodity market, the more difficult it is to manipulate it. The other thing is it should reflect the real size and the value of your total production in that commodity. If you raise $100 million worth of pinto beans in a given year, and the market is trading $300 million worth of pinto beans, you have a bit of a problem.

You're not getting real price discovery. It also helps that two key groups of players participate. There's always going to be brokers and traders and speculators in a market.

That's why it exists. But if you have two groups involved in that market, people that produce the crop and people that mill or process the crop, that's where your real price discovery comes. OK.

You need an accurate and quality trading platform. And people have to trust it. You have to have rapid settlements.

You also have to have controls where people cannot invest money that they can't cover. You cannot have people taking a position, not being able to cover it, and having the exchange eat that. So, what are the requirements for success? One of them is grain quality testing.

You have to, we have standards for each grain. The reason for, and there's two things that have to be true about those standards. They have to be reasonably achievable by the producer, the person that grows the grain.

We have a standard for number two U.S. yellow corn. It's a standard based on the weight of the bushel. It's a standard based on foreign material, moisture content, those types of things.

The standard also has to be suitable for the miller on the other end. A friend of mine is an engineer and milling scientist and very good at it. And he would tell you that when it comes to grain, consistency is the most important thing.

I can set my mill to process a lot of variability in grain, but I can't keep changing it. So, whether the grain's super high quality or medium quality doesn't matter as long as it's pretty much all the same. Then you can deal with that.

You got to have uniform quality standards and they got to be enforced. Your traders have to perform on the positions they take. You have to have minimum deposits, minimum margin maintenance.

So, someone can't take a very bold position and not cover it because then the person on the other side of that position is going to have to eat it. And you've got to trust the integrity of that platform, that it plays fair with everybody. So, when you work on all of these things, excuse me, the key to a successful commodity market, one of them is the contract design.

Contract design has to accurately represent the realities of the local market. And, you know, we talk about spot trading. Spot trading's a very highly difficult thing to quantify.

Any grain sale involves more than just the price of the grain and how much. It's the price of the grain, it's how much, and it's where the grain is at, where it has to go, and when. And all of those things need to be specified.

A spot trade can be highly different in price because it's in a different location and it has to go farther. Those types of things. So, as you design trading contracts for commodities, where are your processors, where are your exporters, and where is it produced? What's the transportation system and the cost to move it from one place to the other? Improvements in warehousing and storage would be a big benefit here.

You also have to recognize the competition from import-export alternatives. And a big one, and this is going to be difficult because of the size of your farm. Your contract size has to be at a size that a high volume of your crop producers can participate.

Most farmers only trade about a half to two-thirds of what they produce. So, if a contract for wheat is three times what the average farmer's producing per year, that's going to be a difficult game for them to get involved in. So, when we look at this and where you're headed, some of the articles or the obstacles are here.

Small farm size. How do you get bigger farms, more efficient farms? Well, they have to make money. You don't buy more land and expand an operation that's not profitable.

That has to go hand-in-hand. Lack of storage, drying, the infrastructure, and the transportation is going to be a challenge. And I think that's where... I think what your economy or what agriculture can do for your general economy and what it can do to your export balance, trade balances, and stuff, I think you're operating at about 10% of what you're capable of.

I really do. You have to have consistent and clear regulatory practices. You know, we have rules in crop production at home.

The government makes rules. The one thing they do is they only negotiate a farm bill every five years. So, if they make a bunch of goofy rules that we have to figure out, at least we know they're going to be consistent for the next five years.

They're not going to change every year. Your current traditional practice puts a lot of separation between your crop producer and your end user. You have the Mandi, the local market.

You have the RT in the local market. You have warehouses, accumulators, and stuff. And if you streamline that, that'll be an automatic step to improving the profitability of your farm.

And your current markets are fairly informal and not necessarily transparent. You don't always know what's happening. So, that's kind of the challenge that you're looking at.

But I think the end result, if you execute it effectively, would be well worth the time. If you unleash your crop-producing farmers, let them make money, let them invest in improving their own operations, let them buy better machinery, better storage facilities, that'll be a major driver to your entire marketplace. I think I had 15 minutes, and I believe I'm right there.

Well, all of you just gave me 15 minutes of your life you're never going to get back. So, I hope it was time well spent.

Mr. Adil Mansoor

The agriculture sector saw 6% growth in 2024, which was the highest in 20 years. And the agricultural sector saw a 6% growth in 2024, yet it is now at the cusp of recession. We've already seen one quarter of agricultural decline and there is a forecast that the second quarter will also see a contraction.

We have landed in this current situation after multi-decade crises, first the pandemic, then the commodity super cycle, followed up with the sneaky manner in which the government of Pakistan exited the procurement function. We now know that that exit was as a result of the understanding with the IMF, for which I, at least personally, am eternally grateful to the Fund, because that opens up the opportunity for the private sector finally to enter the agricultural markets. So, in my opinion at least, the fundamentals are now in place.

We have the building blocks, the overhead of the government, as John spoke about in his presentation, is now leaving or receding the market, right? So, in your opinion, John, like you said, the development of the US commodity market was accelerated when farmers became active participants and the government exited its grain reserves function. But while this happens simultaneously, how do we make sure that the food security concerns of a low-income market like Pakistan are also addressed at the same time? The way it played out was that when you let the grower of the crop make money, they tend to bury you in it.

Mr. John McGuillicuddy

The growers are very good at seeing that opportunity and producing it. And when they're holding the reserve, the quality of the reserve is much more stable. So you don't need to keep as much of a reserve because you don't have the storage losses and stuff. And that way, what our carry-out is, and we usually have, we've had abundant grain supplies ever since this happened.

The only thing has shifted is if we have a tough year, our exports are a little lower. And all of that is regulated by market. The market tells us we have too much.

The price goes down. We raise something else. But what they thought was going to be a destabilizing event in grain supplies was actually a significant stabilizing event.

And so it's one of those things in life that you worry about, but it actually doesn't happen. So I think let your production system loose, let it run. And they'll do what the U.S. farmer does.

They'll produce so much, you won't know what to do with it. And then they'll shift gears and produce something else for a while. And the real benefit of a national commodity market, especially a futures market, is it tells them what to do.

It also allows them to secure the price in the future. If you just have a daily commodity market, you have a price today, but you have no idea what that crop's going to be worth after you harvest it. Where I can sell corn for December of 2025, I can sell soybeans for November of 2025 right now.

And right now, December corn's telling me that I should raise more corn. Well, if I make that decision and December corn drops, I don't have any protection. But if I use a futures trading option or a futures trading contract, I can actually secure some of that higher price.

It's one of those that, I think it'll shock you how much your farming community can produce if you just give them that opportunity.

Mr. Adil Mansoor

You have been working with collateral for a while now. We also have this chicken and egg problem, so to speak, where the question is whether access to credit comes first or before you can have functioning commodity markets or to a functioning commodity market exchanges are a prerequisite for access to credit for farmers. In your experience and in your understanding of literature and evidence from around the globe, do you believe that without access to sufficient credit for farmers and growers, any initiative of functional oil commodity exchanges is bound to fail in Pakistan?

Mr. Shakaib Arif

Well, actually, both are very interrelated, of course.

But, you know, if we want to provide financial credit to our farmers based on their crops, the basic things which is required in Pakistan is good infrastructure of warehousing. Once we have good warehouses, as John has also mentioned in his presentation, only then we will be able to store the produce in a standardized manner. And once it is stored in a standardized manner, only then it is acceptable as a commodity and can be traded on exchanges, especially future exchanges as well.

So to build trust, it is very important that standardization has to be ensured and that can only be done through good warehousing. And that is where Naymat Collateral Management is working towards good warehousing, accredited warehouses, and electronic warehouse receipts, which can not only give a financial inclusion to the farmers, but also an opportunity of commodity trading through electronic warehouse receipts from farmer to trader and from trader to the end consumer or middleman. So I think, you know, name one or two, identify one aspect that this is the most important is rather difficult. It's a combination, basically.

Mr. Adil Mansoor

Khurram sir, let's flip that question. In your experience and in your view, do you believe that a commodity exchange can function well in a market like Pakistan without electronic warehouse receipts or the financing against either ERW being in place? Let's say that system does not take off.

Mr. Khurram Zafar

Well, it can operate. I think the question is how effective and efficient that market will be. We've always struggled with the fact that, you know, if you look westwards, thriving futures markets generally are sort of the primary price discovery mechanism on lines.

In Pakistan, the challenge is we don't have, you know, a futures market, particularly drivable futures markets. And one of the challenges of getting that off the ground is that in order to ensure that it's a market where proper price discovery is happening, we need to find a way to have both the producers of the underlying commodity and the

consumers of the underlying commodity participate in that price discovery process. Yes, regulators, hegemonic regulators, arbitrages, you know, they come in, they add more depth to the market.

But at the end of the day, as John mentioned in his presentation as well, you need eventual buyers and sellers of the commodity. And they have an aspect of delivery so that eventually the price converges to, you know, the underlying price of the commodity. The challenge that we have in our country is that our farmers, you know, majority of the farmers in the country, they're not very well to do.

They don't have the luxury of depositing cash margins in a futures market. So if we require 10%, 15%, 20% margin to be deposited, the millers can do it, larger exporters can do it on the buy side. On the short side, we have a challenge where farmers, you know, essentially either have, do not have, you know, that cash margin, or they have, they can participate in a futures market through their harvest, the output of their production.

Now, the question becomes, you know, how do you, how do you sort of assign a value to that margin? It's in the form of, you know, an underlying commodity, right? And for that, as, you know, Shakaib had mentioned, you need a mechanism of, you know, grading that underlying commodity, having it secured in a warehouse, so that, and also a reliable mechanism of discovering the spot prices so that you can constantly mark to market that collateral. And, you know, do your risk management at the exchange level. So I think it goes hand in hand.

We need, you know, our spot markets, our mundis are extremely inefficient. The cost of intermediation, of taking one body of a commodity and handing it over to another, it's anywhere from, you know, six to 10%. That's preposterous.

You know, you can have a much more efficient market, an electronic auction house, an electronic spot market, where you could reduce intermediation cost to less than 1%. And that money will essentially go in the pockets of the farmers and the millers and eventually reduce the price of, you know, food for every citizen of the country. So we need to make these spot markets efficient.

We need to get more money into the wallets of the farmers. And in parallel, we need to start developing a futures market. And right now, we are working with sugar, for example.

Process refinances is another way. The seller is a miller. We don't have that collateral issue in case of a small farmer.

And the buyer are either dealers or exporters, a processor or large millers that consume the sugar. So we're in the process of launching a deliverable contract with sugar. Shahid and us, we've been talking about doing the same thing with rice, for example.

I think this is one of the reasons why this thing hasn't taken off in a long time, because it requires the interaction and coming together and working of a lot of different components of this ecosystem, a very complex ecosystem. And somebody needs to anchor that ecosystem and make all of these things happen in parallel.

Mr. Adil Mansoor

There's a widely held perception that commodity trade does benefit from the price-based city. So in your view, do you believe that commodity exchange in Pakistan, which has been around for probably more than 50 years now, if I'm not mistaken, has failed to gain traction because of structural reasons like lack of liquidity, access to credit, or do you believe there are some disincentives within the structure of the commodity market, the way it's structured right now, that disincentivize its traction?

Mr. Shahid Tawawala

Let me go back to the history. We, in the old age, in British India, we used to have mandis.

The mandis were made in different markets where there used to be a central broker of the mandi. There used to be a seller's broker and there used to be a buyer's broker. Everything was marked and the spec sheet was made, and each bag was stitched with the three brokers' names and the specs written, and it was auctioned and the person took it away.

And there was a tax paid in the mandi. So it was a very organized system. Unfortunately, it was not handled after partition.

This system was not carried on properly. So now these mandis became satellites and the person who's sitting as a broker found it as an opportunity to blackmail the seller or the buyer whenever he gets a chance, depending on demand and supply. Nothing was standardized.

That's where all the problems started. So there's no price discovery. So many mechanisms came, Naymat Collateral came, and Naymat Collateral's objective was to create storage and to create a standardized crop.

But for that, it would take a long time. Hoarders would take advantage where they were not able to get financing. They would get financing through Naymat Collateral and just hoard.

And without price discovery, without a pricing mechanism, it would disrupt supply chains. Until it would correct itself, eventually there'll be losses and it'll correct itself. But that would be a long time and that would be horrible for the trade.

So I was very against, and we've had plenty of debates together, and I was against Naymat Collateral. I said, you are creating financing for hoarders. And this is absurd.

Without a price discovery mechanism in place, so what we need to do is create a futures market. Now in the futures market, there's going to be a lot of disruptions also, but it's going to be fast. It's like speeding up Naymat Collateral.

So people are going to take advantage, there'll be less rules, but let them come in. Let everything come in and actually disrupt the market a few times and fast forward this whole movement eventually until bringing the rules in and everything, and it becoming

standardized. Some people will make undue advantage, but it'll all happen over a period of two years instead of 15 years.

And then you'll have a standardized price discovery and you will create underlying spot markets with this futures market, which will all be standardized. So like in India, you have NCDX and everything trades with a premium or a discount. You have Chicago Board of Trade, where premiums and discounts are clearly a part of international contracts.

Second, in your first question, if you have the government absent, the problem is that people say that they won't have a buyer, but you have to open it to global markets. You're not keeping global markets restricted and then making the government dissenter. That should be a problem.

You have to have a free market for actual price discovery and all what John has said to happen. That's the only element which is missing, but I think it's going to be great. You'll have larger millers.

You'll have better quality. You'll have lots of things happening with a free market. So let's go to the regulator now.

Mr. Adil Mansoor

Shahid Saab said also, we should let the experiments happen and speed up the process. At this stage, when the exchange-based trading in commodities, especially domestically produced commodities is virtually non-existent, do you believe that the regulator should loosen its grip on the market and allow for experimentation, allow failures to happen, let market participants and investor interests, including the speculator, increase, and eventually a successful model will emerge over time?

Mr. Abdul Rehman Warraich

Yes, of course. I completely agree with you.

What we have been doing in the past has probably not worked very well. So we should open to all kinds of experiments. Let's introduce more contracts.

Let's try to convince more buyers and sellers and potential brokers and intermediaries. And let's try to modernize the spot markets or monies as Shahid has said. These used to be functioning much more like an organized exchange like in British times.

And now, the technologies and the expertise around the world to run such marketplaces has improved massively. So there is immense room to modernize the monies. So as Khurram said, everything should happen in parallel.

And I am very confident that warehousing is also growing. There are a few accredited houses in the country now. Governments are also waking up to the reality that they need to regulate and encourage more warehousing.

I'm hoping there will be many policies to encourage investment in warehousing. The spot markets and monies will be modernized, hopefully, as we continue to interact and

persuade the governments. And on our part, we will do everything to introduce more experiments, more trades on the commodity exchange. Finally, the farmer perspective as well.

Mr. Adil Mansoor

On one hand, everyone commented over here, especially Shahid Saab, that one prerequisite for commodity exchanges and commodity markets to succeed is that they should be opened up to global trade, right? At the same time, the landscape of Pakistan's farming, the small scale, the cost of production, at least at the current stage, is higher and uncompetitive compared to the rest of the world. If the market is opened up to global competition so that the commodity exchange can also function well, do you believe that at this stage, Pakistan's farmers stand to lose or gain from having a functional commodity exchange or commodity market? And what could change that?

Mr. Agha Jan Akhtar

First of all, let's go back to John's presentation.

We need a consistent government policy. They decided in the US that in 74, they will not be in the commodity, and they decided that the farmer will stock his produce, keep it, save it, store it, and they're sticking to it. In Pakistan, you have, with each government, changes of plans, and they are not consistent at all.

For example, in wheat, in 2000, until 2004, 5, 6, if I'm not wrong, wheat was being imported because we were not producing enough for our own consumption. We have this serious problem that in every commodity that we have, other than rice, everything we are short of. We are on the borderline.

Sometimes we import, sometimes we export. And we're pretty close to the borderline. America has the luxury of excessive wheat.

If I'm not wrong, they're still exporting soybean, corn, wheat, everything. So they can have the commodity markets. They can have the storage.

The farmers are able to do that. The land holdings are big. In Pakistan, you have very small farmers.

He is at the mercy of the aarti, the middleman. How can he expect good money for his produce? Is there a commodity stock like Nemat Collateral coming up where he can put his, you know, eventually, I hope that happens. But he, as soon as his produce is ready, most of the farmers end up selling it at whatever price he gets.

And at the end of the year, he decides if he broke even, did he make a profit? And that is his next year's crop pattern. So this year, as I said, we will be short of wheat this year compared to last year. We had a bumper crop.

The government in Punjab decided not to buy wheat. With the result, it went down to 2,200 rupees a month. And since the government did decide to buy wheat, stocks of 1.3 million.

And they paid, at that time, for one bag of 100 kilos, they paid about 10,000 rupees. Last year, at the storage, the bank charges, it might be around 12,000 if you add all those of the extras. And in the market, it's available at 7,500 rupees.

So how do you match the storage and commodities? So you need to have food security. First of all, you need to have excess commodity. And then the farmer can think of depositing his produce as a commodity.

If he's hardly making ends meet, he's not going to put it up with any commodity storage areas.

Mr. Adil Mansoor

So the US, the SEC does not regulate the commodity exchanges and trading of commodities. It's regulated under CFTC.

Do you believe that Pakistan would also benefit from having a distinct legislative framework and a distinct regulator from the securities regulator for successful development of commodity exchanges?

Mr. John McGuillicuddy

I think commodity exchanges, if they're designed well, are fairly self-regulating. The contract needs to be designed that if you take a position, you have to be able to cover it. And a commodity exchange is, it's kind of a zero-sum game.

If I'm making money on a contract position, somebody's losing money on the other side. And if it's done correctly, the rules of the exchange and the margin requirements are done, it's fairly self-regulating. It's not near as complex as all the different types of securities and derivatives and all that kind of stuff that can be generated.

It's a more direct, more simplistic game. I don't know if it needs to be a separate agency as such, but I don't think it needs as much scrutiny if it's done well.

Mr. Abdul Rehman Warraich

Our understanding at SEC is that SEC has the capability to regulate the futures exchange. In many ways, it is similar to a traditional stock exchange. So, there is more synergy if SEC continues to regulate the futures exchange.

The matter of spot exchanges is more tricky. There is a view that agriculture is a provincial subject, agricultural mandis or the markets that currently exist are already regulated by the provincial governments. Although the quality or standard of regulation is not that high, but probably it is within their legal jurisdiction.

Mr. Abdul Rehman Warraich during session 4.

We need to figure out the relationship between a futures exchange, the warehousing industry and the spot exchanges. The current understanding is that the spot exchanges and warehouses are going to be regulated by the provinces, futures exchange by the SEC, but there should be very close coordination.

Mr. Adil Mansoor

You were also discussing earlier, what I said was also pointed to that complexity in Pakistan where spot markets are to be regulated by the provinces, provinces will also regulate the physical mandis, the commodity exchange at a national level.

If it's a future exchange, the regulator will be different. So why go through all that complexity at the initial stage? Why begin with integrating wholesale physical mandis and why not instead start with primarily focusing on cash settlement of future contracts? And once price discovery begins to take place through that mechanism, slowly we work back towards integrating the whole complex agricultural value chain which is fragmented, which is small scale, there is Aarhti, over time. Why not work back?

Mr. Khurram Zafar

Yeah, so I don't think anybody here is implying that one happens before the other.

We already have a thriving futures exchange, a lot of people don't know this, we trade about, yesterday we traded about 50 billion in value compared to ESX traded probably 30 billion. We are a fairly large exchange. Last month we closed with almost a trillion dollar in traded value.

So, we have a thriving futures market in Pakistan. I think the link that we are trying to establish is to leverage that platform and link it with the local economy. And one of the most obvious ways of doing that is we are doing something with gold, with gold deliverables, and the other thing that we want to do is with deliverable futures of commodities and starting with sugar and rice.

That entire track I think is going on, I don't see any hurdles there. We might falter, we might struggle, we might learn some lessons, but eventually I think we'll continue to improve this journey. But as I said, in order for these markets to be really, really valuable, we need to find a way to have our farmers being able to participate in these markets as well.

And we need to start working on getting them onto this on-ramp in the near future. And one way to do that is to, raising awareness, but also to making the markets that they're using right now more efficient, reducing the intermediation costs, reducing the wastage that happens in those markets, the pilferage that happens in those markets, getting the government out of those markets, letting those markets sort of do price discovery on their own and then linking it with these futures markets that we are creating in parallel. I firmly believe that that's the way to do it.

I don't think, at PMEX certainly, and given that we are the only commodity exchange in the country, I don't think we are going to wait for a thriving spot market to be created

first and then, you know, come to the future side and say, okay, let's do, let's think about what to do next. So I'll open the same question to the rest of the participants as well. Yes, the ultimate goal of benefiting the farmers should always be there and that's what we should all be working towards.

Mr. Adil Mansoor

But what is it that has been holding back, let's say, futures trading between processors and investors or wholesalers at the current stage, for example, in the case of refined sugar, in the case of rice, we know from anecdotal evidence and otherwise that sufficient cash and sufficient liquidity exists in local commodity markets outside of the market, it does exist. But why has it not happened, farmers are fragmented, let's, unfortunately, but let's forget them for a second, let's ask them for a second. Why has trading through exchange not taken place or taken off, so to speak, in the last 50-70 years for other cases, for other use cases?

Mr. Shahid Tawawala

Can I answer this question? First of all, I'd like to address Agha Jan on the futures exchange, how it can benefit the farmers.

The farmer does not have storage, he's a small fragmented farmer, and he sells his produce because the minute he harvests, he can't hold on to it, so he sells. The best way to do it is without disrupting supply chain, and if he feels the market is going to go up, or he's got an unfair price, he can go and buy his produce back again with 10% of what the cash he got, and he buys the same produce at three months forward. And therefore, if the market's going to go up, he's going to make money, or he'll lose his margin.

So that way he doesn't have to worry about storage, that is taken care of by the producer who buys it, who has adequate storage. It doesn't bother him with taking care of weight loss, quality, and deterioration, pest control, and all that. That's all done.

The futures market will benefit the farmer where he can buy, provided the contract is designed well. Like what Jan said, it should be a small contract, something which he can buy, which is, you know, attached to what he's physically actually trading. So if he's trading average 14 tons per trolley, he should be able to trade a contract of 14 tons.

If the minimum contract size is 100 tons, then he's kind of screwed. So the futures market is really, really important, and I believe that that's going to lead and pave the path for everything else. After that, as far as I told you about the global market, it is allowing export and import to happen freely, not just foreigners investing on your exchange, but your export and import to happen freely.

Today, wheat is not allowed to be exported. Wheat products are not allowed to be exported, so we can't export like biscuits or things like that. Whenever there's a shortage, wheat should be imported.

It should be at par with the international market, plus and minus transport. Why hasn't the exchange taken off? One is, most of the commodity markets are out of the tax

regime. So they're traded for cash, they are the biggest area where it is the undocumented economy, which nobody wants to talk about.

But that's how it is. The farmers don't have an NTN number, I mean, the small traders don't have an NTN number, and they don't, are not in the organization. Now suddenly you tell them that everything you're going to trade is going to be documented, that scares the shit out of them, because they say, even if I'm willing to pay taxes, this tax guy is going to send me 50 notices and bug the hell out of me.

I don't want it. I'd much rather stay away from him. So one is that problem.

Secondly, you made it very difficult for the guy to trade on the exchange. You said, SECP clearance, this clearance, that clearance, the guy, a small guy does not have the access to all that. So make it simple.

He's putting a margin there. Make it simple, don't make it complicated. So these two things stopped the trade.

Secondly, then you bought out a contract, which is so stringent. The way we trade is, 86 is traded on a contract which is 20% broken, but up to 50% broken can be given for a discount. Now, so there's a lot, you said 20% broken has to be delivered.

It has to be this, you made it very strict, and which does not emanate the normal trade that's happening. So nobody, everybody was in a nice air-conditioned office in Karachi, who's never actually traded the commodity, trying to design a commodity exchange. And this is the first time, I mean, I had a conversation, and we loved it.

I loved the way, because he had actually traded the commodity, and it was something which took off. Now, I believe it will take off. I believe now everybody has come to terms with the fact that we have to be flexible, and we have to make it happen.

It will happen, and it will benefit the farmer, it will benefit the trader, and it will actually reduce the amount of speculation in the long run, because people will see the future and will be able to predict better. Now, the farmer only has historical data to plant. So last year, if Erie 6 did really well, Long Rain White Rice really did well, he will go ahead and plant it again, because, oh, it did very well last year.

But next year, the crop is actually, world crops are very high, and the market's going to tank. But he doesn't know about it until it's too late. So this will give price discovery to the farmer also, to understand what to plant.

Mr. Adil Mansoor

John, let's bring the farmer back to the conversation. You commented that the contract size should reflect the average output of a farm, right, in the presentation.

Mr. John McGuillicuddy

The contract size should be tradable by an average farmer.

There'll be some very small farmers that won't produce enough. When our clients trade futures, we separate your cash sales and your futures sales. They're two different animals.

Your cash sales are the grain you're going to produce in the field and the grain that you currently have in a bin. A futures position is a hedge, price-risk hedge, against those, but they're actually unrelated. The key thing is that if you take a futures contract, or you can also forward contract, which is a little different type, a futures contract is I'm taking a position on a commodity exchange.

A forward contract is I'm signing a contract with Cargill that I'm going to deliver corn in April for a given price at a given quality standard. But both of those you have to perform. And so most of the time, a farmer will only forward contract or futures, take a futures position on about 50, 60% of what they're going to grow in a normal year, because if they get hit by a drought or a hailstorm or who knows what, if you don't have that grain, you still have to fill that contract, because the exchange can't survive if a guy just says, hey, it didn't rain.

I haven't got it. That doesn't work, because somebody's holding the opposite of that position. And so if a farmer produces 100 metric tons of grain per year, he's probably only going to forward contact or take a futures position on maybe 50 to 60 tons.

A lot of your farmers only produce one or two tons a year. And so you have to have a small contract if they're ever going to have an opportunity to play in that exchange.

Mr. Adil Mansoor

So in markets similar to Pakistan, do you believe there is a role for the traditional aggregator? So, for example, rather than farmers taking position onto the exchange or in forward contracts with the major distributors or suppliers?

Mr. John McGuillicuddy

I think commodity futures trading in the United States started in the 1800s.

Active farmer participation is really a fairly recent thing. But in the past, if the farmer didn't store it, he would be a member of a grain association or he would sell it to a local elevator. Some of them were privately owned.

An elevator for us is a warehouse. That's just different. English is a wonderful language.

We have 18 different words for the same thing, depending on where you were born. But you know, he might be a member of a farmer's elevator association that builds an elevator and they're an accumulator. And then that gets it to larger quantities where you can load a rail car and that kind of stuff.

Those have kind of vanished in our market, because the farmers have gotten big enough now that in many cases our clients are storing as much as the elevator used to store. But that's just kind of a natural, there's always this natural transition to efficiency if there's profit and then you let the market work. And that's kind of the natural transitions we've gone through.

Mr. Agha Jan Akhtar

The smaller farmer, you have to understand, it's very difficult for him to reach out to the commodities people who are dealing with them in big cities. You need people like Shahid, who has now stepped into Shikarpur and Rathodero and have put up the mills to understand what are the issues with the farmer. Sitting in air-conditioned offices and trying to deal and understand the issues of farmer, it's very, very difficult.

You don't understand what he is going through. Not just the weather issues, but the pricing, the finance, everything. You need to step in, go work in that environment, and then you'll understand them better.

Absolutely.

Mr. Adil Mansoor

So on that subject of experience on farm, why do you believe, what do you think about ERW, the electronic receipt warehousing, and the financing being made available against it in the name of collateral? Do you believe that has potential takeoff in its current form to provide access to farmers credit? Or do you see any potential problems in that? It will take time.

Mr. Agha Jan Akhtar

As I said, it will need understanding.

The farmer will not understand electronic receipts that easily. You have, in Pakistan, there was a time when small farms were the talk of, everybody would talk about small farms. Now you're telling everyone that small farms are not feasible.

You need to have big farms. So the problem with this is 60% of your farm holdings are under 12 acres. And very low level of understanding all these technical terminologies.

Unless you go and talk and explain to them, it will take some time. He still trusts his local Aarti with whom he's dealing, with whom he's taking his credit, from whom he's buying his seeds, fertilizer, pesticides, at a very, very high interest rate. He still will trust him than a formal collateral until he's able to completely comprehend and find out that this is more beneficial.

Mr. Adil Mansoor

So one final comment or recommendation for the policy makers, any substantive change that needs to be made over the next 12 months to make sure that the golden opportunity that we have right now with the government receding from the market and private sector at least having the space to enter, if interest rates also declining right now, substantive incentives were provided to set up, for example, warehouses in the past. Maybe we can see investment coming back into that sector over the coming 12 months. But what single, at least one policy change that needs to take place for that to happen and become a reality?

Mr. Shakaib Arif

First of all, if we have to fill the gap, I mean, we means the private sector have to fill the gap for wheat storage, for example.

The first thing is that the government, which is pulling out from wheat storage and wheat mining, the government should made all the warehouses, government-owned warehouses, to be operated by the private sector.

The first policy we require from the government, and that is what we are demanding from provincial governments as well as the federal government, that all the warehouses, and there are hundreds and thousands of warehouses available, and they are, if not in very, you know, extraordinary conditions, they are quite reasonable, right? For last 50 years, we are storing wheat there. So it's not that nothing can be done.

They should be made available for the private sector. Now private sector is ready. Last week, I took the whole industry, there are 10, 20 people, 20 companies, and they take a round of all the warehouses of the government sector, and they are ready to take over those warehouses on a long-term lease basis, say 20 years of lease, so that they can, you know, maintain those warehouses, they can put some investment in those warehouses, and make them available for farmers, and even traders, and so that wheat can be stored.

This is probably, if you ask me, the first thing or, you know, one thing, this is the first thing that should be done.

Mr. Khurram Zafar

So just to add to that, if you're just adding one point each, I have a laundry list of these things, but I think one thing that the government can do very effectively is raise awareness about, you know, what futures markets are, how to trade in futures markets, you know, how to trade more efficiently, you know, one of the things that farmers don't know, and I know this from personal experience, I just sold my munji at 6% and paid 6% to the Aarti, and the PEMRA Act says that I'm not supposed to pay more than 1.5%, in fact, and that 1.5% is supposed to come from the buyer and not the seller, right? But the markets are operating, and they're extracting this commission from me, and the law says that I'm not supposed to pay it, right? So the government can, I think that the biggest role that the government can play is raise awareness.

They have one of the largest bureaucratic setups we have in the country is the extension department, in the agriculture department extension services, right? It's a massive workforce, they can reach out to farmers in far-flung areas, they can build their capacity, they can tell them how to, you know, trade their commodities, you know, a lot more efficiently and effectively on these exchanges.

They have massive, you know, share of the advertisement space on electronic media, instead of, you know, showing what they've done for the past one year, perhaps they can, you know, teach farmers how to trade futures for their commodities, right? They can invest in, you know, warehousing infrastructure, and not just create incentives to build warehouses, but also come up with a scheme where, you know, those warehouses can be put to use, right? So if somebody's paying 6% commission to sell something in

the old 1897, you know, model market, you know, you can show them that if you come to this warehouse, you'll pay no commission. And if you come to this collection center, you'll pay no commission, only the buyer will pay 1.5% or 1.25% or whatever the notified rate is, commission. I could go on, but, you know.

Mr. Shahid Tawawala

I agree, the government should create awareness, but the most important thing is the government should stay away. The more they stay away, the better it is, the market manages things better. If they are far away from me, they're okay.

How could you stay away? Yeah, rice is a great example. Rice used to be handled by Rice Export Corporation of Pakistan. The minute they walked away, it's really flourished.

It's gone leaps and bounds, and people have, when the government is away, people are not scared to invest. They don't want them to interfere and suddenly change things again. So if they are far away from us, I'm happy.

Mr. Khurram Zafar

I just want to give you one example of this. In the PAMRA Act, the latest edition, they have a clause buried in the regulation that says the government has the right to convert any private market into public market. Can you imagine investors investing in creating these private markets with that kind of a catch-all phrase in their law?

Mr. Agha Jan Akhtar

Just add to what Shahid said, the two crops that are doing the best, I mean, are doing the worst is wheat and sugarcane.

In both cases, you see massive government interference. And rice is a prime example. The farmer this year has gotten not more than 2,500 rupees per month for airy.

Last year, he got 3,600, 3,700. He's accepting it because that's what the world market is. So he goes up and down with the world market, he's aware of it, with no government interference.

Mr. Adil Mansoor

So, we hope that government has finally decided to take a step back and stays consistent on their policy. With that, thank you everyone. Thank you everyone for that remarkable panel.

Session 5: Presentation on Pakistan Agricultural Coalition by Mr. Kazim Saeed, CEO of Pakistan Agricultural Coalition

Mr. Kazim Saeed presenting Pakistan Agricultural Coalition's work on the State of Pakistan's Agriculture reports.

I know there are many familiar faces in the room who are familiar with our work. Basically, when we started work in 2013, what we realized is that the building blocks that you can use to create new business models for agriculture for the corporate or financial players, the building blocks didn't quite exist. And you can see, 12 years later, the debate was, should we modernize? Should we go into warehouse receipts? I think a friend of John McGuillicuddy, Mr. Lemon-Rutten, who has spent 35 years doing this Dutch national, doing warehouse receipts type work around the world, was asked this similar question from a similar group, how many countries in the world have warehouse receipts? And his answer was, how many don't? Pretty much most have this agriculture sectors that are developed.

They have this kind of system. And we have chosen to work on such things, such mechanisms and tools that I just wanted to quickly run you through. And for that, first, we always thank our patrons who have been supporters right through this time, who don't ask us what we are doing for their companies, their bottom line each year.

They know that the long-term betterment of the grower also brings improvement for their bottom line. So they appreciate the work. Our mandate is to create new business models for growth in agriculture, but we also double up as a think tank doing analytical work, putting out reports, and also an advocacy institution on advice we came up with for the government.

Warehouse receipts, I think, before warehouse receipts comes warehousing. And the issue we have with one of the best crops that has done the best in Pakistan last 25 years, in terms of improvement, is maize. And look at the supply chain.

And I think John's objective in showing you some photographs from 1974 in the United States was probably that we are somewhere there today. We are behind where the U.S. was in 1974. And we need this warehousing near the farmer, available to the farmer, modern warehousing.

And just to give you a data point solving this $12.6 billion value at harvest for three crops, rice, paddy, maize, and wheat, there's about a billion dollars being lost in quality

and quantity. So there's, for the private sector, there's plenty of room to play and plenty of room to come up with solutions and make a buck. But the regulations have to change.

And the government's role in these markets has to change. And it's a time of great opportunities, I was saying earlier, because the government has chosen to pull out of wheat, which was the one, I think, to me, one of the great hurdles to real growth and investment in Pakistan's agriculture sector. So we started working a number of years ago on this warehousing, testing, getting standardized product.

And this warehouse receipts regime seemed to be the one that pulls it all together, where any warehouse that is accredited and therefore can be trusted by banks, accredited by an enabling entity, Naymat Collateral, for which SECP, in coordination with advice from IFC experts, came up with these regulations under which Namath Collateral was established. And these angel investors, I would say, really at the bottom, are the ones who invested in Naymat Collateral about four years ago. And Naymat Collateral basically just does two things.

One, it accredits the warehouses so that banks can, and you and I can be comfortable that whatever product is sitting in those warehouses, the quality and quantity will be kept whole as it was at entry. And based on that, for a hundred rupees value, a bank can give 70 rupees in loan. And this has now reached, in six seasons, more than 3,300 warehouse receipts have been issued, mainly in maize, rice, and also rice paddy, and recently in wheat.

And more than 13 billion rupees worth of product has been securitized, really. This is securitization of commodity. And we are at the beginning of this.

And I try to convince my friend, Shahid Tawawala, that this is an infant. We're saying when he does a PhD, he's going to make a nuclear bomb and blow up the world. This is an infant.

Let the infant start. You know, we're at 13 billion rupees. The trade is in trillions.

Let's not get too carried away. We are, any company like Naymat Collateral that plays that role, that has to be linked to the Pakistan Mercantile Exchange as well. So the idea is that as more product comes in, the trade can move and price discovery can actually happen on the exchange.

But you need accredited warehouses where you can trust the product is being kept properly. So this is one, and some leading business groups of the country, like Interloop has a company, Momentum, that's been doing this. Maersk is taking strong interest in this as part of the process that Government of Punjab, TCS is taking interest, et cetera. So once you have a system, that's when private sector players can come in.

We built a model for bringing investment into mechanization. And these machines, if you, I won't go through too much detail here, but just the first, you know, 25, 30 days, the rice plant is an example of Rice is Best. It's a sort of globally connected product for Pakistan.

First 25, 30 days, the plant is very vulnerable. And usually if you're doing 50 acres of rice, for the first 25, 30 days, you do a nursery of half an acre, very concentrated, and then you transplant. But this is usually done in our country, on our farms.

It's this back-breaking labor of transplanting that the nursery, the seedlings, is done by women, 45 Celsius temperature, and that's what makes 37% of our labor force in agriculture. Most of them are doing this kind of work. Most of them are probably not, certainly not owners of farms.

So even in developing countries, for some time now, this is done, the seedlings are grown in trays, and then the transplantation is done by machines. And these machines do about 8 to 10 acres a day. And it costs 10 million rupees for a rice harvester, with taxes, 13 points a million.

And so if a machine does, for most farms, you know, one day's work, most farms are less than 12 and a half acres, it only makes sense that service providers have to come in. And there are many, many, many service providers in the informal sector, but unfortunately they don't have the access to capital to buy new machines and don't have the technology connectivity to have trained operators. That's why we can try to convince leading business groups of the country to come into this business and build the feasibility studies, et cetera.

And luckily Jaffer Brothers, Gharib Sons, and my friend I admire a lot, Shahid Tawwala, went into this business. And they have done, you know, farmers are paying in advance for these services, which is really unusual. So this is another business model we've come up with.

And as Minister Qasim Qamar was saying this morning, the government of Sindh is looking at such models for considering it from the public-private partnership angle, which they've done a lot of these transactions in the government of Sindh. And tomorrow afternoon you will see a presentation, late tomorrow morning you will see a presentation by Ernest & Young that we are working with on how public-private partnership can be done using this business model and benefit farmers. And quickly moving on in the interest of time, we've worked a great deal on the last few years, worked a great deal on crop insurance, which is very important for the farmers of Pakistan.

And when the farmer gets hit by either a climate peril or by pest and disease, biological perils, it's usually going to take three or four seasons before the farmer can come back to the financial standing where they stood before this peril hit them. So insurance is absolutely – that's the only way that you can do this. We have crop loan insurance in Pakistan, loan insurance.

And in 2008, after a lot of deliberation by a task force of the best people you could find in Pakistan at the time, there was a decision by the Ministry of Finance at the federal level that there will be a crop loan insurance scheme, which means that every bank loan made directly to a farmer in Pakistan has to have mandatory, has to have insurance. And they were just – which is fantastic. And for farmers below 25 acres, the Ministry of Finance pays the premium.

But they were – the performance of this scheme so far in 15 years is that the premium paid is a little more than 14 billion rupees, and the payout is half that. And it sounds unusual because we've had two 100-year floods in the last 15 years, 2010 and 2022, and many, many other perils have hit. The payout should have been 10 times that.

But the reason is there are two constraints. One is that the insurance payment is only possible if the government declares a calamity in the area, in the district or the city where the calamity has hit. That means that that's not a very objective or scientific process.

Usually it's – there's a lot of subjectivity, and certainly not based on data related to farming. And the other is that there is a ceiling on how much money can be paid out because the insurance industry of Pakistan did not feel it had the financial depth to take on the risks of agriculture. And so there was a ceiling set for that.

Now, the outcome of that over 15 years is that the perils – usually these eight perils that you see at the bottom of the screen, any crop insurance scheme in the world, these are the perils you're going to find. The ones that are visible to the naked eye – flood, drought and excessive rainfall – typically the calamity is declared by government officials for those, but not for the more frequent perils that hit farmers, which are the other ones. So the solutions to this we have worked with to bring in the financial heft.

We worked with a Pakistani insurance company, TPL Insurance, which is very aggressive about coming up with new solutions and introducing them to the industry. But usually in markets like ours, the local insurer takes 20% of the risk. And we brought in Score, which is one of the great reinsurers of the world, more than 120 countries.

They take 80% of the risk. That's the way this problem is addressed globally. But the other problem of not having an objective scientific basis for when the payout can happen is to have an insurtech firm.

And we brought in probably the world's leading firm, Pula Advisors of Switzerland, which is an insurtech firm serving insurers in 24 countries for providing insurance to 15 million small farmers. And they're really not an insurance company. They are insurtech or insurance sort of surveyor, high-tech surveyor.

And they've worked with us in TPL. We approached HBL and Bank of Punjab, which came into these pilots. And there was payout for the heatwave for wheat in 2022.

And there was payout for Sutlej overflow in Pakpattan in 2023. That's where Bank of Punjab was involved. And we did a pilot project for traceable and sustainable cotton cultivation in Rahim Yar Khan with some textile majors.

And there was a whitefly. There was more time for the whitefly to survive into September because the temperatures did not go down the way they've gone down over the decades. And so there was a payout there as well.

Now we've been in deep discussion with the government of Sindh up and down from the chief minister house all the way down. And the chief minister has given approval for a scheme to be piloted in a handful of districts.

And we are waiting for that. Hopefully they will make the decisions in time and run the process in time for the coming season for cotton and rice. Finally, just wanted to introduce some of the analytical work we've done.

We put out with Pakistan Business Council. We put out the **State of Pakistan's Agriculture Report**. And I encourage you to look at our website which has both of these knowledge products.

The 2023 report had six deeply analytical pieces on six major hurdles, policy hurdles to growth in agriculture in crop as well as livestock. And this year what we launched just a couple of months ago is the State of Pakistan's agriculture report, 2024, which has 10 case studies of leading businesses that have done some interesting, important projects in agriculture and covering all across different sub-segments of agriculture. And that brings us to this event.

And I just want to salute all of you for your participation and looking forward to any feedback, suggestions, ideas you have for us to improve this event and bring more value to you. Thank you very much.

Session 6: Presentation on Syngenta by Mr. Hamza Kamal

Mr. Hamza Kamal presenting Syngenta's innovative work.

Assalamu alaikum, everyone. I hope we're all settling down. But in the meanwhile, while we're settling down, I would just like to share a story with you.

A couple of months ago, we had a colleague from Australia to whom, while having a discussion, the question came up of whether most people in Australia know about swimming or not. And she was surprised by this question. And her response was, this is like asking like people in Australia walk or not.

And this surprise appeared many times during the week. Whenever we visited a farm, she was surprised that our farmers don't do soil testing, that our farmers are unaware about the satellite imagery, that they are unaware about how drones are to be used. And this was a surprise.

And at the back of my mind, I was thinking, this is what we are lacking in Pakistan. Since the morning, we have had a lot of discussions about commodities, pricing, market mechanism. But right now, what I'll talk about is the input side of fertilizers.

And I hope whatever we discuss here today goes into the right direction and helps the farmers of Pakistan. So my first question to all of you is, what comes to mind when you think about agriculture? If you ask a layman, it's generally lush green fields, rivers, canals, having mangoes by the orchards. But what we should really be thinking about is, this actually is what is happening in Pakistan's agriculture industry right now.

We are the fifth most vulnerable in terms of climate change. We are 109th in the hunger index. Our wheat yields, which is the staple food for most of us, is expected to decline by 16%.

And also, 24% of the population is facing food scarcity. So is this what we want to become? Is this what we want to be, let's say, 10 years down the line? Is this what the future of Pakistan is like? Certainly, all of us sitting here don't want it to be like this. So what I want to talk about today here is that there is still hope.

And there are live examples of what other countries have done to increase the farm output that they produce. When you talk about China, when we talk about Brazil, and when we talk about especially the Gulf countries, which were heavily dependent on agri-imports, how are they reducing their import bills through innovation and technology? Some of the technologies that they have adopted are, let's say, precision farming, yield prediction through AI models, agri-robots, obviously, something that all of these things that are right now being practiced all across the world. And I'm sure most of you know more than me about all of this.

But what I want to say here is that this is what needs to happen in Pakistan. If you want to survive the climate change, if you want to feed the bulging population that we have, if you want to prosper, this is what is needed in Pakistan. Sustainable practices, AI models, supply chain efficiency.

So this is something that is very important. Apart from all the imports, a lot of farm output is lost in supply chain inefficiencies. This is something that we need to think about.

Livestock monitoring, obviously, real-time monitoring, climate prediction. And it's not something that is, let's say, novel or unheard of or something that cannot be done. This is what has been happening all across the world, and we are lagging behind.

And again, I would reiterate that most of you know about all of these things more than we do. But again, it is imperative to keep talking about it so that we start acting upon it. Now, let's talk about what Syngenta is doing in terms of bringing technology to Pakistan.

So there are a couple, not a couple, there are four or five things that I'll quickly talk about. Won't take too much of your time. So first thing first is the CropWise Grower app.

If you haven't heard about it, just please go to the Google Play Store, search for Syngenta CropWise Grower app. You'll be amazed to know that this is the number one agriculture app in Pakistan on Google Play Store. What we have achieved so far is more than a million downloads.

Around 800,000 farmers are registered, which means 6 million acres are digitally connected. What this app does for you is it gives you, right on the spot, you can scan your crop, detect what the problem is, and also find a solution on it. Also, for your seed, just by taking a snap of your seed, you can check the seed care quality that you have.

So with all of this technological intervention, we have almost, in the last six months, we have received 5,000 orders, and 6,000 farmers are ordering from the Naya Savera online platform that we have developed there. If we go forward, I'll quickly show you the video, how this app works, and hopefully the farmers among us will find it insightful. Supply chain inefficiencies is one of the important factors, and this app is helping us recover from those.

Apart from the app-based technology stuff, there are some super products that we have launched in the last couple of years. So when we talk about farming, rice, which is the third largest crop for us, and also brings us export earnings. One of the key issues that the farmers are facing today is of residues in the rice crop because of lack of knowledge, lack of awareness, unjust utilization of pesticides, and that's what happens is that when the export reaches the destination, they are generally rejected.

But what we have done is we have developed a rice program, starting from the seed care process, right up till the last harvest stage, where we guarantee if you use Syngenta's Dhan Kishan rice program on your crop, firstly, you get 10-15% of additional yield versus a general farmer practice. Secondly, we guarantee that your rice will be free from any harmful pesticide residues and anything. And it's just not a claim.

In fact, it has been verified by the European lab, accredited from the European Union, and we guarantee if you use this program, farmers who are growing rice will get the best quality, higher yield, free from residues. So again, when we talk about innovation, we need such innovation that helps the farmer grow, as well as help the country prosper. The second thing that I want to talk about is the climate change that we talked earlier about.

So when we talk about biological interventions to fight climate change, Syngenta in the last couple of years has launched a product by the name of Qantas. It guarantees that

your crop will sustain abiotic stresses, whether it is very high temperature, or very cold temperature, scarcity of water, or even abundance of water. All of these four abiotic stresses can be managed by a couple of sprays of Qantas.

And obviously, when I talk about biological, it is a true biological. A lot of time, what we have seen in the market is that companies are selling chemical products under the brand name of biological. But when Syngenta talks about biological, they are true biological, which means they come from organic sources, don't leave any residue, and your crop can be qualified as an organic crop if you are using Syngenta biological.

So, again, I feel proud in presenting these technologies to you. Lastly, I just want to share the final update. This is a technology that we are bringing in 2025.

It is called the Plenizlin technology. It is a broad spectrum, excellent insecticide, which covers not just rice, but cotton, all the vegetables, corn, sugarcane, and again, with zero detrimental impact on environment. So, something that you will see in the market when you go out there, when you are at a Nea Severa franchise, which goes by the name of Naya Savera, it's a Syngenta franchise.

You will find these products. You can be 100% sure that you are using a genuine quality, high quality product, which will increase your produce. Lastly, I just want to share a video with you.

This shows what the Plenizlin technology is all about. Thank you for your time, and thank you for being such a nice audience. Thank you.

Stay in control. We try multiple solutions, but it's difficult to keep on top of the threat, until now. Plenizlin technology.

A novel mode of action that gives you durable protection against hard to control pests across a wide range of crops. Homebreaking science inspired by you. Reliable and rain fast. No matter how hard the weather tries. A new standard in control. Rigorously tested for you and your land. With outstanding efficacy that works around the clock. So you don't have to. Because it's a tough job protecting your crops.

Plenizlin technology. 360 innovation inspired by you. Lastly, I just want to say the slogan that you see on the screen. Our land, our responsibility. At Syngenta, we just don't say, we feel it. And we're working towards the growth of Pakistan and growth of our farmer brothers.

Thank you. Thank you Kazim for giving us this opportunity. And thanks to all of you.

Session 7: Seeds for Growth and Resilience with the World Bank Group

Speakers:

Mr. Charles Schneider, Program Manager, IFC Pakistan

Mr. Mohammad Shoaib, Director, CropLife Pakistan

Mr. Nadeem Shah, Progressive Farmer

Dr. Asif Ali, Chairman, National Seed Development and Regulatory Authority

Mr. Arif Nadeem, Vice Chairman Pakistan Agricultural Coalition

Mr. Charles Schneider

So, this is my third year at the Agricultural Coalition Agri-Connections event. It's also my third year living in Pakistan. I came here with my family in 2022.

Mr. Charles Schneider: “What is the most fundamental part of agri-production? It's seed.”

And I've had a really good opportunity to see the country, meet the people, and try to understand the seed sector. And this was done over time, over this whole period, by having conversations with key associations like the High Tech Hybrid Seed Association, Crop Life Pakistan, the Seed Association of Pakistan, and the regulator, the FSC R&D, which is in the Ministry of Food Security and Research, Federal Seed Certification Body. So, this is really a topic that I've focused on for quite some time and quite very interested in.

I mean, one of our colleagues earlier today from HBL, the CEO, Mr. Salim, mentioned that the weakest link in agriculture is agri-production. And what is the most fundamental part of agri-production? It's seed. That's where it all starts.

So, without seed, nothing happens. And so, this is all happening as part of an engagement that we're initiating. And I'd like to also thank Dr. Shaquille Khan, who's here with me today.

We've been working together on developing an engagement with the regulator on seed sector. So, this presentation focuses not on the technology, but more on the regulatory side. And I think it ties in nicely with many of the other topics today, which are about getting the private sector much more involved in agriculture.

But let's start with why this is important. I think everyone is familiar with these statistics. I like to use these tables and state them every year because the ranks don't change much.

Unfortunately, Pakistan usually ranks on the lower end of all these productivity statistics. Mr. Ali from Engro mentioned a very interesting point about wheat, saying eighth biggest producer, but 56th place when it comes to productivity. And I think this is very much evidenced here.

If you look on the left side of this table, this is Pakistan's yield per hectare in wheat. And much of this is caused by wheat being very much, I would call it informal. There's a lot of wheat that's saved, that's traded locally, that's sold by artis.

So, it's not necessarily a heavily certified sector in terms of the seed. So how can we change that? Now, especially with wheat policy changing, being more productive wheat

producers is going to be very important. Rice, again, even though it's the largest export in agriculture, it's the lower productivity side.

And I've heard, you know, real experts can correct me if I'm wrong, but I still hear people talking about rice seeds from IRRI that date back many years. So there doesn't seem to be a lot of innovation in new rice seed coming in, but could be corrected on that. Maize, the most competitive of these probably, and also a very successful sector.

It may not be accident that most maize or corn seed is actually not coming in through certification, but it's truth in labeling. I'll get into that later. But it means that it gets into the market faster.

This type of seed is much more successful based on quality, not based on regulation. And lastly, cotton. Again, with all the climactic changes, cotton has been having a rough time of it.

Even with GMO seed coming in, still productivity level of cotton is still quite low. So this is all to say that as part of this presentation, seed for growth, I mean, there's room for growth. There's so much room.

We heard a lot of, of course, there are a lot of other reasons, but I think much of this comes back to, you know, where you start. Where is the foundation of agriculture? And again, I think that's seed. So where do we get seed in Pakistan? Where does it come from? It was surprising to me to know that only 35% of the seed supply is actually formal, meaning either truth in label or certified.

That's a pretty low percentage if you compare the rest of the system, which is pretty informal. And I think that's a lot because of wheat and the way the wheat seed is distributed through RTs, through farmers saving their own seed, through farmers selling to farmer in a non-commercialized way. But the fact that over almost two-thirds of seed is in that category is probably not great.

Now we all recognize the concept of farmer rights and nobody's suggesting that there should be a draconian rule saying you have to certify all your seed or you can't sell your seed to your neighbor or you can't use your own seed. I mean, that's not the point. The point is how do we liberalize the sector and how do we make it actually more conducive to innovation.

But if we look within that 35%, another interesting phenomenon which has evolved over years is that basically what used to be an almost wholly public sector industry, provincial seed departments, seed companies, back in the day, it's now really evolved into a private sector industry where 90% of seed is either produced by national seed companies which is certified or through imports that usually utilize truth in labeling. And again, the international players, crop life, are very much a part of this. So that's to say that private sector is already taking over this sector, taking over seed.

But what we need to help them grow and we need to help them be more innovative and we need a more conducive environment to bring seed to the market more quickly and in a more agile way. So when we were putting together this, when you start a project, you always look at all the regulations and you try to understand what were the

key laws, regulations that came up over time. When we put together this time sheet, it really shows an evolution, an evolution from public sector to private sector.

So for example, the First Seed Act in 1976 established a framework for public sector only seed sector. There was no word of private sector in that act. So that's only 1976.

So thinking about John's presentation, that's almost exactly the same time that the U.S. was getting out of grain purchasing and storage. So at this moment, there was no concept of private sector seed. And only a few years later, through executive orders, in 1982, did the government actually sort of acknowledge, okay, yeah, there is actually a private sector in this.

We'll let them operate, but there's no seed act or seed law around it. So it was operating pretty much fairly informally. And then we moved more and more towards getting better international practices in through truth and labeling rules in 1998, which I would argue is a huge move in terms of changing the overall philosophy of managing the seed industry, whereby it's more self-regulating, market-regulating.

That's a big move. But again, it's not implemented widely in the seed sector. And certification, which is more of a regulatory function of allowing seed to come into the market, is much more prevalent at this time.

But we're seeing improvements. Also, I think we heard consistently from producers that why we don't produce seed in Pakistan, especially international players, is the intellectual property issues. And there were some bad experiences that seed companies faced by having their intellectual property actually compromised.

So the Plant Breeder Rights Act of 2016 is a big move in terms of establishing a legal framework for the right of a breeder to get something for all their hard work and research through licensing, through royalties. But again, it's only been in recent years that the government has been able to start implementing that, start developing a registry, and start identifying ways of establishing whether a seed has unique hereditary characteristics or not. But these are the areas where support is needed, capacity is needed, building is needed for this.

And then just in the last few months, we've had a bit of a change in sort of the overall oversight of the sector. And I'm glad that the chairman is here today from the National Seed Development Regulatory Authority. So this is going to be a very important body for establishing new policy and regulatory framework. So we're happy that the chairman is on the panel today and we can have a conversation on this.

Everyone's been talking about moonshots, right, today. I like that concept. We need a moonshot in seed. And, you know, we've all... In the last couple of years since I've been here, we've experienced significant climactic events that impacted or are impacting the sectors, the agricultural sector. Right now, I took that top left-hand picture in West... in Jhelum just last weekend.

And due to the lack of rainfall, we have crop stunting in wheat, which is very prevalent in areas that are relying on rain-fed wheat. You know, it's very thin, it's very short. We're pretty far into the wheat season and this is what we have.

2024, just last summer, there was early rains, so it was difficult for cotton when it was young. It was flooded, slowed down growth quite a bit. We had a very poor cotton, I think, production last year.

The rice, that may look like nice rice right now, but there are no grains, there are no rice grains on those stems. There's no grain formation and that was due to excessive heat that was occurring right at the exact time that the fertilization of seeds was taking place and the formation of the seed grains was taking place. So obviously, that crop's ruined, right? It wasn't all over the country, but it was significant.

So, the moonshot is how do we adapt to that? And we have a lot of seed research and development going on globally, to some extent locally. And I think, you know, these two, drought-resilient, drought-tolerant and submergent-tolerant rice, unfortunately, those aren't photos in Pakistan. Those are photos from IRRI.

It's happening somewhere else. But they are coming up with new varieties. The heat-tolerant wheat, that is a research and development taking place in Pakistan, and we do see some hope there.

And whoever's developing that variety, hopefully, will get the intellectual property and get royalties, get what they deserve when that comes to market. So last point here is really for the panel, really, just to raise some reflections for the panel discussion. And to borrow John's words about farmers, let the farmers loose.

Okay, this is similarly, let's let the seed producers loose. Let's let them function as businesses. Let's let them make money.

And let's let them do that in Pakistan and not rely on doing this elsewhere, just importing the seed. But we have six kind of quick questions. I have my views on all these.

I will reserve those for the panel. But basically, what can we do to enhance plant breeding programs, to look at resilience, more hybrids domestically, looking at productivity improvements? R&D and government, what can be done around seed certification and listing new varieties to make it much more agile, to make it more fast-tracked? If a new seed variety is coming in, why should it take a long time to get to the market? Because it's tested many times over. When firms who are developing these have already done most of their own testing and they're ready to bring it to market.

So how can we speed that up? The whole truth in labeling concept, which does apply here to some non-sensitive crops, but also to some imported, basically hybrids, how can we look at making this a wider adoption of truth in labeling? The international standard in many places is actually to rely solely on truth in labeling and to verify what's being labeled as being true, rather than allowing the seed in. The seed comes in and you make sure it delivers on its promises. It's more of a self-regulating approach and more of a market-based approach.

Can we remove the phytosanitary hurdles, meaning there's a lot of regulation on importing seed for research and development purposes. So it's not importing seed to

grow and sell. It's just for R&D, importing parent lines, importing sample seed to test it here.

There's a lot of regulation around that, including how much can be brought in and any consignment. So we should make that, let firms bring in what they need to bring in to do the research and development in this market, because why not do it here? And this is a great country for R&D because you have north, south, east, west. You have dry, you have wet, you have cold, you have hot.

This is a perfect place to develop different varieties because there's different characteristics, environmental characteristics that can be utilized. Again, plant breeder rights. Again, probably the biggest issue is intellectual property and protection of that.

What more can be done to implement what's actually in law to make it really happen and to make the breeders and researchers believe that all that effort's going to be worth it. And lastly, looking at regulatory mechanisms. If policy decisions are made around hybrids, bringing in hybrids, bringing in GMO seeds, like cotton, for example, is using GMO, let's have a clear regulatory framework and a clear decision around that.

So those are some, I guess, reflections for the panel to think about. But at the end of the day, what's the benefit of all this? I mean, we heard a session around corporate farming. I mean, how is corporate farming going to work without good seed? I think that was mentioned as one of the important sort of elements of strong corporate farming is seed that's climate resilient.

How do we invest more in seed production locally? The focus for investment on high-tech varieties. And it's nice, I mean, there is the new high-tech hybrid seed association. It's fairly new.

It's great to see that there is actually movement towards much more focus on hybrid and high-tech. And lastly, but not lastly, is that this agility, fast tracking, maybe regulatory loosening will contribute to adapting to the climate change that we're all facing regularly and will hopefully introduce more resilience into the sector, which ultimately is going to be needed and we're already feeling it and seeing it. So with that, I look forward to the panel discussion and thank you very much.

Session 7: Seeds for Growth and Resilience

Mr. Arif Nadeem

I especially thank Charles because he set the stage. He's already put things in context and he's made all of us realize the importance which seed assumes as far as the agriculture sector is concerned. It set the stage. I mean, there's no denying the fact as far as this particular aspect is concerned.

So, we are very fortunate today that we have Dr. Asif with us who heads the National Seed Regulatory body, which has recently been created and this is the last effort of the government to make a huge effort in trying to rectify the situation as it's been existing for a certain amount of time. I mean, it's been a challenge for the government and they think that we need to address it. And I think we'd like to hear a lot from you.

It was one of the recent organizations which has been created under the statute, if I'm not wrong on 8th of November.

And then we are very fortunate again that we have Mr. Mohammad Shoaib. He's representing CropLife and he's worked in virtually all the multinationals which are currently there. He's worked in Syngenta, he's worked in Monsanto and he's worked at Pakistan Tobacco Company and more so, he's looked at the regulatory framework which is impacting the seed. So, Charles, he is a man who is impacted by these rules and regulations from the private sector.

And lastly, the... Like I said, seed is center stage, farmer is center stage as far as the agriculture is concerned and we're very fortunate that we today have with us Mr. Nadeem Shah Sahib. Nadeem Shah Sahib is Vice Chairman of Sindhabadgar. He also is managing a 1200 acre very large farm and has been getting quite a lot of prices also and being a very high producer of cotton as well as wheat, he's been getting prices.

So, we'd love to have... What are his views as far as being the recipient of the rules and regulation? What reaches him, you know? Because that's what is very critical, you know? So, I think we can start, Asif Sahib, Could you throw some light on this apex body? Why was there a need to create it? And what do you think, what sort of an impact it is likely to create in this? Well, thank you very much, sir. I'm very grateful.

Dr. Asif Ali

You know, I had the privilege of sitting with you, you being my mentor. You know, you set many stages or the way forward for agriculture in Punjab, particularly at Pakistan Agricultural Coalition, we had been in touch. Anyway, you know, Charles has rightly set

the path or showed the crux of the evolutionary process in the seed, regulatory particularly, and, you know, overall in the development sector, seed development sector.

So, you know, there is a change, and, you know, there are many challenges, and rightly pointed out, seed is at the core. But, you know, if you look at the process, sir, when you were Secretary of Agriculture, you know, we made good progress, and there was a need. I mean, this is... When we moved was from nowhere to certification and then moving towards truth in labor, truth in labor, right? So the point is, at that particular point of time, there was a, you know, sort of intervention or the public sector dominated in the R&D, and still they are dominating in the R&D.

However, the seed business, which was solely in Punjab, was Punjab Seed Corporation, very excellent organization. They created an impact. But over time, you know, this private seed sector grew, and now more than 90% of business is being done by private sector.

They are coming into R&D, and they need more space, and they need sort of... so that they can develop. Instead of certificate to a brand, they should, there is a need that they could have their own certification system, and the government should be monitoring it. You know, that is the way forward.

That's how... The other question was, you know, instead of the overall, there was a sort of focus on regulatory instead of productivity. So the authority has been created to focus on the productivity and, you know, try to sort of facilitate the load we have of regulatory affairs in the seed sector. Then, moreover, particularly, the GMO was talked about.

Cotton is the only crop where we are growing GMOs, and the most problems are coming in cotton. So the point is, we have overloaded the cotton seed system with biosafety and then, you know, certification system and variety evaluation system. So therefore, we are struggling.

We had a meeting yesterday also that showed that the private sector and the good companies could come up and, ultimately, they should move towards truth in labeling and the public or the authority should facilitate them. There are four things which are important, in my opinion, in the seed. One, germ plants are second, you know, technology.

The third is supply chain, and the fourth is policy things. So we'll be ultimately handing the policy to facilitate through policy the acquisition of germ plant, the spending on the germ plant, you know, on the technology side, and ultimately, to sort of soften the load of regulatory things so that the seed sector could develop, and instead of certificates, the brands would be established as truth in labeling. Thank you, sir.

Thank you very much, Asif. I think you brought it out very, very clearly. One, there was a need of the day, and the need of the day was that previously, what was happening totally under the public sector domain has now, public sector is now occupying maybe

about 2-3% of the space, whereas the rest is occupied by the private sector, and there is, therefore, a need that the rules and regulations are modified according to them.

Mr. Arif Nadeem

Shoaib, would you like to dwell a little bit on this particular thing? What is your feeling? Because recently, you were part of the dialogue which Charles undertook, you know, and this is very late, as August 24, if I'm not wrong, you know. The CropLife people, he had a dialogue, he and Shakeel had a dialogue with you all. So, what's your feeling as far as this aspect is concerned? Are the right kind of seeds reaching our farmers? Do you have sufficient space? Would you like to dwell a little bit on these particular aspects?

Mr. Muhammad Shoaib

So, first of all, thank you very much for arranging this session, and I would like to thank Pakistan Agriculture Coalition, who specially arranged this session, because regulatory is very, very important.

If we want to make the investment in the country, if we look into the global organizations, generally, first they evaluate the regulation of that country, and then they make the investments. So, generally, if we look in the past, in the 90s, we see that a lot of investments were made in our nearby countries, in our neighbor countries, like Thailand, India, and other countries. So, what happened, actually? They developed the intellectual property rights at that point of time.

I'm just giving you one example, that what is the importance of the regulation? So, if we see past, then we see that there is a lot of investments made in these countries due to the approval of only one regulation, and that was the intellectual property rights. But, unfortunately, we remained failed in approval of the intellectual property rights, and we approved these regulations in 2016, and still, I would say, we are not late, and that has started working in Pakistan, and now we are feeling more comfortable. That department is working well.

They have included a lot of crops under that protection area, and definitely we are applying, as crop life companies, to further protection to that authority. I will talk, one by one, in each regulation, that what are the good things in those regulations, and what needs a little bit more improvement. Similarly, we have, seed is basically, you know, governed by so many regulations, and if I talk about the Charles' presentation, he said that a lot of seed is being also imported from other countries.

So, first regulation, which is very important, that is the quarantine regulations, or import regulations. We are facing some challenges there, and my suggestion is that, as a stakeholder, Dr. Sahib is here, I think we should talk, we should involve all the stakeholders involving the crop life and other stakeholders, that how we can improve those regulations, because R&D is very, very important. If we look into those regulations, we are facing some challenges in the R&D seed imports.

There are some, I would say that, phytocentric conditions, which needs some discussions that how we can improve. Similarly, there are some issues in the R&D seed

import permit conditions. We need to discuss those conditions and those quantities that how we can improve.

Similarly, those regulations are saying that you have to put your seeds in the PEQ for the whole season. We need the discussion that how we can reduce this time period. And if I talk about the second regulation, which is very, very important, that's the Seed Act, which is basically governing the approval of any variety or enlistment of any variety.

That takes, in the present regulation, two to three years, and I think still there is an opportunity that we can improve this timeline, maybe from two to three years to maybe one year, and how we can improve it. If I take the examples of the other countries who are working on these regulations, generally they have a very robust system of the characterization of the variety. First, they do the characterization, and then they allow those varieties under proof and labeling without conducting any adoptability or registration trials with the government.

We can adopt that type of models and similarly, if I talk about the registration or commercialization of the R&D varieties on the basis of the data of the companies, generally they consider the R&D companies who have very strong footprints of the R&D in the country and globally. So that could be improved. And similarly, last regulation, which is about the biosafety regulations, I would say that since morning we are talking about the water scarcity and drought in Pakistan.

I would say that most of the technologies are available in the biotechnology. Dr. Saab is a biotechnologist. I cannot talk a lot in front of Dr. Saab, but still there are technologies available in the biotechnology system, and those involve the genetic modification and similarly gene editing.

We need to, I would say, review these regulations. I will give you one example that we started the work in 2008, I remember, and still our GM varieties are not approved. It's 2019 now.

It means 11 years has passed without any decision. So we need to be very much quick on our decisions and definitely this thing will open the door for the new technology in Pakistan. And if I talk about the biosafety regulations, generally it takes four to five years to introduce a new GM variety in Pakistan.

We can also discuss and we should involve all the stakeholders that how we can improve these timelines for the introduction of the new varieties in Pakistan, especially in the biotechnology side. So thank you very much. This is all about little bit.

I'm not going to a lot of details, but it's a long debate.

Mr. Arif Nadeem

Shoaib, Thank you. I think you've covered some of the very important things. And I'd like to, I'd like Asif to dwell on these things later. I mean, he's brought out certain very, very important points and one of the foremost point was that these two regulations,

the 2015 Amendment Act, Seed Act, and the 2016 Plant Breeders Registration Act, they've been there for 10 years now.

But from what Shoaib is pointing out, no, later, I'd just like, what he's pointing out, things have not improved in the manner, in the desired manner, in the facing certain pinches. Before that, I'd like to hear from Nadeem Sahib, you are the one who should be actually facing the pinch, because it's the farmer at the end of the day who's choosing the seed, growing the seed, and who at the end of the day has to produce. So you are bearing the risk.

So what are your views about a regulatory framework? Do you have access to good quality seeds or not?

Mr. Nadeem Shah

First of all, I would like to thank Pakistan Agricultural Coalition to provide an opportunity to exchange our views and views. Basically, seed is the requirement for a farmer to have a good harvest.

If he doesn't have a good seed, he will have a bad harvest. Seed is the necessity for food security for human beings as well as animals. As Mr. Shoaib said, that due to the certification, due to the registration, we are hanging after the 18th Amendment between federal government and provincial government for the approval of the seed.

Now, seed is supposed to be approved by the provincial government. Then, it is to be certified by the federal government. And according to my knowledge, cotton seed is not being certified yet and we have started our sowing season.

So, as Agha Jan Akhtar said, that there is no consistency in the policies. Every government comes and changes its priorities. They have their own goals.

So, in agriculture, that should not be done. As far as seed is concerned, I do have an SS. I have contacts with the scientists.

I used to multiply my own seed. So, I will rather suggest the farmers, whenever they have good plants, good plants, they should have their own seed. They should multiply in their field.

Why do they rely on any company or somebody else? Why? When a fake seed comes in the market, we go to the agriculture extension, we go to the federal seeds department. Provincial government says this is not our domain. Federal government says that this is not our domain.

So, we, the farmers, ultimately suffer and we have to bear the brunt of the mismanagement of the government functionaries. Private sector is not being encouraged in a way it should be. Public sector was performing very well.

We were in the exporting club. We got good varieties like Naya, Batata, Cotton, wheat varieties, Sarsap, from NIA. We got TJ83 from Tandoja, from Punjab.

We have a lot of good wheat varieties. Public sectors were working. But due to lack of funds, now they are not even getting their pay.

They are getting only 30% per month, if I recall properly, CCRI, Cotton. Dr. Sahib, if I am wrong, kindly correct me. Somebody blames on APTIMA that they are not paying the taxes. But you see, all the luxuries are going on. But R&D is a 24-7 job. That can't be stopped.

So, let the private sector come forward. I will give you an example that in vegetables, we are importing about 95% of vegetable seeds. Why can't we have our own seeds? As far as hybrid is concerned, previously we were all relying on hybrid for our imported seed.

An imported seed must have an adaptability and acceptability in our local environment. Even in our Sindh province, we have three ecological zones. Lower Sindh, Middle Sindh, Upper Sindh.

Every area does have its own requirement. So, the R&D work should be done in a proper way. And other private sectors should be encouraged. They should be given, as said by Sahib in his presentation, that breeders should be safeguarded in a very good way. Breeders should get the benefit. He has developed the seed.

So, on the contrary, for cotton, imported cotton is being exempted from the tax. Local ginners are not able to sell as the government has imposed 18% sale tax. So, we are bailing out the farmers of the other country.

Rather, we are penalizing our farmers. Now, there is going to be a food crisis in the coming year. As wheat has been sold for 2200 rupees last year and farmers pay from their pocket, same was in the rice.

Last year, year before last, we sold it for 4000. This year, we sold from 1800 to 2400 rupees. Same is going to happen with the wheat in this year.

What will happen next year? Farmers will not plant wheat and rice. Then again, we will be looking about for import. So, consistency, agriculture policy, transfer of technology at grassroot level.

Whatever the latest technologies are, they should be given to the farmers. Let them learn, let them motivate them and make agriculture profitable. Until and unless it is not profitable, all such type of sessions are futile.

How a farmer will pay and how long he will pay from his pocket. So, these all are supposed to be taken in stock. I will request Dr. Saab to make the system simpler.

Not that bureaucratic candidness and delaying tactics, 8-8 years. To develop a seed, a scientist needs at least 5-7 years. And after 7 years, he is sitting, ideal variety is not approved.

I can give you the example of same government from last 3 years. There was not a single meeting of seed council. In the meanwhile, that seed is outdated.

So, we farmers are the ultimate sufferers. And we should all be on the same page and we should create a win-win situation for all of us. Thank you.

Mr. Arif Nadeem

Thank you very much.

Dr. Asif, if you could tell us, because, I mean, you've been at the center stage. You were posted at Multan. Multan is the heart of agriculture. You were looking at the university. You were doing a lot of initiatives, actually, working with the farming community and all that.

So, my last question, which primarily said that, has some positive things been done since these enactments?

Dr. Asif Ali

Very relevant and you are rightly said. You know, I can feel the pain the farmers have.

You know, in various capacities, including seed. But, you know, the plant builder rights registry had been struggling, but it reached somewhere. Now they have a system.

You know, those who want to register with the registry, the system is there and it is traceable. The other thing we did is the, they have a separate act, by the way, but the Seed Amendment Act 2024 has the special thing, which I would like to, you know, which will sort of affect the enforcement. That is seed tribunals and seed courts.

That is a dedicated thing which has been established that if there are any infringements, there are specialized courts. And if there is, you know, any farmer has any complaint against the, you know, those authorities, they can reach out to the seed tribunals. The other thing is, you know, the seed development and the hybrids.

I do agree, you know, we are doing a project in hybrid wheat also and the team is coming on 24th. The seed replacement has its own gains, certainly, which have been demonstrated. For example, in maize, I mean, there was a kind of confusion when, you know, you showed that there is a coverage of 35% certified seed.

It varies crop to crop. In some crops, it is 100% and in cotton, for example, it is less than 30%. So the average comes to 35%, but, you know, there is a variation.

But wherever there are hybrids, those are brands. One. The two, there is 100% seed replacement, which is not happening in the OPs.

And also, we are not sort of in true sense implementing the certification system where every year you have to produce pre-basic and then every year basic and then every year certified. It is not happening. We do have a system now in the federal seed certification department that is MI system, the TRAC and TRACE system.

Hopefully, there are, you know, two modules left in between that will start working and things will improve. But certainly, I am a strong believer that ultimately we have to shift towards self-accountability and self-certification where the authorities can monitor,

build their capacity, have the quality assurance systems, have the seed standards set and then the private sector has to lead coming up with their own branded seed.

Mr. Arif Nadeem

Thank you so much, Dr. Asif.

You brought out a very, very important point. And when we compare our yields as far as maize is concerned, because it is hybrid, they are globally comparable. Whereas, same as the case with hybrid rice, the jump was sudden from 30 to about 100 bonds, you know, hybrid.

Because the parents were abroad and infringement was not possible. Now, frankly, that is a true incident of OP varieties. And that is where I think a lot of effort from your side or from the government side is what is definitely required.

Charles, you've been looking at, I mean, since Myanmar, you've been looking at this part of the world or the regulatory things in this region. How many countries, normally people tell me, is registration and certification a voluntary act also? Or is it compulsory in every country? Because, I mean, if you could throw some light on this particular aspect, because to my mind, there are very few countries where it is 100% compulsory. It is normally, if people go for registration, if it is bringing any value to them.

If it isn't, well, nobody is compelling them to go and register that particular thing. Could you say a little bit on that particular aspect?

Mr. Charles Schneider

I think we need to do more benchmarking. I think that's part of what what's in our plan in terms of working together on the regulatory issues is more and more benchmarking of other jurisdictions and other countries. I wish Dr. Shakeel could answer this question.

I know that in, I mean, if we take the case of, let's say, the U.S., I mean, it's truth in labeling, right? It's the reputation of the company. It's the self-regulation of the market. That's probably led to a lot more R&D and a lot more innovation than if the government had been involved in approving every new variety that came out of registering.

There are these examples. I believe, and correct me if I'm wrong, our neighbors next door in India still, to some extent, rely on a system more like this one but have been able to streamline and speed up processes. I think the issue here is twofold.

One is what we call reengineering of a process. That is, why do we need to certify when we can do truth in labeling? You eliminate a process you don't need and you replace it with something better. That's one way.

The other way is to improve a process that you already have which would be like on certification. I think it takes two seasons sometimes to certify a seed and then, obviously, the company has probably already taken one or two seasons on their own because they don't want to bring a seed that's going to fail. Why not streamline that

and speed it up and maybe have only one season? I've heard of cases where maybe the main indicator of whether a seed gets certified is how much yield comes.

That's not always the most important factor. The factor may be in this environment in Balochistan where it's very dry, this seed did very well and we should recognize that. We shouldn't group one seed and say, well, how did it do in each province and then average it out and say, well, that's not good enough.

It should be based on that particular environment where it's going to be used. These are like tweaks to the actual existing system.

Mr. Arif Nadeem

I think we've got a few minutes left and we can open up the house for questions. Any questions from the house? Anybody would like to ask the panelists any of the people from there? While they are thinking, I mean, there's another question which I wanted to ask you. Charles, during his presentation, has been dwelling a lot on truth in labeling.

Truth in labeling, I think, is something very important when it came to the provision existed as I recollect in 1976 that the private sector companies could go for introducing their products through truth in labeling. When they're ready, they could introduce it. And it was only in 2018 that through a rule, the act was amended, in actual fact, where registration and certification became compulsory.

Now, what Charles has been indicating in his presentation also and his dialogue, I'm sure it's come out of that particular dialogue which was conducted with the crop life, with the seed association, with the high-tech, hybrid people, that truth in labeling is probably the right way to go. So, any endeavors of moving in that particular direction, Dr. Sahib?

Dr. Asif Ali

Like I said, you know, by now, Charles is exactly right. We have to sort of see the plus minuses.

The society we are living in, or the R&D, the lack of R&D in private sector perhaps would need some kind of system. For example, yesterday we had a discussion that we should go for enlisting of varieties like we do in hybrids. So there has to be some adaptability and comparisons.

Once the thing is good, okay, go ahead. So, then we can give a few companies which would meet those standards the right for truth in labeling. Not, you know, all across.

So there has to be some system of, you know, hybrid system in between, and then ultimately the target is to come up, you know, some seed companies, those who have the standards of, you know, multinationals, and they have their own branded seed, and then we can sort of move or kind of give them the leverage of self-certification or truth in labeling. No, I think it will be excellent, and I hope to God that you continue in your assignment, you know. That's critical.

Mr. Muhammad Shoaib

Just regarding this question, definitely I will add here, whatever Dr. said, I think it's very true that countries who are adopting the optional registration are, they are allowed, companies are allowed to sell their products under truth in labeling. The procedure is same as Dr, Asif said, that actually those countries have the companies who have the R&D, very strong R&D, and luckily we have some companies in Pakistan under the crop life portfolio who have very strong R&D.

They have their own germplasm, and they can even register their germplasm under the PVP regulation. So such companies could be allowed under the truth in labeling, and I would say that Dr. Sahib is very supportive and always supportive. I know that he joined, and after that we get a lot of support, especially, and we resolved some of the challenges which were pending since long, and if it happens, I assure you that so many companies will make the investments on the trust of the data which they have, and generally we have a very strong data system internally.

So, whatever we will launch, we promise with the farmer, we promise with the community that we'll perform in the market, and we will not take back, generally we do not take back our products when we launch. So it will, what will be the saving? The saving will be almost two to three years, because if I talk about the R&D, generally our companies are bringing, if I just talk about the corn, more than 100 hybrids per year in the country for the R&D testing, and generally we have options of two to three hybrids of introduction, and it will change your agriculture system in Pakistan if it happens that we will be allowed under truth in labeling and our internal data. Thank you.

Mr. Nadeem Shah

Thank you. I have two questions from Dr. Sahib, that when you are going to conduct your meeting regarding the cotton early sowing, or you have conducted, I am not aware of that. Basically I am a member of Provincial Seed Council and Federal Seed Council also, but I am not aware of that.

Secondly, it has brought to my knowledge that the federal government has lowered the standard of germination to 40 or 45 percent in cotton. So that is a way where we are lowering our standards. And the excuse in the previous years were given that we have very less seed and there is very less germination.

We should meet the criteria of what sort of steps you are planning to take about that. And my suggestion is that kindly motivate the companies to develop heat-tolerant, early-maturing and drought-resistant varieties as being said by you. So I am just adding one more, heat-tolerant, drought-resistant and early-maturing varieties.

We can harvest that before rain or before heat wave. Thank you.

Comments from audience member

I think differently. I think organic. Whatever is being discussed here is based on petrochemical inputs for the farming.

So, the seed development and certification is all based that we are putting in a lot of chemicals into the soil and into the agri-practices. I read a farmer, a pathologist, he said that you don't need. You need to think about the quality of product, not the yields.

Because quality, that matters. For the human being, the quality of nutrients is more important than the quantity. This is a different sort of perception and ideas to discuss.

If the whole world, agronomics is now dependent on petrochemicals. If the cost of fuel goes up, everything goes up. So the input cost goes up, eventually the consumer has to pay for that.

And the consumer in Pakistan and the rest of the world does not have the capacity to pay. Thank you so much. Thank you, it's an excellent point.

The point well taken. Thank you very much everybody. We've had an excellent discussion on this very complex subject.

Session 8: The policy framework for Agriculture with the World Bank

Speakers:

Mr. Olivier Durand, Lead Agricultural Specialist, The World Bank

Dr. Zeelaf Munir, CEO, English Biscuits Manufacturers

Mr. Salim Ullah, Deputy Governor, State Bank of Pakistan

Mr. Sanakhawan, CEO, Indus Acres

Mr. Kazim Saeed, CEO, Pakistan Agricultural Coalition

Session 8: The policy framework for Agriculture

Mr. Olivier Durand

Good afternoon and apologies for not being with you. I'm in Washington for our annual conference, but it's also a good opportunity for me to share the Pakistan experience with other colleagues from other countries. So, we also come back to Pakistan with some fresh ideas from around the world.

But again, I would love to be with you to discuss the policy framework, and the objective of my presentation is really to share with you some ideas on what we should do and where we should be focusing to improve the performance of the agricultural sector. Can you move to the next slide, please? So let me start first with the vision. I mean, we are always discussing, you know, agriculture pieces by pieces like that, you know, wheat, rice, ignoring some part of the sector.

When we are preparing the new country partnership framework within the World Bank, our country director requested us to give a vision for the sector. They said, okay, in each of your sectors, you will give us the vision you have. Where do you see your sector within 10 years? And I think that's something we should be collectively doing before discussing into the details, you know, the policy issues.

But maybe start dreaming about and where we want to go is to have a really performing sector contributing to the growth, market-driven, promoted by the private sector where smaller farmers have been able to grow a bit, where we are using water efficiently, land efficiently, but also a sector which is creating jobs because that's what we need to do. We know that we won't be creating so much jobs in agriculture per se, in farming, but there is a huge potential of jobs that we can create. And that's where also we could see how we could act on the leverage.

So, I think we should have this discussion. I mean, I'm sharing here on the slide my vision, what could be the way I see the Pakistani agri-food sector within 10 years, but we could have this collective discussion around the objective, the outcomes we are expecting from the sector. But right now, we are not there yet.

We are facing a number of challenges, and I've listed seven of them to discuss with you. Next slide. So, the first challenge for me is a bit of a paradox.

When I joined Pakistan, it was striking to me to see how much public support is provided to agriculture in Pakistan. We cannot say that the government is not supporting agriculture. It is supporting agriculture a lot, a lot of resources, public resources in different manners, subsidies, price support, and other investments.

But the performances are not there. I mean, in the different sub-sectors, the yields, the productivity is not really responding if you compare to other countries. We can discuss the comparators, we can discuss what are the parameters we are using, but on many, many fronts, many parameters, we are lagging behind other countries, comparator countries.

So, it means we are dumping a lot of public money, but not getting the results we should be getting. And we should think about that. We should try to find why we have this disconnect between the level of investments and the response, and what should be done here.

Next, second challenge. So, the second challenge is well-known. We know that for a long time, we've been supporting food security, and in the name of food security, we've been supporting wheat self-sufficiency, and focusing a lot on that.

Meaning that we are using so much land, so much water, so much fertilizer for wheat.

We are producing some other crops, but we are limiting, we are using most of the land for five or six crops maximum. Why there is a potential to grow much more on other crops? It was striking to me that last year again, Pakistan was importing for $3 billion of pulses and vegetable oil. I mean, there is the potential to produce more of these crops in the country, but maybe the focus on wheat and rice and cotton is distracting us from other crops.

And there are also some neglected sectors. I mean, what is striking to me is to see how little public investment we have in livestock. We did a study two years ago in Sindh, and the livestock sector is receiving only 1% of public investment.

And we all know that it's a large part of the agricultural GDP. But it's not only the issue of wheat, it's also the issue of what we are financing, how we are financing, supporting agriculture. It's mainly, you know, piling subsidies on top of subsidies in a way.

It's not such a caricature, but we are at the same time neglecting some of the core public goods we need in agriculture. In the previous session, I heard a lot of colleagues discussing about having more research and development. And indeed, Pakistan is neglecting research and development.

Public investments have been declining over the last 30 years. And we are lagging also behind some comparative countries in terms of public investment in agricultural research and development. And we know that it's critical for agricultural development.

Big countries like Brazil, Turkey, in agriculture have been investing a lot in agricultural research and development. So we need to discuss that also. Maybe to redirect some of the public support that we have in agriculture towards more useful public goods or public investments that we need in public goods.

Next slide. The next challenge is also to look at what's happening on the waterfront. I mean, again, I put in the middle of this graph the water productivity in Pakistan compared to India, China and the US, which is far, far away.

But again, we are also lagging behind. So meaning, there is an issue with incentives, you know, where we are just using water, pushing to use water, but not really focusing on getting the maximum returns of this water. And we are also facing some issue of water logging, water pollution, over-exploitation of groundwater.

We are working at the World Bank on, helping improve the irrigation system. And this is the idea of this circle, you know, getting out of this vicious circle where there is a low service, so farmers are not satisfied with water, it's not reliable, so they are not taking risk in that cropping system because of the risk of not getting the water in time or in quantity. The payment for water is very low, we all know that, the ABIANA is very low, so it's not covering the operational cost and maintenance, so the infrastructure is deteriorating and so on and so on.

We need also to see how we can get out of this vicious circle and put the right incentives for farmers. Next slide. Another point which is striking in Pakistan is the level of stunting.

You see the blue line here which is Pakistan compared to other countries over the last 30 years. We see that everywhere stunting has been going down, but Pakistan is stagnating. So clearly the whole public support system, you know, supporting weed self-sufficiency, pushing weed productivity and production, has been also pushing too much consumption of weed by many rural areas and many of the smaller farmers and people in rural areas are still relying on weed only for their calorie intake and leading to this issue of stunting because there is a poor, diversified and poorly nutritious diet in rural areas.

We see that in the next slide also, please. So this is clearly a study that was done by FAO one or two years ago, and I think we have to change again the incentives to make sure that we are not just producing weed for self-sufficiency, but we are also using public support and public money investments to encourage a diversified nutritious farming system that will deliver diversified diets and affordable diets to everybody. That's the key point.

The other challenge which is striking in Pakistan is this I would say dichotomy, this distinction between two farming systems, the large farmers and the small, older farmers. We keep saying that 90% of our small farmers are below 12.5 acres, but we don't really know them very well. Are they really receiving the public support that we are providing? I think most of us, we know that it's not really the case.

Even at the time of the weed procurement, they were not really benefiting from the high weed price offered by their provinces. And all the subsidies are not really helping them to grow. So we should try to find a way to better target those smaller farmers.

What do we need to do exactly to get them out of poverty and also grow in terms of productivity? We know that there is a huge productivity gap between small and large farmers, and closing this productivity gap will also help a lot on food security, but also on incomes and livelihoods for smaller farmers. But my concern here is that we are still a bit blind on small farmers. We keep saying 90% are below 12.5 acres, but they are not all the same.

We have different categories of small farmers, and we need to better understand that. At the World Bank, we've started a study on that, trying to have a better categorization of small farmers, understanding who they are, how they look like, and what we should be doing. Especially in terms of not only accessing inputs, but accessing credit, accessing also land.

There are issues of land security that we should be discussing for smaller farmers. But the access to finance is also a critical point, and I will finish with this challenge. Can we move to the next slide, please? Because what is striking is the limited lending to small farmers.

On the left, this graph is coming from my colleague from microfinance in the World Bank. It shows that over the last 10-20 years, lending to microfinance has been growing up. But you see the green line shows that lending of microfinance to agriculture is stagnating.

So, it's growing in other sectors, but not in agriculture. And the paradox is that it's stagnating, microfinance to agriculture is stagnating, but it's still pretty high compared to commercial banks lending to agriculture. Microfinance lending is around 34%, declined to 28% to agriculture last year, but still far higher compared to what commercial banks are lending to agriculture, which is still below 5% of the total lending of commercial banks.

Basically, an issue of access to finance for agriculture. What can we do around that? Can we move to the next slide? The first thing for me would be to stop focusing on one point, on the other, and discuss that and that, and focusing on then we focus on this issue there, and really adopt a holistic approach in the agriculture sector. So here, that's what we've tried to do on the web, looking at all the segments of the value chain, from input supply, to production, to consumption, and look at what we should be doing.

And then discuss who should do what between the public and the private sector, how we could complement each other, and what the public sector should be doing in terms of investment, in terms of actions, with public services, and what the private sector could bring to the discussion, and how we could articulate the two. That should be very pragmatic, and it should be done maybe sub-sector by sub-sector, I would say value chain by value chain. I don't say that it's not done, it might be done in some sub-sectors, but we should be doing that more systematically to lead our discussion and inform our discussion and coordinate between public and private sector.

Next slide, please. So, the key point also on the policy framework for us at the World Bank is not to say okay, there are too many subsidies, too much public investment in agriculture, you need to reduce that. This is not the point.

I mean, we are convinced that yes, we need public support in agriculture, but we need to be effective and efficient, and that's what we would like to discuss with you. So far, we have this impression that we are piling subsidies on top of subsidies, you know, universal subsidies, regular subsidies on that, on tractors, on credit, on whatever, on inputs, but not really, you know, focusing on what we should be doing, what we should be targeting, where we should put a subsidy, and discussing also whether we should have a subsidy or maybe some strategic public investment, and make sure that there is the public service that we need, or there is clear public goods that we need, and again, agriculture research and development is a good example where we need much more public investments, but we need also to help smaller farmers get organized, I mean, there is a missing link in all the value chains in agriculture in Pakistan, is getting some stronger producer organizations who can interact with private actors, who can be, can enter in contract farming, who can be better connected to the market through their association of farmers or producers, do we call that cooperatives or farmers associations, we can discuss, but that's something where we could have more public investment to support this process.

Our focus at the World Bank now is really to help the government to open a discussion on the whole policy framework, where are we putting money, you know, all those subsidies, you know, we'd like to do the mapping of those subsidies and discuss, are they effective, meaning are they achieving their objectives, are they efficient, is it the best way to achieve this objective, having this constructive discussion and see where

we could redirect all those public investments and maybe remove some of those disjunctive subsidies and put that in strategic investment like what was discussed earlier, you know, seed production.

That's something we'd like to open as a discussion and work with the Pakistan Agriculture Coalition would be very welcome, you know, to have this constructive discussion on all public support, opening, I would say the black box of all that and discuss the efficiency. Let me finish with the last slide with more of where also we think we should have more investment from the World Bank. You see on the left, the current vision is to say, okay, we are focusing on food security for wheat self-sufficiency.

Fine, but could we change a bit the paradigm also and focus more on access to markets, develop value chain and promote diversification. The same second point is to say moving from focusing on the serial production intensification to something which is more around the farming system resilience and anticipating, you know, the climate change and helping farmers adapt to climate change and that's where we need to really have a strong investment on agriculture research development. So, that will be clearly a line of investment for the World Bank in the future.

The next one is clearly a question moving away from a system where we are clearly just, you know, pushing water, making sure water is available so we push water to something which is more on demand, targeted also and based on water, on crop water requirements. So, that's something we are working with our colleagues in the bank on investing in modernizing the aeration system. And the last one I put in red which is not so much discussed and I think we should have a discussion with the Pakistan Agricultural Coalition.

What do we do with some of the farmers? How do we help them grow? We need to move away from universal subsidies, you know, undifferentiated support to all kind of farmers to something more targeted to help small farmers to grow. What do we need to do around that? And we may need to start discussing how to bring more land to security, you know, around sharecropping, around renting land so that they can start investing and how can they grow? Do we keep them below 12.5 acres or do we need to help them to grow in terms of size also but to access to different services? So, we should have also a specific discussion on what I call farming structure modernization and have the policy framework for that and public investments for that. Let me stop here.

Sorry, I'm maybe too long and a bit confusing but happy to discuss and really the objective for the World Bank is really to open the discussion on public support in agriculture and how to be more efficient and to have investments and public support to all different categories of farmers. Thank you.

Mr. Kazim Saeed

Thank you very much to the panelists. And, Olivier, fantastic presentation. This presentation, I think, was part of the country partnership framework that the World Bank has announced recently for 10 years, $20 billion.

And this is the agri part that was led by Olivier Durand. It's a comprehensive presentation. And I think what it sets about is not only a review of the what has been government policy over the decades, but also a path forward.

The main couple of points that I would like to draw on to start is about how the government subsidies have been a focus. And Olivier's recommendation is that instead of just consumption subsidies, government policy should focus much more on strategic investments, which can make some of the commodities a little more affordable. And this question of government support, when we all day we've talked about how transition in the agriculture sector is required from the traditional last few decades of doing government led agriculture towards private sector led agriculture.

Now, it does not mean that government does not have a role. It means that the government has a different role. And this is one of the themes that Olivier laid out for us.

So, when we talk about government policy and how the private sector sees it or how the private sector experiences it, what the preferences are, I think English Biscuit is a company that Dr. Zeelaf Munir leads that has one of the leading roles as a processor of agri-commodities. Not only wheat, but eggs and edible oils, etc. And government policy becomes, especially in wheat, becomes a critical factor for a company like English Biscuit.

So, if we can start, Dr. Zeelaf, with just some thoughts from you on how you see government policy and what the experience has been as a private sector entity and what you would prefer. Thank you very much, Kazim. Appreciate being here.

Dr. Zeelaf Munir

As I like to say that agriculture is what got mankind out of Stone Age. So, I don't think that if we focus correctly, it cannot transform Pakistan's economy and its people. And I think policy plays a significant role in that.

Where the policy is concerned, and to give you an example how it affects us, it's not so much the policy as the uncertainty in policy that affects us directly. So, we talk about wheat prices. The uncertainty in the wheat price is more of an issue for us than being able to get the cheapest price of wheat every day of the year.

And that is something the policy makers need to understand. So, the stability and certainty is much more significant for us. For us to be getting stable prices, because our end products, we cannot keep changing the price of our end products.

And hence, the certainty, as well as in the price, as well as the quality, is something that is very significant for us. In terms of the policy, if the government thinks that by buying a significant portion of the largest crop, it has the power to do the price setting, I think that from what we see, that is not something that is delivering on what it is intended to do. And if I refer to, so it was in the 60s that the Green Revolution took place in Pakistan.

And that was because of technological advances, it was because of seeds, fertilizer, tractors. yet, the policy and of course, what it did was it got us, the country, from being a food insecure to a food secure country. And yet, now when we look at it, the policies of the 70s and 80s do not serve us today.

So that is one thing that we need to be looking at. Another thing that I think, not just the stability of prices, the whole sector, agriculture sector, needs to be looked at in terms of how can that be improved because it lacks the infrastructure that it requires now. And that, I think, is another very significant point, and I think Mr. Durand also was referring to similar concepts.

So, if we look at the supply chains, it is still very, very primitive from the money to the logistics. And the area of the infrastructure, if we have reliable, reputable entities entering, private sector entities entering for areas, not from storage to seed to logistics to even providing the services, I think there can be, certainly be value addition. And as, again, as I was listening to his lecture, Mr. Durand was referring to that it is a significant proportion of the subsidies and how it may now not be serving the purpose that it is supposed to be serving and needs to be redirected if anything.

So, what an increase in productivity and yield of the crop can do is could be enough to be redirecting the subsidies in areas that can help improve that. So, now if I look at, just getting to, with these, even a player like EBM, we can actually take total charge of ensuring the export of agri-process from Pakistan becomes significantly, significantly significant. So, now, coming to more concrete recommendation as chair of the Pakistan Business Council, **my recommendation would be that we do need to have a forum** where the farmers, the business community, the government policy makers and the development agencies, all the stakeholders get together and meet on a quarterly basis to keep the objective of the key policies that need to be focused on aligned and we continue to see the progress in that.

EBM itself is a patron of Pakistan Agricultural Council and with PBC, the Pakistan Agricultural Coalition takes out a report on the state of agriculture on an annual basis. They do a spread job with amazing insights, policy recommendations and also ways that those can be achieved. So, I think as a secretariat I would recommend that we can have the Pakistan Agricultural Coalition be the secretariat for it to ensure that we get what we need.

Dr. Zeelaf Munir proposing the Agri-F forum.

So, in essence, what I am saying is this is a subject that needs laser sharp focus to keep an eye on how we are progressing with whatever three policy and priority areas that we identify.

Mr. Kazim Saeed

Thank you for the confidence based in Pakistan Agricultural Coalition Dr. Zeelaf. We would love to support a forum.

I really agree that a forum is needed where these topics are discussed on a regular basis rather than just a conference. I think that a couple of points that you made earlier,

they mention again the policies of the 60s and 1970s given the volume of purchase that the government could do for the crop. It made sense for the government to take that kind of role to influence the crop so much.

But given the size in Punjab they are doing 22 million tons, 21 million tons and the government was buying only 20 or 2.5 million tons. So, the scale of the sector is such now that the government can't continue with those kinds of policies. And that's probably why they have shifted. The cost of borrowing became so much.

Now, Salimullah Sahib, at a recent forum, you had mentioned something along these lines from the banking sector that we are in the 21st century but the tools or the products, banking products that are being used for the mainstream lending are of a sort of primitive nature, just lending against land rather than securitization rather than other such tools. There is government support as well.

What is your estimation as regulator and executor of some of these schemes of the effectiveness of the subsidies or support that the government has been doing?

Mr. Salim Ullah

Thank you so much, Kazim. Thank you for inviting me.

And let me begin with this policy statement that only the smart subsidies will be given. And we should be very cautious while we are designing the overall framework to give subsidies so that it should be able to achieve the intended objectives. As far as the agriculture sector is concerned, let me say this.

First and foremost, facilitation that can be provided by the public sector, by the government, to the farmers is ensuring that they are having access to quality inputs and those quality inputs are available to the farmers at a price which is competitive, which is not something that the hoarders are exploiting by exploiting the farmers and charging the price which is way above the normal market price just due to their clout and their ability to hoard. So that is one area that the government can facilitate the farmers. As far as the pricing is concerned, as Dr. Zeelaf mentioned, with respect to the pricing, what we have seen in the past is that the sport price has not been able to achieve the intended benefits.

It is largely the middlemen and the larger farmers having the clout, they are more able to use the government procurement programs. As far as the smaller farmers are concerned, they end up selling their produce to the middlemen, to the artis and to such players in the market. So, my own personal view has been that instead of providing these sport price mechanisms, we should be able to let the market develop.

And that market development, because you see that we have seen the sector, we have seen the other crops where the government intervention is not available. Those sectors are adjusting themselves based on the market dynamics. What the government can do is, as I said earlier, that the vulnerable segments, if there are issues with respect to the price hikes, this is a basic staple food that the people consume, so if there are certain

periods where the prices are beyond the capacity and affordability of the vulnerable segments, then the government should come up with certain specific subsidies for those vulnerable segments, rather than, for example, if that across-the-board subsidy is given, it is also available to a rich man.

Why should we be wasting very scarce resources on having these general subsidies that I need to keep the price so low, so that the people should be appreciating that, that is not the best use of the subsidies. Luckily, since last year and this year too, there is a decision that we will be moving towards that market mechanism. I believe that this is the right way to go about, and that we are hopeful that such policies would enable the development of the market, and that would, in fact, that is one of the hurdles with respect to the development of the private sector, warehouses and storage and the supply chain market, because basic, the bigger buyer was the government, and the government is procuring bulk of the crop, then the viability of having all these infrastructure, warehouses and supply chain and transport, etc., that becomes a bit doubtful.

I believe that with the transition of this market mechanism, there will be the development of the private sector commodity markets. We are also working on that. You know that this is my dream as well, that we should be able to develop a national commodity market, and that should also facilitate the banks, once this market is developed, and we have those accredited warehouses available, and they are able to issue the receipts, and those receipts could be discounted from the banks, that would be a, I would say that a major shift in the banks' finance.

Right now we have to push the banks, pushing the banks because they have to deal with the market, with the collectors, etc., which they are not used to of dealing with. They are dealing with these warehouse receipts, etc., which are done electronically. Then things will become more manageable, more convenient for the banks as well.

That would also be giving a big boost to the agriculture financing as well. I see your point. I think it may be easier for government to target the subsidies, like you're saying, rather than general subsidies.

Mr. Kazim Saeed

What you're saying, I think, reflects the global experience with commodity sectors, where the wisdom says that if you don't subsidize the commodity, subsidize the vulnerable group that is not able to afford the commodity and needs the help. Now, we are talking about a policy framework in this session for agriculture, there is a need for a shift in the way the policy framework has been, as Olivier outlined in the presentation, and as the Deputy Governor said. Let's hear what the experience of a farmer has been on government policy, and Sanakhwan, you have been running Indus Express as a company.

Do you even feel, if you're not growing wheat, do you feel government policy anywhere? If you're doing banana plantation, do you even appreciate or experience government policy?

Mr. Sanakhawan, CEO, Indus Acres

First of all, thank you so much for having me. So, the government policy is something farmers don't really think a lot about, because the government has a tendency of not being able to we have seen that also, so as a business, I think a lot of decision-making as a grower are not linked especially over the years, we have not seen anything but specific to wheat for example, other crops, yes, obviously there is an indicative price, but I think now the farmers have also understood that it's essentially a free market and we'll only have to be competitive on our own.

I mean, it's not really useful to expect or to think, because we all understand the fiscal side of the government is such that they cannot really make a meaningful intervention into the market anyways, in terms of the price or anything along those lines. Other than that, a challenge that we've seen at the government level and this is something that has happened after the provinces and federal so, because agriculture is now essentially a provincial matter so now, not only are we not seeing inconsistency, but we're also seeing a difference you know in Punjab, you know, in Sindh in KPK, that is obviously creating some sort of tension in the market overall a good example is you know, a drip irrigation subsidy which is up to 75% in Punjab in Sindh, it used to be 60% but now it's zero.

So, a farmer who is in Sindh and a farmer who is in Punjab, they're not actually equal in that sense, because I think it's very important that we as a country have to be unified at the top so, that implies that Islamabad and the provinces are essentially engaged in a synchronized manner we cannot be operating as four different states the other thing that I want to highlight is that when we talk about a farmer I frankly at times don't understand what we mean, because we have to have a very good we have to have a better understanding in terms of a profile of a farmer.

When we say farmers under 12 acres are small holders for example but a 12 acre farmer in Punjab who does the potato, maize and rice has a very different profile than a farmer who does wheat and rice in Sindh on the same acres, in terms of household income in terms of his access to information, in terms of a number of other things. So, I think as it was pointed out also earlier, that we have to have a better profiling of the farmer. So, that I think is very important.

Mr. Kazim Saeed

So, let me just respond to something that you were saying that the provinces and the federal government among themselves are not as coordinated and I think it speaks to this wisdom in what Dr. Zeelaf has proposed that there needs to be a forum. If the farmer is not even feeling government policy, absolutely. Are you borrowing from banks? Are you borrowing from banks? If you are not feeling banking policy, we need to coordinate a little better.

Absolutely. If I may just bring in Olivier here. One of the themes that you started out with was that there is an enormous focus on our staple which is fair enough, our staple which is wheat.

But it is nearly to the detriment of so many other crops which can be much more profitable for farmers and there is no supply chain built up at all. So, your thoughts, Olivier, on what can be done on say, horticulture. Olivier, he's on the screen.

Mr. Olivier Durand

Yeah, that's something we've started also working on this diversification agenda. And it goes back to my slide where all the segments of the supply chain, the value chain and what should be done. And that's what we should be doing in all the sectors and in innovative crops or where we want to diversify.

We should think, okay, for pulses, what do we need to do now to make sure that we can increase production productivity of pulses from seeds to storage to marketing to consumption. What has to be done and who can do what between the public and private sector. And the storage is a good example where maybe we could have some kind of PPP around storage.

We've been discussing that with our colleagues from IFC. But the point is for me to adopt this holistic approach and not to focus on one aspect of the value chain. Not just discussing price or just discussing seeds or just discussing the quality, but have this holistic approach of what needs to be done.

Mr. Salim Ullah

Thank you, Olivier. Let me add. So, you see that the point I was making in my comments, we must give that liberty to the farmer that what the farmer wants to cultivate on his or her land.

And that should be based on his or her understanding of the market. If the market for wheat is not something that is giving him or her the best return, then he or she should have that ability to decide that what he wants to cultivate on that particular piece of land. If the farmers in Punjab are cultivating maize or potato or some other crops, that is based on their very decision that they believe that they would be able to earn better returns.

And this is a very legitimate objective. What the government can do, if there are certain incentives that it wants to give, those incentives could be given, but it should not be in the form of these poor prices, etc. The normal mechanism should be that if the farmer is having better returns based on certain other crops, they should be able to have those crops cultivated.

We, as a matter of policy, are encouraging banks to develop these partnerships with these agri-service providers, with these agri-tech providers, so that the farmer could be provided better advice as well, that which crops should be cultivated, rather than going to the traditional route of having the wheat and the cotton and all these things. They should be able to take a decision based on the latest advice available with respect to the climate, with respect to the soil quality, and with respect to the overall availability of the inputs, and the possibility of selling the produce in the market. That has to be we must, from various forums, we should be able to propagate this, that let's empower the

farmer, and let's have that awareness and understanding and access to such platforms, whereby the farmer is able to make a decision that what should he or she cultivate.

That will be, I think, transforming the overall conditions of farmers as well, be it a subsistence one or be it a larger one. Now this empowerment of the farmer, we see, because we are trying to see what kind of new roles the government and private sector can play.

Mr. Kazim Saeed

The best examples of international class agriculture in Pakistan often, not always, often are found with a corporate player doing backward integration with the farmers who are producing their main inputs.

So, the question that I think comes up, which I'll address to Dr. Zeelaf, how do you see the possibility of connecting with the farmers who are growing the main crops that you are using? Sometimes it's not so easy, because for wheat you have the flour milling in between, you can't directly reach the farmer, because you use the flour. How do you see that?

Dr. Zeelaf Munir

So, I will just get to your question, but since we have you here, and we spoke about the financial sector, and we saw in one of the slides, less than 5% of the lending from the financial sector goes to that, and microfinance is increasing. So well, I wouldn't speak to if the government borrows less, maybe they will do more, but incentivizing or mandating the financial sector as well to be, because market-based dynamics is not making it happen. This may be something that needs some kind of directional, so that we can have some targets to meet.

Thank you for highlighting this.

Mr. Salim Ullah

So yes, I agree that if we just leave the financing part to the market forces, the farmers will not be reached and served by the banks, because they are commercial institutions. They would see that from where they can make easy monies, and they would be going towards those sectors from where they are making tons of money without making much of efforts.

So, there is a market failure. So, there is an obligation and responsibility of the regulator that if there is a market failure, then it must intervene to address that market failure. And our strategy and policy in this respect is that we have collaborated with the industry, both at the individual level as well as at the collective level through Pakistan Banking Association.

And the message to the industry is that we will not be having the institutions that will be coming from Mars to serve this sector, because this is the sector serving, contributing 24 percent in the national output, and providing employment to about 37 percent of the labor force on overall basis. So that sector has to be served. So what we

have tried from the banks is that they must have a strategy and a business plan for the next five years.

And that plan should be shared with us, and that should show a clear sort of a vision that how they are going to tap this sector, and what are their targets with respect to not my target, but their own targets based on their assessment of the market, and then the potential to serve that market and developing their capacity and infrastructure and the workforce to serve this sector. So we have taken these plans from the banks. The banks have shared these plans.

Where we find that the plans are not commiserating with the capacity and the size of the bank, a bank having thousand plus branches is coming up with a very lousy sort of a plan that doesn't show that commitment and sort of ownership of the sector, then we do collaborate so that these sectors could be served properly. So that is one area. The other area is that we have been there is a regulatory requirement that at least 20% of the branches have to be available in the unserved and underserved areas which are primarily predominantly are the rural areas or the peri-urban areas adjacent to the rural areas.

And thirdly, this requirement is that they need to develop collaboration. For example, we are encouraging them to come out of these archaic sort of procedures and processes. When I discussed here the last meeting that they were still using these to see which crop has been cultivated on that piece of land.

We invited SPARCO. I think a large majority probably sitting here would not be having the understanding what SPARCO is doing. And the people sitting there in that meeting about 15 odd chief executives of the banks and the farming community and other stakeholders, most of them have no understanding what SPARCO is doing.

We must develop those linkages. SPARCO is having all those satellite images based very refined data available that enables the banks as well as today I was speaking in the insurance conference as well that it provides a huge facilitation for the insurance companies. And there are examples available where the insurance companies globally they are providing insurance coverage just based on satellite images.

We have an example here of an initiative as well. So, that's technological leveraging and help will have to be taken so that we should graduate from those 70s and 80s methodologies.

Dr. Zeelaf Munir

Yes, and that is exactly so I will directly answer the question that you asked.

The connection between the farmer and us, the corporate, right? We've seen examples of that working when there are no in-betweens. We've seen the corporate sector whether it is in the potato growing sector even in the maize I would say that there is significant. So of course when a company like ours looks at it the problem that we face is there are too many intermediaries for us to reach the farmer.

And if that is facilitated that would in and off of itself come with investment R&D support with consistency, quality logistics because it is in our interest to be doing that. it is like I can't go to the farmer and tell him I'll provide you the seed because I can't buy from him it is from PASCO or I'll have to show a paper from our mill to buy it. So these are the kind of hurdles that a large producer like us faces who is probably one of the largest buyers in the corporate sector in our industry.

So yes, again a reform in the value chain. To me that would be a win-win for the farmer as well as for the banks. The banks it is relatively costly for the banks to reach out to the individual farmers.

Mr. Salim Ullah

If we can have a transparent and fair mechanism whereby the corporates like English Biscuit or some corporates are having a large farmers attached with them and through them the farmers are getting not only access to credit but also access to the quality inputs. Because it is still not possible to procure a quality fertilizer sack. They have to pay an extra amount.

So. if they would be routing through, for example, they can make sure that they can make well-purchases and then give it to the farmers. That can be an income credit and can be taken from the banks.

Mr. Kazim Saeed

I'll go back to the recommendation from Dr. Zeelaf in that they should reform to coordinate all this because with all these many tools available even though the banking industry is using similar subsystems so the penetration so far is so low in the agriculture sector.

All these services, even for fertilizer companies to reach all the farmers that there clearly needs to be coordination. And one of the first things I you know, present as a challenge this morning, the opening session was that we need very ambitious targets that may sound impossible to start with, but we need to set those targets, you know, a direct loan to every farmer of Pakistan from the banking industry. Actually, it doesn't even sound impossible.

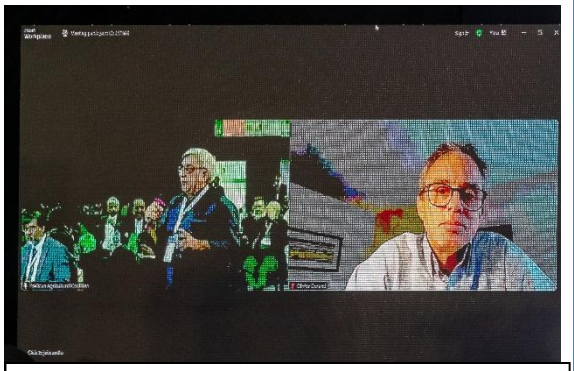
It's very difficult and we need coordination. And I would really I think from Pakistan Agricultural Coalition I would take up the challenge from Dr. Zeelaf that we should play the role of secretariat we'll come to you, sir, at the State Bank, to the Federal Ministry of National Food Security, to the Provincial Government and of course the private sector leaders and try to put together a forum like this and I think that's a commitment I think I feel I should make and I'd like to make that commitment to the group here that we will pursue that. So thank you, Dr. Zeelaf

Thank you.

Before you start to wrap up the panel Bilal Ahmed Sheikh Sahab has just one comment.

Question from audience

Oliver, we have an enormous resource cattle in the country that has not been utilized properly. I've been studying German model of biomethane which creates organic NPK for the soil and we have neglected the ecology of soil because that makes a lot of difference about the quality of the food that we produce because there are microorganisms which will pull the nutrients from the soil and put it into the product.



Question to Mr. Olivier Durand.

We are too focused on the quantities. It is not the quantities. We have all the resources to put in biomethane plants here in Pakistan with energy crops so that we have a problem with the RLNG also.

We don't have the burning fuel over here and we will reduce up to whatever percentage the import of RLNG for feed gas. Urea is not a good nutrient.

We are going to connect you with Olivier directly so that you can have a discussion. I just like to thank the panelists and thank all of you and I think all of you deserve a round of applause as well so let's do that.

Thank you for your patience and your participation. With this, day one of the Agri-Connections 2025 comes to a close. We look forward to seeing you back here tomorrow.

DAY 2

Session 9: What Pakistan can learn from Hungary (with the embassy of Hungary)

Speakers:

Mr. Balint Pongracz, Technical Director, Inteq

Mr. Muzaffar Manghi, CEO, Farmdar

Dr. Sandor Gorda Fisheries expert

Mr. Faisal Iftikhar, CEO, Indus Acres

Dr. Altaf Ali Siyal, Vice Chancellor, University of Agriculture Tandojam

Dr. Fateh Marri, Policymaker, Professor and former VC

Session 9: What Pakistan can learn from Hungary

Dr. Fateh Marri

Today we are together in the ninth session of Agri-Connections of 2025. The vision is to have private sector-led, technology-driven, entrepreneurial, and globally competitive agriculture in Pakistan. Today in the ninth session we have four interesting presentations and speeches.

I'm sure that we'll learn from these speeches and presentations. We have Mr. Balint from Hungary. He will share his experiences and we'll learn from his experiences how Hungary attracted investments in agriculture sector.

So to start this session I'll request Balint to come and give his presentation. Please welcome Mr. Balint for his presentation. Ladies and gentlemen, esteemed organizers, distinguished guests.

Mr. Balint Pongracz "Despite fluctuations of inflation, the global food prices are not relatively growing and that's mainly due to the agricultural 4.0."

Mr. Balint Pongracz

It is with great respect that I welcome you all. My name is Balint Pongracz and I have traveled here from Hungary. I am grateful for the opportunity to be here and for the invitation to present to you on Hungary's agricultural management strategies and practices.

I sincerely hope that my presentation will contribute to the success of this year's PAC conference and the Hungarian model and agricultural industrial development may serve as a valuable reference to you. Many may wonder why Hungary and how we came to be involved in this discussion. While it may not seem immediately obvious, I have identified several significant similarities between the agricultural sectors of the two countries.

Hungary is located in the edge of Europe, a relatively small country with a modest economy. Compared to Pakistan as a whole, we are undeniably small, thus I will

attempt to draw a comparison specifically with the Punjab region. In terms of area, Hungary is approximately half the size of Punjab and cultivates roughly one third of the arable land.

The key difference lies in the population. Hungary has a population approximately of 9.5 million, while Punjab itself supports a population of 127 million people. Despite these differences in scale, the structural composition of the agricultural sector is in both regions remarkably similar.

Livestock farming and crop production account for over 80% of agricultural activities in both areas. Although livestock farming plays a more prominent role here, technological challenges and obstacles we face are fundamentally the same. When comparing farm sizes, we find similar proportions in both regions, leading to comparable logical, logistical, organizational and supply chain challenges.

This also influences regulatory policies and governmental support structures for the sector. And while we face similar internal challenges, we also face similar external ones. The global climate is changing and the global population is increasingly dramatically due to urbanization and rural populations are declining disproportionately.

At the same time, the amount of the arable land remains largely unchanged. It's not shrinking. As a result, the per capita availability of arable land is steadily decreasing.

While this decline is pronounced in the European Union, the global trend remains a pressing concern as our popularity is largely stagnant. The decrease in per capita arable land can be observed through the changing demands placed on the agricultural production. And if you compare the numbers from the early 900s with the late 900s and we scale up for the 2050s, we see that within a century, agricultural production must support 10 times as many people per unit of land.

So, given all this finite amount of arable land, increasing agricultural efficiency is a necessity. Studies indicate that efficiency has been constantly improving year by year. That means that the agricultural sector has higher added value annually.

Despite fluctuations of inflation, the global food prices are not relatively growing and that's mainly due to the agricultural 4.0. The transformation driven by the technology advancement and these innovations that enable more efficient farming and resource management. And it is important to emphasize, and that's our history, and also I would like to take this message with you, that beyond a certain point, efficiency cannot be further increased through traditional methods alone. Simply introducing additional machinery, such as tractors or precise farming equipment, will no longer yield significant improvements.

Instead, efficiency gains must come from reorganizing and restructuring processes, leveraging digitalization to its full potential. However, this does not mean fully automated autonomous tractors or machines will take over production overnight. Transformation is a long and demanding process and requires years of dedicated effort.

Allow me to share our insight, our approach and our history and how we define digitalization in place, in practice. Many of you may not find it surprising how the human decision-making works. We often follow a simple model.

People perceive and process data through their senses and intuition, evaluate it, make a decision and then determine the appropriate course of action. While this may sound basic, the methodology has underpinned agricultural operation for centuries. And we are fortunate to live in an era where technology can support each step of this decision-making already.

Digitalization has brought significant change in four key areas of the Hungarian agricultural sector. Data processing, data production, data management. The second one is communication, automation and lastly, robotics.

Today, I would like to focus on the strategy principles related to the data as I believe that while the other three areas are well represented, even on this expo, the significance of data often receives less attention. It is crucial to understand that Hungary, having been part of the Soviet Union for decades, conditioned farmers, machinery and the agricultural support systems to maximize production volume as a centralized market absorbed all output. However, maximizing volume does not necessarily equate to maximizing profitability.

As mentioned in yesterday's keynote speech, which I fully agree with, rigged regulatory environments and outdated practices hinder efficiency. This must be placed with supportive policies and enhance efficiency and promote data-driven decision-making. And I can tell you we are doing it for 15 years already and we are not yet finished.

This brings us to the concept of agricultural 4.0 and the significant transformation that we are all facing. For centuries, farming methods remained relatively unchanged. However, with the advent of mechanization, new possibilities emerged, just as they did in many other industries.

Precision agriculture further improved efficiency and the era of smart farming introduced service-based solutions that made the latest technological advancement and decision support systems accessible to the general public. The future clearly lies in the adoption of artificial intelligence-based systems. And while we are not there yet, so AI is not an integral part of the daily operation, the exponential growth of agricultural data and technological advancement make adoption of digital tools inevitable.

The human decision-making alone is reaching its limits. And what it means in practice, let me show you through the example of the National Stat Farm, by defining different decision-making layers and levels and by placing individual subsystems in the appropriate places, the previously presented cycle of measurement, decision-making and intervention becomes easily identifiable. The National Stat Farm is one of the model farms in Hungary, the express purpose of which is to demonstrate technological possibilities and, if necessary, to educate farmers.

In this farm, based on the data of grain harvested with precision tools, the agricultural land is sampled, relying on big data analytics and sensor data, it is evaluated and

decision-making is prepared with appropriate machine learning and artificial intelligence algorithms. For example, a proposal is made as how the nutrition should be applied to a particular area, in what quantity, in what time, and if the appropriate decision has been made, an application plan can be developed for the machines. Hungary's agricultural strategy emphasizes a strong basis on data management and integration.

Today, it is undeniable that the sector-wide artificial intelligence strategy is necessary to analyze agricultural data process and process it at a national level and develop intervention plans. Consequently, Hungary's digital agricultural strategy includes the establishment of central data repository to ensure collection and sufficient high-quality data. The insights derived from these data analyses will be fed back to the farmers to enhance efficiency.

It is also essential to recognize that no matter how well-intentioned an operational program or strategy may be, the government intervention has its limits. This is why Hungary's strategy explicitly defines the role of integrators, the private sector stakeholders whose involvement is crucial for the successful implementation of governmental initiatives. And as a part of operational programs under this strategy, two of them I would like to highlight.

One of those initiatives addresses a critical gap. Despite the challenges of global climate change, farmers lacked access to reliable weather forecasts. To address this, a nationwide network of naturological sensor stations was established and supported by an infrastructure capable of generating specialized agricultural forecasts.

These data are freely available for farmers through relevant ministry. Another impactful initiative is the National Ice Damage Reduction System, a project that would have not been feasible through private funding alone. We identify vertically as pillars agricultural production, agricultural processing, and the further life cycle of the processed products.

The Hungarian Digital Agricultural Strategy has organized its operational programs through these several pillars horizontally and approaches through these strategic elements to complement each other and all to contribute to the success of agriculture. It is, again, inevitable that achieving specified goals is impossible with private sector actors. Programs have been defined for training farmers, consulting and developing the innovation environment which are unthinkable without industrial actors and the expertise they have collected.

There are, however, good examples and we have created so-called regional excellence centers by simply giving targeted funding and sources. The goal to create such centers was preference, and there is no doubt in that if not in other industries, then certainly in agriculture. Those solutions that can be grasped, seen or even tried convince farmers much better so it's much easier to integrate into daily tasks and to have the bloodstream of agriculture as such much sooner.

To conclude, I would like to highlight a few specific examples and best practices from Hungary's agricultural digitalization effort introducing one of these excellence centers and hope that they may serve as an inspiration for you. The first one is the power of

visualization. We receive data from machinery, precision agricultural machinery, which is really hard to understand for the human being.

Visualizing those data, creating problem maps or nutrition maps, that's already an input for the next step. The same goes for temperature values. In Hungary we have faced grain storage problems since there is a conflict next to us, so everyone was storing grain without the right knowledge.

Grain was rotting inside the storages. Visualizing temperature values inside a silo or inside a freezer or whatever unit makes the processes understand much easier, much quicker. Also if we turn it around, there are techniques available for the machines to understand what is happening around them, so we can track and monitor different animals and by monitoring them we can track their health, their growth and we can intervene if needed.

One aspect I rarely hear of is the logistic aspect of the agriculture. No matter how cost efficient we are and how much productivity we have, if we lose everything on the logistic way, visualizing the right targets and also creating kind of logistic routes according certain goals like cost, time or CO2 emission even optimizes the way agricultural production can support the population. And lastly, this is the slide, what really worked in Hungary in the digitalization journey.

Farmers, obviously they don't understand technology deeply, so they rely constantly on consultants and integrators. And if they have the right consultants available, they can specify the needs accordingly and then after they can choose the right products what integrators offer. All this in hand, all this in mind, I hope you may find inspiration from our progress, what we have done in Hungary and in case of any questions, I'm here and available for the whole day to you.

Dr. Fateh Marri

Thank you very much. Thank you very much Mr. Balint. He had an excellent presentation and we all understand that agriculture sector needs modernization and for modernization investment is required.

And that agriculture sector needs technology so that it's efficient and transparent. To link that information, I think Pakistan also needs to grow efficiently in terms of agriculture, to be competitive so that we increase exports and to be productive so that we could substitute some of the imports. My dear friend, Muzaffar Manghi, he is CEO of Farmdar and he will make his introduction of Farmdar by himself.

But Farmdar is an organization from private sector, it's a private sector entity that promotes technology and adoption of technology by large scale and medium scale industries to promote agriculture in Pakistan and they have some of the global experiences as well. So I'll request Mr. Muzaffar Manghi to have his presentation on technology and role of Farmdar in use of technology in Pakistan and outside. Thank you very much.

Mr. Muzaffar Manghi

Assalamualaikum everyone. Thank you all for your time. I know it's early in the day and I'll try and keep this as insightful as possible. Our Hungarian colleagues have raised some very, very interesting points.

If you have time later on today, please do catch up with them and try and understand how they overcame their digital transformation journey in agriculture. I believe that a farmer thinks like a farmer no matter what part of the world they're in and their response to technology is more or less similar wherever it goes. A very interesting point that they just raised right now in their presentation was the role of integrators in the spread of technology.

And I think the role that all these corporates that we see over here today is absolutely critical in making the use of technology more common and making technology feel more usable and for it to become the norm because to expect farmers to walk towards technology by themselves is perhaps asking for too much. With the kind of climate impact that we're seeing, especially in countries like Pakistan, with the rise of input costs, with overall farming becoming more and more difficult, I think the onus and the responsibility of driving technology in agriculture and the ultimate beneficiary being the farmer, that onus lies with the people sitting in this room. And what I'd like to showcase is some technology that's been made in Pakistan because of the organization sitting in rooms like this.

It is now being used in Brazil, Vietnam, Thailand, Indonesia, Cambodia, and in Pakistan as well. Three years ago when we started our journey, we had an ambition of going direct to farmer. A few weeks into it we realized that perhaps that's not the right way and working with corporates who have the infrastructure, the means and the motivation to drive that value to farmers is perhaps a better way.

And it appears to me that that's the formula that's working. So what I'd like you to take out from this is not just, okay, here's technology in Pakistan, but also the fact that there is a role for you to play and this is evidence of that role having an impact. So what you're seeing right now, I'd like you to view technology as a toolkit.

The same screwdriver can be used in a number of different applications. So what you're seeing right now is this product called CropScan. It uses AI and space technology to understand what is the crop layout of the country on the ground.

And let's just zoom into, say, an interesting area. You can see the districts forming, and from the districts you can see the union councils and the seals forming. And I'd like you to keep your eye on this area over here.

And essentially what we're showing you now is through satellite and AI exactly how much maize was on the ground in the spring of 2023. It's going to take a few seconds to load because the Wi-Fi is a bit laggy. There you go.

So everything that you see in blue over this part that I've asked you to focus on is what we detected as maize in the year of 2023. Now while you have the ability to look back at multiple years, up to 10 years historically, and find out what was happening on a union council level, what I'd like to showcase is when you start following a single piece

of land and the kind of insight that reveals. So after maize comes rice, and we wanted to track how many of the maize farmers were also planting rice.

So just as soon as... there you go. So everything in red is rice in the summer of 2023 that was being grown on the exact same field as corn in the spring of 2023. And after that we wanted to track what happened in that field in regards of potato.

And now whatever you see in yellow is the same field which was once maize, then became rice, and then became potato in winter of 2023. But here's where things get really interesting. When we did a crop scan in January of 2024, we found an overlap.

And now the dark blue dots that you see, it's going to take a second to load. Right. So everything you see in dark blue in January was wheat.

This is the same piece of land that nine months ago was maize. And this kind of data gives a three-month lead time to our customers on exactly how much less maize there will be in 2024 compared to 2023. And that lead time has a tremendous impact not just in terms of planning of manufacturing, how much seed needs to be imported, how many dollars need to be sent out, but also in terms of your warehousing, where should the warehouse be, who your distributor should be, what kind of margins a distributor should have, and truly what is the sales opportunity right down to union council or a customized level as well.

And this kind of data, the only reason we've managed to create this is because organizations like sugar factories, fertilizer companies, seed companies, they realize the value of it. So the role of the integrator in the proliferation of technology in Pakistan is absolutely critical. Now what you've seen is on a macro level, like countrywide or continentwide, but even down to a farmer level, there is impact to be created.

And we're working very closely with some fantastic businesses in Pakistan. I would like to give credit to the FFC team. They understand, I think they really get the concept of value creation with the farmer not being an overnight magic wand, and really going to the farmer and explaining how they can kind of create impact.

Now some of the impact that you can create on a farm level is in terms of high quality decision making. Some of the impact is in terms of timely intervention. What he was going to do anyway three weeks down the road when it might have been too late, he can do today where the problem is not as big as one might have expected.

Or sometimes it's right in the shape of savings in terms of input costs, and ultimately we're doing all of this to increase the farmer's yield. So I won't spend too much time going into the granular details of what these products can do, but say once you've digitized a farm, and these can be digitized automatically, you can see the details of what's happening on the farm. Now for example, this farm that you're looking at, what this tells us is a five-year historical productivity of this particular farm.

So this means that historically across the last five years, irrespective of a disease event, irrespective of a climatic event, this part in dark green has been higher productivity in comparison to the lighter green. Now this opens up a series of opportunities for farmers to use their most important variety or your most important crop. So there's a

sesame trend now, and farmers can choose to use a certain part of their land which has the highest productivity historically to plant their best commercially performing crop.

Where to do a soil test. So if there's a certain part of the land that has historically been low yielding, satellites may not be able to tell you, or even remote technology may not be able to tell you, how much of this land You have, say for example, this is an interesting one where you can compare the nitrogen uptake of two fields side by side. This could be used from a monitoring perspective, but from a climate angle, this really mitigates the use of nitrogen inputs, which is a synthetic input, and it also allows you to understand where this is required and yellow means this is the area for applying nitrogen.

And there's a number of these reports from a weekly based plant health, fortnightly yield prediction, biomass change, plant health, soil organic matter levels. It really depends on what the use case is. But in our experience, when we spoke to the farmers and we gave 17,500 free trials, a vast majority of them said, this is the future.

When we asked them if they'll voluntarily use it, they said no. And when we wanted to know if you think this is good, why would you not use it? They said, well if it's fantastic, why aren't the big companies using it? Straight from the farmer's mouth. And that's the role we all have to play over here.

Whatever technology resonates with your business and your business challenges, when they talk about agriculture 4.0, it was because the people in power and positions of influence decided to take matters in their own hand and drive change on the ground. The change did not happen by itself. So I thank you for your time and if there's any questions, I think we can maybe take them later on.

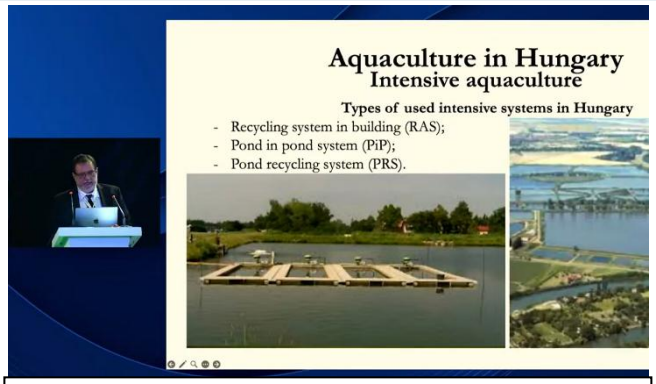
Dr. Fateh Marri

Thank you all. Thank you very much, Manghi Sahib, for your excellent presentation. You spoke about technology, crop models, agricultural productivity and support to large-scale and medium-scale industries, factor markets, banks and others to improve agricultural productivity at farm level.

Now we have two presentations on fisheries and you all understand that fisheries is important for everyone across the globe and Pakistan having over 1,000 kilometers of coastal line and coastal areas, wetlands and others. So fisheries is really important to us and we have an excellent speaker. We have two speakers.

I'll request Dr. Sandor Gorda to have his presentation on fisheries and aquatics.

Dr. Sandor Gorda



Dr. Sandor Gorda presenting on Aquaculture in Hungary

Ladies and gentlemen, dear organizers, dear guests, I would like to say a few words about the Hungarian aquaculture, how we developed and what kind of problems we have. As earlier you could see, Hungary is a small country and a landlocked country in the real heart of Europe.

You can see the population looks like half of Karachi and the territory is smaller than seen and the density is very low but our GDP is more or less the same as Pakistan's GDP but the GDP per capita is really higher than Pakistan's GDP. In the... Okay. You can see the GDP in the agriculture is only 3.2% of the GDP coming from the agriculture but inside the animal husbandry the fisheries is only 1%.

So this is not a big industry in Hungary and our main species is the common carp. The aquaculture has three forms in Hungary. One is the traditional pond fish culture and the second one is the intensive culture and the third one is the capture fisheries.

This is the intensive and this is the capture fisheries which is happening on our natural water. If you see, this is the traditional aquaculture in an earthen pond. It's very fluctuated year by year which always depends on the amount of the rain.

If we have a lot of rain we can fill a lot of ponds so we can produce traditionally more fish on a bigger area because we have water but in the dry years we cannot fill the ponds so the production is also lower and we have a deficit. The main species of the pond aquaculture is the common carp. Second one is the Chinese carp bigger than silver carp which is also an important species which are also important species in Pakistan and also we have a grass carp.

We are breeding grass carp also. Here we have a European catfish and other two predator fish which has importance in Pakistan. The product is 733 kg per hectare you can see is very low.

The traditional pond aquaculture has some problem has some advantage for example it needs a large land area to produce this pond aquaculture. Our biggest farm in Hungary is 5000 hectares big when the biggest artificial pond is 500 hectare. As I mentioned you it has a very large water demand if we have enough rain we can fill a lot of ponds.

If we haven't got enough rain we cannot fill so the productivity will be also lower. The production depends on the weather. We have a seasonality because during the autumn time and before the winter we can collect or harvest the fish from the pond.

So the supply during the year is not continuous. A lot of animals eating the fish so we have a high damage from the protected animals. You can see here the cormorant for example and we have a relatively long production cycle.

We need three years long time for the production of the market size fish of the common carp. But the advantage is the pond aquaculture is very flexible. We can change the strains or races what we can produce.

Low labor requirement except only the harvesting. Utilization of free natural food is very cheap because it's no cost. Production of organic product is also possible so we can produce the biodiversity conversation is supplied by the EU.

At the moment it's 100 euro per hectare what the farmers can receive from the European Union. And the alternative utilization is also possible for example the bird watching or the angling which is very popular in Hungary so we can use the fish ponds for the tourism. Also the next slide will be the fish consumption.

How we increase the fish consumption in Hungary you can see from 2013 we have a high increasing of the fish consumption and how we produced it. We produced a lot of publication like the cookbooks and spreading freely to the people how they can cook the fish what kind of recipe they can produce in their home. We have a special day every Friday is a fish Friday in Hungary where the price of the fish is very cheap and the people can go everywhere in the big shops, supermarkets and restaurants and they are producing special fish food on a low price and also we have a lot of fish cooking competitions where the people can go there cooking fish feed.

It is a good party with each other talking and drinking and finally there is a competition and there is a gold medal but based on the food. If you can see this is the intensive aquaculture. In the intensive aquaculture also we had a we increased it rapidly and also the fish consumption was increased and as you saw earlier on the slide the intensive aquaculture was increased a little bit later and followed the fish consumption growing but the pond aquaculture for the problem of the water supply from the rain is stagnated.

This is on the same level so the intensification was the way which produced enough fish for the increased fish consumption. In the intensive aquaculture the main species is the African catfish. As I know the Pakistani people are not really familiar with this African catfish.

It is mainly produced for the meat. The second one which is very important the sturgeon and starlet is also produced for the meat but the main product is the black caviar and we have some trout production also and very few other fish production. In the intensive system if you can see there are three possibilities.

One is when the fish has a low price but high productivity. This is the African catfish because we can produce 400 kg in one cubic meter but the price is very low on the market so everybody can buy it because it is cheap. The next form when the price is very high but the productivity is low it occurs in case of the trout and sturgeon.

This is a completely different industry. And the completely wrong combination when the price is low and the productivity is also low. For example in case of the common carp which is 60 kg can be produced in one cubic meter but the price is only 3, 4 or sometimes 2 euros so this is the completely unusable and not following method.

What is the problem and what is the advantage of the intensive aquaculture? For the intensive aquaculture you need a high energy. We need to use a lot of electricity and a lot of fuel if we want to produce a lot of fish in the intensive aquaculture. We need to supply we need to make a continuous water supply of the fish.

We need a well trained or well educated employers. We need to use significantly more antibiotics and synthetic things during the production. We have a very big problem with the animal welfare in the EU because they want to produce the happy fish.

In Denmark they introduced the happy fish. They have a lot of regulation how many fish we can keep in one cubic metre. What oxygen level, what sunlight we need to give them.

It will be a really big problem in the future I think. To establish intensive aquaculture we need a high investment because we need to buy every pump, every tank, every material that we need. A small technical problem for example black out can be big. We always can use a new species during the production.

More easy to produce the fish for the processing factories because the processing factories always need the same size and same weight fish for using the automatic processing lines. In the ponds the fish are living in a different place and the food is more or less but not the same in every place but in the case of intensive culture we can produce the same size fish which is good for the processing industry. We can increase the intensification easily and we can use the modern biotechnical and biotechnical procedures.

What kind of intensive aquaculture is in Hungary? The first one is the tank aquaculture which is happening in a closed building. Everything is completely artificial but we were thinking about how we can use the extensive points for the intensive production and this is the two samples. We call it the pond in point.

When the cages are in the extensive point, the cage includes the fish intensively. When the extensive point makes the biological cleaning of the wasted water by the intensive culture and the next one when the small points are built at the side of the extensive and the extensive is a biological filter. The third form is the angling or the sport fishing.

You can see some numbers from 2013. It is not allowed to make a commercial fishing or fisheries on the natural water. Only the anglers can use the big lakes and rivers which are 160 thousand hectares big.

More than 1 million Hungarian people have a licence for angling which is more than 10% of the total population of Hungary. They can take the fish home and cook it but they need to restock the fish into the natural water for the next year for the other anglers. They are buying 32-33% of the traditional pond production every year.

The last one is some advice based on our practice.

Mr. Faisal Iftikhar

Nowadays there is a significant race for the use of water resources. Everybody wants to use the water resources. They need to next other anglers.

They need to use the resources they have the share of fisheries is the same as ours which is 1%. Them being landlocked they have limited resources of water. For us there is an opportunity because we have this marine coastal belt.

We have 1,001 kilometers of coastline, which can be utilized. Over the course of two days, you will hear a lot about the opportunities that lie there. But the main thing is, how are we going to tap those opportunities? So it is very pertinent to understand that for any type of water, there is a fish available.

As we have heard yesterday, most of our land, which is millions of acres of land, is underutilized because of the quality of water in that area. Or as we have seen, even in a good agricultural belt, 10% to 15% of that land is highly saline or have water logging or salinity in it. So we have a fish or a shrimp for any type of water.

So we can actually convert that land that we see as wasteland into more productive than any other agricultural product that we grow. So we have to really look at a complete perspective of every agricultural project in which, as I was just discussing with a few of my friends, that fisheries or aquaculture can complement agriculture in certain ways in order to help them achieve the profit targets that they are looking for in their entire project. So any agriculture project cannot be fully profitable unless and until you add a little bit of aquaculture into it, because you're already using this water for your agriculture.

If you have a reservoir, you develop a reservoir for your agriculture products, that reservoir can bring you more revenue per acre than any of your crops that you'll be growing. So once we look at agriculture, we have to look at the opportunities that lie within that project compared to agriculture. So as we have seen that the saline belt of Muzaffargarh, Sargodha, Rahim Yar Khan, and Bahawalpur has been converted into shrimp farms in Punjab.

This is something that Sindh needs to learn from. Balochistan has huge coastal opportunity that they are not engaging it. But when we hear our government people discussing about the problems, we would rather hear them talk about solutions.

What they are actually doing in terms of solving those issues, because we heard a large, long speech from the commodity advisor from Punjab about, there's nothing left. It's very bleak. The situation is very bleak.

Rather, if she had spoken about the things that they are doing in terms of solving those issues, that would have been a more engaging speech for us. So we see a huge opportunity within Pakistan, which is happening. 2025 is a very interesting year for aquaculture.

A lot of things are happening in the aquaculture scene. We have seen the investors engaging into it. So I think from the model that we have heard from Hungary, we can learn a lot, and we can actually go further from what they have done.

Dr. Altaf Ali Siyal

Ladies and gentlemen, good morning. It is an honor for me to be here with you at this event, focuses on the agriculture and how can we maximize the agricultural products and reproduce the agriculture of high quality so that we can have more exports, increase exports, and how can we collaborate with Hungary in this context? So I will highlight a few points.

And we are from the Agricultural University will help in promoting the agricultural exports, increasing the agricultural yields. So first of all, we have the one area where we can focus is the agricultural innovation and research. You all know that Pakistan is facing climate change, impacts of climate change.

Sometimes we have high floods. And then we have the droughts. So there's a lot of need to have a research on innovative varieties which can resist the droughts as well as floods.

And in that context, Hungarian universities are already working on some varieties. So that area is also there where we can have to focus on for collaborative research, for innovative varieties which can withstand the impacts of the climate change. The other area is the efficient use of technology.

In one presentation, it was saying that we are moving at the stage of fifth stage, from labor intensive to green revolution. And then now, Europe and other countries are moving to the robotics technology and that one. And we are still in the green revolution and labor intense and planning to the precision agriculture at this stage.

So, that area is also weak in Pakistan. Government is trying to utilize the micro-irrigation methods and precision agriculture. But the farming community is still reluctant to adopt those ones.

We can mutually conduct the research and how can we motivate the farmers so that we could also take a step with the world in adopting the innovative technologies such as the remote sensing and GIS, smart irrigation systems, precision agriculture, digital platforms to monitor and map the agriculture products. You know that we get the crop estimates, especially for when the crop is over. We don't have idea that how much crop we are going to get, how much production we are going to get at the end.

So we can't plan that how much production will be there, what would be the price. So it's difficult at this stage. If we adopt the digital platforms, remote sensing, GIS technology, and other tools, then we can have the clear picture that this amount of wheat we are going to get.

And then we can fix the prices and all other innovative ideas so that the farmers get the proper price. Then we have education and skill development. This area, we can

collaborate with Hungary because they have developed many new technologies and they are adopting.

They are practically using those ones. We can develop the skills of the farmers, the students, and the faculties so that to make the production, it's not only the agriculture, but we have the dairy technology. We have the aquaculture.

We have in Balochistan and Sindh, we have more than 1,000 kilometers long coastline. That can be used for aquaculture. There are a few farms I know, near the KT Bandar and that area.

They are growing the shearing lobster. And now they are using to catch the crabs as well. And as I already told you, the climate is a burning issue and Sindh is at the tail end of the river system. When there is high rainfall, the whole area is going to be flooded. And when there's a shot of rainfall, especially during the monsoon, the Sindh faces the critical water shortage issue.

How to get rid of that one? That will also be done through the research, through the innovative ideas. And there is a huge gap, what the Europe and other countries, Hungary, is doing there and what we are doing. So there is also a need that we have mutual visits, mutual trainings, collaborative research, capacity building of the farmers, faculty, and the students, and that sense also.

And then we have the policy. Policy is very much important. You all know that two years ago, we sold the wheat at the price of 4,200 per month.

And now the wheat is going to be sold at 2,500 only per month. The imports have doubled. But the output prices have gone very, very, very low.

And farmers are not going to get even what they have input in the agricultural production. So there is no mechanism. There are no support prices.

There is no insurance of the crops. So there needs to be a strong policy. If there is no policy, certainly, I have learned, and even you have seen in the social media, the farmers are using the wheat crop for fodder purpose because they think that they are not going to get the price what they have used, they have input into the wheat.

So we have to think about that. And in Hungary, they have these support prices. They have insurance, all those things.

And farmers feel secure there. So we, the policymakers, they have think about that one, that develop the policies. We should learn some from Hungary.

And we should adopt those policies so that we can develop our agricultural production and produce the export quality agricultural production so that there is a big venue in the European Union in different countries where we can increase our production and increase our quality of the production so that that could be sold there. Hungary imports about 46 million agricultural products from Pakistan, total products from Pakistan, and only 4 million is for agriculture. We have to think about that one, how can we maximize the exports of Pakistan, especially the agriculture one.

Dr. Fateh Marri

Thank you very much. Sindh Agriculture University is always open for any collaboration on research, faculty exchanges. Thank you. Dr. Altaf spoke about the exchange of students. And I'm really happy to share that the government of Hungary every year offers 200 scholarships to Pakistani students. And both of the sides are very happy. So let's appreciate.

I think we can enhance the collaboration in a focused way for agriculture. And we had excellent presentations on the agri-tech, attracting investments in agriculture, and the experiences of Hungary, experiences from Pakistan, experiences of academia. And we are towards the end of the session.

We'll open the house for a couple of questions and comments at the end. And I'll also introduce the students who are attending from Sindh Agriculture University, and they are sponsored by the Embassy of Hungary in Islamabad. But before I open the house for questions and comments and introduce the students, we all understand that agriculture in Pakistan, one, that it's credit-thirsty.

It needs investment. And number two, the good news is that currently, the educated class and people from urban areas and youngsters, they are interested in agriculture. And they are coming forward to invest in agriculture.

So the idea of crowding out is somehow being discouraged. And an investment is coming into agriculture. And you could see for the last couple of years, or I think a few years, agriculture had been growing consistently.

That is the strength of agriculture. And if we take the history of agriculture and improvements in agriculture in Pakistan, I think for 125 years, last 125 years, we had four major breakthroughs. First breakthrough was when in 1904 or 1906, we started constructing canals on river Indus.

And we went for multi-cropping. We were monocrop at that time. And second breakthrough was when we constructed Sakha Barrage.

Third breakthrough was when Sakha Barrage was first barrage on river Indus. Third breakthrough was when we started Green Revolution. And Green Revolution in the 60s, we had diversified our agriculture.

We had brought significant improvement. If you remember in 1972, the population of Pakistan was 72 million. And we were short of wheat flour.

It was on rationing. We were short of sugar. It was on rationing.

And earlier, we were even short of textile. But now we are self-sufficient. Having said that, I think from the 90s onwards, agriculture in Pakistan is somehow facing the question of stagnancy.

So it is stagnant. It has to grow. The solution is, as has been said by a number of the experts sitting on the podium, precision agriculture, agri-tech, value addition, better investments in agriculture.

And the last point is that for the last 125 years, we have been focusing on irrigated agriculture. And that is river basin-based agriculture. Now it is time to diversify our agriculture as well.

And diversification means the urban agriculture, very urban agriculture, and agriculture in the arid areas. And then, of course, we heard about marine fisheries. We heard about aquaculture.

We heard about this wetlands and fish production in the saline districts of Punjab. And that's a major initiative. I think the other governments will also follow that initiative.

Question and Answer Session

Dr Fateh Marri

I will open the house for a couple of questions. Yeah, let her do. So for a couple of questions, I think two questions are comments from the audience.

Please raise your hand, introduce yourself, and ask the question. But be specific. Thank you very much.

Thank you very much. I'm Malia Nawab from GIZ Pakistan. My question is for Farmdar.

So how do you help small farmers with limited digital literacy understand and use the data for, let's say, climate-smart agriculture practices?

Mr. Muzaffar Manghi

I'd like to kind of speak a little truth about the farmer-level technology that's available. So what I showcased was two different sets.

One was macro, and one was micro. And what you're referring to is the field level, or what is referred to as crop monitoring, generically. Now, unfortunately, I am yet to find any solution, including ours, which works like an iPhone, where you put in a SIM, you enter your Apple ID, and you never have to speak to Apple again, and everything works perfectly.

It's not as simple as that. Maybe one day it'll be. Companies like us, as well, also like to strut on LinkedIn, making it seem that everything just happens by itself.

It does not. And it's a bit technical in how it works. But the good news is, whereas you have this young generation of farmers, I mean, we're an extremely young country.

You have this young generation of farmers' children who no longer want to be in farming. That's because they've been exposed to technology, like TikTok, like Instagram. And suddenly, the penny has dropped.

And they're like, oh my God, 50 kilometers away from where I live, people live happier lives or much wealthier lives. And that same technology has already enabled them. And I think what's worked for us is we have used their existing technologies as a benchmark of digital literacy.

And so if you're not trying to reinvent the wheel, I'll give you an example. If you're using your notifications button in the same place where TikTok uses it, that's fine, because that's where they know where to look for a notification. It's a small example that I'm giving.

So that approach has given some traction. Again, I don't want to indicate that we've changed the face of Pakistan. We don't like using the word revolutionize.

Nobody's revolutionizing anything. But this is something we feel has taken hold with the small farmer. The most important thing over here is we're working with seed companies, fertilizer companies, and sugar factories.

And I think a sugar factory is a very good example. So in some parts of Punjab, the size of the sugarcane fields that a farmer has and he grows for a farmer are as small as one acre. That's barely sustenance farmer definition.

When we provide these crop analytic reports to a sugar factory, and they are driven by pure capitalist greed to reduce the amount of fertilizer that they have to give, what exactly happens when we provide them a report? They take it to the farmer. And they say, this is where you need nitrogen, and this is where you don't need nitrogen. Exposure happens by default.

So the first year, it was kind of Greek to farmers. The second year, the farmers started becoming familiarized with it. The third year, farmers have asked the sugar mill, what's that report that you came with last year? It takes time.

But the point I was trying to drive was that digital literacy impact on a smallholder farmer's livelihood or how they do farming, we have to do that. All of us in the room have to do that. You can't expect the farmer to just say, fantastic technology, take my money.

It's not going to work like that in Pakistan or in any part of the world. And if it has, I'd like to hear about it. So sorry, that's a long answer.

But it's a fairly complicated question that you asked. Thank you very much, Mangi Sahab. I think in the interest of time, we are already over and running the session.

Dr Fateh Marri

Now I will recognize the participants from Sindh Agricultural University, Nizam.

They are students. They have been sponsored by the Embassy of Hungary. In Islamabad, we are thankful to the embassy for sponsoring their participation.

Mr. Ghulam Fatima Nizamani, she is a student of social sciences. Mr. Inayat Brohi, a student of social sciences. Mr. Vinod Kumar, Raja Vinod Kumar, he is a student of Institute of Food Science and Technology.

Mir Hassan Bajarani, he is a student of social sciences. Alaa Warayo, he is a student of information technology. Surya Sindhi Tunyu, she is a student of information technology.

Aksa Noor, she is a student of poultry medicine. Yasha Abid, she is a student of veterinary parasitology. Suhera Noor, she is a student of energy and environment.

And Ms. Saima Rend, she is a student of information technology. And I'll request them, if they are in the hall, please rise on your seats so that everybody sees that you are attending this session sponsored by the Embassy of Hungary. So thank you very much, Pakistan Agricultural Coalition.

Thank you very much, the panelists sitting on the podium. And thank you very much for your interest in this session. With this, the session is closed.

Session 10: Empowering Farmers through Public Private Partnerships

Speakers:

Mr. Huzefa Mazahir Ali, Partner, EY Pakistan

Mr. Fahad Ansari, Senior Director, Public Private Partnership Unit, Government of Sindh

Mr. Tanveer Hussain, SEVP & Head Commercial Banking, Meezan Bank

Mr. Ali Badruddin, Partner, Bunyaad

Mr. Ali Shah, Principal, Kearney

Mr. Ghasharib Shoukat, Founder & CEO Zarai Mandi

Mr. Huzefa Mazahir Ali

Mr. Huzefa Mazahir presenting on public-private partnerships.

Good morning. Hello.

So public-private partnerships, PPP is in short, now in Pakistan, public-private partnerships really started in earnest sometime around 2008 or 9, where the government of Sindh initiated a public-private partnership project. This was more of an infrastructure project. At the same time, the federal government was also undertaking certain initiatives around public-private partnerships, but these were typically in the infrastructure sector.

What is a public-private partnership? Public-private partnership is essentially a contract between the government and the private sector, where the government invites private sector to help them in meeting certain social and public objectives. So whether it's provision of utility services, whether it's provision of social infrastructure like hospitals, schools, or other such initiatives. Including now for investments in climate change and mitigation scenarios.

These contracts are structured in a manner where private sector brings in their efficiency. The risk allocation is done on a manner where both parties, whether it's government or the private sector, are taking on risks which they are capable of undertaking. For instance, things like political force change in law, et cetera, is borne by the government.

And the private sector takes risks which it is capable of. But what we're looking for in an arrangement like that is essentially to bring in private sector efficiencies and skin in the game. When you say skin in the game, a typical public-private partnership contract only passed the test of it being a suitable PVP if it's a sufficiently at-risk contract.

So the private sector has incentive, both the incentive and in case they're not performing, then there is a penalty which is sufficient to make them perform appropriately. Now this might seem like a bit of a word salad, so I will try to explain using example in terms of what it typically entails. I'll give an example of a social sector project.

So, for instance, an education initiative under public-private partnership where the government had decided to outsource, say, certain schools. The private sector comes in, takes over the school management. The infrastructure could be provided by the government.

They're entitled to receive payments per the number of students which are studying in those facilities. And in case the learning outcomes which are measured through a balanced scorecard do not improve in the manner that was stipulated in the program, then there are certain deductions and penalties which compel the private sector to make those investments and bring in the requisite expertise to ensure that the KPIs are achieved. Now I'll talk a bit about public-private partnerships in Sindh because Sindh is a province in Pakistan which has a leading position in the public-private partnership space.

Not just in Pakistan, this is acknowledged by Economist Intelligence Unit. They in fact achieved the sixth best rating in Asia-Pacific on their public-private partnership process and projects. They also won a lot of awards and that's just to demonstrate that the projects that they're doing have been recognized not just locally but across the region and internationally.

And why I'm focusing right now on PPPs in Sindh, although I think all other provinces and the federal government have active PPP programs, is because the government of SIN wants to undertake certain public-private partnership initiatives in agriculture sector. Now what these are and how these can be achieved, I'll speak about that. So I think one major problem that we see in Pakistan's agriculture sector is our productivity.

Our productivity is an issue that we face in the economy generally. Also, agriculture being a backbone of the economy is not very dissimilar. The yield per acre, the quality that we get are all lower.

There's a need to promote mechanization and good agricultural practices in the agriculture sector. So, we right now in ideation phase with the government of Sindh,

discussing certain interventions in the farming space where we can bring in mechanization to improve yield and productivity. And I think we are being supported thanks to the leadership shown by Kazim Saeed and the Pakistan Agriculture Coalition to help develop those ideas which have been discussed.

And I'm here today to give a preview of perhaps what is to come in the next six to eight months in the agricultural PPP space from the government of Sindh side. Okay, so this is a report where you see a lot of losses. One is the issue with productivity in general, the yield per acre and the output quality is not appropriate.

The other issue is whatever we produce, there's significant losses. Losses because we don't have enough storage, the farm to market access is not very good and the produce that we are developing is at times lost and being wasted. These are the low hanging fruits that we also try and target through our interventions.

Now, although I think some of these are not fruits literally, I mean, tomatoes and potatoes will not qualify, but the low hanging fruit is just a metaphor here to try and solve this. So one case that we'll be looking at is rice farming mechanization. What we want to do here in summary is why is the intervention required? Again, our yield per acre is much lower than India, Vietnam, and I think I don't know how to even get into China.

So, what do we plan to do here? In the pre-harvest stage, you could have laser land leveling, which considering the water challenges that we are facing right now would be very helpful. You could have seed plantation in a mechanized way and then the post-harvest, the harvesting can be done in a mechanized way. Harvesters dedicated specifically for rice products.

And because these equipments are available generally, but given the farm sizes, given the dynamics of the local farming practices, these are not widely implemented. So, in a public-private partnership context, we want to bring in service providers who can invest in these machineries and obviously just to scale them up, there will be some support from the government side. Now, what it can entail is, and here I think I want to spend some more time.

In a typical public-private partnership construct, you will have a service provider potentially coming in, investing in that machinery and the government co-investing with them so that they can reduce, they can allow them to access financing at scale. In the infrastructure projects, which have happened previously within the government of Sindh domain and generally in Pakistan, the governments have offered certain form of credit enhancement. Now, what that credit enhancement does is allows the private sector to leverage on bank financing and the government, what it does is provides equity capital at reduced rates or perhaps at times at zero rates to reduce the actual cost of services.

Our intention is twofold. One is to enable private sector to come in and provide these services by investing in the equipment and the equipment investment can be made possible by government putting in some of its own capital and helping them access bank financing. If the equipment cost can be lowered somehow and the operations cost can be maybe reduced in the initial years, until the time there is gradual market

acceptance of these equipment, you are achieving potentially higher yields and these services are then more affordable not just to large farmers, but also relatively small farmers.

And I think the program that we potentially might assign will allow private sector operators to come in and serve not just the large farmers, but also smaller farmers whose affordability may not be as high, but the government support that is being provided reduces the cost of services to the end consumers and makes this entire proposition viable. There are already some players in these sectors who are implementing, who are providing harvesting services, laser land leveling services and even mechanical transplantation. But we want more players to come in and potentially scale this up.

In Sindh, which provides a bulk of the rice production in the exportable rice production in the country, there's 2.2 million acres of cultivable area which is under plantation. And the idea is to gradually roll out this initiative and scale it up. Maybe start with 100,000 and scale it up to 500,000, a million acres of acreage which is being cultivated in a more harvested initiative in a more mechanized way.

And then gradually going back all the way to interventions around seed so that the quality that we are getting is also standardized. So this is one case that we potentially see as an investable public-private partnership proposition in future. The other example I want to talk about is cluster farming.

Now in our neighboring country in India, the government identified various clusters and to borrow from that concept, the whole idea is that you identify a cluster, let's say Tata in Sindh where there's a lot of tomato cultivation. Pakistan's overall tomato cultivation yield, again, are much lower than China and India but these can be enhanced. So the intervention that we might make there is on three things, pre-production and production, post-harvest management and valuation, and logistics, marketing, branding.

You create a cluster, you bring in private sector operators, channelize investments in the pre-harvest. So provide good quality seeds and make interventions in product quality so that those farmers can produce, say, tomatoes which are then suitable for, say, a tomato pulp facility, right? So the quality can be standardized and then that tomato paste could be utilized in the market or exported. The value that you get on, say, tomato versus, say, the value-added output of it which is tomato paste is 5x.

So in Thatta, the output that they get right now is about $30 million per annum of tomatoes. The amount which goes to farmers is also lower and if we can convert this into a cluster farming, a model like India, I think the value-added potential is higher. But it's not just tomatoes, we're probably looking at other clusters.

I'll pause here and I think we will field some questions in the panel discussions and happy to answer any questions there. Thank you.

Mr. Ghasharib Shoukat

Assalamu'alaikum and thank you for being here today. My name is Ghasharib Shoukat. I'm the Founder and CEO at Zarai Mandi and a Product Manager at Pakistan Agriculture Research.

It's really nice to have you attending the session today and we will be talking about public-private partnerships. The Sindh government has launched an initiative where they are speaking and actively promoting the public-private partnerships and this model that can be sort of brought in for the agriculture space. Given there is so much interest from the private sector and the public sector on investments in agriculture, it's very important for this panel to bring about some formative implementable changes within the agriculture space.

So the first question from my end is towards the government side.

Sir, what do you think that the government hopes to achieve from the models that it has sort of brought up for public-private partnerships? We saw a model of rice development and we saw a model of tomato cluster formation. So can you tell us what the government wants from this model? Because we often see on TV or in policy forums and the government is always saying that we should give priority to the public-private partnerships model. But the government, you've already told everyone, what does it want? Thank you very much.

Mr. Fahad Ansari

The journey of PPP started back in 2010. And since then till now, we have successfully delivered many infrastructure projects like roads, bridges and all that. And in addition to these projects, we have also delivered the health and education sector projects as well.

Now, as far as the agricultural sector is concerned, so we are trying our best to develop commercially viable and sustainable and revenue-generating PPP projects in the agricultural sector. And it's not like that we are only trying to give the benefit to the local farmers, but we are also trying that the private sector investments could come in and with a kind of justifiable profits. I think it would be the best interest for all the stakeholders in Sindh and in Pakistan.

As far as I think that the private sector investment could come in to improve the crops, to improve the seed technologies and to bring in the advanced water irrigation systems. I think these are the areas where the government could work with the private sector and bring in efficiencies. The third most important thing would be that, and the core objective is to bring in the socioeconomic benefits for the society.

And most importantly is that we just don't want that we focus on the crops that is locally acceptable, but also acceptable to the international markets as well. So to export the export potential of the crops that are being produced in Sindh. So this is the most, this is the overall priority of the government of Sindh in the PPPs and for the agricultural sector.

Mr. Ghasharib Shoukat

Thank you for that response. As we know that Pakistan's a primarily young country, right? 65% of our population is under the age of 30, which means that out of every three people in this country, two of them are under the age of 30. There's a food security concern, which leads to, and can we be food secure in the future? If the population is set to double by 2050 or even get close to that, we're looking at a population of more than 400 million people.

Syed Tanveer Hussain

A wonderful presentation given by Huzefa. It was highly encouraging to note that there is a lot of potential in Pakistan, particularly this slide in which he mentioned that we lose and we waste a lot of agri-produce every year, whether it is tomatoes or potatoes or other perishable commodities. We have a very good potential and banks are really open.

As far as Meezan Bank is concerned, we are really open into this sector in public-private partnership, number one. Number two, how are we going to execute this? This is very easy to say that we are open and we are willing to do that. But as our brother rightly mentioned that it was the first, it started in 2010, but it was related to roads, infrastructure and bridges.

But primarily, I have been hearing this since my childhood that we are the agricultural economy and we produce a lot of agriculture. We are highest in sin in few crops in terms of yield. So why we cannot contribute? Number one, sustainability.

Sustainability in terms of water resources. We identify some clusters. How long are those clusters viable? How much crop is high-yielding for how long? Why farmers are required to switch from cotton to sugarcane or sugarcane to rice or any other crop, which is why it may be maize.

These are the spikes in the agriculture commodity and the very reason of this is, unfortunately, we do not have the required data. In terms of banking, there is a common saying that banks, we say banks, but banks are reluctant to do financing to farmers. How will banks do it? Banks will do it by having sector-wise data.

Sector-wise data and the easiest model is to hire an agri-finance officer and lend them. But I am happy that there is a conversation on this that in public-private partnership, the EY model that is being proposed, will banks want to invest in that? In farm mechanization, machinery, in building storage capacity? Yes, we can do that. For that, let's start from this tomato project.

Last week, I met our client. It's a big corporate client. So he said that he has two storage capacity infrastructure built in Sundar industrial estate in two acres.

And Sundar is a very nice industrial state, by the way, in Lahore. So, but they are lying idle. I thought if they are lying idle, then this is exactly the question that Josefa presented.

I asked him that we lose a lot of crops, so why we cannot capitalize on that? So he thought that we will see later, maybe we will rent it out. So he was also confused

because he didn't have data. He didn't know that his logistics, his transportation, storage for how many days, what atmosphere he would need for that cold storage facility.

Yes, he definitely knew what the potential is in which region. Same goes with another commodity. These days, there is a lot of talk about roads, grass in Pakistan.

And SIFC has also played a very good role in it and identified different land pockets. But again, some people who have a big corporate mindset have taken out the data that China may be the big market. And if 50 people focus on it, then there is a huge margin in that.

It can be sold for Rs. 140 per kg today. Its cost is Rs. 30 per kg. And there is nothing in it. It just needs land, water and it needs a seed. Water and land, it doesn't have perishability. You can recycle that crop six times.

So we are open in such projects. But I once again mention this. There is a need to make data available to the financial institutions.

He presented to me that we have private data available and we can give this data at a certain cost. There is no problem, the bank will buy it at a cost. But again, what is the authenticity of the data? Authenticity doesn't mean that you can't tell if the data is correct or not.

How much have you captured the climatic conditions in it? How realistic is that predictive analysis? Having said that, Muzaffar, Meezan Bank is open to your proposal. That's very promising to hear. And I think it's refreshing to hear the honesty that they don't have the access to the data, which is why banks might be apprehensive going into this.

Mr. Ghasharib Shoukat

Now I just want to hear from a farmer and what's going on the field. So Mr. Ali Badruddin is a regenerative farmer, which means that, I'll let him explain a little bit what that means. I don't want to put words in his mouth.

But as a farmer, do you really think that these models, the public-private partnerships, can benefit farmers? And if not, what would make these models more effective for the benefit of the farmer? Okay, so the model will benefit if it is structured correctly. But first of all, let me just sort of gear towards what Muzaffar presented. I have experience with rice growing, and I have also used mechanized solution service providers, and it's a win-win all around.

Mr. Ali Badruddin

The service providers provide a good service, they make money, the farmers get a better yield, they also make money. There's no reason that it makes commercial sense. The only problem is that the equipment is very expensive, and the rate of growth is difficult to achieve. And we need to grow now. We need this in the field. We needed it yesterday.

How that can take place is the question. And I'm also a big fan of private actors acting in their self-interest, making rational decisions. When you subsidize the wrong thing, you create distortions in the market, and that's a problem.

So, for example, banks wanting to finance mechanized farming, to me it's very simple. If there's a service operator that wants to put in certain machines into a certain area, a bank needs to ask for a certain margin, finance against the machines, and you put some tracking devices in so you know where that asset is going and how much utilization they're achieving. But this is a very doable solution.

The government can come in to create the context to make these equipments more accessible in terms of cost, a finance subsidy on the interest cost. I disagree with making the equipment cheaper up front, because then farmers are incentivized to making quick, bad decisions. As long as you have to pay farmers or service operators, if you have to, at the end of the day, pay for the equipment and make it work, you will take better decisions.

But does it work? Mechanized farming works. There's a lot of deliverables for the farmer. Labor issues are sorted.

Accuracy of planting is sorted. Your yields are better. Your water consumption is better because you level the land and you need better accuracy.

There's so many benefits that can be achieved. It just needs to be structured correctly. I think that's very comprehensive.

Mr. Ghasharib Shoukat

Let's turn to the consultants now. We've heard from the government, from the financiers, and from the farmer on the ground. I think the question that now we need to ask, and I'll first come to Huzefa and then Ali Shahid Sahib, is that globally, when we look at the percentage of our agricultural land, we look at how much of that land has been mechanized.

In Pakistan, today we woke up, or yesterday we woke up, a couple of years ago, and now we're saying, we want to mechanize. The method to do that is the public-private partnerships model. For example, our rice acreage was mentioned as 2.2 million.

Was it hectares or acres? I think that was acres, but I think it's even lower than that. Even if we were to say that we'll mechanize 10% of this, that's about more than 200,000 acres, right? There's bound to be a learning curve when you go about that process. There's a lot of things that you would not know when you're experimenting, maybe with your soil types, maybe the irrigation efficiencies, the type of methodologies that you use.

From a consultant's perspective, when you're going towards changing how you have been traditionally doing agriculture, your labor is not trained, you don't have the right things in place to actually achieve the goals that you've set out to. If we were to try to go about mechanizing on a large scale, what would that look like and what would be the process to validate this model so that we can scale it up?

Mr. Huzefa Mazahir Ali

First thing, and I think the good thing, is this model has already been validated. Right now, there are service providers who are providing these services.

I think those demonstration effects have been done. The farmers who have applied these services, they have seen better yields and the product quality has improved. The market is also paying for the quality.

That journey that you have right now, this is no longer in our parlance a green field proposition. This is done. This is potentially already established.

The only question is, how do you scale it up? What is hindering the scale-up? In Pakistan, the labor cost has historically been very low. I think the labor is attached to the land as well. That dynamic has to be navigated, especially in certain areas of the country.

But in other areas, I think the only challenge might be whether they have enough of a critical mass that's available to help these service providers to scale up. Obviously, there is access to capital is one consideration which public-private partnerships can help bridge. The manner in which that can be done could be upfront support or it could be operational support in this form of interest subsidies and the like.

That's just a structuring conversation. The main challenge might be it's not just the equipment import. It's also about having enough resources who can perhaps run those equipment.

There is training component, perhaps new livelihoods being created, and there might be some displacement of existing labor as well. But what you are looking at is labor moving from lower-quality work to higher-quality work. Overall outcomes, the livelihood is improving.

There is a bigger size of the pie. When you expand the size of the pie, I think there is more of it for us to go around.

Mr. Ghasharib Shoukat

This is something that we have struggled with in the country.

We focus on the slice of the pie rather than the size of the pie. I think this is what we need to get to. It's important because we are the fifth largest country in the world in terms of population.

We are massively overpopulated and severely malnourished if we look at other large countries in the world. If we want to enhance our youth's potential, really tap into that, you need to give them a fair chance. If they are properly nourished, if the protein levels are there, if the things are in line, they have education, they have opportunities, only then can they do something worthwhile for the country.

Mr. Ali Shahid

So, thinking from the sub-perspective, where is the money, where is it coming from, why is it coming into a certain sector? We do tend to think about a lot of the agri-opportunities more from a potential perspective. Here it can be this much, there it can be that much, here this potential is available, etc. But, for someone like Pakistan, the real problem right now is the capital.

Mr. Ali Shahid during session 10.

Capital comes, more comes, that will spur the growth. And the capital right now is in GCC. I think one of the things that we've missed historically, especially over the last 5-10 years is knowing what it is that some of those money pools are looking for when they talk about food.

And ultimately two things, they're either looking for food security, or they're looking for return on their equity. And they're very clear about it, that if I invest money somewhere, I need at least this much percent, otherwise I won't go. Or, they'll say, I have these crops, I need rice, I need wheat, I need tomatoes, I need meat, these are the ones I want to be food secure in.

Right? Now, for someone like Pakistan, and in some of these areas, even let's say agri-tech, when we say that, you know what, there's so much potential, and somebody like an international investor should come in and put money in, if we don't map to their strategic requirements, that's not going to happen, that marriage will not happen. And we have very frequently missed on that part. That is a fundamental investor back way of thinking, which we're missing out on, right? So, when we say whether it works or not, it definitely works.

There's money to be had. The question is, should the government write policy and stay away from it? No. That might work in the US, that might work in the European countries, which are more developed, the private sector is more mature, market forces are taking where they are taking us.

I'm not just talking about Pakistan, even in India, even in Nigeria, Ghana, a lot of these countries, the government cannot just step out. Almost, even in Saudi Arabia and UAE, right? These funds, they're activist investors. They don't just put money into a company, they're actively monitoring it and they're looking at how it works.

For countries like ours, you cannot just write a policy and stay away because of two reasons. One is sadly, our government also, the ability to implement some of the laws is also questionable and there's a perception that they cannot happen. So when the government puts skin in the game, there's also some comfort. Government has to be there. Two, there needs to be a certain scale for anyone to come and invest in. And that scale, so far, the private sector has not been able to achieve on its own.

The fundamental answer to your question, it works, it needs active involvement, it needs to scale up, it needs to be in the right commodities, and once you have that marriage, that's when you start getting some of those investors coming in.

Mr. Ghasharib Shoukat

Tanveer Sahib, I'd like to come to you as a financier in this equation.

What incentive is there for you as a bank and private parties under the PPP model to come into this space and actually finance these projects? I've heard from a lot of agri-financiers that they're concerned that the risk profile is so high that they may not be able to recover the money. So, is it worth it for you without, as you pointed out earlier, without the data, to go into this space and make investments that you know that you may not recover? You know, there is a chance that it could be lost.

So, what is the bank's perspective when they look at this scenario, and what do they need to finance all of this? And if we're to scale it up, go into the right commodities, tap the right markets, get that investment, and, you know, facilitate that process, apart from the data which you pointed out in the first question, what else is required from the banks to actually achieve this? See, our goal is not to just have this conversation at these forums and then forget about it.

Our goal over here, as Pakistan continues on this journey within the agriculture and agri-tech space, is to make a change, to implement the things that we are talking about, and we have some very powerful people in high positions of authority to actually make it happen. So, I'd hope that, you know, whatever we discuss can be conclusively brought into action.

Mr. Syed Tanveer Hussain

Yes, good question. Let's break this question into two. One is the public-private partnership type of investment in which bank can participate, and the other one is directly financing to the farmers.

Although, in both models, farmer would be the beneficiary, because in case of, let's say, cold storage project, the interest of the investor would be to maximize the return. That would be the, maybe the big corporate or big sponsor. So, if Mizan Bank and EUI jointly pitch the proposal to a sponsor that this is a very attractive investment, and the return on equity and return on overall the project and IR would be, meet your expectations, so definitely he will be interested.

And so, the bank will also be interested. The next question is, our appetite is there? Yes, we are. Now, the second part.

Second part in which I think you want to ask me that whether there is existence of credit scoring model or what is the appetite of the bank to lend the individual farmer? How are we going to secure our interest? That is the difficult one. And I'll go again to the same point, because the availability of the data. But having said that, with the given space provided by the technology, as you mentioned, we can leverage the technology.

For example, now we are doing in the bank closely working with FinTech, which can provide a digital platform to the bank and we can sync our, because we do asset-backed financing, so we can not lend only to the farmer and take return over and above of the financing. So we have to ensure that there is a proper structure of existence of asset and then we take risk on those assets. It may be any crop.

Although, each and every crop has its own underlying risk associated with that specific crop, other than the climate. It may be a loss due to the farmer's inability to pay due to the drop in prices such as Josefa mentioned that wastage of potatoes and tomatoes. So we have appetite to take such risk, but digitally.

Why I am saying digitally? Because intermediation cost for the bank is very high. The model, the traditional model is to hire thousands agri-offices and just build that cost in your P&L and after one year, you find that there is a change in climate and bank lost against specific commodity financing. So, at the end of the day, you eventually lose money.

So, there is no incentive or interest for this traditional model in the entire banking industry. What we have seen during last 70 years, there are only 3-4 banks which have their aggressive consistent appetite for this agri-finance, but you can call it maybe a social responsibility, not a business case. So, we need to make a business case which is attractive for the farmer, which is attractive for the entire value chain which includes a corporate mechanization ecosystem as well as for the entire banking industry.

I can confirm that this will happen now. Because the people who are sitting here, the top provincial governments are doing right now in every province, in fact, they are now focused that public-private partnership model will excel and this agriculture space need to be capitalized. Considering these factors, I am confident that credit-scoring model though it is not available digitally today, but it can be structured on spreadsheet in the first phase and then gradually we can build a couple of IT companies and we can bring them.

Because again, how would you develop the credit-scoring model? You need data. What are the spending of the farmer? What are the specific agriculture output? What are the resources available to the farmer? What are the fertilizer and DAP prices or other urea prices? What input costs he is going to incur over that specific period in which investment is required? So, all these factors putting together, I must say that our first project with FinTech is related to the sugar crop finance. And once we do this successfully, we will scale it to the other crops as well.

Mr. Ghasharib Shoukat

Now let's come back to the farm. Ali Badruddin Sahib, do you think that corporate players can work with farmers in the way that's been proposed? How do you see this playing out on the farm? So let me just frame that question a little bit better. Corporate is a legal entity.

Mr. Ali Badruddin

We are talking about service providers, be they corporate, be they cooperatives, be it a sole proprietor or a partnership. 100% sure that service provider model will work. And there is a little bit of to the banks, you've got to know your farmer.

In every district, there is an ace player, you need to know him. And there will be 30-40 other players who are aspirational in terms of technology adoption, who will follow through and you will get access to those farmers, to quality farmers, who will do good work and pay your loans back through that route as well. You're missing a lot of the opportunities when you're not talking to the people who are doing the work.

So that's you know, I mean, I think there's a lot of information gap. I mean, there is a lot of data out there. It's being harvested in the wrong way as well very often.

But yes, service providers can help. Farmers would be willing to pay for a service which makes economic sense and most of these implementations do make economic sense. Yeah, I think one of those should also work.

But yeah, just another follow-up question on that. So obviously with the service provider model, what are the different forces at play that, you know, on the farm level interact? Obviously, you know, we have the government backing this initiative. We have the private sector helping it.

But at the end of the day, it's the farmer who has to make that change happen on the field for the yield to increase, for the soil to, you know, have healthy standards and stuff. So I guess what I'm trying to understand is, what does it look like when the public-private partnership comes on to the farm? Like, what does that look like and how is it different from like the traditional sort of space? So, okay, so the government sector, the government's job is to provide context, to provide an enabling context to do work. So when you say a public-private partnership coming on, it's very different from roads and highways being built.

The government doesn't even have to engage in a direct way. I'll give you an example. There was, it's about structuring things correctly.

We had a drip subsidy policy which achieved a certain objective of introducing drip to the market. But there was a major problem with how it was structured. It was structured for 25 acres at a time.

Now, you know, we didn't know what we were solving for. The policy makers structured it in a way that we weren't clear what it was structured for. Are we solving for poverty alleviation or for water scarcity? I believe if you went into this intending to solve for water scarcity, it would help with poverty alleviation as well.

So what we had was, say a big farmer wants to put drip, he wants to put it on 200 acres, he was putting eight systems onto his farm. That means eight operators, eight places where you can go wrong. 200 acres can be done with one system at a lower cost.

This much subsidy didn't need to be taken on by the government. A subsidized loan with the risk taken on by the farmer, the farmer would make greater efforts to find the

right solution that works in his context. So you generally we need to give a lot more importance to the farmer.

The farmer knows his needs. Ask the farmer.

Mr. Ghasharib Shoukat

Now let's come back to the government, I believe as though there's a lot of discussions around that the government may not have the right context when they're creating these solutions or there might not be a complete understanding. There's an information gap between the financier, the farmer and the agency that sets the policy. So there's also been issues of transparency and corruption and those have been rampant.

After the 2010 18th amendment, agriculture became a provincial subject. Yesterday Sanah Khan sahib in his presentation said that there was a drip subsidy. In Punjab it's I think 70 or 75%.

In Sindh it used to be 25% but now that no longer exists as well. So the farmer in Punjab who is utilizing the drip irrigation subsidy is not at the same level as the farmer in Sindh because he does not have that subsidy for example. So, the farmer in Punjab is already better off because he can access that subsidy which is not available to the farmer in Sindh.

There's a disparity between provinces after the agriculture becoming a provincial subject which makes it really important for the government who sets the policy to also then make sure that it follows through the policy. So, what accountability process is there in place to ensure that the PPP's and the funds that are being allocated are being put together in the right place at the right time for the right people. Okay, thank you.

Mr. Fahad Ansari

Very important question. Like I told you the PPP Act was passed back in 2010 and as Zafar also mentioned that we are one of the best in terms of PPP in Pakistan. Not only in Pakistan but also our efforts were recognized globally as well among the South Asian countries.

When we talk about the transparency the main point is and the main stage is the procurement and to address the transparency issue we have introduced a separate chapter in the Sindh Public Procurement Rules to address the procurement related issues for PPP transactions, number one. Number two is like you mentioned that the fund flow mechanism and all so the funding from the government side like project development facility and the viability gap fund is also governed under the PPP Act which is a framework for all PPP transactions. And the third point and the third stage is the implementing stage.

What we do is that we onboard the independent experts and independent engineers as well as independent auditors to be the eyes and ears of the government. So instead of government private sector monitor we have independent experts to do this task. now the final stage is the funding mechanism like private sectors bureaucratic structures and also we develop the concept of escrow accounts through which the private sector could

have their due share of funding by presenting the certificates that is being provided by the independent auditors and that is how the whole PPP life cycle ensures the transparency and overall sustainability in the process.

Mr. Huzefa Mazahir Ali

I will just add one thing here to what Fahad was saying. So on the public private partnership side unlike the typical government traditional government side the involvement of government in releasing the funds is determined through third party experts. So whether say in the agricultural context it might be say a company like SGS doing the technical determination, a company like KPMG running the financial numbers and then issuing that certificate, the certificate then goes directly to the bank, the bank would be Meezan or HBL or which has pre-funded accounts where the payments, if any payments have to be made to the private sector are released.

So, the involvement of the government the file taking time to go here and there so all of that is just completely cut off and it's handled essentially by the private sector. So and I think what Sadiq could have also highlighted that their framework was evaluated by Economist Intelligence Unit and this framework was developed for them by I think ADB and World Bank. On their transparency side, they did even better than Philippines and other Southeast Asian countries on the robustness of the framework simply because they're not involved, the government is not involved in releasing the payments.

It's done independently and the government is also not involved in picking up the end beneficiaries because I think that's also important. You want to let in the agriculture context you want to let the service operators go out and provide services. The farmer should not be seeing the government because the government should not be picking whose farm gets served and not served.

That is completely driven and decided by the service providers. They should do that, they will do that in the most commercial way because they also have skin in the game. So you're aligning the incentives in a way that this project works.

Everyone has skin in the game the government is one layer removed from the private sector and I think this is how you try and solve for these issues.

Mr. Ghasharib Shoukat

Thank you for the clarity in the context. I just want to do some brainstorming here.

We have some different sort of people over here. We have the government, we have a farmer we have two consultants and we have a bank. So for example if we were to go on Mr. Ali Badruddin's farm and we say okay we're going to do a public-private partnership over there and we have an investor from the Gulf which Ali Shahid Sahib will handle and then we have Mizan Bank investing as well and then you guys can be the consultants to execute this project and the government will ensure that it will happen.

So Ali Bhai I'll ask you first if I were to give you this scenario with all of you sitting over here and we're all contributing how would you plan for it? and then Huzefa I'll let you

answer how you would plan for it and then I would ask Sadiq Sahib and Tanveer Sahib how you see it playing out and what you would want in that situation. If I were to give you this realistic situation. Ali Sahib where is your farm located? Malir.

Okay Malir. We could go right now if we wanted to. But let's just get into it.

Mr. Ali Shahid

So if I'm a Gulf investor the good news is the ticket size doesn't matter. I mean you know 10 million, 50 million, 100 million, billion the number is almost inconsequential and by the way one of the things that our government does wrong is it sometimes focuses on number too much it goes like oh you know what 5 million dollars why wouldn't somebody give us this much? But that's a separate discussion. What does matter is the viability and the scalability.

If I come to your farm and I see that you know a mechanization is a service startup and if I see that there is growth that there is already certain scale achieved because again if you're small and you're still within the proof of concept phase I am not interested. What I want is demonstrable success. If I see that success and if I see that there is scale and if I see that there is growth then I'm very willing to have a conversation.

Now when I'm willing to have a conversation I need you to be like I mean subsidy is okay but as less subsidized as possible as independently sustainable as possible and then I'm going to compare you with India and I'm going to compare you with Ghana and Nigeria because as a GCC investor historically I have invested in Nigeria, I've invested in Ghana, I've invested in Sudan, I've invested in India which are sort of similar countries as ours with similar problems and similar productivities. So if I can see you do all of that and then I can see that you're better than some of those countries and their players I am willing to go all out. I will do a lot and if on top of it I can see that you know you're in a crop which is food security for me and if I can guarantee if I get some guaranteed off take from you tick all the boxes and I'm running to you tomorrow.

Mr. Huzefa Mazahir Ali

But food security investments in Pakistan can only be done if again the core investment I mean there's surplus enough surplus which can be generated. It's of good quality a quality which meets standards in their market so whether it's certifications and I think this is where the public partnership intervention that we are describing comes in. Because you probably need to go all the way to the seed level to the farming itself for you to provide that quality.

From their context as Ali also described while they will do the benchmarking and all they would also have certain other strategic considerations around diversification because in the food security context and I think we can capitalize on that. So even if there is some small commercial delta that's still pending it's also doable from their perspective to say invest in Pakistan because it's again a Muslim country you know close by in the event of some unforeseen circumstances. They can count on us to be able to support them in their food related needs.

For instance a year or so ago India banned rice exports which was very good for us. It helped our farmers get better prices but a signal that was also sent to the Gulf countries was that in future in case India has an expanding population of its own because of climate considerations in future if they are not able to get access to the Indian rice they should have alternatives. So, the commercial case has to be there but I think there are certain other strategic considerations which might also come into play which is where the government can also come in act as some sort of intermediary to support in creating certain providing lands and storage facilities where these commodities can be stored, maybe exported to these markets and I think those kind of considerations are also being discussed in parallel.

Mr. Ghasharib Shoukat

Thank you so much and if we were to bring in an investor from the Gulf, we have the farmer and you guys would also contribute how would you go about that and what would your expectations be?

Mr. Syed Tanveer Hussain

There are a lot of opportunities investors are here, bank is also willing to participate in that consultant are already available. So there is no hurdle I think to initiate that project we talk very so now let's talk some practicality, discuss some practicalities, how are we going to execute it. I think the first and foremost step should be just raise a working paper on that and put down what is the role and requirement of the bank and what is the potential investor is looking forward, what would be the return and the cluster which I think government may identify or Huzaifa has already shared in his presentation that there are a few clusters which are available.

So, I see a lot of opportunity two weeks ago I attended a presentation given by the gentleman from SPARCO the event was organized by the Central Bank of Pakistan in Multan and you must be pleased to know that SPARCO can provide you satellite imagery with a lot of details that which crop would look like after two months, after three months after six months and what is the prediction about that specific crop. So this is a good tool which can be used I also see a lot of opportunity in public private partnership because due to the deregulation of wheat sector now Punjab food was not taking wheat crop from the farmers so the storage capacity would be idle for the government.

How can we use that storage capacity and can channelize, can we do it through private sector? It's a difficult question but is there any opportunity because wheat prices went down from rupees 4000 to 2600 per month last year and farmers lost lot of money in that but again there is an opportunity to develop storage facilities, we can participate in that as well.

With the given investor, bank participation in the presence of consultant available digital and technology partners, here we are open to that so do it from today, not tomorrow.

Mr. Fahad Ansari

See there is a gap, we all identified the gap and when there is a gap there is an opportunity or what the government wants is that this opportunity should be brought in front of private sector or market so that we could have the funding from the private sector as well as the expertise like biotech, agri-tech for crop breeding processes and all so this is the ultimate objective now for the next couple of months what we are aiming to do is the bankability of the project, the overall financial feasibility, the sustainability so what we are trying to do is that the two projects just mentioned so we are trying to onboard the transaction advisors and the consultants to conduct the detailed feasibility of these two initiatives which includes the financial feasibility the technical, legal all the aspects should be covered under the financial feasibility study.

In the next couple of months we are aiming to launch these projects into the market so that the market can participate for investor solicitation purposes and we are hopeful that all these initiatives will be well received and acknowledged by the private investors thank you really quickly how do you sense this coming together.

Mr. Ali Badruddin

I'm a little off balance here because basically the question was how do we mobilize investment and get things going right I think people look at it differently but how would you see it playing out because I think my colleagues here have a very I mean they have to deploy very large sums to make it worth their while I have a very different I'm at the ground level.

My problem is access to capital at a reasonable cost there are a few big areas where capital is required for Pakistan's context water efficiency is a big one farmers have got to get it and they've got to decide to do it and the finance has to be available on farm water storage because with climate change water is not available at the right time so you have to be able to mitigate those issues so really getting the context right and letting farmers make their own decisions we don't need to look at this top down and there is a lot of low hanging fruit.

I grow fruit I grow it on high density on drip powered by solar I mean I have very low cost I use maybe a third of the fertilizer that another farmer uses to grow the same crop and perhaps grow twice the yield at a better quality so I mean all of this is doable if you understand what you're doing and I don't see the problem.

Mr. Ghasharib Shoukat

I'd just like to contextualize and bring it together as I close the session you need to ask the government, the banks, the consultants you know they might have limited information because they're in their own line of work but they need to speak to the farmer who's actually executing that on the ground so I think public private partnerships the core of it is actually a partnership like you have a whatsapp group that's tinging 24x7 I think only then can it be effectively utilized and monitored.

I'd just like our listeners to give a round of applause to our panelists who've done such a fantastic job in brainstorming for us what public private partnerships could look like and with that thank you so much for attentively listening to this session.

Master of Ceremonies Ms. Zara Tareen

Ladies and gentlemen Pakistan agricultural coalition aims to bring together all critical stakeholders of the agriculture sector under one roof at our agri connections conference and expo and you have seen us recognize the meritorious students from the university of agriculture at TandoJam that are present here today.

We also want to recognize another delegation which is here from Pakistan's prestigious civil services academy in Lahore where the country's next crop of civil servants are getting their training that delegation comprises the top officers in this year's cohort led by Dr. Syed Shabbir Zaidi who is a member of the faculty at the civil services academy we would like to recognize the outstanding young officers who are here at this conference Mr. Adil Riaz Mr. Awais Sultan Ms. Zahra Munir Mr. Farhan Ali Mr. Sabih Ahmed Ms. Maria Gulzar and Mr. Uzair Gul please let's welcome them with a round of applause

Session 11: How Pakistan's farmers can benefit from carbon credits with UNDP

Speakers:

Mr. Irfan Yousaf, Climate Change Carbon Financing Consultant, World Bank

Ms. Gediz Kaya, CEO, GAIA Climate

Mr. Asad Soorty, Director, Soorty Enterprises

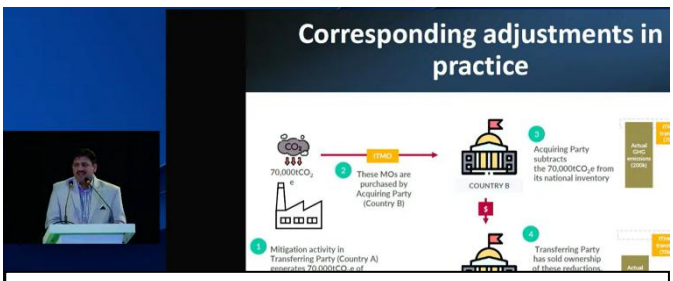
Mr. Alamgir Khan Gandapur, Country Head and Chief Technical Officer, Delta Blue Carbon

Ms. Sana Ehsan, National Project Coordinator Insurance and Risk Financing, UNDP

Ms. Nuzba Shaheen, Global Climate Change Impact Study Center, Ministry of Climate Change

Dr. Irfan Yusuf

Thanks to the PAC management and Kazim Saeed for giving me the opportunity to talk with you guys. This is a subject which I think values more nowadays. I can understand we are running short of time. I will try to keep my presentation as quick as possible but we will try to spend more time on the transition side so that the people can understand how this carbon market is going to work and how they can process their transactions to come up for the carbon markets this is right which everybody knows Pakistan being an agricultural country agriculture is contributing



Dr. Irfan Yusuf making his presentation during session 11.

a lot in the GDP the sector is employing more than 24% of total labor force there are certain challenges happening and we are trying to manage those challenges with different interventions, all the development partners are helping out in this regard.

But I will not focus on that. My whole focus would be that how the sector is contributing towards greenhouse gas emissions and what are the opportunities available to I won't take these things as a challenge, rather as an opportunity that there are interventions available, the agriculture sector can contribute and we can build together a climate resilient and less emission country as we go along agriculture sector nowadays is the largest contributor of emissions.

I am putting up this slide just to show you that agriculture is now the largest contributor in emissions in Pakistan and the key emissions sources are methane emissions from indirect fermentation, agriculture practices, deforestation, land use change and energy use in the agriculture sector and the graph which I have shown it indicates that the emissions are continuously increasing and we are going to build up GHG inventory for 2023-2024 which indicates that the share of agriculture sector is now increasing to around 50% and the estimations for 2030 and 2035 indicates that the share can increase more up to 55% which is tremendous.

What we have to do? What are the challenges before us? What are the impacts of these GHG emissions that is happening which are turning up into the climate change impacts in the country that includes reducing we are facing the reduced productivity because of extreme weather conditions our panelists have been discussing these, our experts have been discussing these things there is a water stress with the rising temperatures and decreased rainfall is creating a hammock for the agriculture sector in this regard soil erosion and fertility loss and increased risk of food insecurity.

These are the things which are currently facing just because of the climate changes. These are the realities which are currently happening. But again as I was saying though there are challenges but we need to take out the how we can manage these challenges we need to reduce the emission in the agriculture sector, we need to increase the resilience, we need to involve the sustainable practices and we need to bring in the economic benefits the previous session there was comprised of so many experts who were talking about all these things the financial models, the interventions how the investor can come in, the PPP models these are the things now which need to transform our discussion, our thinking, the business models keeping in view how we can make this transaction for the carbon market and how we can access the climate financing and the carbon financing so that we can create some kind of liquidity made available to this sector.

There are certain options available in the agriculture sector particularly for the renewable energy sector in Pakistan there are four areas, sustainable energy practices, methane reduction in livestock, improved fertilizer management and renewable energy in the agriculture sector, these are the four major interventions, I'll talk more and we'll go down deep to more activities that we can undertake just to give a brief snapshot of what is happening in the carbon market the cerium era has now finished and we are now entering into the Paris Agreement era.

This Paris Agreement is now fully effective to embrace the carbon markets basically what the carbon markets are, we need to understand these things so that we can clear our minds we should know what are the nitty gritty and how we can access those markets in a very convincing way as like in the previous session there were some bankers who were talking about the bankability of the proposals the overall long term approach the applicability, the scalability of the projects, all that stuff these all things have to be incorporated in our carbon market projects as well, without those proper business models running into the financial models giving this schematic things how the carbon market project can leverage to improve and prove the additionality.

It will be difficult to bring up the process in the market the carbon markets basically allow the trading of the carbon credits which eventually comes out as a registration of carbon market projects and there are two types of carbon markets one is compliance market and the second is voluntary market under the compliance market usually the mandatory things are being traded, whereas in the voluntary markets projects that's been undertaken on a voluntary basis those are being registered these carbon market projects of course when they will reduce the emissions they will help bring in and building the climate resilience and environmental integrity.

Eventually this will help managing the menace of the climate changes just to give a brief snapshot of how the Paris Agreement works on, there are basically for implementation of the overall context of 15 or 20 chapters of the Paris Agreement the most specific instrument which is made available for the investors and the developers is Article 6 it all talks about the carbon market and out of this Article 6 there are two pertinent clauses which are Article 6.2 and 6.4 the Article 6.2 is overarching clause that provides the country to country transaction of carbon credits and carbon market projects, whereas Article 6.4 opens up the window for the private entities to transact mutually in both the cases the carbon credits can be correspondingly adjusted and transferred of course the goal is we need to bring a sustainable country like Pakistan, we need to bring in the environmental integrity, we need to have low emission development in the country the carbon markets are continuously expanding, the volume of transitions are continuously increasing.

We are anticipating that the share of the carbon markets in 2030 will definitely increase to more than 2 trillion and they will be transacting and beyond 2035 the volume will be tremendous and this is an opportunity now coming up this is the right time to build our capacity to enable ourselves to develop those projects which can effectively be traded in the market.

Why I'm saying so? Because traditional projects like simple renewable power projects or a commercial project which is now considered as business as usual due to high profitability are not going to make any case in the carbon markets. We need to learn what basically the carbon markets are going to see in those transactions and I'll give you a glimpse of those transactions. How basically transactions occur? Just to give you a brief snapshot and then we'll talk about a specific transition that how two countries or two entities will transact in this transaction.

Likewise if a country be like, I'll give an example Switzerland has an ambition of reduction of emissions it's not only here, it's listed as an x1 country, it is obligated to

reduce emissions, however due to certain limitations, due to the development goals, due to land issues, due to availability of financing reduction of emissions might not be feasible option for Switzerland whereas country like Pakistan we are at the developing stages we need, we can do mitigation projects, we can bring in technologies, we can bring in investment what we lack is both technology investment but we have ambition to reduce emissions.

What the carbon market does while transacting with a country like Switzerland, it gives us access to technology as well as funding the financing becomes available, private sector can develop the project, can transact those credits to the countries in carbon market and of course IPCC guidelines and UNF CCC methodology need to be followed to develop those projects and execute. Under the warranty market basically developing countries like Pakistan there are two important elements made available to structural market which have been effectively working, number one is good standard, we call it GS and various standard which we call it VCS both the processes are almost similar, however some methodological differences exist and which are very project specific.

In both the cases, the buyer may require the corresponding adjustment and not require the corresponding adjustment these are the two different, corresponding adjustment is a major clause, I'll show, throw light more on that. If your buyer like if you want to sell your credits into the Singaporean market and they require corresponding adjustment in that case three important elements have to be taken care of number one you have the country like Pakistan would have to adjust and transfer those carbon credits from its NDC to the Singaporean NDC there could be a voluntary offsetting wherein the transfer of carbon credits may not be required and this third stream is if we sell those credits into the relatively new market which we call it Corsia this is related to global commitment to reduce emissions from the aviation industry in this stream of course the country has to adjust the carbon market.

They have to adjust the NDC commitments as well whereas if there is no authorization required like the domestic markets or voluntary finances like if a company like Apple or a company like Unilever it's meeting its global net zero emissions ambitions and it wants to procure credits from a local company of course NDC adjustments would not be required so now this is a transition I would like to spend more time on that if we have a project like if we do the biogas project in any part of Sindh and we are having around 35,000 biogas power plants of 3 to 5 meter cube size these biogas plants can reduce emissions up to 70,000 tons of CO2 per year there is a country like again I'll quote an example of Switzerland they want to procure the credits from you guys the transition would be that the developer in Pakistan, it would develop a project make it a feasibility to prepare the design documents as per the relevant standard, register the project and then once the project is registered, it will start developing the project and implementing on site.

Once the project is implemented, it will be verified for the emission reductions and it will earn the carbon credits let's say it's able to to secure the 70,000 carbon credits from that again.

I would say in this carbon market stream, investment has to be made by the sponsor upfront, this is not a climate finance where the money comes upfront, this is a carbon

finance where the investor has to put up the money when this 70,000 credits are made available then your corresponding buyer who's interested to buy your credits it procures the credits from the project and transfer the fee to the relevant entities and the amount that has been transacted and agreed upon between the two parties is transferred if it requires a corresponding adjustments, I would explain again, corresponding adjustments means that the country of that buyer will require that those carbon credits should be owned by that country and for that person, this will be a transfer of ownership of those credits when the transfer of ownership of the credits happen the terminology that that Paris Agreement states it is called corresponding adjustment and if the corresponding adjustment is happening then of course interplay of the ministries and the government departments come across, then you have to pay some additional fees you have to pay some administrative cost and something for the NDC these are stated in the policy very categorically once this is done, the transfer is allowed then of course you can transfer those credits to the country and you get the money however there could be instances where your buyer won't be requiring corresponding adjustment, that will be a straightforward transaction, it will not require a lot of approvals from the government side you can just sell those credits, get the money and report those credits into the carbon registry of the government and the government is now building its carbon registry it's going to launch that registry in a couple of months.

Where these all transition will be got registered the most important terminology that has been integrated with the over stream is called environmental integrity this terminology was not specifically next when the CDM regime was there this has six attributes under this definition the number one the project has to be real the buyers and the validators, they will come to your project site to see whatever transaction you are making, it exists on site the impact you are talking about and mind you, neither of the projects now will be attractive for the buyers if it won't have any co-benefits specifically for the communities if communities are benefiting co-benefits are there, if you are able to show that like if the project has co-benefits related to health due to improving air quality or education that will make a more financial value and will give you more attractive case for selling the credits and if all those benefits are measurable, your project is becoming financially viable just because of the transactional profits that you can earn from the carbon markets.

This terminology is termed as additional your project will remain permanent for its life, if you are claiming that the life of the project is 5 years or 10 years or 20 years or 60 years, the project has to be there and for that purpose a comprehensive monitoring and reporting and verification system has to be set in place and of course the project will remain traceable and for that purpose you would have to put up some tools that can be backed up by the AI technologies so this is the important terminologies you would have to keep in mind when you will be designing your transition and executing those this is the process overall how it starts, you conceive a project you design the mitigation activity like you do the usual projects one thing is now, is coming very paramount that the international carbon market specifically has been stating that every developer every government now has to look at the carbon market transactions as a development transaction.

That means that previously we have been saying traditionally it has been quoted that the climate financing and this development financing are two separate lenses this terminology is now bygone now these two terminologies have been combined, whatever development we have to make has to be taken into account the climate impacts that means when you design activity you carry out feasibility studies you carry out financial modelling you carry out environmental integrity issues, you carry out ESG, all these things has to be done when you are designing your mitigation activity when your mitigation activity is designed, you approach relevant standard like if you are going to apply for the WERA standard, you submit your transaction, this transaction in order to validate the transaction that entity allocates a validator to the project, that validator is usually a third party that is registered with that standard they come across, they usually verify your older project and once the project is verified, you can submit request for authorization or transferring those credits which you have, you want to sell to your buyer, afterwards you can implement the project once the project is implemented it is on ground you submit a report to your relevant standard, the projects are complete and you are ready for the verification.

The first cycle of verification they allocate a verifier again it's a third party that third party comes across it verifies your project deliverables it's outcomes and measures that and report that to report back to the standard issuance of credits happens herein and upon that at time of issuance now you are eligible to sell those credits to your respective buyers while selling your credits in your design you can have two options number one, you sell those credits for life of the project or certain period of project like if your project life cycle is five years, you are selling five years credit to your buyer this is usually called effort selling whereas you also do as you in share market we sometimes do this spot selling similar spot selling can be done in the carbon market as well, in this stream what you do, you keep your credits and you see the market response the market response increases, the value of the credit in international market increases you sell the credits accordingly.

I was saying three important elements that needs to be considered you need the project has to ensure a very robust reporting and verification system the system has to be transparent there is a terminology being used, high quality credits for high quality credits this has three added benefits number one, it's transparent, it's permanent it's doable, it has co-benefits and it can correspondingly adjust the credits the value of per credit into the international market for such kind of projects is now leading towards $25 per credit if your project is able to generate 100,000 credits per year that means you can earn $2.5 million from the carbon market in a year and of course governance structure, you have to be very robust governance structure in this stream there are certain activities which have already been done like Sink Coastal wetland projects, this is the blue carbon project that has already been undertaken and it has already earned the carbon credits from the international carbon market this is a flagship project of Pakistan it has followed all the steps and made the venture very successful at the same time.

There are certain projects which are going on the biogas projects, ongoing proposed projects include forest carbon initiative, sustainable rice curtailment projects and there are certain other projects that have been happening in the market there are potential

projects which you can undertake, you can think of, you can develop includes agroforestry projects, methane recovery sustainable rice cultivation energy efficiency projects and you can see the emission reduction potential of these projects I've given the six projects with a bar chart and you can see that in agroforestry you can earn around 8 million ton plus carbon credits in the life cycle and if you if you are having a very high quality project you multiply it with 20 that means your project can earn you 160 million dollars in the life cycle so these kind of projects you need to think of you need to design, you need to look at and of course these kind of projects will help Pakistan to reduce emissions in the agriculture sector in the long run thank you if you have any questions I'm available and we can also talk more if you would have time in the later on thank you.

Ms. Sana Ehsan

It's my pleasure to host and moderate this esteemed panel today on the carbon markets we have very renowned guests with us from the industry as well as the international expert is also here from Turkey I'm pleased to I'm also thankful to Pakistan Agriculture Coalition for this opportunity so as you all know that climate change is affecting agriculture and we have to protect our environment as well as the farmers.

This duality has to be dealt somewhere and carbon markets and carbon credits actually can play a vital role in addressing this challenge so coming to because we have limited time as well, I'll just ask my first question from Ms. Gediz Kaya who is from Gaya Climate, I would like her to introduce herself first as well and talk about how international buyers and industries are increasingly focusing on sustainability and carbon neutrality and what is it what it is in for the Pakistan agriculture sector, how can they benefit, what are the standards which can be followed.

Ms. Gediz Kaya

I also would like to thank Pakistan Agriculture Coalition for their invitation to this event. It's my first time in Karachi and I'm delighted to be here My name is Gediz Kaya.

I'm the founding partner at Gaya Climate For the last 17 years we have actually verified more than 30 million tons of carbon credits in different technologies but also including nature-based solutions and biogas and landfill gas which is quite relevant to the agriculture sector and more than 100 organizations including multinationals tech companies and airlines have used our credits to offset their emissions so actually carbon credits are really vital to climate mitigation investments I understand I was here yesterday, I talked to many participants and I've seen that there is also sort of a you know, less understanding of what a carbon credit is actually carbon credit is a certification of a mitigation reduction technology.

It certifies how many tons of emission reduction is created from that technology or project practice and when it is certified it's a sellable asset and international corporates airlines also sometimes countries depending on the market they use these certificates which we call carbon credits as a tool to offset their own emissions and reach their own emission targets so in that sense actually it is it is the vital tool for carbon pricing but it is also a vital tool to finance climate mitigation technologies because without carbon

credits those technologies are not very likely to be bankable or financially feasible. So, they need an extra revenue stream for the investors to make those projects real and being operational on the ground.

Carbon credits help that and it is also very vital for the agriculture industry because there most of the potential investors are small farmers, small industries, SMEs that's what we see in the biogas sector. I think biogas sector is really very important farm-based biogas for the last 10 years we have worked on more than 10 major biogas programs and we have seen that what a major challenge the investors are facing to finance those projects without carbon credits but with carbon credits it's a miraculous shift, a paradigm shift. All these projects become investable and bankable as well.

Ms. Gediz Kaya: “by creating carbon credits that are actually sellable assets certified under international standards going through reliable monitoring reporting and verification systems they will bring a lot of opportunity to

So, it is of course very important for a country like Pakistan to create the necessary mechanisms and all the more important have the good awareness of the vital role of carbon credits to invest in agriculture as Dr. Irfan mentioned in my number it's also very close that agriculture sector including the whole agri-food sector with the value chain is accountable for 45% of the global emissions and this is a huge number so we see that agriculture sector is really highly impacted by the physical changes of the climate change drought, floods, you call it and then of course it's key to the solution because it's also contributing significantly to the global emissions. So what can we do here? There's a lot to do in upstream, downstream in downstream I just mentioned biogas, farm-based biogas which is a very important tool but in the upstream there's a lot to do in irrigation efficient irrigation no tillage, cover crops so many practices they can be actually put in a framework of programs and by creating carbon credits these programs can be really feasible and they can become real and the key here is awareness having the support from consultants from the investors to create a whole value chain of carbon credits also having a good access to global carbon markets and when we say global carbon markets.

I want to add that it all actually has started and still sort of defined by the voluntary carbon markets where the corporates and then added to the airlines because the airlines by compliance they started buying these credits so it is actually starting with verified markets but it is now expanded to article 6 which we call international transferable mitigation outcomes all these different markets all these potential demand for these carbon credits require an access to these markets and make sure that the potential investors who are the potential buyers of these carbon credits have a good understanding of what is going on in the country for instance Pakistan's NDC is quite challenging as well with a 15% of reduction below business as usual by 2030 with an additional 35% with international financing that will bring know-how transfer technology transfer these are all the tools the parameters that we are seeing so when

you put it in a designed way in a good way in the same picture there is a lot of possibility and by creating carbon credits that are actually sellable assets certified under international standards going through reliable monitoring reporting and verification systems they will bring a lot of opportunity to the country and to the small farmers as well.

Ms. Sana Ehsan

No system comes without challenges and many farmers here are not aware of what carbon credits are that's why we have Mr. Alamgir Gandapur who is the country head and chief technical officer from the Delta Blue Carbon we have a success story from the mangroves carbon credits so I would like to ask him a very simple question so that we can educate farmers then how carbon credits can be generated for the Pakistan's agriculture sector how they can benefit there are many challenges how they can be addressed and what is in it for the corporate and small holder farmers how they can benefit from the carbon credits.

Mr. Alamgir Khan Gandapur

First of all, I want to thank the organizers of this workshop and conference for inviting me so that I can tell something about our project and also the question that she has asked me I will introduce myself and my project first my name is Alamgir Khan Gandapur I have background in forestry agriculture and economics as well as development studies I am working as country head and chief technical officer for the Delta Blue Carbon project in Pakistan.

This Delta Blue Carbon project is the biggest mangrove restoration project in the world in fact in the history the Delta the Indus Delta in Pakistan is around 600,000 hectares out of this around 425,000 hectares is denuded it is supposed to have mangrove trees but it doesn't so under this project under this Delta Blue Carbon project 1 and project 2 we are planting and restoring mangroves on these 425,000 hectares of intertidal lands or wetlands which will sequester substantial amount of carbon crates our project duration is 60 years extendable to 100 years this ensures that the carbon crates that are generated on our project have no non-permanent issues because with these land-based projects there are these permanent issues so there are no permanent issues with the carbon crates that are generated as a result of our project because the duration of our project is 60 years extendable to 100 years we are working with around 100 communities and which have a population of around 100,000 people and they are the poorest of the poor in Pakistan so we are working with these marginalized communities and trying to improve their livelihoods by creating job opportunities promotion of businesses and provision of different civic services drinking water is a big issue in the Delta area.

So, we are helping them provide safe drinking water with health facilities and educational facilities and also as a project we are conserving unique biodiversity which is found and which is threatened by IUCN standards like Indian Ocean humpback there is fishing cat which is a unique species Egyptian eagle pangolin and steppe eagle these are some of the unique species which are endangered and we are conserving those under the project now I come back to your question the question is about this carbon

crates generation in the agriculture sector let me define this agriculture sector in broad terms as per the international greenhouse gas accounting system there are five major sectors one is the energy sector the other is the industrial products and processes sector the third is forest agriculture which includes livestock the fourth is forestry and other land use and fifth is waste so whenever a country prepares its greenhouse gas inventory it prepares in terms of these five sectors.

I will talk about this FOLU sector FOLU sector refers to agriculture forestry and other land use these two sectors together account for large amounts of carbon emissions in the country the latest greenhouse gas inventory that has been done in Pakistan it says that Pakistan's emissions are around 800 million tons of carbon dioxide equivalent 800 million tons of carbon dioxide equivalent out of this agriculture accounts for around 200 million tons and forestry 30 million tons so the two together is 230 out of 800 million tons.

So, this is a large contribution by agriculture and forestry sector for greenhouse gas emissions in the country and these are as per the estimates by 2030 Pakistan's emissions will grow to 1600 million tons 1600 million tons and so will increase the emissions from the agriculture sector so this is the magnitude of emissions that are coming like 230 million tons out of 800 million total tons within agriculture sector crop there are you can say four major sectors one is crop the other is livestock farming, third is forestry and the next one is manufacturing industries which are using agriculture value agriculture produce in their value chain so in these livestock sector contributes the most it contributes around 110 million tons through fermentation from the livestock sector then is the crop sector and especially from the soils in the crop sector from the soil it is around 80 million of carbon creates carbon emissions that happen from nitrous oxide and other emissions from this soil and then there are rice cultivation from which methane comes there are these crop residues which are burnt from which there are around 5 million tons of emissions from rice cultivation again around 6 million tons of carbon dioxide emissions and in the manufacturing sectors like sugar mills sugar mills account for around 15 million textiles around 10 million and so on from this you can see from this figure.

We can see where the emission reduction potential is in the agriculture sector in Pakistan is in the livestock sector by reducing this fermentation from the livestock sector from rice cultivation and from crop residue management and converting it to biochar and similarly in forestry through conserving the existing forests under two mechanisms one is like a red mechanism and the other is improved forest management and the third is carbon removal through new plantations and within the manufacturing sectors there are when they do when these corporate entities report their carbon emissions they report it under three scopes.

Scope 1, scope 2 and scope 3 so this agricultural produced emissions come under the scope 3 of these different manufacturing industries so there is substantial scope in reducing scope 3 emissions of all these agro-based industries which use agriculture produce as in their value chain now, coming to how can this reduce emissions in the livestock sector it's mostly through feed and breed using feeds which do not contribute to so much of methane emissions by adding additives to the feed etc. and through, if

you can improve the breeds certain breeds which then also have less fermentation so those are the two main in livestock sector in rice cultivation if there is continuous flooding in the rice there is anaerobic methane generation if you do alternate wet and drying in rice cultivation then you can reduce methane emissions from rice sector similarly, crop residues instead of burning them if you convert them into biochar you can also then use as fertilizer.

In forestry I said, through conserving the existing forest and planting new trees and Pakistan has substantial scope and so is in those other sectors now the issue is how can education there is not enough knowledge either in the departments or at the community level at the farmer levels about how to go about carbon credits emissions reductions and carbon credits generation so training and capacity building is the number one important thing because there is no awareness about the issue there are many small scale farmers so there has to be some aggregation of the farmers through cooperatives because there are many small scale of them, individually it is difficult for them to work on it I think you spent my time but in the second round I will explain it further thank you so much.

Ms. Sana Ehsan

My question is from Mr. Asad Soorty who is from the Soorty Enterprise that how Pakistan agriculture can leverage the climate finance for its own gains and what are the gaps in your opinion are there which are hindering them to access the carbon markets?

Mr. Asad Soorty

Mr. Asad Soorty: “registering credits and generating credits this is money we are talking about one ton of carbon credit sells for between 5 and 20 US dollars this isn't Pakistani rupees it's US dollars so it's an additional income for farmers and growers.”

Thank you. I will reintroduce myself I am Asad Soorty and I represent Soorty Enterprises. Soorty Enterprises is a jeans manufacturing company we buy a lot of cotton and since we buy a lot of cotton and since our customers demand premium cottons we decided to grow our own cotton or rather contract farmers to grow premium cottons and that's where I learned a lot about carbon finance and I can guarantee to you that it is relevant in fact very much so.

Coming on to carbon finance and carbon credits I think the one thing a lot of us haven't said here everyone spoke about registering credits and generating credits this is money we are talking about one ton of carbon credit sells for between 5 and 20 US dollars this isn't Pakistani rupees it's US dollars so it's an additional income for farmers and growers. Gandapur Sahib said that 230 million tons of carbon emissions are coming from the agriculture and livestock sector.

If I recall the number correctly multiply that by 10 dollars that's the size of the market there are Europeans out there who are desperate for emission reduction and they can't

achieve it themselves to the point that the UN has decided anyone in the world who reduces emissions will get money for it that's what we are talking about here okay so it's actually too good to be true in some sense because you are doing good but you are also doing good business at the same time you are earning additional income and you are saving the environment let's forget for a second that we care about the environment, you still want to do this because it's an additional income for you how is it an additional income for you?

I'll tell you my example we haven't yet, to be very honest we haven't yet achieved the stage where we have registered credits and earned from them, but we are in the process, we are exploring it the way it works is that you do those practices which reduce emissions turns out they are actually good for you for example, let's take the example of what you do with your crop residue as Gandapur Sahib said right now most of our farmers a lot of them at least from my understanding are burning the crop waste what that does is it releases carbon dioxide in the atmosphere what you could do instead is create biochar biochar is made through a process of slow combustion

Honestly, it doesn't matter how there are consultants out there who will teach you how to do it the point is it's very easy to do you have to have a brick kiln and you slowly burn that crop residue in that kiln until it becomes this black substance called biochar, it's like char and instead of then releasing it into the atmosphere that biochar has locked the carbon into itself you can then as per my understanding use it on your fields to cover your crops and that increases the carbon content of your field now carbon in the field is good, carbon in the air is bad what you've done is you've taken that carbon which would have been released into the atmosphere and instead put it on your fields increased your soil health increased your productivity increased your income on the yield side but guess what you can also then verify that and apply for credits for it and to add on get money for those credits by selling them the extent of credits has gone to the point that there are people who have made commitments to buy 50 million tons of credits, companies like Airbus and big European companies blue chips they don't have those credits available today.

I want to talk about the history of carbon credits because I think it's very relevant to the challenges we face carbon credits failed 10 years back in 2012 as per the Kyoto protocol the clean development mechanism started carbon credits but people jumped on the bandwagon and started registering their projects so much and verifiers started verifying those projects even though they weren't real even though they weren't additional they would have happened anyway so those projects ended up creating so much carbon credit that there was way more carbon credits available in the market to buy than there was actual emission reductions and then there was demand as a result when the demand was lower than the supply the price of those carbon credits fell and that particular exchange for credits the clean development mechanism CAER certified emissions reductions yeah those things basically failed and now we've created a new thing so now I'm coming to the challenge the challenge is that the new carbon credit scheme is very rigorous they make it damn sure that you've actually reduced your carbon emission you can't get away with just doing a half hearted job you need to actually reduce your emissions and it needs to be verified.

There are two or maybe more major global carbon standards- Pera and Gold Standard these guys work globally through consultants you can create a new project from my understanding even existing projects can be can register and generate credits however one key feature is additionality basically means that you wouldn't have done this initiative had you not received the revenue from the carbon credits your feasibility for the project or for the initiative needs to include the revenue for the carbon credits for it to be a feasible endeavor because what they're trying to do is they want to incentivize us to do more than what we would have done anyway if we're going to put up solar on our rooftop anyway because it saves us money then maybe we don't deserve to get credits for it they want to incentivize us to do more than the baseline therefore additionality is very important.

I think is one of the major roadblocks and bottlenecks or hurdles to registering our projects and getting credits I think we don't need to think so hard about it rather we go to you know people like Gediz who have been doing it for years in other countries we go to other consultants ask them how it works how it happens and they will guide us in what we need to do and how we can achieve and verify our reductions and then achieve the standards I want to quickly talk a little bit about the other things that you can do livestock emissions like Mr. Gandapur said change the feed in the breed, reduce the methane emissions get credits, earn additional revenue similarly cover crops they help to increase yields by reducing, by keeping the moisture in the soil and giving you an additional revenue when you sell that cover crop for a nominal amount of money the projects that I'm doing we have seen marginal increases in yield or in some areas same yields while including these practices now I'm doing it for sustainability points but I'm soon going to be also registering these projects for carbon credits and get those I want to also I think from what I read and Mr. Gandapur can correct me he didn't mention it but the mangrove project that the Sindh government has done hasn't just registered carbon credits they've earned additional income for the project in millions of US dollars and they will continue to do so every year for our nation so that's all.

Ms. Sana Ehsan

Thank you so much, that was very helpful I can see from the audience and their interest in the conversation so taking advantage of Ms. Gediz's presence here and we have seen that they have certain achievements in the sector including carbon trading mechanisms that Gaia Climate actually developed, so we want to hear from you that what are the expectations of the international investors what are they looking for and how can Pakistan benefit from those expectations for investments in the carbon markets and what are your thoughts about it.

Ms. Gediz Kaya

Of course the first expectation is as mentioned, integrity to make sure that those carbon credits are real they come from a real project they are additional but this is actually sustained by international standards like gold standard, WERA Global Carbon Council so having an emission reduction project doesn't mean that you have directly this sellable asset, you need to underwrite it, you need to make sure that the potential buyer is assured it comes from a project and the number is precise, so the standards do that that's the first condition.

It needs to go through some standardization and it's very rigorous as mentioned it takes around at least a year to register a project in an international standard and after that the MRV which we call monitoring reporting verification system continues for the lifetime of the project for the carbon lifetime of the project which is around usually depending on the standard and technology, it's around 20 years so here the integrity really matters but that as long as the standards are intact and your project goes through a standardization and it's also the role of the consultant here to make sure that the project is alive and kicking throughout the lifetime of the project from a carbon perspective on the other hand of course there are different types of markets here, when we talk about the voluntary carbon markets where the buyers interest actually comes from a total corporate social responsibility perspective, they may have different preferences it may be the country it may be the project technology it may be the sector but the happy news is the good news is actually the buyers really like agriculture sector, they like farm they like agriculture sustainable farming because they also understand the role of agriculture and sustainable farming, not only in the climate action but also how it matters to the sustainability of the whole food system, the security of the food system.

So, the buyers really are interested in agro-based credits and they are also interested in countries where the additionality is actually even more stronger because of the local financing circumstances, domestic financing circumstances where the cost of capital is really high where the assurance for investors in these technologies is really low, so and I think countries like Pakistan and especially where the global economy is under stress right now it's very important to support the agro-industry in certain countries and I think the buyers would be very interested in projects from Pakistan as well.

Ms. Sana Ehsan

Thank you so much for this perspective., I think this is very helpful for all of us to learn that what are the expectations so moving on to Mr. Alamgir so we learned about the international expectations of the investors one, so how do you see that Pakistan's regulatory environment is and how can the private sector benefit, we have learned that the Ministry of Climate Change has recently launched their guidelines for the carbon market but how do you see it and if you can briefly talk about it for the private sector's perspective, that will be very useful.

Mr. Alamgir Gandapur

The government of Pakistan can help in a number of ways I'm saying in a number of ways that being said the important thing is that there has to be a carbon registry at the national level which the government of Pakistan is trying to create but it has not so far created which it needs to create the second thing that after a long deliberation it has developed what is called now National Guidelines on Carbon Trade as per these National Guidelines any project proponent any entity which develops these carbon projects has to give 5% let this go and then I will so we come with sound effects 5% of the carbon credits have to go to meet the NDC targets of Pakistan which Pakistan has committed to the international community so any carbon project has 5% of those carbon credits have to go to meet the NDC targets of Pakistan the second thing the government of Pakistan has done that it has imposed what is called Corresponding

Adjustment Fee any carbon project that wants to sell its carbon credits internationally those carbon credits are called Internationally Transferred Mitigation Outcomes ITMO's for any ITMO's Pakistan has to do what is called Corresponding Adjustment that we will not claim these carbon credits in our system because these are being transferred internationally.

So for that the government of Pakistan has imposed a fee of 12% 12% of the value a project generates revenue that comes to project 12% will go to the government of Pakistan the other thing the third thing that it has done is it has imposed what is called Administrative Fee of 1% so in total government of Pakistan almost gets 18% of the carbon credits that a project generates so this is kind of a disincentive for the private sector because you cannot do these projects without the involvement of the private sector so this is one thing that around 18% of the credits government of Pakistan has to rationalize this.

Second the MRV system which is the measurement reporting and verification it is a very cumbersome process and very costly process so the government of Pakistan has to help in use of this new technologies imageries satellite thing, Lidar system blockchain system and other AI supported system so as to reduce the cost for the project proponents of MRV because the MRV is a big cost for the project proponents the other thing is that for you to sell there are many governments which are interested in buying credits from Pakistan but as an individual project proponent cannot sell those credits to that government it has to be through government to government deals which they call it G2G deal under article 6.2 of the Paris agreement so government of Pakistan has been a bit slow on operationalizing on this G2G agreements whereby different governments are interested in buying carbon credits from Pakistan especially what are called the nature based solution.

Nature based solutions are all those from agriculture, forestry and other land use sectors and also when you register your project with a standard like say WERA the relevant sector standard of WERA is VCS in fact and gold standard they deduct certain carbon credits from you right now from the agriculture sector they deduct at least 12% no matter how good your project is 12% of our carbon credits are not issued to you the standard keeps it with itself as a buffer just in case something happens to your project so 12% goes to the WERA first then almost 18% goes to the government of Pakistan and then you got to pay tax on it any profit that comes you got to pay tax on it so there is a lot of money that goes so this leaves a little bit less room for the project proponents to get and also there is a lot of risk in these carbon projects so government has to do also support this project in risk mitigation because by nature these FOLU project sectors carry a lot of risk so government has to do some facilitate the companies in this risk mitigation.

What I mentioned is the policy framework, the market framework and the MRV framework these are some of the important areas that the government needs to facilitate and support the private sector for carbon credits generation in the country.

Ms. Sana Ehsan

We have received a very interesting question from the audience and I will pose it to Mr. Asad Soorty for this one that millions of dollars are paid as carbon credits and where does it come from does it reduce carbon emissions in real space or is it just exchange of dollars?

Mr. Asad Soorty

So, it's an interesting question and I think does it reduce carbon emissions in real space well that's why there is a third party such as Vera highly reputed organization that is verifying the emissions reductions and that's why it's become a little challenging to do it.

I would say the case right now is that it is reducing emissions in the real space and I think the Delta Blue Carbon Project is a good way to see that I think the mangrove reforestation project that's happening in Sindh is hugely beneficial for carbon emission reduction.

I mean, for example in layman's terms let's say you decide to plant 100 trees you are reducing emissions and that's genuine reductions because trees are carbon sinks and all of that. So, I think on that front it is emission reduction genuinely of course the reason I didn't talk more about that is because I think the audience and most people are more concerned about the income side of things and the reason the world has monetized carbon credits is because the world and the UN also recognized that people won't just do it out of the goodness of their hearts they have taken that externality and made it monetized and therefore something that is that can be thought of from a pure business mind.

Ms. Sana Ehsan

So, coming to Ms. Nuzba Shaheen who has joined us online to the organizers if she can be put on the Zoom please So this will be the last question I pose to my panelists and So, I pose my question to you as the Ministry of Climate Change has recently launched the Pakistan Policy Guidelines for Trading in the Carbon Markets. We would like to hear from you that what are the key aspects or key features of the policy that can actually be beneficial for the audience to know and how it can benefit the farmers.

Ms. Nuzba Shaheen

Good afternoon to everyone I am Nuzba from Global Climate Change Impact Study Center, Ministry of Climate Change. Thank you very much for inviting me and giving me an opportunity to talk about this important issue. So, as you all know that Pakistan's Ministry of Climate Change and Environmental Coordination has recently launched its very first natural carbon market policy which introduces the carbon market policy guidelines to establish a structured framework for carbon trading.

It also aims to attract investments and promote sustainable practices across various sectors which also include agriculture of course So let us see how farmers in Pakistan can benefit from it Firstly, by participating in carbon markets, Pakistani farmers can generate additional incomes How they can do this? They can implement climate smart practices such as agroforestry conservation tillage and efficient water management.

They can reduce greenhouse gas emissions. So in these ways farmers can earn carbon credits for these reductions and sell them in the carbon markets.

On the other hand they can also adopt sustainable practices engaging in carbon trading encouraging the adoption of sustainable agricultural methods leading to improved soil health, increased crop shield productivity and has resilience to the climate change.

So, I would also like to mention here the key guidelines from the new policy what it has for the farmers. Firstly, it has a regulatory framework. The policy establishes clearly regulations for both voluntary and compliance carbon market activities in Pakistan aligning with international standards This also includes the authorization and fee structure mechanism for the farmers. So it mentions that defined fee structure for national authorization and correspondence adjustment which includes a 1% annuity fee, 5% of the mitigation outcome This is for Pakistan and this is so that the remaining correspondence adjustment fees are shared equally between federal and the provincial governments It also includes a one window facility to facilitate transitions a centralized system is being established to streamline communications and operations for all the carbon market activities ensuring transparency and efficiency So when we talk about the nationally determined contributions and and the National Adaptation Plan.

This policy is very much aligned with nationally determined contributions and NAPCS. This policy is, how this policy is aligned with the nationally determined contributions, we know that it is, so the NDCs submitted in October 2021, Pakistan has set an ambitious target to reduce the greenhouse gas emissions by 50% by 2030, 15% reduction from the domestic resources, and an additional 35% contingent upon international grant support. So it is important to note that 5% reduction will be contributed by carbon credit.

The carbon markets policy guidelines will facilitate this by establishing a clear framework for carbon trading. This policy is also well integrated with the National Adaptation Plan, while Pakistan's NAPCS, which were launched in 2023 in carbon market policy guidelines are anticipated to complement it. It's objective by promoting climate resilient practices across various sectors, which include agriculture, energy and infrastructure.

Now, finally, I would like to mention here, Pakistan faces several gaps and challenges in implementing carbon market mechanisms and aligning them with NDCs and the National Adaptation Plans. As you're already running out of time, so for lunch, I will not go into the details. Just to name these gaps, these include regulatory and institutional gaps, which includes the lack of a fully developed legal framework and institutional capacity for effective carbon trading and monitoring.

It also includes a limited awareness and capacity. So farmers and local stakeholders have a very low awareness of the carbon credit opportunities and the sustainable framework practices. It also includes financing and investment barriers.

So, how these barriers are included, limited access to international carbon finances and inadequate incentives for private sector participation. It has a data and transparency

issues in the form of absence of a robust data collection and a verification system, which can measure the emission reductions accurately. Market readiness and infrastructure is also another component.

Lack of a well-established carbon trading platform and a weak integration with global carbon markets can further enhance these gaps and challenges. So implementation and policy coordination is also very weak. Fragmentation between federal and provincial policies, which causes a delay in execution.

By addressing these challenges, these require policy strengthening, capacity building, financial incentives, and a very enhanced collaboration between government, private sector, and international partners. Thank you.

Presentation on Trade Development Authority of Pakistan (TDAP) by Mr. Athar Khokhar

Mr. Athar Khokhar presenting during Session 12.

I want to start by expressing my sincere appreciation to PAC for your tireless efforts in championing the cause of Pakistan's agriculture sector. Your dedication to fostering collaboration, promoting innovation, and advocating for policies that support agriculture growth is truly commendable. TDAP deeply values the partnership we share with PAC, and we recognize the crucial role you play in uniting the voices of farmers, businesses, and policy makers.

At TDAP, we firmly believe that a thriving agriculture is the backbone of Pakistan's economy, and we are committed to playing our part in unlocking its full potential. Our focus is on empowering agricultural businesses, particularly in the realm of exports, and connecting them with the opportunities in the global market. I will give a short presentation on overall the agro sector's export performance, and secondly, the initiative that TDAP has taken.

I will brief on this. If you see that Pakistan's last year, first time in the history, Pakistan's agro export had reached to the eight billion, and it is around 26.5% of goods export, though in the world's 1.97 trillion market, it is a very negligible with a 0.37%, but slowly and gradually, our agro export is improving. And if you see that in the GDP, agriculture is at 23%, and in the agriculture, most 61% is in the livestock, and 35% the crop.

Unfortunately, even in the livestock and the crop, there are a lot of supply chain issues that need to be addressed. And if you see the distribution of crop area, out of this, 60% is the food, and remaining is the cash crops and other crops. If you see that for the last so many years, we are relying on 24.1 million acres of land out of the total land of 79.6 million.

This is the reason that we have a lot of intense farming. Due to intense farming, there are a lot of issues that our crop, as well as the commodity that we are getting, is facing. And if you see the crop with export potential, in last year's eight billion export, 50% export contribution was by the rice sector, which was around four billion.

And the rest of the crops, maize, potato, and sesame seed, and other crops had a role. Now, yesterday it was discussed that in Pakistan, we are the eighth largest wheat producer, but in the per acre yield, we are in the 56th number. This is the major crux of the issue in Pakistan agriculture sector, that our per acre yield in all crops is not as per the standards of the region, as well as over the world.

And if you see the rice, we have 3.69 million tons per acre, and the world based is 11 point, and the average in the Asia is 4.91. Same is true for the wheat. We are, Pakistan is at 2.92 million acre, and world based is 10.43. Same is true for the potato and the other crop. And where is the issue? Main is the lack of certified seed, and imbalanced fertilizer use, and a lot of other supply chain issues.

That's why we have an issue in the per acre yield. Same as I mentioned earlier, that 61% in agriculture, there is a livestock. And besides this, that we have a 218 million production of the livestock, but if you see the carcass weight of Pakistan, which is around 120 kg, and the average weight world over is around 630 kg.

So we are also struggling, especially in the livestock sectors. This is the three years trend of Pakistan's export performance of different agriculture exports. Now if you see that rice had improved last year and three to around 3.8 billion, and our total quantity that we had exported, it was around 5.9 billion tons.

Same is true for the other crops. You also see a one trend here, that out of the 10 to 12 products that we have showcased, only rice is the sector which is with more than 1 billion. Otherwise the remaining, all the crops in the agro sector are less than 500 million.

Now at TDAP level, what we are doing for the agro sector, what are the key pillars that we are focusing on? Mainly it's on the trade promotion, market research and analysis, trade facilitation to our growers and the exporters, capacity building, especially capacity building of our extension department and our exporters, and value addition initiative that we have started, investment promotion and international partnerships. In 2024-25, in our annual business plan, we are participating in our 27th exhibition world over. The Gulf food that is starting from 17th of Feb, TDAP is participating with 45 companies.

So we are trying our best that companies which have a potential, companies which are in a position to export, we may give them an international exposure so they can have a good interaction with the international companies. And first time, and if you see that TDAP had organized two food exhibition at Karachi, and third will be held at Karachi from the 1st to 4th September. For a value addition, we are organizing a first food manufacturing exhibition at Lahore from 26th to 28th Feb.

The purpose of this event is that we have invited international companies, especially involved in the processing, manufacturing, so that they can showcase their product

here, and our growers, farmers, as well as the processors can learn from those machineries, and there can be chances of joint ventures with those companies. This is a good opportunity that you may visit this event. The companies from South Korea, China, Poland, and Romania are coming to showcase their product.

And we are expecting that around 220 companies will participate in the international exhibition that we are planning to organize. Next is the food exhibition that we had organized last year. It's a one-minute video, if you can see that.

Session 13: Exports and branding of Pakistan's agri-products

Speakers:

Mr. Athar Khokhar, Director General, Trade Development Authority of Pakistan (TDAP)

Mr. Feliz Rodrigues, International Banana Value Chain Expert

Mr. Ali Wafa, COO, Indus Acres

Dr. Constantino Parma, International Project Coordinator, Olive Culture

Mr. Abrar Hasan, CEO, National Foods Limited

Dr. Mohammad Tariq, National Project Director, Olive Culture

Mr. Feliz Rodrigues

My name is Feliz Chacon Rodrigues. I came from Panama just to be part of this elected group or speaker. I was inducted by Indus Acres Group to talk about the opportunity, Pakistan opportunity, export quality.

One of the advantages of Pakistan is that it's very close to several markets in Asia. We can see here that we are very near to China, Central Asia States, Iran market, Saudi Arabia, and Emirates. Most of the supplier of this market are coming from Philippines, Ecuador, that are the major key player in the banana business.

But making some analysis of the strategic location of Pakistan, in this graph, in this page, we can see a very big advantage of Pakistan. Here, sorry, we can see that Pakistan to Iran is only just six days travel, while Ecuador has 41 days. That means that Pakistan can send seven times shipment while Ecuador is arriving with one shipment.

The same thing happened with Saudi Arabia. Pakistan is taking six days, while Ecuador is taking 35 days and Philippines 20 days. You have the advantage in location.

But what are the key factor that Pakistan banana farmer need to improve to enter to the international business of banana is to do a better harvest procedure to avoid damages to the fruit. Those picture are from Latin America and you can see how is the harvesting method there. What you need to do also the farmer is to have a better

packing plant structure and improve what you existing have to send a better quality to the market.

What we know here is that you have also poor facility where you can use refrigerated container at the port yard. You have that advantage to you. You have everything almost so you can take advantage of that.

What is going the way? Tissue culture plant is a technology that been in the Pakistan for quite a long time. And one of the company that is Indus acres is the largest company buying tissue culture for planting. Over the last five years banana for Pakistan have reached Iran and UAE market as first of our country.

For context, Indian banana shipment has been increasing 100% every year since 1918. And they are doing more focusing in how they can grow in the banana industry internationally. So, my recommendation is to do a better farm practices because if you avoid a lot of scratches, latex, bruising defect, you will enter to the international market little by little.

Already Indus Acres company is taking the lead to do a lot of changes to improve quality and enter again to compete with international company to provide good quality to the market. This is my open intention. Remember that we have a great opportunity to do a big, big impact in the market because we can enter as a billion dollar business in which Pakistan can be part of it.

Session 13: Exports and branding of Pakistan's agri-products

Dr. Constantino Parma

I really would like to thank the Pakistan Agricultural Coalition for organizing this beautiful event. And this is a very important subject for Pakistan because we have seen the local production. We have talked about how to improve the quality of products.

However, many of the farmer communities, many of the producers of Pakistan, they look abroad for fetching higher prices, for searching for new market opportunities, and,

of course, having also more revenue brought in, in that terms of sense. So, I thank you very much to Mr. Koker for his presentation on the expert, the current scenario of the expert in Pakistan. We have, I mean, I represent an international organization which is called Siambari.

We are heading a project together with Dr. Tariq for the olive cultivation. So, I will just, you know, after a few questions, I will run a few slides to present, you know, the olive plantation in Pakistan because this also, even though it is still a very small production, it is like a niche product, but it has a huge potential in terms of expert and market opportunities. So, starting from you, Mr. Koker, how do you see, so we have seen, you know, some of the value chain, but in general terms, what do you feel are the biggest challenges to enter into international markets? We have very close by, it was very wonderful to see the proximity importance of the country, no? So, in terms of UAE, in terms of, you know, export probably to the European Union, how do you see the biggest challenge can be faced and improve in the next couple of years?

Mr. Athar Khokhar

After the COVID, international consumer have become more educated and have become more knowledge about the product that they are eating. So, in international commodities, one of the major factor in the, especially in the advanced countries, traceability count a lot. For traceability, your product should be as per the standard and as per the good agriculture practices.

You mentioned about the olive, olive is bringing revolution in Pakistan, of course, but on the very initial stages. And as soon it grow further and there are good opportunities that we can export it. Our TDAP is a good platform through this because whoever participate on the TDAP platform, we provide 50% subsidy to the companies wherever they go to the international exhibition.

Secondly, we have 54 trade missions in around 80 countries. They look after Pakistan's export market. Let's suppose if there is any potential, they try to connect them with the international buyers.

This is a good opportunity that if our product in exportable condition, so we can export to the European, Middle East and the African countries. Secondly, at the home front, what we are doing, I informed you about the food manufacturing exhibition. We are organizing this event for the purpose that our growers, our farmers, should have access to the relevant machinery that how can you convert into a value addition and how can you do a good packaging.

So, this that we are providing this and the platform. Thirdly, each year we organize food exhibition at Karachi. Last year, around 330 company participated.

This is also another good platform that local growers can showcase their product here. Buyer from around 76 countries visit this exhibition. We can help them in arranging a B2B meetings.

Dr. Constantino Parma

Thank you very much. You have indeed a very important role and this is represented in the many exhibition you are doing.

As you're saying, well, mechanization is a big issue. If we talk in Pakistan, many people talk about tractorification and not mechanization because new tractors are coming in, but the real mechanization is something else.

Now, following your presentation, Mr. Rodriguez, regarding Pakistan, you've been mentioning that the harvesting procedure needs to be improved, avoiding damages, better practicing plan, better quality in the general market needs to be put in terms of products.

However, what is very interesting is that we always see the perspective of what is needed to, but can you maybe outline what are the regulation or what are the compliances imposed by bigger markets like big banana market, for example, can be China or the European Union and how Pakistan can comply to those markets because regulation are sometimes very much a barrier for some products to enter big markets.

Mr. Feliz Rodrigues

Responding to your question, we have two regulation that can be supported to also by Ali. Starting from here, the best regulation we need to do is to improve quality. That's the best thing.

To do a better harvest system, as I explained before, and to do a better packing house to improve the quality because what I can see for local market you have here, you have a lot of, you don't focus too much on quality, you're not in the yield. So what happened here is farmer in Pakistan have the yield already. They are producing good quantity of banana per year, per acre.

And the thing that we need to improve is how we can compete with international companies in providing to the market a good quality and consistently quality. And you can get a better price in the market because you can compete with the better companies around the world and do a very good consistent quality. So Ali will tell me about that regulation.

I'll just add to this that in banana, a lot of pesticides are not being used.

Mr. Ali Wafa

The crop does not require a lot of pesticides. So, the implications that apply on other crops like rice and chilies do not apply to banana. And the other thing is that in banana, yes, you need like global gap certifications and all the normal ones, but now a big movement is being started in the fair trade on the sustainability end in the farm.

What that is, it's the concept is to get the farmers a higher price. And for that, you need to implement certain practices, obviously lower minimum wages, everything on the farm. Other than that, there's not a lot of requirement on the banana end, in the banana industry.

Dr. Constantino Parma

Thank you very much. We know that in your presence, Mr. Abrar Hassan, CEO of National Food, you have a very good example to bring on the table as something that has been successful, a successful story. So please, I'll give you the floor for bringing out your experience on tomato by National Food.

Mr. Abrar Hasan

Mr. Abrar Hasan: "...the first and foremost problem, actually, in increasing the exports is compliance."

As-salamu alaykum, everyone. Thank you for the opportunity. I just need to put things into proper perspective so that the audience can actually understand what our line of business actually is.

So, it's different, I mean, obviously, there are different problems and different solutions for different agricultural crop bases which are used. We are a company which uses agricultural produce as ingredients for converting them into packaged food products, which we then brand and market and sell and then also export. And we've been doing that for more than 55, 53, 54 years, actually.

Export for us, actually, is a challenge and I've been hearing my colleagues over here, actually, I mean, express a bit of some of the problems that they actually face. I would say we are rather unfortunate we face everything. A bit of this, a bit of this, and a bit of that because, I mean, we are exporting to more than 42 different countries.

So obviously, you also touched upon the fact the first and foremost problem, actually, in increasing the exports is compliance. To the regulatory standards that are existing out there. Pakistan, let's not forget, is a third world country.

And while we have our agricultural challenges, one of the things that we are blessed with is cheap labor. So that the conversion cost that works out is much cheaper as compared to developed countries who are using sophisticated automation techniques and harvesting techniques in the field of agriculture. So we actually do have a niche and a potential of price competitiveness.

The very first thing that companies like us, we actually face, are the non-tariff barriers which are imposed on third world countries. So, and obviously, these are done to protect the local manufacturers for the countries where the products are actually being exported to. These kind of non-tariff barriers, obviously, exist in many forms.

The first and foremost thing which is very relevant to our discussion, and I will stick to that only, is the different, or rather, let's say, the dynamic change in regulations that happen even while your product is being shipped. You will certainly find that when you manufactured the product, there was a different standard that you had to comply. And by the time your shipment arrived, let's say, in the European Union, or some other

country, when the vessel lands, you'll certainly find that the food regulatory authority over there are working with a different set.

So, they overnight actually change the regulations for it. It is compounded by the fact that we have to deal with, if it's agri-produce, we actually have to deal with pesticide residue. We actually have to deal with, you know, all sorts of treatment residues.

You must have heard in the press some time ago that certain spice products were actually, were having actually residues, pesticide residue that they call, but they were in the frame of ETO, ethylene oxide, which was actually used to treat. The practices that we have in Pakistan, as far as the agri-produce is concerned, they do not actually meet, majority of the time, they do not meet the regulatory requirements. So, then we need to treat them.

In the form of spices, we have technologies available, like steam sterilization. We actually have ETO treatment. We actually have microwave technology.

These are all facets which help you actually meet regulatory requirements that we have. But where does the problem lie? The problem really lies going back to the root, which is at the farming stage. We have very bad harvesting practices.

Let's say in the case of chilies, when chilies are harvested, they're just thrown on the open ground where they are dried. So that's where they are susceptible to contamination and that gives rise to microbial contamination. And one of the biggest deterrents for actually letting, let's say, chilies into most parts of the world are actually aflatoxins.

And aflatoxins is a carcinogenic mycotoxin, basically, which, if it is beyond a certain level, your shipments will fail. Now, these standards of mycotoxins or aflatoxins which are set are so stringent that Pakistan doesn't actually meet the requirements. Even if it had harvesting done through mechanization, or if it had, let's say, very good quality storage, or let's say mechanized drying, the standards in European Union are less than five parts per billion, actually, which makes it extremely difficult for our produce to get through.

That's one facet, actually, which becomes a barrier. The second element which our friend over here can vouch for is that, considering the wonderful effort that TDAP does in supporting manufacturers like us, most of their hard work actually goes to a waste when these regulations from the importing countries are enforced on the authorities over here in terms of plant protection and phytosanitary and all the certificates. If I was to actually tell you that, from the time that I actually receive an order from a customer, it takes me 60 days, six zero, and I'm not joking, 60 days to actually ship the product out because there are tons of documentation that I have to do, there are tons of regulations that we actually have to follow, and perhaps one of the biggest impediments that we actually face starts within our own country.

Not that they don't help us, but it's inefficient. They need to really improve. It's a very important job that they're doing, but unfortunately, it needs to improve, and these kind of efficiencies need to be built up.

I'm sure you will realize that if I was actually exporting my finished products to, let's say, a very big branded supermarket out there, they're not gonna wait for 60 days, are they? To, because there are products equally available from India, China, Bangladesh. Somebody else will take my shelf space. So, this whole value chain that we call, actually needs to be studied and needs to be actually made efficient.

I'm only going to touch one last point. There's a long list of products that I can touch upon which can help us improve, but one of the last things, actually, is the route to market because for us to be competitive, it's important to look at the way that we distribute our products. So, the route to market becomes a crucial part.

Of course, shipping, logistics is a given factor that we actually have, but for products like mine, which are actually supplied in preserved packaging, have an extended shelf life. But for, let's say, in the instance of bananas, it may not be possible, what I'm talking about. So that's why it's a bit situational.

But for my products, the whole world has actually moved on to a fulfillment model, right? So we need to set up fulfillment centers where we are exporting in bulk to our own warehouses set up in key markets. There are policies which exist in Pakistan to do that, but it is not supported with fiscal measures by the central bank because, unfortunately, we are in an economy with capital controls. And when we have capital controls, we are not allowed, we're only given 10% of our export proceeds, which we can actually sort of use for any purpose that we have.

Now, for a company like me which sells branded products, my advertisement and promotion cost is something like 20%. Now, 10% doesn't cut it for me. So forget about opening up fulfillment centers or even hiring people abroad and paying them their salaries.

It cannot be done. So, in Pakistan, the biggest impediment that we have is that we are exporting using what is known as a trading model. A trading model is you find a buyer or a distributor who will just pay you for your consignment, and then you expect him to sell, and then once he recovers the money from the market, only then will he place a replacement order.

So, you are very much restricted by the working capital of the trader that you're actually supplying to, whereas the modern way of actually increasing exports or doing or selling any kind of branded products is actually to ship in bulk, have your own fulfillment centers, and have a distribution set up in those key markets where you can be cost competitive and actually make sure that you have developed channels. Let's say, for instance, in UK, Asda, in USA, Walmart, these people are not going to wait. They need products over there.

They're not going to deal with distributors and stuff, right? So these are just some of the things that I'm highlighting. Actually, the list is pretty long, but because we are in this particular field, we are experts in terms of how we brand, package, and then distribute and market the products. Pakistan can certainly increase its exports tenfold, but it needs to concentrate on creating these root-to-market, modern root-to-market and distribution infrastructures.

We have to get out of this trading mentality. We cannot actually have people who import the goods. You should set up your own company outside and import through your own company with your capital and then appoint distributors whose job should not be, or sellers whose job should simply be to market and distribute the products.

I can guarantee you, from your current export level, you can minimum scale it by 10x by just doing that and changing that model.

Dr. Constantino Parma

Thank you very much. So now I have, finding some common grounds here, we see that tracing back, one of the biggest product is with the farmer, no? So we take out their products, but their product is not quality-oriented.

Their product is intoxicated to a level that sometimes the pesticide residues are so high that, of course, it will be blocked at the entry ports of export. So, I have a question to you, Mr. Abrar. How a company like yours, National Food, how the government, how the provincial setting with their outreach, with their research and extension services, they can bring back the role of a farmer towards quality, bringing knowledge on how to do and be part of that value chain, which we consider a small, if we look at the export, but now we agree that this is the hugest part because they are the custodian of the quality.

So how would you see an improvement of their capacities, an improvement, because they are, they have one of the active role in this procedure?

Mr. Abrar Hasan

Thank you, an excellent question. Last year, in the same conference which was held in Lahore, I presented a project that we embarked upon precisely for this very reason, to improve the qualitative aspect of the produce. So, we got involved in growing tomatoes because we are, in Pakistan, one of the largest producers of ketchup, tomato ketchup.

So obviously, tomato becomes the main ingredient in that. We actually proved it wrong, what you're actually saying, by inculcating best practices, and because we were driving it, we used a lot of knowledge base, and to our surprise, when we actually embarked in terms of designing the project, the amount of stakeholders that came on board, bringing new technologies, new way of farming, I was surprised, I was absolutely surprised. And what I'm, what I can safely say today is that Pakistan has got all sorts of modern practices, but they are all practicing it in isolation.

One of the biggest problems, actually, is that when these stakeholders, they take their products or technologies to the government, because that had been, and I'm using the word had been, the favorite route for these people to get noticed. So let's say there are people who operate drones, satellite technology, which is now becoming an essential part of actually monitoring your agricultural growth or farming practices, and has a significant impact on changing the yield, right, coupled with the right seed. But when we actually embarked on this tomato project, so let me put it for instance, we identified stakeholders like Syngenta, which came forward with their seeds, and they were excited

because here was a corporation with money, actually, which was able to support them and had an objective that they were driving.

Previously, they were operating in isolation. We actually got access to companies which were providing satellite and drone services, right. We got people actually who had specialized pesticide products.

For the first time, I learned that there are pesticides available which have minimum residence time, which can actually automatically cut down the residue aspect. All this kind of stuff is available over here, right. Then, you know, there are storage practices, providers, there are specialized bags in terms of storing your products.

Everything exists over there. It's a question of how we are set up and how we can attract these stakeholders. The unfortunate part is the way that the farming landscape is set up in Pakistan.

The farmers typically do not own the land in which they farm. The actual owner of the land is somebody else, right. So, the farmer usually is somebody who's hired on a contract, and he's actually asked to come in and farm on behalf of the landowner.

He doesn't even have working capital. You'd be surprised to note that even for that, we have a collateral management company which can actually lend you money against the produce that you actually have. Today, we have Habib Bank Limited, which has really, really created a revolution with their agricultural product and a division that they're bringing in.

So, what I'm trying to actually tell you is that contrary to what you think, it's a question of all this good stuff which is available over there. Now, why is it that despite everything being available, we're not actually able to do it? One of the biggest issues that we actually have is that we are a country which has a great knowledge deficit. We all have the desire to actually do better, but our biggest impediment is we don't know how to do it, right? And this is the area where we need to invest in the intellectual side of it.

If we require, let's say, consultancy services, we don't need better machinery or better processes, but we need actually people who have the knowledge base who can actually guide you in terms of how to improve it. So, let me give you an example. After we built the value chain, and we made sure that in our value chain, the farmer actually made money, we improved our yields of tomatoes which were averaging about nine to 15 tons per acre, and just by a 500-acre experiment, we generated a yield as high as 42 tons per acre for tomato, and the quality was absolutely superb, which actually came out of that.

And not only that, by actually getting the thing, the converted tomato paste, and we have tons of people who are producing paste over here in Pakistan, their surplus capacity, we beat China's imported tomato paste by $400 per ton. So, this is just an example that if you have the knowledge base, you can actually do it. So, my humble request to the government is to bring in intellectual capital, bring in people actually who are experts in farming, and they should teach people over here to comply with

regulatory standards, improve yields, improve the quality of the output, and I think everything is possible.

Mr. Athar Khokhar

For the last two years, Pakistan is facing issue in aflatoxin and MRL, especially in the EU market for our rice export, and this issue is the intervention, especially in the European market, are growing day by day. Keeping in view what we had focused, that we tried to educate extension department of provincial agriculture department, so that they may have a good know-how, and they may build on that information, they may share with the farmers, and they may teach to the farmers that what are the good agriculture practices, and how to reduce the aflatoxin, especially at the farm level.

In Punjab, we had very much good success. The extension department were very cooperative, and they were also learning, and they were applying this to the farmers also, but unfortunately, in the remaining three provinces, Balochistan and KP, extension departments are dysfunctional. I think the provincial government need to invest on them, need to educate them, because at the end of the day, farmers are dependent on their know-how, and they go to the farmers, they inform them about what are the good agriculture practices.

And luckily, when we have done this workshop, when we had given, we taught this to the extension department, there were less number of aflatoxin and emeril cases from the Punjab region, but we are getting from the Sindh and the other region. So, I think at the government level, we need to educate our extension department. Thank you.

Dr. Constantino Parma

Thank you very much. It's very interesting how from the global perspective, then we trace it back and it became like a farmer problem.

I personally agree fully, we provide as organization, technical assistance to the farming communities, and the farmers are very receptive if they see that plus one rupee, and if they see how their product can become competitive on the market. So it is very true what you say, and thank you for it.

So, we'll talk about rice, one of the biggest commodity, banana, tomato. Now, I wanted to bring on the table, a different value chain, a very small value chain, that is actually growing on a very fast pace. I would ask the director to put the slides, which is the olive oil value chain.

Besides of me, there is Dr. Mohammad Tariq. He's the national project director of the federal project on olive. And he has been now heading this project for more than eight years, we can say reaching very important results in terms of plantations around Pakistan.

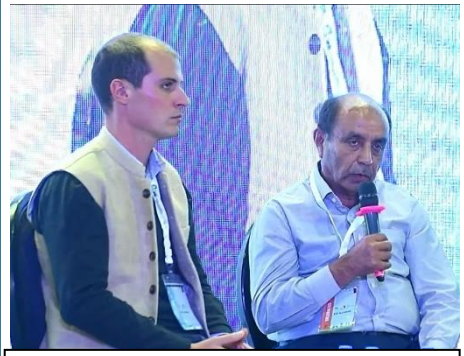
The olive value chain, it's something that it's very interesting for the government and Pakistan government is putting their money in the presence of this very huge project that Dr. Tariq is heading, because the problem is edible oils. Edible oil in Pakistan is the second largest import bill, talking about expert, but talking also about the problem of

import, behind only crude oil and petrol. So edible oils are a problem, and how actually the government can reduce this import bill, the strategy is to look to this very resilient, to this very low Delta crop called olive plant.

The government of Pakistan, which is now really putting their efforts besides of also provincial activities and besides other organization internationally that are doing great effort in promoting the olive plantation. But now I would ask Dr. Tariq, besides me, to just give an outline of what has been the effort by the MNFSR, by the ministry, and how do you see that in the future, this niche product can become something ready to be exported and actually interested where the other markets such Saudi Arabia, the UAE, but also maybe the European market can be interested in buying Pakistani olive oil.

Dr. Mohammad Tariq

It is a good opportunity to be here. Actually, I came here in Karachi with some other affair, but I arrived here earlier and I thought that it will be a good opportunity to interact and introduce this newly emerging sector in Pakistan. It is a new crop in Pakistan, which has been now cultivated at a large scale.



Dr. Tariq on olive oil production:" at present, there are more than 80 small startups, entrepreneurs who are marketing, who are producing value-adding, making, involving youth and women."

Around 50,000 acres has been cultivated in various provinces, all over the provinces, rather. In GB, AJK, the two regions are also included in this. And this project is focusing on developing the whole value chain regarding the olive.

The extra virgin olive oil at present, there is only one facility for producing extra virgin olive oil in the country. And besides value-adding its fruit into pickles and some other products that is being done at the cottage-level industry, when we started about 10 years back, this project, there were no startups or entrepreneurs at that time. But I think you will be glad to know that now, at present, there are more than 80 small startups, entrepreneurs who are marketing, who are producing value-adding, making, involving youth and women.

They are making soaps, cosmetics, tea, moisturizing creams, and other value-added products. So the other thing, as our previous speakers has been discussing, that the issue of quality, we are more focused on producing, because this is a very ornamental type of commodity. And in order to ensure its quality, we are focusing on sanitation, hygienic trainings of the farmers, like HACCP, good agriculture practices, good manufacturing practices.

True labeling is one of the, you know, questionable mark in all the countries, not in Pakistan. Even in the developed countries, the true labeling, ensuring, is very critical point. So, in the right in Pakistan, we are focusing on how to ensure certification process, quality standards, and true labeling, the best packaging material, and best bottling or other material which are needed.

In the right, although this sector is in its embryonic stage, but we are focusing all of these sectors. And our colleague has already mentioned that extension services to the farmers are not up to the mark. So, government is thinking of, about this serious issue, and maybe it will be outsourced to some private parties so that they can be, they can give very specialized service will be coming.

And regarding this quality aspects, this is one of the most important factor with regard to our export, exporting the things.

Dr. Constantino Parma

This is a presentation, field surface that has been planted in the past years with the effort of the Ministry of National Food Security. Of course, health. Health is the biggest, let's say, plus value for olive oil compared to cheap edible oils.

It is something that is fast growing. And interestingly, you have a high value output. And of course, it is still a niche product, but the market is very much in need.

I have just couple of slides to show. Basically, my role over here is to give to the ministry a technical assistance on how to develop a value chain, on how to develop specifically the olive value chain. That's why we really work in close coordination with the government.

And we bring, let's say, the Italian expertise to the country, to Pakistan. But I will go very fast on this, and I will show you quickly the global trends of olive oil. It has been fast growing in the last recent 20 years.

With COVID, there has been some issues in relation to inflation of prices. And of course, olive oil became more expensive. So the quantity produced became a little bit less.

But interesting, the second slide shows how actually the revenue by regions, it's growing. And it's fast growing because of the prices are also growing per liter in terms of production. This is regarding the world, let's say, global perspective.

We have conducted a market study specifically on olive to also understand what are the consumer perspective of the Pakistanis. Do they like it, olive oil or not? Would they do Paratha with olive oil or not? So it has been interesting because the government is investing money in this, but actually are the Pakistani liking it, no? And the market study has shown very quickly, I cannot go forward, this is not working. So the provinces that we have surveyed are all of them, Sindh, Punjab, Rawalpindi, Balochistan, and KPK.

It is a product that now you can easily find on the market, on the shelf of General Motors. And so this is how we went with the methodology in terms of which were the target, mostly 28 between 30 years old were the target of the people, which we have asked what is their consumption, if they like it or not. And interestingly, most of the people have said that they frequently are using it.

And also interestingly is we as Italian, we consume it as butter, as ghee, as something that is for nutritional purposes. But in Pakistan, many people perceive it as something

related to the beauty, to cosmetics, to use it as for massage and stuff like this. That's why many people are also buying it for skincare, let's say, users.

This, I will run it short, but the factors that are influencing the purchase of olive oil. And as I said before, it's all about the health benefits. People are perceiving it as something healthy to be produced, to be consumed.

When it comes the relationship, and here it's interesting for our panel session, are Pakistanis choosing Pakistani products? No, they prefer imported ones because with the imported ones, you have the guarantee of something that is imported, that is made by complying to specific standards. Whereas I can clearly say that you have very good products that now are being produced. The fact is that as you were mentioning, Dr. Tariq, there is no certification.

So, people are not recognizing that beauty that is not shipped for six months into container, that is losing their quality, et cetera, et cetera. Just not even a couple of slides, is the significance of the price and brand reputation. And it is important, brand reputation, it's something important recognized by most of the people and the price factor as well.

Because the current price of olive oil is around 3,500 rupees per liter. So still very expensive in comparison to other cheap olive oils. Brand reputation, there is no real brand.

I mean, 80 of the startups which you are mentioning are really in the startup phase. It's the first or second year of production. So they still have a huge goal for being recognized as reliable brands.

And the challenge, of course, is this shortage of supply, but also the price fluctuation, the delays in delivery and shipping. Regarding competitiveness, as I was mentioning, certification is still a very important thing. So people will rather choose certified product than just going for something which is not certified.

So, these were a couple of slides to bring on the table the olive value chain, which is something small. But the olive plants needs around five years to produce. So in the next few years, since 2030, Pakistan will be able to replace its import with the local production, because the plant will be exponentially starting bearing fruit till the peak of production, which is around 12 years old.

And all the plants that you have planted are slowly growing. So my last point will be, this is really a revolution happening. In the future, Pakistan is, we'll see more and more often this product on their table, and probably also their briyanis or their karahi made with olive oil, why not? I thank you all for participating to this very interesting panel discussion about the potential and challenges that Pakistan is facing for branding and export.

We might conclude it here. Thank you so much for that lovely presentation and that panel.

Introduction by Mr. Rashid Anwar

Mr. Rashid Anwar, Convener, Pakistan Agricultural Coalition

Pitches by Ful Foods and Growtech

Jury for ZarZaraat:

Mr. Abrar Hasan, CEO, National Foods

Mr. Ali Fawad, Director, Alkaram Group

Mr. Azhar Khan, CEO of Leila Labs from Dubai

Mr. Bilal Siddiqui, CEO, TerraCorp

Mr. Fareed Khan, Group Chief, Corporate and Investment Banking, the Bank of Punjab

Mr. Jahangir Paracha, MD and CEO, Fauji Fertilizer Company

Chaired by Ms. Florence Rolle, Country Director, FAO

Investors for ZarZaraat.

Mr. Rashid Anwer, Convener, Pakistan Agricultural Coalition

Mr. Raashid Anwer introducing ZarZaraat.

Asalaam-o-Alaikum, welcome everybody. Our primary focus at Pakistan Agricultural Coalition is to somehow transform our farmers from thinking not as farmers but as businessmen, as evaluating each crop cycle the way a businessman evaluates any new production line. And to try and figure out what is the agri-sector where they can get the maximum return on their investment.

So as part of that, we thought perhaps the easiest way would be to get the corporate sector to invest in agriculture as well as in agri-startups. So, as to provide a good example whereby how businesses evaluate projects and to get that sort of thinking into the agri-sphere. And before last year's Agri Connections, we spoke to Bank of Punjab.

They have a very dynamic president, Mr. Zafar Masud, and we jointly came up with the concept of ZarZaarat whereby agri-startups would present to potential investors and if they're able to persuade them to get them to come and invest in those companies. In that context, we were very lucky to have the collaboration of Pakistan Business Council and Pakistan Banks Association along with ENY as our knowledge partner. We had a very prestigious jury which comprised of Mr. Ehsan Malik, CEO of Pakistan Business Council, Mr. Munir Kamal, CEO of Pakistan Banks Association, Mr. Fahad Yusuf, General Manager, Agri Division, Lucky Core Industries, Mr. Faraz Khan, Director of Dhabeji Aqua Foods, Mr. Asif Riaz, Group Chief, Consumer Banking at the Bank of Punjab, Mr. Kazim Saeed, CEO of Pakistan Agricultural Coalition.

They vetted all the proposals we received and shortlisted two companies which we'll be presenting today. I would also like to introduce our outstanding investors who not only know agriculture but who also know investing and we would like to thank them for their time and initiative These are Mr. Abrar Hasan, CEO of National Foods, Mr. Ali Fawad, Director, Al-Karam Group, Mr. Azhar Khan, CEO of Leila Labs from Dubai, Mr. Bilal Siddiqui, CEO, Terra Corporation, Mr. Fareed Khan, Group Chief, Corporate and Investment Banking Bank of Punjab, and Mr. Jahangir Paracha, MD and CEO, Fauji Fertilizer Company. I'd like to give a big hand to all these people and would request them to come up to the front so that we can then start the presentation.

Pitch by Ful Foods

Mr. Omar Kazmi of Ful Foods pitching to investors during ZarZaraat.

Hello. Thank you for having me.

I'm here today to present what myself and my team have been working on the better part of the last two years. And we have titled the project Ful Foods. And Ful, the name suggests abundance, as you may know.

And yes, so thank you for having me, and let's continue. Is this, let me see. So, we are an agri-tech company focused on the cultivation of local sustainable protein to substitute imported feedstocks in animal feed.

So here, just some basic numbers to do with what our potential could be. Here's some performance indicators. As you can see on top, there is an asterisk.

So those aren't based in reality yet. They are calculations we have based on the construction of a fully-fledged feed mill based on our product. And our product, what is that, you might ask? It is duckweed, which is essentially, I think I'll stick to this mic instead, which is essentially algae.

It grows on the surface of water, and it has an extremely robust nutritional profile and protein levels that are comparable to soybean. So why duckweed exactly? I did touch upon that, but just to expand on that point, it is one of the most abundant sources of protein in the world. And what do I mean by that? The inherent growth rate of duckweed is extremely fast.

As some of you may know, who maybe deal with aquaculture or have land with bodies of water on it, that within the span of about 24 hours, you can wake up and see that pond covered in a green plant, which many people think of as invasive, but we looked at that and we saw opportunity. And so a couple more facts I wanted to share about duckweed, in fact, was that the, and why it edges out soybean in certain aspects is due

in part to, like I said, the comparable protein rate, and as well as it being arguably more digestible due to its lower anti-nutritional factors that are present in the plant itself. As you know, there are several anti-nutritional factors based in soybean, like phytic acid and lectins, and we're happy to say that duckweed is actually very low in that.

We do have a negligible amount of oxalates inside, but that is not a big issue as we've come to realize with our trials. So just some more facts thrown on the board. These are some very interesting physiological properties of duckweed.

So just to sort of go through it, it is actually considered one of the only carbon-positive sources of protein, meaning that it actually sequesters more carbon than it releases in its growth process, which we can't say the same about other protein feedstocks and oilseeds. It has an extremely robust nutritional profile. It is far more resource efficient, requiring far less water to grow, the equivalent amount of protein, and the per hectare annual protein yield is about, it ranges, but it can be from two to three to even four times that of soybean.

And let me see, let's go on. So let's get into the backstory. So as you may know, a couple of years ago, we faced quite an issue, that being currency devaluation coupled with an increase in trade tariffs and blocks.

And so essentially what that created were unideal circumstances for our local farmers, especially those in livestock farming and animal husbandry, excuse me, due to the fact that we rely heavily on soybean as the protein component for feed, as do the rest of the world. But the issue is that we can't really grow that locally. There are many efforts to grow that locally, and there is work being done, but thus far the results have not been too great.

And so that is one reason, and part of that, sorry, part of that is, as you may know, the soybean meal per kg, high-protein soybean meal, is in the range of 250 to 600 rupees per kg based on the availability. Right now, as I'm giving this presentation, it's more on the lower end, but that is only due to the fact that the US recently had a large bumper crop and we were able to easily get imports, which were also permitted this time. And so the point being that while soybean does come down, we are looking for a consistent protein supply within the country.

So, and this is something, a question I get asked a lot. Let's say we could grow soybean in Pakistan very cheaply and readily. There would still be a need to replace it due to the fact that, like I had said, it's not the most resource-efficient protein available.

And as you may know, a lot of the deforestation in the rainforest can be attributed to soybean. And as we know, people refer to the rainforest as the lungs of the planet Earth. So I think we should definitely try to take care of those things.

And let's continue. So on to the juicy part, the business model. So we currently operate B2B with hopes and plans and dreams to maybe be B2C one day, but for now we're B2B.

And we make a one-to-one replacement for soybean. And what do I mean by one-to-one? I don't mean that you should stop feeding all your soybean and replace it fully

with our feed. It is just, I mean that it serves the same purpose and it's one-to-one in a protein sense.

While duckweed actually has a better nutritional profile, it still makes sense based on our trials to still have a partial replacement of this for soybean rather than a full replacement. As many of you who work in feed formulation might know, it's not ideal to have one type of protein feedstock. You need to have a mix.

So let's continue. So currently, we have ran a successful layer chicken trial at our site with about 100 chickens. And the results showed a significant increase in egg production within these chickens without any compromise to their health and all those various factors.

There was around, certain groups showed around a 42 to 45% increase in their egg production by replacing normal feed. We are partnered with the esteemed Aird University and we're currently talking to certain groups who are interested. You can read them down there.

And yeah, let's continue.. So there are actually two routes we go down.

One, we want to replace chicken feed in a wet form with duckweed in a wet form. And we also want to replace soybean in the dairy industry. And that would be in a dry form, which is more of a difficult thing to pull off, but it's very important as well.

We have a committed pilot project with a large premium milk producer who I can't name at the moment, sadly. And upon successful trial, then they have committed to at least trial replacing their feed with ours. So, and we believe this would serve as a very strong reference for full feed going forward, at least in the dairy industry.

We also have a small scale trial to sort of justify the larger ones with drawdown farms, who many of you may know, the very interesting Thamer Malik, who heads that. He has been kind enough to offer his cattle to us to initiate these trials. This is our technology.

We have spent the, like I said, the last two years perfecting various parts because, you know, this is still a living thing and it's very, very, very sensitive. So we spent a lot of time figuring out the perfect harvesting schedule, harvesting techniques. And we also, as you can see, there's a diagram of our, we designed this ourselves, our Raceway Pond, which is a specialized unit for cultivation for duckweed.

This is our, some information about technology readiness. And, you know, we have a pretty state-of-the-art farm, which I think you'll see a video of after this. Competitive Vantage, we're the first people doing this in Pakistan.

It is a localized product, unlike the majority of protein. We have a very, I have a very strong team of people who I can, I'll touch upon later, who I think support my project's feasibility. And there's a huge environmental impact.

And one thing I forgot to mention was that these, this plant is known to sequester around 22,000 kg of carbon dioxide per hectare year. So let me see. Challenges, this is obviously a very out there idea.

I'll get to the important part. This is the total addressable market. As you know, we have a lot of animals.

We're a big country. Some more niche animals we could also touch upon. Import potential, I feel like we're perfectly positioned to provide protein to the MENA region, considering that they don't have too much cultivation there.

It's also cultivable on desertified land. So that's a potential as well. Just real quick, phase one, phase two, which is what we're looking for funding for, which is the first initial phase of increasing our production to about 100, with about 100 ponds.

And phase two, as you can see, is the implementation of a full-scale feed mill, which I mentioned in the beginning. Yes, this is our, this is the juicy part. Like I said earlier, this is the money we're looking for.

Our feed mill, we've calculated a cost around $10.87 million to get off the ground. Currently we're looking for $2 million for phase one. This is the breakdown of the investment and this last couple of slides, here's some financials, I can pull them up after, but we're short on time.

This is a breakdown of those two phases. And this is our team. And that's my brother, Zain Kazmi, who helped me on this whole thing.

And hope you enjoyed the presentation.

Mr. Bilal Sidikki (Investor)

Omar, I have a question. How long does duckweed take to grow? That's an excellent question. Actually, so when we first place it in the ponds, it goes through about a 15-day rearing phase, where essentially you can imagine it as a baby.

And as soon as it reaches maturity, which is after about 15 to 20 days, we're able to harvest around 300 kg wet every three days per pond. How big is the pond. And how many cuts do you get a year? How many harvests do you get a year?

Mr. Omar Kazmi (Ful Foods)

Currently, they're 8,000 square feet each.

A year, so it depends on certain environmental factors, and we have better efficiency and sometimes worse efficiency other times, but I think a safe assumption would be about once every five days, so probably around, if my math's correct, somewhere in the 60s, 70s of harvest per pond per year.

Mr. Bilal Sidikki (Investor)

Are there any areas in the world, any specific places where we see that duckweed has been successful as a commercial product?

Mr. Omar Kazmi (Ful Foods)

So, there are a few places. One is, so the first place where I think it reached true, it really found itself was in Thailand because it actually was a traditional food in Thailand about three generations ago, and now it's making a comeback.

And there are plenty of companies that grow duckweed, but they grow it for human consumption rather than animal feed because those are some of the, because a lot of people, they try to grow it to cater to the vegan market, but a lot of those people who started as, started duckweed cultivation for human feed eventually shifted to animal feed because that is, I guess, a more viable line of business for them because obviously with humans, there's a lot more you have to take into account, a lot more testing you need to do. But yeah, there's a few companies in Netherlands, the US, Thailand, those are the main ones.

Mr. Ali Fawad (Investor)

Hi, Omar. Hello.

Thank you for your presentation. I have three questions, so we'll go one by one.

The first one is, what is the return on investment for your customer? So the B2B customer that you're selling to. He's buying 100 rupees of your product, and how long is he making that back in his business?

Mr. Omar Kazmi (Ful Foods)

To make that back? Yeah, so what's the return? How many months is the return for him? So how many years? So, we'd like to say it's quite fast because one, like I said, I didn't mention some of the unit economics, but the price we're selling duckweed at is in the dry form. It's about similar to the lower end of soybeans, so 200 to 250 per kg, and the wet form at around anywhere as low as 50, 60 per kg wet, which is significantly cheaper, at least in the poultry segment. It's significantly cheaper than the traditional feed, so they're saving money in that sense, and we obviously have to recreate these experiments because you can't go off just a couple experiments.

You have to do it multiple times, but based on the increased egg production and the cost saved, I feel like it's quite a quick return, but I don't have the exact numbers for you.

Mr. Ali Fawad (Investor)

Yeah, so if you're claiming an increase in yield, then you should have numbers on the amount of months that the farmer is making back his investment in your product.

The second question is IP laws in Pakistan are quite weak, so how do you expect when someone comes and tries to copy you once you've been successful, how do you expect to protect your technology in this environment?

Mr. Omar Kazmi (Ful Foods)

I mean, one thing is that we are working on getting certain protections, which I'll get into that.

We're looking for certain protections to do with strain selected, the method of cultivation, and the design of our ponds, and I know that even if we have those protections, and even if they're foreign protections, they might not protect us here, but I've basically been in a wild goose chase in this large, essentially a science experiment I've been running the past two years, so it's been a lot of trial and error, and I think someone, even if I had the protections, and someone disregarded those, could they? They could, but it would be a mammoth task. It would be. Okay, yeah, so that's a question for you to consider.

Mr. Ali Fawad (Investor)

The last question is your whole case is built around the alternative, which is soybean. Yes. Laws around soybean are changing here very fast with the import regulations on the seeds, so if it does get a lot cheaper to produce and grow soybean in Pakistan, how will your business model fare in that situation? Well, that's a good question.

Mr. Omar Kazmi (Ful Foods)

So, I have two answers to that. One being that it's not really the cost that's preventing people from cultivating soybean, it's more so the environmental factors that sort of inhibit the growth of soybean or prevent us from having an efficient and consistent growth of soybean. And so, but let's say hypothetically we could grow soybean in Pakistan.

It's competing at a similar cost while having, which we have results to show that as well, having a more robust nutritional profile to do with more digestible amino acids, more digestible vitamins, and we think in a long term, the health of the animal will, it'll be a clear difference in the health of the animals when compared to soybean. And like I'm saying, we're not trying to completely replace soybean. We're trying to partially replace it because we believe that this is something that farmers should take the benefits of.

Mr. Fareed Khan (Investor)

Thank you, Omar. Can you tell us, what's the shelf life of this product? Shelf life, so dry. In the dry form, it lasts about, it lasts a few months.

Mr. Omar Kazmi (Ful Foods)

We haven't done, we actually don't have any information on the exact shelf life yet because we're spending a lot of time on just the cultivation side of the R&D, but we have had some batches that we've had for about four or five months that have still stayed. My question was because if you're trying to replace soybean, soybean can be stored, can be shipped. It's a product which has a definite shelf life.

Mr. Fareed Khan (Investor)

So, have you done any research, any work on how long can this be stored? How will it be shipped? What is the market acceptability? Have you done any research on its marketability? On the marketability? I mean, yes, so like I said, we have, I mean, like I

said, we're mainly focusing on the cultivation side of things, but in terms of willingness to adopt this, like I said, I've spoken to certain smaller and larger players who have an interest. They're not sure if they believe that it's possible, but they're interested in the idea. If you're looking to raise funding, clearly cultivation is, yeah, important, but the selling part is also equally important.

No, so. It's not more important than.

Mr. Omar Kazmi (Ful Foods)

Yeah, so like I said, I've reached out to certain companies who are willing to, like I said, do a trial as soon as we have the production to do those trials, because a lot of these people I've spoken to have a large amount of animals, and our cultivation currently can support a trial with that amount.

So this means that the revenue numbers that you have projected are based on the fact that if those trials succeed, and if those customers are willing to pay that amount of money for your product. Yes, and so, but currently we have a couple small clients in Telangang who are using it for poultry feed, but yes, like I said, these are based on the unit economics, and based on, yes, based on capturing a certain percentage of the adjustable market. And yeah.

Mr. Azhar Khan (Investor)

Hi, quick question. So what exactly is the product here? Is it, it's, are you making a product which is a replacement, and that's what you're selling? Or are you just making the raw material which is a replacement for soya beans? Or is it a mixture?

Mr. Omar Kazmi (Ful Foods)

So, it's a great question. It's, so, it's not a pelletized product, if that's what you're asking.

But, so essentially we do sell it as a raw material, wet or dry, and that can either be used in someone else's formulation for pelletized feed, or it can be given straight in, with fodder, and mixed with other feed. So how you, so what is, then, like, all the science experiments you ran, what did it prove?

Mr. Azhar Khan (Investor)

Like, it has to be mixed with something? It has to have certain ratios? Yes, certain ratios, and that there are not, you know, sort of negative factors to do with health, at least at this level. And, like I said, we're trying to see if there's any effect on yield and production of these things.

Okay, so, because it's not clear what the product is, that's one thing. The second thing is, you're going after the farms. So, if you're going after the farms directly, that means you're making the entire product.

If it's this, something for a replacement, why are you approaching the manufacturers of the animal, whatever, the feed guys, who actually put this thing in? Did you have that

conversation, versus going directly to the farmers, which is what seems like you've done?

So you're building the entire product, or you're basically providing a service to an existing business of providing a raw material? So, it'd be providing a raw material, yes, but, as I mentioned, we have a long-term goal of phase two, which is a feed mill, which would be making a final product, which is a pellet. So, but that's far out, right? Now you want to raise two million, so what is that for? So that's, yeah, that's for providing as a raw material. And who's the customer? Customer are poultry farmers and dairy farmers.

So you're going to then build the actual product to sell to them, then? Sorry, what do you mean by product, because I... Because this is a raw material, as you said, right? So it has to be mixed with something in order to be fed to an animal.

Mr. Omar Kazmi (Ful Foods)

It's essentially, it's a feed supplement, if that's your question. It's a feed supplement that goes with, that is part of the protein component of an animal's feed formulation.

And so, for example, in our chicken trials, what we did was chickens are fed a local feed, and so essentially we replaced that by weight with varying percentages. And yeah, so essentially it's a raw material, but it's used, oh sorry, it's used as a replacement for the feed that's being used right now, currently.

Mr. Abrar Hasan (Investor)

Hi, Omar, how are you? Hello.

First of all, your project's really interesting because being one of the old founder members of Pakistan Agricultural Coalition, just wanted to let you know that one of the founding premises of Pakistan Agriculture Coalition was import substitution. So your project actually sort of ticks the mark, actually, of the objectives of Pakistan Agricultural Coalition. I'm quite familiar with the animal feed industry and sort of I can understand the importance of this project.

But you know, the whole aspect over here is that it's, and you talked about it, it's talking about the soybean replacement challenge for an industry which is actually very much comfortable to actually using a product. This requires tremendous amount of awareness and adoption. Yes.

And your model and your numbers are based on quite a bit of seismic changes, actually, that would need to be worked upon before your numbers even start to materialize, right? And then of course, the next step forward would be scalability because the numbers that you have presented are indeed very, very attractive. But operating in a country like Pakistan with a lot of uncertain economic aspects, I would love to know whether you have a risk mitigation strategy in place because you are asking for $2 million in stage one and subsequently, if you are on track, you are asking for a further $8 million, right?

So, your IRR and EBITDA generations are entirely based on you meeting those numbers in an economy, in an environment, in a country where stability is always one of the key risk pillars out there. So how would you actually give confidence to your investor that you do actually have a plan B or a risk mitigation strategy where you can actually utilize? No doubt the project is very interesting, but in order to make sure that you have the right deliverables in place and keeping your investors interested, there should be a risk mitigation strategy.

So, have you thought anything on that?

Mr. Omar Kazmi (Ful Foods)

Yes, somewhat we have. As for mitigating risk for the investor, I feel like we don't have a specific protocol in place. I think it would be more to do with the, I guess the terms of the investment and how that would work.

But as far as sort of assurance is concerned, I think one, it would just take a visit to the site to see, I guess, the passion and the knowledge of the team. And that aside, which is, I know very, is a fairytale answer, but aside from that, it's the fact that we are currently doing these consistent trials. And like I said, we have certain partners who are willing to get to arrange off-tech deals with us.

And those have certain terms and we could sort of get it to that point, which is what I sort of had in mind, was to get the conversation to that point before signing to sort of give, I guess, a few years of assurance for whoever invested. Building on what Abrar said, your product and your presentation is pretty exciting. So I think there is something there.

Mr. Bilal Sidikki (Investor)

One thing I just want to understand is that in 2024, you've written 2024, the units sold at 3136. Is that an actual number or is it, you've actually sold those units with an EBITDA of $2.7 million? No, no, no. This was a bit of an older slide, actually.

So let's shift those numbers over about one more year. Okay, understood. So you need the $2 million to actually set up the numbers for 2024, selling 3136 units? Yes, yes, it would be.

Okay, all right. Just a few more questions from my side, that the data that you've collected or the R&D that you've done, and I believe you're doing it with your customer base whereby you're using this as a feed direct feed to the customers that you're working with. Yes.

How long, what kind of data do you have? How long does this data, is it a one month data, two month data set or a year data set?

Mr. Omar Kazmi (Ful Foods)

I mean, we have various ones. We have a couple that span about a year and a half of pond conditions every single day. We have, for example, our chicken trial, which is about 40, 50 days in length.

The upcoming trial with drawdown farms will be about, 90 days, I think. So, yeah, so it depends on the parameter that we're looking at.

Mr. Bilal Sidikki (Investor)

What kind of land do you need to actually cultivate this? I mean, is it, does pH values, do pH values define the kind of areas that you can do this? And what kind of water do you need?

Mr. Omar Kazmi (Ful Foods)

Yeah, so it's an interesting question because a very important feature of duckweed is that it can be grown on desertified land, meaning anywhere, because it's grown in ponds, but the water is an important part because let's say the water's too alkaline, then it could actually promote algal growth because this is sort of like the opposite of algae, it's the same family, but high alkalinity introduces algae and lower alkalinity introduces duckweed.

So, we do need a sort of more neutral edging towards acidic water.

Mr. Abrar Hasan (Investor)

Are you susceptible to extreme climate conditions?

Mr. Omar Kazmi (Ful Foods)

Yes, it depends, it depends. So we have done about a year of consistent cultivation and we've noticed some ups and downs, like I mentioned, for example, one day, and my site's in Talagang, which I might not have mentioned, but one day it had reached about 46 degrees centigrade and that had choked our duckweed.

And so we had to restart that batch. And so we have a couple solutions to sort of counteract that because at least from what we've realized, the cold in Pakistan is less of a concern. It doesn't get cold enough to kill off this very hardy plant.

It's rather the heat. But what we have done is we started doing co-cultures because we've realized that these things occur naturally in multiple strains, not just one strain. So, and these co-cultures together, some of them are more, like I said, hardy, and that has given it more strength against heat, for example.

So, but perhaps if there was like an extreme case, there would be an issue. And sometimes there are certain problems, but the good thing about this is that it's a modular system. So sometimes it can happen in one pond and just that one can be put down for the day and then the rest can keep going.

Mr. Azhar Khan (Investor)

It's already February and you're projecting to do 3.3 mil in revenues. Do you have like a customer who's already signed on for to commit to this kind of a number? No, not yet.

So how did you come up with this projection? So like I said, this was, this is a year behind. So this was based on, like I said, getting a contract based on like an offtake deal. With the capacity that we're projecting.

So you said 2025 is 11 million, so fine. I move 2024 to 3.3. Even if I move it to 2026, that's still a big number. So how are you projecting that? Like I said, it's just based on the cost per kg, our cost of production and the capacity.

No, that's not the cost per kg. It's like, where is the customer who's willing to buy $3.3 million worth of raw material from you? Who are those customers who are willing to sign that kind of a check? Or commit to that kind of a number?

Mr. Omar Kazmi (Ful Foods)

I mentioned earlier, we have a commitment from quite a large, one of the largest premium milk producers in Pakistan. And it's based on that calculation.

The amount that they would be taking from us. So would they come in as an investor if you decide, if you go forward with this? I haven't discussed that with them. It would be more as an offtake partner.

So they're willing to sign a contract for 3.3?

Mr. Azhar Khan (Investor)

No, after a successful trial, with a large-scale dairy trial. And what's the definition of a large-scale dairy trial? It would be with about anywhere between 120 to 200 cows. 100 to 200 cows.

And you have already done that? No, no, we have not. Like I said, we're doing it, we're doing a smaller version of that with drawdown farms next month. After which, that'll be the basis for building a bigger version of that.

Mr. Azhar Khan (Investor)

So what trials did you have done for the past two years? Which trials? Yeah. We've done, so we've done them only in chickens so far. So you have done in chickens, but you want to do revenues on cows? Yes.

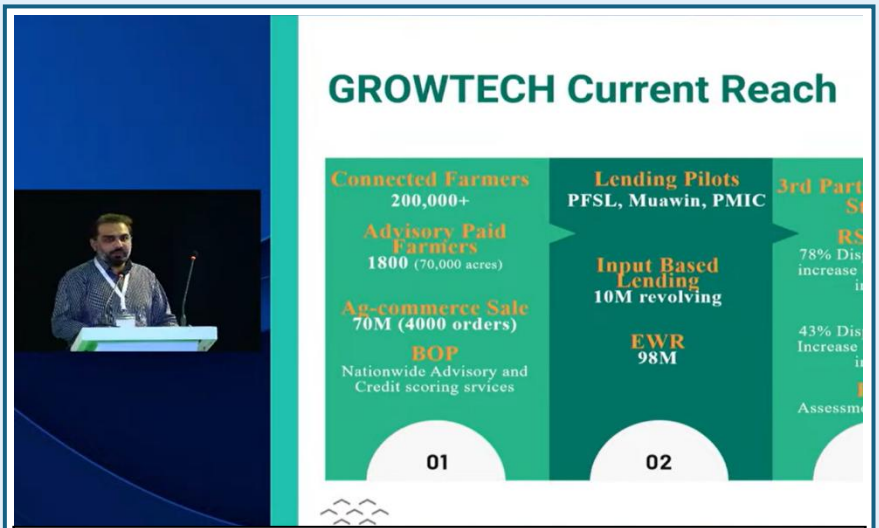
Mr. Bilal Sidikki (Investor)

Omar, I like what you're showing us. And it seems you've done a lot of work on this. But there's still a lot more to do. Of course. I'd like to have a session with you, just to understand this a bit more. We don't have much time right now.

Yeah. And I'd like to understand your R&D a bit more. I'd like to understand what scale you've been operating at, what your data set is, and as well as to understand what the global market is like. Is there any sort of commercial value, or like Abrar said, that building a market for it is not an easy task. Definitely not. But nonetheless, I'd like to give it some more thought.

You can come and meet me after this and take my details, and we can tie up later. Definitely. Thank you so much for the offer.

Pitch by Growtech



Mr. Abdul Samad from Growtech pitching to ZarZaraat investors.

We have Faisal, Bilal, and Shahnawaz, who are the co-founders making the presentation, along with Abdul Samad, head of commercials. Growtech, you will have 10 minutes to make the presentation, and then the investors will have 20 minutes to ask you the questions, and then we'll ask them both back up here. As-salamu alaykum, and hello, everyone.

I'm Abdul Samad, head of commercial from Growtech. With me, Faisal Bilal, he's the co-founder, and Shahnawaz is also the co-founder of the Growtech.

We very strongly believe on physicalization, so I am here as a physical, and my two co-founders are digitally connected, and the same pattern, we are working in the ground with the farmers. So, the backbone is our farmer. We have more than 200,000 farmers right now, where we are connected digitally and physically as well, where we farmers are connected with our GrowPak app, where farmers are connected to our digital stores, where farmers are connected with our physical store as well.

So, these farmers are daily connecting with Growtech via advisory, getting the services on the remote sensing, getting the services on EWR, getting the services on different agriculture-related products. We have agri-commerce score as well. We have a digital score, where we are selling the inputs digitally via our GrowPak app, and right now we

have 70 millions of revenue generated through this app, and we have more than 4,000 orders we have secured in this app.

Right now, the Bank of Punjab is currently working with us, and we are providing the credit scoring services to the Bank of Punjab. Fortunately, Bank of Punjab's management is here, so they can vet what kind of work we are currently doing with them. So I will tell you in detail what credit scoring is doing in digital sectors.

The second part we are doing in the lending, we are working with the Parwaz Financial Solutions. We are working with the Mawan. We are working with the Pakistan Microfinance Investment Corporation.

We have run a very successful pilot with these companies, and we have a solution where we provide them a loan management system. We're not only providing the technical services, we're also providing the services on ground, because we have a store over here, a digital store and a physical store. So once we secure a farmer for the lending services, we also provide a complete journey from the physical store till the input delivery, and we're also providing the digital services, like we are providing the satellite monitoring solution where the farmers can get the crop health's moisture levels and the nitrogen levels of their farms regularly, and irrigation report as well.

The third part that we are providing in the lending services is the EWR is a major part. We have already secured 98 million in this sector. Electronic, we are now received.

Fortunately, the EWR stakeholders are also here, so they know very well that Grotec has worked very aggressively in the last three years to promote the EWR in Pakistan. The third impact that we have already having three impact reports, so the investors having a very good opportunity to view these reports, these are the third-party impact reports. One is issued by RSPN, second is BOP, and third is the PMIC, and they have assured and report that how Growtech is working with the farmers and how we can improve the profitability of these farmers.

So, there's three opportunities for the investors. Either they want to invest in every part or they have their own. We're already working in input-based lending model.

We have a very good in our land loan management system. We have already worked in agroforestry third-party as an extension partner, and we are implementing partner. We are already working in SEND with the two international and national companies.

Those are working the carbon credits, and Growtech is working there as implementing partner. This is a catch, what Growtech is doing, that we are currently connected with every stakeholder, like we are connected with the insurance companies as well to connect with the farmers. We are working with the input suppliers.

We are connected with the financial institutions, and we are working in the agriculture, agri-commerce as well. So we know how to connect farmers with their needs. So this is the backbone that 200,000 farmers are onboarded, and these farmers are digitally very good.

You can say that there is so many farmers in Pakistan, but the hunting and the searching of correct farmer who can use the technology are very limited. So these 200,000 farmers are the filter farmers. Those farmers can connect with us, communicate with us.

Whenever we offer some kind of services to these farmers, these farmers can reply. The farmers question with us, and they get the services whenever they need it. So already the revenue model, I have a stream that advisory services we are already providing.

There's a huge gap in Pakistan. Digital advisory is still missing, and we are already providing the services. So in the bank, financial institutions, those are providing the input services.

They are providing lending services, but the advisory is missing everywhere. So they are connected with the farmer just because of financial matters. They go, they put the money, and they ask the money.

They don't ask what kind of agriculture activities they are doing, they need any kind of a support, or what kind of practice they want to implement, and they get the maximum yield. But this part is missing, I think, where Growtech can easily connect with the financial institutions and with the farmers to improve their yields. We have a machine learning credit scoring model.

This credit scoring model is different than the financial institutions say, the credit scoring model. Whenever the farmers go for the financial, for the credit, for asking for the loan, so the bank is once asked for his- Abdul Samad, I'm so sorry to interrupt you. I've stopped your time.

We have already implemented a machine learning credit scoring model, and this model is already working in the Bank of Punjab, the Bank of Punjab nationwide, getting the service of this model, and we are very hopeful that this credit scoring model will be a game-changer in the coming days. So here is the, where we can get the improvement, that we are already working in digital stores.

We can improve the digital store through the fundings. Right now we have a digital store, physical store in Bahawalpur, where the farmers can get the services. Farmers come, they can not only get the inputs, they also get the advisory services from our site.

They also get how the new changes in the agriculture sector, they get the news about the EWR, they know, they get the news about the new advisories, digital advisory. Most of the farmers, they don't have, you can say, a digital platform where they can get the advisories. Growtech is not only providing the physical services, they also train these farmers how they can get the digital services from us.

Even most of the farmers that don't have a smartphone, they can come to our Grotech office, Bahawalpur, and there is a digital screen where we can connect these farmers to our agronomy team. Those are sitting back in Islamabad, especially the female agronomy team is well supporting. So they communicate with the experts over the digital screen.

Most of the farmers having this time of, first time they get this time of experience, but they take a very interesting result after the communications and after these advisories.

So, this is what we have right now in 2004. This is the number, and we will discuss this. I hope we will discuss it.

Over 90 millions we have already crossed in 2024. So this is the proper plan that we have. We already asked for the 38 million for the year, but we have a plan we will extend up to five years.

And this is the total working here. We are already working on the carbon credits. This is a proper plan that we have.

We are already working with the two partners as implementation partner we are working. We already having a very good footprint in SEND. We have collected a lot of data over here for the investors and we are going to be present in coming days.

But there is some, you can say, restrictions. There is some shortage of fund that can be a hurdle for us.

Mr. Fareed Khan (Investor)

Hi, how do you make money on your advisory services? Do you charge? Yes. Is it like a per conversation charge or a flat fee for those services? How do you price yourself?

Mr. Abdul Samad (Growtech)

Let me explain the complete journey how farmers is connecting with us and how we can charge them. There is an app and where farmers going and farmer make a form. And then once they have a form or Growtech app, there is certain services are free. Like they can check the weather of specific farm is free.

They can get the advisory free of cost. But there is a certain charges of remote sensing solutions. Like they can get the crop health, moisture levels, nitrogen levels.

These are the paid services. And we will charge 1600 rupees for the sixth month for each crop. How do they pay you? Through like wallet, digital wallet? Yes, yes, we have a digital wallet.

We have a visa gateway. How many active subscribers do you have? We have active subscriber over there. I've just explained you.

Faisal sir, can you explain? Can I add here? Yes, yes, yes, please. Just Faisal sir, you can. Hi gentlemen, to your question on the revenue generation.

We have four parts. One is the advisory services, which is the on-farm services. And we are committed to increase the productivity and the profitability.

We charge these services to the farmers. This is one part of our revenue. Second revenue is, as we have mentioned, that input-based lending model.

We have two models to generate revenue from there. One is the trade side, because the in-kind financial model. And second is the commission charge to the financial institute.

And lastly, as we are working as the ag-commerce entity, which is connecting the suppliers, farmers, and the financial institutes. We make that trade level commission to that. As well.

So, these are our revenue models. EWR is also there.

Mr. Fareed Khan (Investor)

Yeah, my question was how many active subscribers do you have? Active farmers?

Mr. Abdul Samad (Growtech)

At the minute we have 1,800 paid farmers right now, we have.

But the mostly services, other than 1,800, other than 70,000 acres, most of the farmers are getting, very services are free. So just on monetization, how you guys are basically making your revenue, you said 90 million for the year or nine million? There are three components. We can show you the revenue stream for the 2024.

The total revenue is 180 million, out of which we have three components. One is the lending component, one is the advisory component, and one is the online. So 70 million is around, yeah.

70 million is around on the online store, and around 22 million on the services, and rest is on the in-kind plus PWR lending.

Mr. Ali Fawad (Investor)

Sorry, just to clarify, the revenue does not include the lending rate? Is that the?

Growtech team

No, it's not the lended amount. It is the revenue we book on our site. Okay.

That's a profit. So on the lending aspect, you're working like a sales force for Bank of Punjab. Every time you refer to a customer, you get a fee? Yes, kind of agency banking, you can call it.

But as in our case, because we only focus on the in-kind lending, so we have two revenue here. One is on the trade side, because from the input side, we buy in the bulk and we supply to the farmers. And second is agency banking, as you have just mentioned, that we charge the commission to the financial institute.

We are working with Mowen and Parwaz at the minute on these projects. Lawn management system is a very good. Yeah.

While we are speaking about lending side, I want to add here that we have, the credit scoring model that we have is actually provides the tools for efficient risk management to the banks and financial institutions.

And the most important part of that credit scoring model is that in addition to demographics, the credit scoring model is machine learning trained to assess the farm, the land itself, and the past productivity behavior and pattern. And that helps to sort of estimate, forecast the risk of lending in future, sort of mixing up both the behavioral finance, if I may, in terms of how the farmer, how serious the farmer has been in cultivating his land, and at the same time, also providing the optimum usage of the inputs. Because that is very important, rather than the farmer wasting those resources, ensuring that whatever money he has borrowed is actually used for the productivity and the agriculture activity.

And that we always monitor both through our agri-commerce platform, as well as through the remote sensing, using the remote sensing technology. I just want to add one thing, that once we are going to provide input supplies to any farmer as a lending, for example, is asking for us that just need to supply some fertilizers and seed to our farmers. So, once we provide these inputs, we continue connecting with these farmer till harvesting, and we provide our remote sensing services as input supplier as well.

Like they got the seed from us, or they got the fertilizer for us, so we connected with these farmers. The financial institution will come in the end for the recovery. The rest of the time, the Growtech will be connected with them, and continuously sending the reports to the financial institution as well, that these farmers are going good or not, what kind of a problem they are facing or not.

It is sort of bringing the intellectual capital to the farmers throughout the crop cycle. So we do the hand holding of the farmer throughout the crop cycle. So it is with our own in-house team of agronomists as well, and that helps us to maintain that sustainable sort of relationship with the farmer, and achieve the KPI for us, which we set for ourselves in terms of the overall net income enhancement of the farmer by a minimum of 30% per acre per crop cycle width.

Mr. Ali Fawad (Investor)

So, I just have a couple of more questions. For your 1800 farmers, how many of those farmers renewed their subscription after six months?

Mr. Abdul Samad (Growtech)

Yes, very good question. Most of the time, those farmers who are getting the inputs regularly from us, they are our regular customers.

In a percentage number, how many, like 50%, 80%? It's around about 60 to 70% farmers. Mostly their farmers are getting regularly from us, like after the cotton season end, the new season will start. Once we provide the new inputs, we continue to provide them services.

Okay. But you see, the way you're getting, I think this is a very important question to address as well. One of the most important factors, the number of 1800 is very small as compared to the agricultural country of Pakistan.

So, you can imagine the kind of potential that we have. But on the other hand, in terms of the repeat customers, even if they, once they, because we sort of provide a very comprehensive and robust advisory services, so it is possible that, a farmer after a year would not like to renew their services, but would rather opt more for free services and then remain engaged with us through our agri-commerce platform. But because the primary focus of our agri-commerce platform is facilitating the farmers.

For example, a farmer in Sindh can also buy some seed from merchant or a seller in Punjab.

Mr. Ali Fawad (Investor)

So that kind of connection remains there as well. So yeah, that leads me to my next question. And that is, why would a farmer buy their inputs from you if the input can be readily bought from the market? Are you guys buying the inputs in bulk and selling it cheaper? So what's the, how do you make money there?

Mr. Abdul Samad (Growtech)

Okay, the one thing is that, as already Faisal said, that we are buying in a bulk and we are, when we hand it over to the farmers, so they are subsidized rate because we have enough margin to facilitate. And the second part is, mostly 99% input suppliers are not giving the advisory, which is a very critical part. Once, if the farmer is getting a seed or a pesticide or anything from us, so they're digitally connected with us.

We ask, what is the reason why they're asking, why they're buying? What is the situation right now? Either this is suitable or not for them. If this is not suitable, we provide a solution that, this is not the correct thing you are buying. You can take alternate as well, or you can, this might be not the right time to implement.

But these kind of services is very helpful for us to continue with these farmers.

Mr. Ali Fawad (Investor)

Yeah, I think that is, I think that is the core need that you guys are addressing because the agronomist that the farmer currently interacts with, either they are from the seed company or the fertilizer company and their incentive is to push their own product. Right? So that's the main thing you guys are addressing.

But my question is if you are providing an agronomic service to somebody in Sindh, and your team is based in somewhere in Islamabad, how do you know what that farmer needs? Because that's a combination of local weather, soil, many different things. How are you addressing that? That's a very good question. First of all, that we are not totally-

Growtech team

Okay. Your previous question and this question, actually, when, why that question was actually important, why the people will buy input from us. So actually, because of our analytics on farm level and on soil level, we actually are in control to decide what kind of input should be used on this soil or on this crop.

And secondly, because of the services company, we are, and we are also complementing our analytics with the factual data, we can, we can advise the right product to the customer. And secondly, it is not only about how, about the product itself, because in our portfolio, first of all, we are able to map soil organic carbon. So, when we, as you mentioned, there is somebody in sync or other area, our digital analytics run on the soil to estimate the boundaries and the zones based on the soil organic carbon.

We actually divide the farm based on the carbon availability. Second thing we do, we see the productivity maps for the last two, three, four years and see how the farmer has fared so far. And based on that, actually we have the weather data and everything with us.

Then we decide, yeah, okay, this is your soil. This is what is needed on the soil. And based on your area, what kind of variety, what kind of crop is the best.

And just to, just to complement my point, we are able to do a lot of crop rotation in South Punjab. And in 2023, first time we introduced sesame crop in Sindh. So, based on, because we have all those analytics and we, and the physical point, which we have mentioned that physically, we are physically available on five places, but in our case, because of the digital connectivity, we are able to collect soil organic carbon data and rest of the crop-related irrigation, moisture-related weather data digitally.

So, we, our core team, which is economy team, they decide on the variety to be used, crop rotations, inputs to be decided, irrigation patterns. And that, if you see our assessment reports, which is published by Bank of Punjab and PMIC and RSPN, we were able to reduce the use of irrigation, water 25%, use of input on average 40%, and yield increase on average 20%. So the RSPN case study tells that farmers were able to generate 78% additional income from their farms.

That is how we actually assist community. And again, we are not the product company, so the farmer has the trust that the advisory we are giving to them, the input we are advising to them is not based on the commission or like a salesperson from a product company. They have the sales target, they have to sell the product.

So this, I hope I have clarified the two questions you put. You just want to add one thing that normally in the crop or in the fields, the salesperson are regularly coming. The traditional farmer know very well that this guy is coming just for the sale.

But someone is calling from over their phone numbers or they're sending them reports with the facts and figures and with some kind of moisture levels and nitrogen levels reports, the farmers can believe very, as compared to the traditional method. So this is why the farmers are connecting very well with us.

Mr. Bilal Sidikki (Investor)

How are you building your nitrogen reports and moisture reports remotely? Are you using satellite imagery? Yes, absolutely.

NDVI satellite images. And you were talking about input, agri-input, sale of agri-input. When you sell agri-input, are you giving the farmers credit or is it the bank that's giving them credit? When the farmer's asking for the credit, so we connect with the financial institutions.

Mr. Abdul Samad (Growtech)

If the farmer is going to pay directly, we have a physical store, so we provide. So meaning you are selling on cash? Yes, we have one very interesting thing that we are working with the Pakistan Post Office. It's very difficult for us, but we are working because there is no such a channel like other courier carvers services have, not a network like a Pakistan Post have.

So, what we do, we post or we reach these farmers through social media like Facebook, TikTok, and once we connected with the farmer, we ask what kind of input you are required. If they ask, I need A, B, C, and then we send through cash and delivery method through post office and the farmer go to the post office, they physically touch their inputs, then they pay the money to the post office and we will collect manually that money from the post office after a week. But just to build a trust for the farmers, we are running this kind of activities.

We have a traditional method as well, like other services, but mostly these farmers are very, those areas that don't have other courier service networks. So if I could just summarize your key asks that you actually have.

Mr. Abrar Hasan (Investor)

So from what I have read and understood, if I really simplify and break it down into a short-term requirement and a long-term requirement, your short-term ask is somewhere like 840 million rupees, roughly about $3 million, which is mostly for warehousing and input trade.

And then you've got a long-term aspect of agroforestry and carbon credits with a pretty large ask of about 15.3 billion, which is about $52 million, right? And that requires an expected return over 15 years, actually, so that's quite a bit of patient capital, actually, which is there, right? So let's just park the long-term investment for the time being and let's just look at the short-term side. The short-term side, again, I have to ask the whole aspect of risk in there because it's highly dependent on farmer's income, right? And farmer's income actually is entirely dependent on crop yields, the kind of pricing that would be available, weather conditions, and spoilage, right? And of course, in your model, you had shown that you were actually looking at crop insurance as well, but crop insurance, as we know, is also in its infancy with most of the experiments being done around parametric insurance, actually, right? So that is one key risk, actually, because if the farmer's income goes down, then your ability to service this cost would become rather questionable. Your second aspect is on the warehousing.

I don't really see much experience in setting up warehouses and managing warehouses. This is a, it requires a different skill set altogether. And because you've mentioned EWR, I have a bit of experience, actually, in the EWR where we had set up Naymat Collateral, actually.

Now, for an EWR to work and for lending to actually occur, there is a concept where standardization actually has to be built in. So standards have to be set for the crops and to ensure tradability and to ensure that there is spoilage which will be affected. And through the EWR mechanism, you can actually have tradability where the banks can give you the loan and all that sort of stuff.

With very little experience in warehousing management and the ability to affect that trade, there as well, your returns can be significantly compromised if it is not managed. So one would assume that you would probably partner with some large warehousing providers or 3PL companies or anything like that out there. So have you, and here we're only talking about $3 million, right? And that also is a pretty large amount if we take exchange risk into consideration.

If you have a foreign investor investing into your product, then servicing his investment in US dollars also becomes a third variable, actually, out there. So quite a bit of risks actually involved over here. Would be interesting to know that what are your thoughts on that?

Growtech team

Actually, sir, there are three components. So the first component, as you have mentioned, on a short term, actually per year requirement, we have asked for 38 million per year for the physical reach. So far, what we have done, 180 million in 2024, that is we have reached to our digital reach only.

But definitely keeping in view our market and psychology, many farming community, either individual or corporate, B2B suppliers, they want the physical presence of the teams and the offices in regions. So, this part is on a very low scale, 38 million per year only. And about the risk on this part is very minimum because the main revenue generation here is in two parts.

One is our advisory services, which is 100% risk-free. Once the farmer is onboarded for the advisory, he has to pay in advance for those services. And the second component is through this, is the lending part.

Of course, as you have mentioned, there could be any calamity or some yield issues. So that default can go. So currently we are covering that part because the financial institute itself is using own books. We are not using those books. We are only the agency banking partner. So in this part, there is no risk involved on the revenue side. Second part, which is the input-based lending. We are out of time on the presentations and the questions.

So that concludes our session for that.

Mr. Bilal Sidikki (Investor)

Sure, sure. I'm not entirely convinced about your model. You know, you've got a lot of competition when it comes to basically the services that you're providing via satellite imagery.

But I can open a door for you. Thank you. The door would be that we have, in your area, in the Bahawalpur area, which you've mentioned, our fund has more than 5,000 acres in cultivation over there.

I could connect you to my team over there, and we could start some sort of advisories. We could take some services for you, just to see what kind of product you are offering. Based on what I see, like I said, I think, like Ibrahim mentioned, there are too many risks, and I'm not entirely convinced.

But I'd be willing to open that door for you and my team can work with you in Bahawalpur, and then we can see how it goes from there. Thank you very much, sir. Thank you.

Omer, if you could join us. We could start with national foods, and then I guess each one of you can individually have your last thoughts with them, if you would like to see one of them again, or both of them. Yeah, so I actually have similar thoughts.

Mr. Abrar Hasan (Investor)

I think, to me, this latter part of presentation carries more risks. Actually, just to clarify, I agree with you. We're only talking short-term, and if you just look at a one-year horizon, that's fine, actually.

But that's why I clubbed it into two, your four investment propositions into two, short-term and long-term. And my short-term was basically managed in a five-year aspect. So in a five-year aspect, your requirement was about $3 million.

But I just feel, because I have been associated in different variables, and I would echo the same sentiments just said over here, that I think it carries quite a bit of risk, actually, and then, subsequently, you require quite a large capital payout. So you do require pretty strong investors and very patient investors to actually go along with your proposition. But along the way, they would also need to have a very strong gut to actually withstand these kind of uncertainties.

Final Remarks from Investors

Mr. Ali Fawad (Investor)

As regards to the first presentation, I think that that is a very interesting import substitution model. I am intrigued as well, actually, and would like more details, because I just thought that you didn't have enough time to really actually answer all of the good things that you may actually have. So I'll address Omar first.

I thought what you were doing was very interesting. Do you have any ideas around the seafood industry? Because we'd love to partner over there if you can reapply the technology for shrimp and for fish as well. As for your journey, I think it's a bit early, but I would love to talk more and understand where you're heading.

For Growtech, I think you guys are doing a lot of dirty work, and for that, for the amount of work you've done, you've not got enough mileage. So, connecting with 1,800 farmers is not easy. Not a lot of people can claim that, but you guys are doing too many things.

So, if you guys are willing to go back to the drawing board a little bit and re-strategize, then I am willing to talk. But apart from that, again, well done to both of you to making it to this stage. Thank you.

Mr. Azhar Khan (Investor)

Okay, I'll take meetings with both of you for different reasons. I think in the first case, it's really, it's an interesting play. And in the second case, you already have customers in reach.

So both of them requires more time to be spent and really for me to understand what's going on, what is the product, and how is this playing out? So, we can connect on that after that. That'll be great.

Mr. Bilal Sidikki (Investor)

Omar, I mentioned I'd like to meet you to understand a bit more about what you're doing and to see what markets there are for your product. With regards to GrowTech, like Ali Fawad mentioned, you guys are doing a little bit too much. I did mention that I'll open a door for you and to see how that goes.

There are too many unanswered questions. Digital Mandi, it sounds very exciting, but executing the same without a lot of infrastructure, warehousing, quality control, even that's a very tough play unless you don't have some proper concrete plan behind you. And also, with regards to basically the crop health also, I'm not convinced about just using satellite imagery.

Of course, it helps, but I'm not convinced that that is entirely the way to go. But you can connect with me after the session and I will introduce you to our focal points in Bahawalpur.

Mr. Fareed Khan (Investor)

Omar, as far as full is concerned, I think probably it's a little too early for you to approach investors. I think your idea is great. Definitely, we can do with a lot of import substitution here. But I think you need to first complete your proof of concept stage before you go for your investment round.

I think at this stage, you would probably need to address two things. First, probably look for a grant. Maybe get associated with a group or a university and try to come up to the proof of concept stage.

And once you reach that stage, definitely we would like to get in touch with you. But during this journey, you have to be also mindful of the fact that the idea that you have is not proprietary and it can be very easily replicated. So growing duckweed is no rocket science.

So just be mindful of that fact that you might have a lot of competition once you reach the proof of concept stage. As far as growth tech is concerned, I think it's a great achievement that you have done, 1,800 or 2,000 farmers and all that, but still you are pretty short of the critical mass that you have. Unfortunately, the path that you have chosen requires a lot of groundwork, a lot of dirty work, as someone has said.

So good luck with your journey. We are in touch with you and would like to remain in touch with you. But at the same time, at some point in time, I think you are absolutely right that you have to find what your niche is and try to maximize your return on investment in that particular area.

You cannot spread your capital thinly over too many business ideas and try to experiment with them. So you'll have to find what you are doing best and stick with that. Thank you.

Ms. Florence Rolle with Concluding Remarks for ZarZaraat

I was here last year at the openings and looking at the stall around here, we don't see farmers. So, there are only a bunch of farmers which we've been working with as a FAO and which have displayed their products, but you know the gap between new investors and these farmers is huge. My speech of last year was about regulation.

I don't know if some of you were there. It's about, I would say, raising the issue of regulation of the markets. And this year we heard at the openings, commitment from the government, about moving towards a market-led agriculture.

So in the end, you guys in the room, private sector, food industries, could shape the future of the agriculture if it's market-led. For that, two things. One is, and it's difficult, looking at the short-term gains against long-term gains.

You know, when you look at importing soya bean, for example, two years ago, big issue. Then suddenly, we should not rely entirely on imports. Food, national foods showed what they have been doing, mainly because relying 100% on imports was not the solution long-term.

You have a role to play to look at the long-term, long-term for the climate change, long-term for the soil health, erosion for the farmers, etc. The second thing is, and that's what the CEO of National Food said as well, which is key and which is not happening the way it is happening in other countries, is about collaboration. The collaboration has two hats.

Collaboration along a value chain, and I believe this is what you mentioned, but there is another collaboration which is very important for a country in Pakistan, which is a collaboration amongst farmers. Because when you have 90% of your farmers which have very small farms, less than five hectares, you cannot farm alone. You cannot be alone in an environment where the food industry is vertically integrated.

You don't have any space. So collaboration is a thing. Then my final word, don't worry, it's about an initiative which we've just launched and which is going to be useful for you exporters.

It's about the food control system. Food control system means how Pakistan complies with two agreements for which he signed, which is the SPS within the World Trade Organization, which is the SPS agreement and the technical buyer of trade, the TBTs. We're starting with all the competent authorities a very comprehensive assessment of the capacity of the country to control its food system from farm to fork domestic market and export.

So, it's about capacity, public capacities, but private sector has a role to play. So you will be called upon at one point to provide all the issues you are facing like shipping, which you mentioned, the 60 days of shipping. And with that, thank you so much.

A big thank you to PAC. You know, it has been a nice journey. I'm here this year. Inshallah, I'll be here next year. Thank you so much.

BANK OF PUNJAB PRESENTATION BY MR. NOFEL DAUD

As-salamu alaykum everyone and a good evening to all.

Mr. Nofel Daud presenting the Bank of Punjab's work in Agriculture.

My name is Nofel Daud. I'm the Chief Digital Officer for the Bank of Punjab and I am here to present to you two of our BOP's flagship agricultural credit card products, the C.M. Punjab Kisan card and the C.M. Punjab Livestock card. I'll come to the C.M. Punjab, why it's called C.M. Punjab Kisan card and Livestock card later.

So hopefully in the next 10 to 15 minutes, my intent will be to leave you better informed about these two products and especially the impact these two programs has already started to have on the agri-economy in Punjab and in Pakistan as well. I must say that these are relatively young programs, not older than six months into actual operations. So these are into their first crop cycle, but already some very exciting impact and results have started to emerge and there are three impact categories I would want to talk about.

One set of impact slash results pertain to those which are predictable, which we when we were launching the program we wish to achieve. So that's one set. The second set of impacts are those which have started to emerge as the project and the program is executing.

Tey're interesting and some very interesting and exciting results are coming there. And third are those which are now foreseeing for the future and and very excitingly would want to present. Finally, before I start the deck, a couple of things.

I hopefully would be able to bring the farmers into the discussion of this hall room through the slides because this is about the farmers. We are here, the agricultural

coalition and this event is about the farmers. So that's our attempt to bring the farmers back into the discussion right in the centerfold where they belong.

And secondly, the speaker who preceded me earlier was mentioning about collaboration. These are excellent examples of initiatives which worked and are working because of collaboration. So the starting slide is pretty redundant.

I'm sure being agricultural experts you would make a better slide to identify what the issues pertaining to crop and farmer financing in Pakistan are. But nonetheless, as perfunctory it is, I needed to put the slide there. But the important thing is that the CM Punjab Kisan Card is CM Punjab Kisan Card because of two reasons.

Number one, as you see on the top left side of the slide, this is a zero marker product for the farmer. It's an interest-free loan for the farmers and the government of Punjab is bearing the cost of interest subsidy and that's a big big cost which they are bearing. Number one, secondly, on the right side you see the integration with PLRA, NADRA, PMD.

In Punjab we are lucky that our land records have been digitized, at least the land ownership records. We also have PITB in Punjab, which is playing the backbone of IT integration process in the Punjab. Finally, the government of Punjab is also bankrolling the credit loss subsidy for this program.

So, with these three major financial and regulatory commitments, this very much remains a flagship government of Punjab project with clear intention of providing small micro loans to small farmers or farmers having small land holding interest-free for the purchase of agricultural inputs through a digital closed-loop channel. So while on the one hand Bank of Punjab has not only established the issuance mechanism of giving away almost 535,000 credit cards in the last six months, we have also established a probably Pakistan's largest agriculture digital POS network in the province. I mean, it's in the province, but it's the largest in Pakistan.

We have established more than 4,000 merchants where agriculture inputs like fertilizers, pesticides, seeds, in case of Kisan card and in case of livestock card, the feed, vanda, silage, mineral mixture, those merchants have been established. So that's the basic essence and the basic USP of the product. It's a credit card.

Some of the early impacts which have already started to emerge, and I want to highlight three, one, two on this slide and one in the next, I want to take you over with, that 57% of the almost 535,000 farmers are those who are accessing credit for the first time and of those 70% are those who have a land acreage holding of less than five acres. For the whole program, the average land holding is 4.8 acres. That's a truly micro level crop financing going down to the level.

Second impact, the overall participation of women farmers in this portfolio is 4%. Now, the number is low, but we were very surprised by even this 4% participation because the actual number of almost 22,000 women farmer borrowers doesn't exist anywhere except in this program. And of those as well, 75% 75% are first-time borrowers and they have an average land holding of five acres and below for that 75%.

The two major impacts of giving credit to small land holding farmers and making a slight dent in increasing the financial inclusivity of women already we're starting to see. The third trend I would want to highlight is that because of the program, the long continuous trend of decline in farmer borrowers in the country has finally been reversed. So in the in from 22 to 23, 24 there was a consistent decline in farmer borrowers.

Now we see an upside and what we've also plotted in the bottom graph is that without Kisan cards intervention we would have been at somewhere 2.8 million borrowers. Now we're at 3.4 million borrowers. So these are some of the impacts which probably we were planning.

In fact, we were planning, but probably the results are slightly better than expected. But a few of the other impacts I would like to say. If you look here, the approval percentage you will see is almost 80%.

That's a very large and a very high number. I run a credit card business for consumers and our average approval rate is around 50 to 55%. Now these are those borrowers whom the bank has never met.

The entire process is digital end-to-end. It's actually digital. So the only customer experience intervention that we have asked of the farmer are two.

One, send your CNIC from a number from your own own mobile phone to a particular number. That's step number one. And the second step starts when the farmer gets a SMS back that congratulations, your your Kisan card has been approved or so-and-so and you can collect your Kissan card from the local Tehsil Arazi Center where BOP teams are sitting with your credit card.

That's the second intervention he has to do. One, just send an SMS. Two, go to the Tehsil office, pick up the Kisan card, do a biometric.

The card gets activated and he walks away. So that's a truly, no paper, no intakal, everything back-to-back integration is digitally launched. So 80% is the approval rate and the rejection rate is mainly stemming out of either high DBR or bad credit collections.

What I also want to highlight is in the bottom side and the analytics for this project are huge. Now, we are actually coming to terms with 500,000 farmers, 54 billion rupees approved in credit, 35 billion already spent, almost 700,000 transaction and 2.3 million acres in the Punjab is being impacted by this program. It's a sizable intervention.

It's become a very large program. So we're talking about half a million farmers, 2.4 million acres, 54 billion in approved loan, 35 billion in actual transactions done. So the scale is pretty large.

And again, the distribution of small landholding is very particular. You can see that almost 55% of the spend is being done by farmers who own less than five acres. Again, that's simple.

In a nutshell is kind of impacts that we are already starting to see. And this program is aligned with the crop cycle. So we've started with the Rabi cycle.

The spend started on the 15th of October. It will continue till the 15th of April where the wheat crop will come into the market and being sold. There will be one month for the farmers to pay back and then once paid off, the next Kharif cycle will start.

And the government already is talking about A. increasing the landholding limit from 12.5 acres to 25 acres to bring in more farmers into this program and B. increasing the per acre loan size. So currently the disbursed amount is at about 30,000 rupees per acre to the cap of 5 acre. That's 150,000 rupees.

They're already talking about increasing it by 30%. Talking quickly about the sister card, which is the C.M. Punjab livestock card. Pretty similar in terms of the setup.

It's again a credit card. It runs a four-month fattening cycle. The plan is to have 400,000 animals covered in the next three cycles.

We are well underway into our first cycle. The first cycle will end on 15th of April. There will be a two-month period of repayment and reissuing and then the next cycle will start and then the next cycle.

Again, a very sizable intervention of 400,000 animals and close to I mean 25 to 30,000 livestock farmers. Some of the highlights are that you know 14,000 farmers and 100,000 animals already covered. The loan disbursed amount is already 2.7 billion, of which farmers have again spent 641 millions buying that fodder.

And here also we have established more than 1,000 merchants across Punjab from where the farmers can purchase the fodder, vanda, mineral mixture and stuff through a closed-loop process. By the way, cash disbursal is not allowed in Livestock Card. In Kisan Card, there is a facility of withdrawing up to 30% of the disbursed loan amount in cash.

Some of the analytics on this again. Here, the approval rate is even higher than in Kisan Card. It's at 84% because this is again, it's a very structured loan.

Like I said, it is a four-month cycle. The intent is for farmers to buy young male calves, fatten them over four months and then sell it off and then pay us back. Combining these two together and some of the other digital initiatives that VOP is taking, we feel very, very excited that with our AI-powered client onboarding and credit scoring, our digital platforms from SME client and insurance and digital loan processing, what we have been able to achieve in the last 12 months is a huge reduction in loan processing time.

Our loan processing processes are now straight through. They're digital with least interaction between the farmer and the borrower. But it doesn't end here because over the next two years and some of the exciting thing which is going to happen is that the government wants to take the coverage under the Kisan Card program to 1 million farmers in the Punjab.

We are already working to make climate insurance a core USP for the borrowers. We are working with State Bank in how to achieve it. AI-driven agri-credit scoring program.

Remember, this program is throwing tons of data. It's throwing data on borrowers, data on transactions, data on merchants. I didn't show some of the slides in analytics.

We are tracking which fertilizer is being used up till which they seal. So that kind of spend data and that kind of product usage data with geography and with time, with timestamp, will prove invaluable for agronomists if they're interested. We want to tie up this whole portfolio of half a million or even a 1 million farmers with the EWRF initiative, which we are very excited about.

And we are working with the government of Punjab to devise a policy where they start promoting EWRF financing. So what we estimate is that by 2027, all these Sorry, that was my timer, which ran off. That we should be able to make an impact of up to 2 to 3 percent of GDP with these initiatives.

These are some very large-scale interventions happening and we are very excited to be part of it. Finally, this is the impact scorecard. So, I will just quickly take you through this.

There are three sets of impact that we're tracking. One is, okay, fine, the middleman Aarthi is out. It's a big boost to rural economy.

The approval rates are high. The fertilizer offtake, I see Mr. Jahangir sitting over here. I think, we don't have the numbers, but it's been reported that year-on-year, the fertilizer offtake numbers have really gone high.

The cattle health, in terms of ensuring that the right and quality feed is being given to the cattle, the department is doing immunization and all these animals are being tagged on the PETS system, which then adds on to the export value chain. So these are some of the impacts which are measurable. We are not actually starting to measure it right now.

Some of them are, you know, kind of out of our domain, but already seeing. The middle part is where the excitement starts to grow. As these programs turn into a large portfolio of body customers, it becomes very interesting for us to start putting in new kind of use cases like insurance, EWRF.

It encourages us as well to go into other priority sectors. For example, given our experience of Kissan Card, we already are launching an SME card, where we want to launch a hundred thousand cards for SE customers, not even SME customers, SE customers, digitally. We are also thinking of launching a low-cost housing digital onboarding process for 500,000 borrowers in the Punjab.

This is giving us that encouragement. The small land ownership and gender, I already took you to the impact. One very interesting impact is coming that when farmers started getting rejected for this loan, they started asking why.

Somebody told me that your CNIC is expired, so you can't be given a loan. So, we saw a large influx of CNIC being made by farmers because of that. The PMD, their phones and the SIMs were not in their own name, so they started getting that corrected.

Their names in the Punjab Land Record Authority were not up to date. So we're seeing a very interesting phenomenon over there. I've spoken about the 4,000 plus merchants that we have established.

All these transactions, 35 billion, are documented. These are cashless, so adding into the documentation and taxation of the economy. And finally, on the right side is where the blue ocean lies.

And what I would like to do is to invite everyone sitting here to become part of the upstream or downstream part of this portfolio. Because having a million customers portfolio, developing insurance use case, developing climate information or advisory use cases becomes very easy. And finally, data analytics.

So ladies and gentlemen, this very briefly were the two products I'm here to talk about. I hope that you become as excited about these products as we are. It's again the start of the journey and our real test will lie when the second cycle and third cycle come.

I thank you very much for your time. Thank you.

CLOSING SESSION

Speakers:

Mr. Kazim Saeed, CEO, Pakistan Agricultural Coalition

Mr. Rehmat Hasnie, President, National Bank of Pakistan

Mr. Mehmood Nawaz Shah, Senior Vice President, Sindh Abadgar Board

Mr. Jahangir Paracha, MD and CEO, Fauji Fertilizer

Mr. Muhammad Baksh Khan Mahar, Agriculture Minister, Government of Sindh

Mr. Hadi Ali Rizvi, Chairman, Pakistan Agricultural Coalition

Mr. Kazim Saeed, CEO, Pakistan Agricultural Coalition

Mr. Kazim Saeed: “Pakistan's agriculture sector, for it to realize the potential, we need a moonshot.

My job is to first of all thank all of you for the fantastic time we've had in these two days, looking at what needs to be done to get more investment into agriculture, not only requesting farmers to invest, which they have done plenty of, but also to bring the corporate and financial sector of Pakistan to bring services and products to Pakistan's farmers and we, I just want to highlight some important messages that we heard in the last, in these two days.

We opened up yesterday morning with the Investment Minister for, and Public-Private Partnership, the Minister for Sindh, Mr. Qasim Naveed Qamar, who, I think the main message that came out there was that Sindh is open for business with the corporate and financial sector to bring them in to public-private partnerships, bring services to empower farmers. And we heard in today's session on that topic from the Public-Private Partnership Unit exactly how they want to structure the projects in farm mechanization, in horticulture, cluster development.

We also heard from the President of HBL, Mr. Nassir Salim, in the opening ceremony about how much opportunity there still is, and by his estimation, he said, we are only tapping 10% of the opportunity out there from the banking sector, only 10% of the opportunity for lending and financial services in the agriculture sector. We heard of a stark irony from Mr. Ali Rathore, CEO of Engro Fertilizers, who spoke at the opening ceremony, when he pointed out that Pakistan is number eight in the world on wheat production, but number 56 in terms of wheat yields, and that he said, let's sink in. And see how much, how big a challenge we have.

Finally, in that opening ceremony, we heard from Madam Salma Bhatt, the special assistant to Chief Minister of Punjab on commodities management, what used to be the food department, and she said, one, we need policies that protect our people in terms of prices, in terms of availability, affordability, but she also said that Punjab is open for business for the corporate and financial sector to come into agriculture because there is now no longer a focus on government managing everything, government taking, buying the wheat, storing the wheat itself, etc.

That opens up a lot of opportunity. One message that from one of the sessions that came out, the World Bank Group was our partner for the sessions yesterday, and an interesting message from the expert on national agri-commodity markets, Mr. John McGillicuddy, who said that 1973, the United States, a Secretary for Agriculture, decided that we will no longer be in the storage of commodities, especially the key commodities like wheat and maize, and this basically began to allow the private sector to come in and allow farmers to make more money.

And that's how he pointed out that the real profitability increase for farmers came from government getting out of the way, and feels like that's where we are in Pakistan today. So in terms of seed, another session we heard that the seed framework is there, but

government needs to hurry up and get it to actually move and deliver good seed to our farmers. Finally, in the last session yesterday, supported by the World Bank, we got an outlook on the policy framework on agriculture, where the presentation from Olivier Durand of the World Bank was very enlightening in how the role of government and its support has to change as well.

If we want a transition from a government led agriculture sector to a private sector led agriculture sector, the role of government support has to change. And an important message came from the Deputy Governor of the State Bank for Financial Inclusion, Mr. Salim Ullah, who said that support through subsidies across the board has to go towards subsidies that are targeted and let the market take its route. And this has been reported a great deal in the newspapers today.

Today, we learned from the experience of Hungary what Pakistan can learn. This is very useful. I already mentioned the public-private partnership ideas from the government of Sindh that were on display for comment and review.

And we also learned today in a session supported by UNDP how carbon credits can be used by farmers and what difficulties there are. There was a session on how export prospects and whatever the difficulties are for agri-products. And just now we had a fantastic ZarZaraat session where startups, two finalists, pitched to investors.

And I think the kind of grilling they got from the investors sitting in the panel here, it's an education for all of us on how to pitch a business, how to get a business to market in terms of financing. Now, there are a couple of messages that I think I want to summarize with something I tabled yesterday that was, I'm glad to say, repeated a few times. I mentioned that we need to give ourselves a little more challenge as people working on the agriculture sector and for farmers.

And the challenge is, in a way, I mentioned the word moonshot. Pakistan's agriculture sector, for it to realize the potential, we need a moonshot. A few people repeated this phrase in their speeches, which I'm very, very flattered by, but a few people came and asked me what's a moonshot.

Let me just give you, my father was very fond of, as an expert on management, he was very fond of mentioning the example of President John F. Kennedy in 1961, saying, we will put a man on the moon and back. It's not just to put them there. Put a man on the moon and back within this decade, which my father used to very fondly say that's from management principles, quality, quantity, and time in terms of deadline, in terms of what the minimum quality is.

It's all in that sentence. And that became what is called a moonshot. Things that sound impossible, but in the end, they drive you to do things, achieve things that become an example.

The technologies that were used for the landing on the moon in 1969 did not exist in 1961. Many of the technologies did not exist. So that's why it's called a moonshot.

So, the moonshot for Pakistan's agriculture sector. We, as we heard, 10% of the opportunity in lending, well, we need to get to 90%. We need to have targets, what

that sound impossible, like I would say to Ramat Saab, we need to go to a loan to every farmer of Pakistan.

In 2025, this is not something that is impossible or insane. It is not. We have all the tools.

Just Pakistan Agricultural Coalition has done crop insurance. We've done warehouse receipts. So many other institutions have done so much.

We just need to focus, get our act together, and try to get to that impossible goal. We will get somewhere nearby. We need to get a modern warehouse in every part of the country where agriculture is being done. We need to get crop insurance and livestock insurance to every farmer. These are not things that are like going to the moon in 1961. They are not.

It's a matter of getting together. Get quality seed to every farmer. Now, something very important came towards this kind of effort. Something important came from the new chairperson for the Pakistan Business Council yesterday. Dr. Zeelaf Munir said, we need to have a forum where farmers, the leading private sector players, and government need to sit together and not just at a conference once a year or once every few months. Sit and discuss once every quarter, if not more often, and have those committees that see and find out are we getting to the end of those targets or not.

And she was very gracious to say Pakistan Agriculture Coalition can be the secretariat, and I made a promise to everyone I repeated here, we will be that secretariat, and we will serve that role to make sure it doesn't become a talk shop. It becomes something that has real substance, and I was able to discuss this with Dr. Wasim Ajmal, who is the Federal Secretary of National Food Security, and he said, I would like to be the co-chair of this kind of forum, with Dr. Zeelaf Munir being the other co-chair, so that from the private sector, we should be able to invite those who are at the head table here to be part of that, and Minister Sahab asked me to be part of this forum, and from the government, the Federal Secretary can try to bring in those from Chairman of Pakistan Agriculture Research Council, et cetera. And this, I think, having a national agriculture forum like this is really something that is a great outcome of the discussions we've had for two days.

So many different stakeholders under one roof. We've had a delegation from the Civil Services Academy in Lahore travel here to be part of this, just to learn, and we had students, meritorious students, 10 of them from the University of Agriculture, Tandorjam, who were brought here, supported by the Hungarian Embassy. So these are the kind of theme what Pakistan Agriculture Coalition brings to you, and with that, my request for all of you to support this effort for a moonshot and get, you know, the Pakistan's agriculture sector to achieve the potential it has to salvage our economy and move Pakistanis above that level of earning, of profitability, et cetera, and particularly our farmers.

I hope all of us can do this together. Thank you very much.

Mr. Rehmat Hasnie, President, National Bank of Pakistan

All the delegates, friends, colleagues, everyone here, Salaam and good afternoon. Tough act to follow, Kazim, and also perhaps the closing act for this wonderful convention. I think the title of this is exactly what we are in need of as a country, agri-connections.

We are an economy which is highly skewed in terms of employment as well as production to agriculture, but as someone used to say, but that's a political dialogue, we need to do more and a lot more. I think what is important for us from the agriculture side is to look at three areas, and those would be looking at the yields, looking at what we grow and how we grow it, and then obviously there has to be a target where it's not just about growing the right stuff, but also to be able to get it to the market in a manner in which it is usable both domestically and internationally as well as exportable. I think the real issue that we need to address is that we have a very large population, which means food and clothing for a very large population, which is all agriculture based.

Mr. Rehmat Hasnie: “looking at what we grow and how we grow it, but also to be able to get it to the market in a manner in which it is usable both domestically and internationally as well as exportable.”

And when the government and as a national economic direction, we talk about what is our road map, we're talking about exports or exporting surplus, so when we grow things, we need to be able to grow and process enough that we can feed and clothe our own people and export more and more. And that's an important way of looking at not only the importance of agriculture, but what needs to be done where the surpluses can be grown and then used without creating losses in that process. First the yields have to go up and then the farm to market preservation of losses, preservation of the goods has to be insured.

We're essentially talking about science and the use of science to improve that, which would bring us to the areas where sustainable growth for the country is inextricably linked to our agriculture and farm sector. And from the farm perspective, we're talking about technology, capacity building, and technology means both research in what we grow, what kinds of varieties we sow, what kinds of pesticides we use and what fertilizers we use and how we grow them, grow and harvest. And then comes the critical part of storage and the logistical chain of getting all of that, whatever we grow, to the market.

Obviously, in all of this, we cannot ignore and we must not ignore the environmental and the climate goals that have in which we are at risk. We have to grow it responsibly and we have to grow it well. I think from a perspective of agriculture, food security is going to be key.

Exportable surpluses will determine whether what we sell abroad will enable us to buy anything that we are short of here. And obviously, all of those are, those things require thought, planning, and structure. Perhaps, from a macro perspective, if we are talking about the need for Pakistan to have a better current account deficit, which we are well aware we need to have, a focus on, and a focus on food security requires us to start focusing on things that we import but could easily grow here.

Oil seeds is an example. Can we grow more oil seeds because the processing is already here. There are enough edible oil refineries here to be able to process it.

Maybe a focus of policy needs to be there. Maybe a focus on this cash crop and linking edible oil refiners to farmers needs to be there. Someone in a discussion also mentioned a return to zoning, which used to be there many years ago.

But those are all very serious thoughts that perhaps all of you as agriculture-related stakeholders need to deliberate upon with the government, et cetera, and come up with solutions. I do think that in all of this debate and discussion, a very important key stakeholder that we have perhaps not included in our deliberation as much as it could be is academia. The role of our agriculture universities, be it Faisalabad, the MNS University in Multan, Tando Jam University, yes, Kazim, you mentioned students coming from there, even the veterinary university in Lahore, to name a few, even Peshawar University and their agriculture department.

Those are all areas where research is going on. Somewhere, somehow, we need to bring that research into the field and to enable that, the agriculture coalition and what you were mentioning about Dr. Zeelaf Munir and her idea, please, I think the academia has to be pulled into that. The reason is this.

Look, there is a transformation happening, quietly if not in reality. In reality, it is happening. Imports of farm equipment have risen.

That means that there is a transformation happening and people are adopting technologies. The pace of that adoption may be slow, but it needs to be accelerated. And more important with that is the need for ensuring that that technology transforms or translates into higher yields and therefore fulfills the goals that we as a country need to have regarding food security and export-driven growth.

The interesting part here for us is that in certain cases, value addition and value added processes already exist. It is about what we grow over here versus what they import and process and provide in the local market. Now, therefore, the improvement of agri-extension, the addition of the inclusion of academia, and obviously, private sector players like the fertilizer manufacturers as well as the seed providers, et cetera, coming together is critical for us to have a roadmap for the country's agriculture sector, the farm sector, and how it evolves.

In that connection, it is important to recognize, and I'll say this on behalf of my colleagues in the banking sector, for every problem, the solution is not throwing money at it. The increase of farm credit overall has grown at a very significant pace in the past few years, at least. However, that farm credit translating into actual tangible growth of a

macro-economic level in the farm sector cannot just happen simply because a farmer has credit or access to credit.

That farmer needs access to technology, access to advice, access to better seed, access to better fertilizer, as well as the right mix of all those ingredients that will get that farmer the yields that we would expect. In that regard, not only National Bank, National Bank in particular, because I represent, I have to say that, we stand behind and provide as much as we can in terms of support to the farmers in terms of agriculture. Be there, and primarily, our focus has been on the 12 1⁄2 acres and below farm size.

The larger farmers certainly are there, but their requirement for credit is limited. The cash flows are significant. I think there is a lot of discussion and a lot of deliberation and serious deliberation happening not just in banking as a sector, about how to improve not only agriculture lending practices, but also how better to include insurance, not just as a simple insurance, but insurance policies which are determined by technology, and I'm sure that there are people here who have deliberated on this and continue to discuss how that can be, as well as certain technologies to monitor and develop our own and expand and improve our own outreach and quality of outreach to farmers, but bankers cannot or should not be the only advisors for farmers.

They need, as Kazim said, Pakistan, what is it, Agriculture Research Council, universities, the farm extension services of the provinces, and their involvement and outreach is what is going to drive the growth. Financing will be available and continues to be available to all who are in need of that, but what needs to really be emphasized for the farming sector is the necessity and the urgency of adopting the latest technologies at the fastest pace possible, and that will be an important step in the right direction for overall economic growth. I think as we, if we start, if we continue on that trajectory and that path, not only the banking sector will stand behind it, but in particular, I can say for myself, but also for my colleagues, the banking sector as a whole will stand behind such adoptions, such inclusions, and such improvements that can yield to an overall improvement, not only in the macro situation, but also for the farmer themselves in terms of their incomes and their quality of life.

I do think, and I think Kazim and Kashif, wherever he is, somewhere, a pet topic of discussion for us has been the infrastructure beyond the farm also, silos, the need for better storage capacities designed for particular crops to reduce the losses that exist. That is beyond perhaps the farm level discussion or what we've been talking about, but it is a key factor that a lot of investment is needed. Bankable feasibilities for doing that are important, and we are, we have been doing them in the past, we have been financing projects in that area, but not enough, and we look forward to projects that can enable this storage network to exist.

Across the country, as well as at the ports, to enable export of those commodities. I think a fundamental question when we talk about, and as a banker I have to sort of raise, is the fact that when I talk about technology, I'm also talking about the government and the government's technologies. As an example, the Punjab Land Revenue Authority and the system they've provided have eased a lot of the hurdles that perhaps farmers were facing in terms of accessing bank loans.

If you look at other provinces, it's a work in progress at different stages, but land ownership records or digitalization of land ownership records is key to enabling banks to provide better and better and higher and higher financing to farmers in those provinces. And particularly, I would say it is somewhere there it's on its way. The issue of settled and unsettled areas in Balochistan makes it difficult for agriculture financing to really grow, and in KPK there is obviously some agriculture financing that's going on, but it's important that land records are there and easy for banks to look at determination of ownership and then lending to those farmers.

That infrastructure is also key to improvement overall. I think in a nutshell, for me, it is all about agri-connections, not just for the farmer, but enabling the farmer. The ecosystem is like a net that protects and enables the farmer to produce more, improve their incomes, and improve the overall economic situation in the country and contribute more and more to the development of this economy.

I think that would be my two bits in this wonderful conference. There are too many people I see in the crowd who are much more learned in the particulars of agriculture, be it in growing, orchards, major crops, or even dairy, and I believe that discussion would have already happened. Thank you very much.

Mr. Mehmood Nawaz Shah, Senior Vice President, Sindh Abadgar Board

Mr. Mehmood Nawaz: “Which sector in Pakistan supported back to Pakistan's economy and showed resilience? This was agriculture.”

Honorable Minister, learned speakers, delegates, colleagues, a good evening and As-salamu alaykum. Thank you very much for inviting us today here in a very important conference that is bringing about or trying to bring about a change as conventional farmers, very frankly, have always been thinking about how to bring about a change in agriculture.

I thought to let me see where the sparks in agriculture are and be a little provocative here, and I thought to begin with the employment numbers of this country, 20% of agricultural off GDP, employing about 40% of this human resources that we have in Pakistan, and there are numbers, studies, and by this number, it could easily be said that we are not that efficient, and it goes without saying, and I'm sure it is repeated so many times in conferences, and so are the reflective of numbers that in Pakistan, we have mechanizations to the extent of .5, per hectare, whereas in India, it's 1.5, China and U.S. way ahead to 2.5 and more.

That's one aspect of things to look at. The second aspect of things to look at it as also that there's just 20% of the pie which is going to the 40% of the population, and this 40% of the employment for a country which is already economically struggling is so important. The resources being allocated to agriculture with that are also limited, and what else could be important in agriculture and in the economy of Pakistan? Coming

from these inefficiencies and coming to the point is that we look at agriculture and the farmers by itself, the way I see it, we are not doing that bad.

I absolutely understand when you say that the experts would say, from where are you talking? So let me quote a couple of examples. One is corn, and I know Kazim and people have been talking about it a lot, and the other is a small vegetable which is a cauliflower. With that comes cucumbers and others.

If you would look at the numbers of the productivity and the yields, we're not doing that bad. We're about 80% to 90% hitting at yields of 80% to 90% of whatever the international yields are, if we subtract the GMO aspect of things in the corn at least. So that's what we are producing right now.

That by itself is showing that farmer is capable, willing, and ready to adopt, to do things provided if there are proper things provided to the farmer. Then comes the aspect of imbuing certain efficiencies of the other five major crops within Pakistan. If you were to look at them also, we have to really compare apples to apples, and our production numbers, of course, in wheat are much lower than in India, and from New Zealand, we're six times less.

But then also, the organic matters, the quality of the climate, the lesser winters, and if we consider all those things coming into play, you'll certainly find out that we are not doing that bad in agriculture. In Pakistan, in last decade and a half, it's not me saying it, it's everybody's from the Prime Minister to everybody saying it, Pakistan has been facing crises of the climate. 2010 flooding, 2017 COVID, 2022 flooding.

Which sector in Pakistan supported back to Pakistan's economy and showed resilience? This was agriculture. In 2024 and 23, the Honorable Minister of Finance said it in Washington that agriculture grew by 6% from 22 when it was bad into flooding without any public sector so-called support and the other indicators. That said, it's good that Qasim translated to me what was moonshot, did you say? I don't know if I understood.

So, I remembered before I was preparing for this, one in Sindhi and one in Urdu. In Sindhi, Shah Latif said centuries back, Allama Iqbal said, and then I said how to translate it in English. And my English was not able to translate it, it's probably moonshot.

We have it deeply into our cultures wherever we go. The point is, how do we go about doing it? The thing is, and I won't take much time as much, it must have been debated. And you know, scratching my head for last five, seven days, Qasim said, you have to speak in closing and I'm thinking to speak of something, you know, brand new for the people.

But alas, there isn't anything new. And it is something that we've been speaking about. And I thought, let's reinduce what we have been saying to Pakistan's agriculture context. That old thing is that we have to move on from these five commodities to more value added. Value added has become today a buzzword as well. Everybody's talking about value added.

When I say value added, it's more of horticulture that I talk of. Why I'm talking from last year, the same year, this year is perhaps two years back is that we were then also producing about 13 million tons of fruits and vegetables. Then also we were exporting not more than five to seven percent of our produce.

Then also we were exporting it to countries which was fetching one of the lowest prices in the world. Then also we were wasting about 30 to 35 percent of our commodities and of our horticulture produce. Same, we are doing it today.

And nothing has unfortunately changed. The drum beating about opening up the markets and CPEC will not help until and unless what Hasni Sahib and I am sure other learned people would have said that until and unless we cater to the markets and the requirements. It's not that I produce mango and feel happy about it.

It's about to find out whether the European Union with 500 million consumers, 70 percent of them buying out of supermarkets. Do we have a footprint there or we do not have a footprint there? Second, while we have signed a free trade agreement with China and so many other countries, are we able to export the horticulture and value added to those countries or not? The answer remains no. With 990,000 against 13 million tons of production is the only cold store capacity we have.

While the world has moved on from the cold stores to control atmosphere storages. It is very appropriately said by the corporate sector about the surpluses. So let me give you an example of the surplus.

And as we speak right now, as we speak right now in Pakistan, there is a surplus of cauliflower. There is surplus of tomato. There is surplus of cabbage. There is a surplus of French bean today. And that as we speak out now is being fed to the animals. And if I'm exaggerating a bit, just let me know if there's an exaggeration.

The surpluses are there or certain things are there. But the point is, somebody very well said about deregulation. Are the markets there? That remains a question.

Do we have the infrastructure to export it? Do we have the certifications and compliances to do it? And all the questions that you would raise these questions and it becomes a great question mark. And the great private sector needs to come and play the part. While we move on from commodities to the horticulture, the road is not easy.

Just I was doing certain numbers. Just 10% switch from wheat is more than 4 million acres. Currently, if there's a 50,000 acre more of cauliflower, tomato, and we are feeding it to animals and we are doing it today.

Comes the policy of the government, which does not require a penny, by the way. If the prices is to rise a certain threshold in the name of protecting consumers, there is an export ban. And there are certain export restrictions in place, which hamper the production, the productivity and the yield.

Lastly, I think PAC can play a very critical role there, which they're trying to work in specifically in that space to bring about corporate sector, people who could think differently to what we growers think and to bring about the investments that are

required wherever it is required. And now it has taken more than 10 to 12 years of hard work where there are certain supply chains working. By the way, the world today does not require commodities from the traders.

Our horticulture export is all tainted by traders. You talk in European Union, we have seen the markets and we have woken up at 3 a.m. and visited those markets and been to supermarkets. They would want to see fruit and vegetable from the grower.

A traceability up to the block in the orchard, not from the grower, but up to the block in the orchard. And today they are talking about block chains. So therefore, farmers become really important to bring in the picture.

When you talk horticulture, when you talk of supply chains, when you talk of exports in agriculture and if there isn't any farmers, there isn't any markets, there aren't any exports that we will be able to achieve in the high value added sector. And so therefore, it becomes really important to whatever I think Kazim was proposing somebody who needs to think and provided certain input. For that, it's not a one man's job or PAC's job.

It needs to be devolved governments in the provinces to take responsibility of the horticulture and the agriculture, to create a vision for the agriculture and a sustainable vision for the agriculture if we are to get into deregulated markets as we have been hearing that we are getting into. Thirdly, we farmers will also play our part as much as we could to understand and learn what is happening today. We will stand by PSC, public sector, government and wherever they would want us to work, to produce, to produce better, to provide traceability, compliances and certifications.

You tell us and we will provide you acreage in all the districts of Sindh where those things could be provided, provided that value also flows back to farmers and value is not stuck in the corporations and the companies who would want to work and come in between. It will become a challenge for all those people to bring back value to the farmers and not just value to the corporations and investors of this country. Agriculture in the short term, medium term in Pakistan will remain important with very less resource allocations.

Lastly, yes, the allocations of the credit have increased. The State Bank of Pakistan have worked hard and we have been part of that. That said, in $60 billion worth of agricultural economy, what is the target today? 2.5 trillion, 2.6 trillion which is not even a billion dollar.

All other credit is important and is coming out of the Aarthis. Until and unless those numbers don't flip and change, believe me, those Aarthis are not going away. The role of Aarthis, I would say, is really important to an extent of selling in the market, not manipulations in the market.

So therefore, until and unless we all take our steps forward, the agriculture in Pakistan is a challenge, is therefore also an opportunity for Pakistan to take it forward, to make it sustainable, and to be doing regenerative and climate aspects of agriculture. Thank you very much, Kazim, for inviting me today, PAC, for doing a wonderful two-day

conference. I'm sure there would have been learned people who would have been here, provide a certain roadmap and that it doesn't land in somewhere in good books and shelves with a lot of dust on them and that people will ponder over it and we'll progress all together.

Mr. Jahangir Paracha, MD and CEO, Fauji Fertilizer

Mr. Jahangir Paracha: “The solution never, ever came out of a government R&D, research, institute. So, the private sector, having the right initiative and right focus, can provide solutions.”

Honorable Minister of Agriculture, Sardar Mohamad Baksh Meher Sahib, Hasni Sahib, Kazim Sahib, all the delegates, ladies and gentlemen, As-salamu alaykum.

I will talk about the role of private sector and how private sector can re-pivot and bring a change because we all look towards government a lot and let's go back, what private sector was able to do when a big crisis happened. March, April 2020, the entire world stopped because of COVID. There are thousands and thousands of government-owned institutions.

In the end, all R&D, research, and re-pivoting and all those injections and jabs we got were produced by Sinopharm, Pfizer, Zeneca, all private companies. The solution never, ever came out of a government R&D, research, institute. So, the private sector, having the right initiative and right focus, can provide solutions.

Now, I'll talk about a company which has been around for 47 years and has played a pivotal role, especially between 68 to 72 when the Green Revolution started and Pakistan had the dams and, you know, the Green Revolution started and our journey in the early part of Pakistan's food security was pivotal. But now we are coming to a point when we thought that this is a company which I'm just going to share and it's not just like blowing the trumpet but I'm just going to give you the scale of this organization and how it is connected with Pakistan's agriculture and what it needs to do, that is most important. Like Pfizer opened the world, what does Fauji or my other, you know, private sector players need to do because I don't want to look towards government for all solutions.

If people had stopped at that time, only looked towards government laboratories, nothing would have happened. We probably would still be, you know, battling COVID. So this is a company.

I'm very proud of Hasni Saab, that asset which was literally going, which was a very important asset of Pakistan AgriTech plant, they kept it and they kept it alive for 12 years and I think we have recently acquired that company. So now this company has five sites and we produce about 4.3 million tons of fertilizer but the most important part and I think people need to understand the big numbers, half a trillion rupees of

agriculture or farmer's pocket, our spend is coming to us, half a trillion rupees, this is not small amount of money. Now how does a company like us re-pivot it because for us always, our customer was the dealer, never the farmer, okay? So when you're not connecting with the customer, you're not actually going out and solving his problems.

I think that re-pivoting happened and this is where the re-pivoting happened. I think Hasni Sahib also spoke about it. So we felt that we need to be closer to the customer and we created a separate channel.

We were doing traditional farm advisory services, these are the people who were there, about 27 agronomists, from 27 agronomists going to 160 in last six months. We said we are going to open 80 stores and on 30th of March, we will have 100 touch points with farmers and that is what the re-pivoting means. This is our COVID moment.

We got to change. We're going to make an effort to improve the, I'm not looking towards government for everything. So we are going to look what can we do.

That was the thing. We said four fingers which are pointed towards for the fertilizer, what FFC is going to do. So let me share the story.

This is what we did in last six months. Every nook and corner of Pakistan, we have now 750 people manning all these outlets. This is what we have done in last six months.

And what are we providing from there? We are providing them fertilizer. We are providing financial services. Loans have been written.

360,000 was the first loan which was written out of these outlets, already done. We have insurance. We, FFC fertilizer is paying, if you buy from the store, you have to get, you can't just walk in and, you know, buy.

You have to register and you have to be a small farmer to get registered. So the upper cap was 12 and a half acre for origin. You know, so the idea was that you go to the smallest or the marginalized farmers.

And we are offering them up to 10 lakh rupees of free life insurance. We work with the state life. We are providing, because they are registered with us, so we know who those guys are.

And every advisor, we are supplying each center and 80 of them have two agronomists. In that 50 acre, everybody who is registered with us, we are going and we are looking what they are doing, advisory services. We have brought crop protection company, FMC, now they have partnered with us.

Adamjee insurance has partnered with us also for the input side of the insurance, not the yield. But that one is covered. I'm sure lots of banks we are working with right now, they are joining us.

And the bit around precision farming, we are also providing those services. 25,000 acre of Pakistan's, we are doing the first precision farming large scale ag tech project right now. We have farmed our agri lift, our two companies, Pakistani startups, we have

given them that space to work with us, improve their products, and eventually, we are going to scale them up, you know.

Seed is a thing which we have not still cracked, but that's the next target, you know. So I think the idea was that, you know, a company which earns about half a trillion, how is it going to go back and connect with the farmer and spend? If you can really understand this channel, it's going to be a phenomenal amount of money which we are spending. Typically, agriculture companies in the world are spending about 10% of their top line revenue into R&D.

These type of pilots are R&D type of projects. We don't have products, but these are the type of projects where we are, you know, actually spending money, no return, but it's an R&D spend for us. We are going to have so much of insights from the farmers that we can improve the offering to them because if the farmer is not, does not have the purchasing power, my survival is not there.

I have to ensure that their yields improve, their economic well-being is improved, and then they will come back and buy my product. So it's also very important for us that that farmer is doing well. The other thing, I mean, so I was luckily, you know, invited to join the board of International Fertilizer Association.

This is my first meeting with them. The process is that they had these five world's largest fertilizer companies sitting there. And I asked them, where is this industry going? And they said, enhanced efficiency fertilizers.

The climate challenge, all the other problems which we are facing, the innovation has to happen. Urea and DAP is a product which to a large extent is from same sort of product which was available in 1958 and 50s, hasn't really innovated. So one of the ideas that we start innovation and start doing R&D.

FFC has dedicated R&D department. We have our own agricultural land in Faisalabad. We have set up this R&D center there.

And we're doing all sorts of R&D because you can't import all that R&D because agricultural lands are unique, you know. So you have to try those things in Pakistani, you know, sort of conditions. Three products have already been launched through that center.

They are right there before you. These three products were developed by our Faisalabad R&D center and they are now in the market. And a few more are in pipeline, inshallah. Precision farming, I just spoke about it. Probably one of the largest application of ag tech in Pakistan, 25,000 acre pilot. I'm talking about pilot.

Those Sona centers have a million acres registered already. 80,000 farmers are registered. The idea is to spread it to that million acre, all of this. This has to go all the way to everybody who is there. So we are doing both drone and satellite. So, we are working with, you know, so there are different needs for both of them.

We are working with both type of, you know, startups which are providing this. And the mission is, in the end, I think the boost agriculture and improve food security and also

future proof our own survivor. If we don't survive, if our customer does not survive, we are doomed.

We are not doing this only for the, you know, for the well-being of farmer. It is for us also. If they are, they have the purchasing power, they will have, they will buy all those innovative products from us.

And development only happens when private companies survive and they are plowing back some money into R&D and for the well-being of their customers. I think this is all I had to share. It's not that Fauji has been part and parcel of this thing but we are also repivoting and the repivot is to be closest to the farmer.

I think we talk a lot about agriculture loan. I think time is arriving and I'm looking at the President of National Bank. Like, if I was a corporate employee, people were ready to give me a credit card without any collateral, okay? They took a risk on me.

With these 80,000 farmers which are registered with the largest agriculture company of Pakistan, banks need to give them clean loaning. We cannot just wait, we cannot just wait that, we cannot just wait that Pakistan's governments, provincial governments will fix everything. We have to take some risk.

We took risk on the white-collar employees of the companies when we gave them credit cards. We have to now make an effort to bring clean loaning in Pakistan, inshallah. Thank you very much.

Thank you.

Mr. Sardar Muhammad Baksh Khan Mahar, Sindh Agriculture Minister

As-salamu alaykum everyone. Thank you for having me here today, Mr. Kazim and all your team and colleagues. Agriculture is the art of Sindh's economy and as a global agricultural supply chain has undergone transformation, we must ensure since farmers and agribusinesses are well-positioned to navigate these changes.

Mr. Sardar Muhammad: “We welcome investments, innovation, and expertise from the business community, financial institutions, and the technology providers. I think together, we can unlock immense potential of Sindh's agriculture and improve farmers' livelihoods.

Across the world, agricultural economies are working on improving their agri-supply chains by making them more efficient, innovative, and enterprising. We too must take bold steps to modernize, improve productivity, and create more resilient agricultural sector. Sindh's agriculture sector, like its people, is diverse and rich in potential.

We are home to some of Pakistan's most important crops, including wheat, rice, cotton, sugarcane, and an expanding horticulture sector. However, despite the strength, challenges such as post-harvest losses, as we were talking about, limited access to modern storage facilities, and climate change remains a significant hurdle. To illustrate, an average 40% of our horticulture crops are lost in post-harvest handling.

And Sindh has suffered from two major biblical level floods in the last 15 years, causing losses of billions of dollars. To work on these hurdles, government of Sindh, I would like to speak in Urdu also because my team is also here. I want my team and the people that we want to convey this message to, they should also understand.

We are working day and night. We know all the experts have spoken. The experts here have all spoken, especially those from the banking sector, and those from the fertilizer industry, and those from the Abadgar Board.

And I'm very honored to be here today. You saw that the agri-connection, this is very important to understand what is the purpose of this. As a minister of, as a policymaker of this agriculture sector, I would say that there are many hurdles, big problems that we farmers are facing in our daily lives.

Especially if we talk about climate change, climate change has obviously, we need to modernize our system. We need to come up with the climate resilient seeds and crops, which are very important, and we are working on it. Let me assure you, as some of my colleagues are talking about the seeds, and seeds, the multiplication and the quality of seed, which is very important, but before that, I think we need to educate our farmers as well.

We need to educate them. I'm not going to talk about what Punjab is doing and what are the federal policies, because at the end of the day, we want Pakistan's economy to grow. Coming back to acute shortages of water, the scientific approach is very important.

We need to do soil testing, which crop, which plant is going to grow, that is also very important, and then there is a whole range of scientific approaches. So that is also very important, but moving forward, as I said, when we come to seeds, that is also very important, because we have our research institutes, and very important. I mean, as an agriculturist, I didn't know how much potential our agriculture sector, especially the agriculture department has, and how far they can go.

But what I have seen is, the other day I was at Tandojam, and I will say that the labs I saw there, the technology I saw, the scientific approach and research I saw, and the work of the extension people, we have to work on research as well. As my colleagues were saying, as I said earlier, as mentioned, we have to work on the extension wing as well. We need to educate our farmers as well.

We need to work on the new methods. We need to bring in the new technology. And along with that, I will definitely say that, yes, we have come up with Hari card to ensure direct support to those farmers who are feeding our nation, and to help farmers to combat the climate change.

And we have also launched a program, which is a pilot project which we're going to introduce now, inshallah, in the Kharif season, which is coming. We have made a crop insurance plan. So, this is also very important.

But I will say that modernization, look at what we are going through as farmers. Acute water shortages, and then Hari Card techniques. Technically, we are not where we should be.

Technologically, we are not where we should be. And then, above all, when we bring in a crop, we have reached the market. I am talking about a major crop.

If the major crop, I will come to the minor crop as well, but if you are talking about the major crop, the policies are If you're not going to get any prices, you won't get a support price, you won't get a fair support price, you won't get a basic support price, then the farmers will be discouraged. Because of your policies, I think this is a forum that I should tell you about. The conditionalities that you had with the IMF, the agreement that you signed, there could have been more deliberations on that, because the IMF doesn't know what the situation is here, what we are going through.

I think if there had been deliberations with them, we could have told them more about how our policymaking should be. That if we don't give our farmers prices, if we don't give them support prices, then they will suffer. And if farmers will suffer, Pakistan will suffer.

The Pakistan's economy will suffer. So, I think we should look at the policy as well, and when the farmers are worried, we will get out of all this, God willing. Day and night, we

are working from our private sector, but at the same time, we should be able to give them basic, solid prices for our products, for our food.

But in the end, today, I really want to reaffirm the Sindh's commitment to agriculture modernization and the private sector collaboration. We welcome investments, innovation, and expertise from the business community, financial institutions, and the technology providers. I think together, we can unlock immense potential of Sindh's agriculture and improve farmers' livelihoods.

I extend my appreciation to Pakistan Agricultural Coalition for organizing Agri-Connections 2025 and bringing together all these stakeholders across the country. So, I would like to thank you, Mr. Kazim, and Agri-Connections for having me here today. Thank you very much.

Mr. Hadi Ali Rizvi, Chairman, Pakistan Agricultural Coalition

Mr. Hadi Rizvi: “Together, we have explored innovative solutions, forged new connections, and laid the groundwork to significant investment that will drive the future of agriculture.”

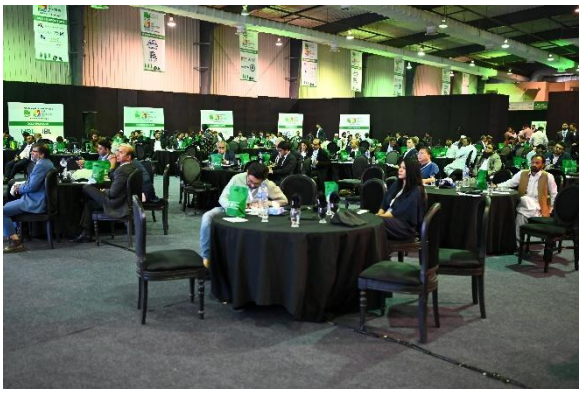
Honorable Minister, distinguished guests, ladies and gentlemen, As-salamu alaykum. As we close Agri-Connections 2025, I stand before you filled with profound gratitude and optimism.

Your presence here today representing esteemed business houses, financial institutions, corporate leadership, international donor agencies, farmers, and prominent industry experts from near and far is a testament to the shared commitment to the theme of this year's conference, Invest, Connect, Innovate. With global population continuing to rise and challenges we face becoming even more complex, the importance of every business sector has never been greater. Our discussion and insight over the past two days have underscored the pivotal role of agriculture in addressing these challenges and highlighted the vast opportunities that lie within public-private partnership.

Together, we have explored innovative solutions, forged new connections, and laid the groundwork to significant investment that will drive the future of agriculture. The involvement of corporate sector combined with robust government support, it has made it very clear that we are on the cusp of transformative growth. The opportunities we have identified and the collaboration we have initiated will definitely pave the way for sustainable development in agriculture, benefiting communities not only in Pakistan but worldwide.

In the end, I would like to extend my deepest gratitude to PAC board for their continued support and trust. Your vision and guidance have been instrumental in making this conference a resounding success. Special thanks to our CEO, Kazim, and his dedicated team of Shan, Saffa, Rabia, and Osman, for tireless efforts and extraordinary planning have culminated in an event that has exceeded this expectation.

Your hard work and commitment have truly paid off. As we leave here today, let us carry forward the spirit of innovation, the strength of our connections, and the resolve to invest in a brighter future for agriculture. Thank you all for your invaluable contribution and for making Agri-Connections 2025 a landmark event.

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