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Demystifying the Carbon Markets | Episode 12

Barbara Baarsma, CEO, Rabo Carbon Bank, Rabobank

Increased temperatures resulting from global warming pose a massive threat to the global agricultural system. If that alone wasn't enough to tackle — our population is growing resulting in a need for increased food production with decreased environmental impact. Enter carbon farming. Today, host David Greely connects with the CEO of Rabobank's Carbon Bank, Barbara Baarsma, to understand where carbon markets impact and aid regenerative farming to support sustainable food systems and the pursuit of net zero.

Barbara Baarsma (00:00):

All of us acknowledge: Yes, we do need to change the food system and on the one hand, we need to produce more food because the world population will start growing to let's say 10 billion people in 2050. So we need to double the food production, and on the other hand, we need to half, at least half our emissions, so we need to become four times as ecologically efficient, and we can only do that by really changing the food system. But that comes at a price, and that price is external to the system. So we need to internalize that price. That's putting a price to carbon in order to make the change happen.

Announcer (37s):

Welcome to Smarter Markets, a weekly podcast, featuring the icons and entrepreneurs of technology, commodities and finance, ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together, we examine the questions are we facing a crisis of information or a crisis of trust and will building smarter markets be the antidote.

David Greely (01m 05s):

Welcome back to demystifying the carbon markets on Smarter Markets. I'm David Greely, Chief Economist at Abaxx Technologies. Our guest today is Barbara Baarsma CEO of the Rabo Carbon bank and a Professor of Applied Economics at the University of Amsterdam. Rabo Carbon Bank is working with clients to accelerate sustainable food production through regenerative farming and other initiatives that reduce and remove carbon emissions from the atmosphere and we'll be talking with Barbara about how they're making that happen today. Hello Barbara, welcome to Smarter Markets.

Barbara Baarsma (01m 38s):

Thank you, David. I'm really looking forward to having this conversation with you.

David Greely (01m 44s):

So am I, and I wanted to start off with last year when you were the chair of Rabo Bank Amsterdam, you became the CEO of a new business initiative, the Rabo Carbon Bank. I've often heard you say that Rabo Carbon Bank is a bank where not money, but carbon is the currency. What do you mean by that and where did the idea for the carbon bank come from?

Barbara Baarsma (02m 08s):

Well, the Rabo Carbon Bank puts a price tag on sustainable contribution that farmers and food change can make to combating climate change and changing the food system by reducing greenhouse gas emissions in those foods and agriculture change and by absorbing carbon in the soils and trees, and those contributions are currently not priced on a market. So we set up let's say a surrogate market where the carbon is actually the currency. We put a price tag on something that is currently external to the market and we thereby aim to transform those vital sustainability efforts into commercially viable projects.

David Greely (02m 53s):

That's great. And as you said the carbon bank is at least currently focused on removal of carbon from the atmosphere through the adoption of regenerative agriculture. Why the emphasis on agriculture?

Barbara Baarsma (03m 08s):

Our bank is one of the largest food and ag banks in the world. We were cooperative. We were founded over 125 years ago, and it was in the late 19th century that very inventive farmers and horticulturalists in the Netherlands they combined actually their strength in what came to be our cooperative bank. They are not stockholders of the bank, but members of the cooperative and together what they did is they sought for structural solutions for the challenges they had that day and we are actually doing the same thing nowadays, but then in 38 countries and our international focus is still as where I found were our founders focused on the food and agri sector and being a large food and ag bank we also feel responsible for making the sector more sustainable and your previous questions you asked me, carbon is the currency not money.

Barbara Baarsma (04m 14s):

And perhaps if we talk about that transition to a more sustainable agriculture, then perhaps it's nice to say that our main aim is putting that price tag on carbon and financing the transition like most regular banks would do is secondary to that. We don't have this regular financial balance sheet, but we take actually the global carbon balance sheet as a starting point. If I may say something about that, because this carbon balance sheet is, is very well. It helps to also explain what we are doing, is that okay?

David Greely (04m 54s):

Oh, I'd love to hear more about the global carbon balance sheet.

Barbara Baarsma (04m 57s):

Yeah. Oh yeah. No, that this is not a very nice story actually, but every year we emit over 51 billion, tons of carbon dioxide equivalents greenhouse gases into the atmosphere and what most people don't know is that over a quarter of those emissions actually comes from the food and ag sector. So making a difference in that sector really also makes a difference when it comes to those emissions, but once in the atmosphere, all of those over 51 billion tons of carbon dioxide equivalent about 60% remains in the atmosphere and about 40% is absorbed back by the earth. So on the one hand, agriculture emits a lot of greenhouse gases, but and hey, here's the good news land and forest has the capacity to take out some of those greenhouse gases, carbon dioxide equivalent and take them from the atmosphere into the soils and the forest.

Barbara Baarsma (06m 02s):

And this is really important. The carbon bank works at both sides of that carbon balance. So both on reduction, of course that's the most important having less emissions into the atmosphere, but also on the other side where we take from the atmosphere and put it in soils and trees, you could also put it by the way in other natural carbon sink that is oceans, but we don't do that currently as Rabo Carbon Bank there are other parties doing that, but it's important to know that we work on both sides of the carbon balance and it's also very important to work on both sides. Yes, I already told you that reduction is the most important, but the other one, even, if we would start reducing carbon dioxide equivalents 100% today, we would not emit any more greenhouse gases today. There is still so much greenhouse gas in the atmosphere that we would still warm up, warm up. So we should really work on both sides and that's what we are doing.

David Greely (07m 02s):

That's terrific and, you know, as you said, for a long time for probably generations thinking about carbon, you know, it wasn't priced for farmers, it was external to the market and so the farming practices over the years in many parts of the world have become much more industrial and not really focused on regenerative practices and I'm curious how open are farmers to changing their practices to be more sustainable and to become what you call carbon farmers?

Barbara Baarsma (07m 33s):

Well most farmers, they really would like to have a more sustainable way of farming because most farmers, they have to compete on a global market. They are price taker. They can't show all of their sustainability efforts. So it's impossible for them now to have a decent price for what they, if they would transfer to sustainable farming. That's why it's so important that we put an extra income stream towards the farmer so that they are indeed able to make that transition. But perhaps it's good to tell you first a little bit about what the Rabo Carbon Bank is doing. So, as I told you, before we work on both sides of the, of the carbon balance, all of our solutions are this point in time nature based. That means based on trees, crops, soils, the capacity to sequester carbon we work closely with farmers in everything that we do.

Barbara Baarsma (08m 32s):

And we have, let's say three propositions. The first is carbon farming. I'll tell you more about it in a minute. The other one is a reduction proposition where we work with all of the partners in the supply chain, food corporates, farmers, farm inputs, organizations, and so on and we decarbonize those supply chains and we don't have removal credits, so removal from the atmosphere into soils or trees, but so it's not credits, but it's reduction units very much the same way as your credits. I can tell you more about it if you want to and the other is trees for farmers. I will come back to that later, but please know that to your question, many farmers, they want to make the transition to regenerative farming, but what we hear from them, if we talk to them is that they have trouble making the shift because they lack both the knowledge and the income streams, the, the money to make the transition.

Barbara Baarsma (09m 27s):

What we talking about earlier that land can absorb greenhouse gases. Well, please know that the potential of soils, of agricultural soils to store carbon is immense. Globally it's over 2,400 billion tons. So farmers are literally standing on top of this solution. They're not the problem, they're part of the solution, but in order to unlock that potential, they need to change their way of farming and how are they gonna do that. Well, for instance, if you look at one of the regenerative practice that we have discussed with our farmers, it's non-tillage. So by not breaking up the land through tillage soil is let's say undisturbed and allowed to regenerate and thrive and the second one is using cover crops. So planting, let's say native cover crops between a farmer's regular cash crop and planting keeps the soil covered with living roots the year round.

Barbara Baarsma (10m 30s):

And that's really important to have a healthier soil with higher biodiversity and also with this higher absorption capacity for carbon, the other is crop rotation, switching out the crop the crops in different fields, in a coordinated sequence both to reduce the loss of nutrients that occur when the same crop is planted over and over again, like monoculture, but next to that, there is also reduced inputs, reducing the application of fertilizers and chemicals and thereby enhancing actually the natural cycle of nutrients and that also helps to reduce the emission greenhouse gas emissions. Well, anyhow, no matter what, which of these methods are employed, it will take a few years for the soil to improve to the extent that it will indeed be able to absorb more carbon. So if it takes a few more years, then what we need to do is also pre-finance.

Barbara Baarsma (11m 25s):

And there, luckily we are a bank, although financing in the let's say traditional way is not our aim in the first place. No aim is to put a price tag on carbon, but if it helps to pre-finance those credits, then we'll do so, and we have done so. So to answer your question, I think that we need to help the farmers in a way that really, and this is a bit in Dutch, we have this beautiful word, but in English it would say something like we have to take the burden of the shoulders of the farmers and make sure that they have this one stop shop, where they can have everything from agronomic advice to monitoring to the protocols, to the certification, to everything there is to know and so that they are unburdened. I don't know if that's an English word, but it's the translation from the Dutch.

Barbara Baarsma (12m 14s):

So this one stop shop for carbon farm we have that. Of course we work together with many partners because we're just bankers, but we have economic advisors. We have remote sensing companies. We have the protocoling, the project developers and so on we work with them together and together we facilitate the generation, the monitoring and the certification of those carbon credits and then we can sell them and we can sell them to corporates who are also client of the bank. So we are in this unique position where we have on the one hand, the farmers and on the other hand, the food corporates that want to buy those credits.

David Greely (12m 47s):

Yeah. It's so much more than, you know, what we think of as the typical banking relationship, right, it's so much more than lending. It's taking the longer view. It's creating a network in an ecosystem of farmers, bankers, environmental specialists, the people that are looking for the carbon reduction credits and when I think about it, you know, you told me that recently the Rabo Carbon Bank sold its first Dutch credits as part of a pilot project to reduce greenhouse gas emissions by farmers and I was hoping you could walk us through that transaction and what were some of the challenges in making it happen. I imagine that's a pretty big level of coordination amongst all these members of your ecosystem.

Barbara Baarsma (13m 31s):

Well, it certainly was David because imagine that Rabo Carbon Bank is like one and a half years we started this. We're still in an innovation stage. So we are a startup within this huge global bank and those credits that we sold last week the first credits to be sold on

Dutch soil that was part of our, our pilots in the US, where we work with corn and soya farmers and in the Netherlands where we work with dairy farmers. So what we did is in June 2021, we spoke to those dairy farmers and us farmers doing corn and soya crops and they received pre-finance and advanced payment from the carbon bank to make the operations already more sustainable and to actually pre-finance the credit revenues that we only received now and since then what they have done in the US, the corn and soya farmers they've used cover crops, the non-tillage and so on.

Barbara Baarsma (14m 36s):

And what we've done is we had to monitor it. We had also in advance to make sure that the farmers were even interested. We had to do soil sampling and make predictions on how much we thought that using those regenerative farming practices, they will be able to absorb and please know that one to of carbon per hector extra that's a marginal influx. That counts is one carbon credit, one removal, credit removal from the atmosphere in the soil, and the same applies to those dairy farmers. They can use their, their grasslands in a different way and so harborage grasses and so on, and also sequester more carbon in those soils, we also gave them this pre-finance and what we did then was once we knew what, how many had a number of credits that would be able to generate by using those regenerative farming practices.

Barbara Baarsma (15m 29s):

We also found the businesses, the, the corporates that were willing to pay for these quite unique credits perhaps we can go into detail it's, there are many credits that you can buy out on the that you can buy on the market, but these credits are really high quality and they are also a little bit more expensive than the regular let's say renewable energy credits. Well to be eligible for those very high quality carbon credits, we as an Rabo Carbon Bank also impose requirements on the businesses, the corporates that we work with are off takers. They all have to commit to carbon dioxide reductions in their own business operations and in the supply chain. So it's not that we sell those credits to corporate so that they can take the easy, the easy route. So to say, no, no, we look whether they have this very proactive reduction of scope, one, two and three schedules, and then merely for the emissions that they are not able to avoid yet they can buy those removal credits to compensate for that.

Barbara Baarsma (16m 39s):

So we're still in the pilot phase. We are entering the second year now, the pilot will take three years and still very exciting and what we hope that, this is important to tell you that 90% of the money that we earned with those selling the credits that actually went to the farmers and we are after once we've learned enough from those pilots, we hope to go to market. So go out of the innovation funnel and actually go to market scale up, and then we'll enter, well, then we'll go from startup to scale up. And then we'll, we'll be able hopefully to, to work with all of the corn and soya farmers that do non tillage and, and cover crops in the US work with many dairy farmers across the globe and so on. It's a very, it's a very exciting times, and this was really a step for us selling those credits to also show the market. Yes, we can do it. So to put more trust in these markets, because the voluntary carbon markets, especially those nature based soil, sequester solutions, that's still not so mature and therefore it's important to give these signals to the market and that's actually what we did.

David Greely (17m 55s):

Right and so much of finding the proof of the concept, finding the, you know, almost the experiment like, okay, we, we do it this way. We use these methodologies, this works, and then the ever important scaling up, you know, can we get this to a size where it's gonna make a real impact and real difference in terms of climate change and, you know, one thing we've been emphasizing in the series is the importance of intermediaries like the carbon bank in making these markets work. I think a lot of people understand the project developers, the carbon farmers, people understand those who are trying to use the credits to help in their own net zero commitments, but as an intermediary, you know, the carbon bank, you're responsible for both monitoring the impact of a farmer's efforts and issuing carbon credits reflecting those of course, you know, quality is so important in these markets. There's such a differential of quality of different credits that are out there and there's such a, you know, so much concern about our credits accepted as credible. No one wants to be accused of green washing. It's one, probably one of the biggest risks in these markets right now and so I'm curious, how do you approach trying to make these credits accepted as credible, or what methodologies do you use, what's your, what's your approach to that?

Barbara Baarsma (19m 25s):

Now we, we work together with many partners and we also have a third party that actually validates what we are doing. At this point in time the credits are not yet certified, but in the future our aims is to get them certified. By the way, not many soil sequestered credits that have been certified up until now. That's also a sign of how complicated this matter is, but still we believe in the beauty of the

solution, why because I think that carbon farming is so incredibly powerful. There is a triple dividend, or perhaps even how do we say that in, in English, but a, a full part dividend. First of all, like we talked before, it, it generates a revenue stream for farmers, for them to be able to make the transition. It also results in less carbon dioxide equivalents that go into the atmosphere.

Barbara Baarsma (20m 22s):

So it's not just soil sequestration, but it's also less emissions for instance, by non-tillage or using less fertilizer. So it also helps directly to counter climate change and it results by having this healthier soil, more biodiversity, more carbon in the soil. It also results in higher crop yields with higher nutritious value. So it helps us to feed the growing world population and that's why we think it is really high quality solutions that we offer together with the farmers, of course. So what we mean with this high quality, again, it's the carbon dioxide reduction and removal and that has to be additional. So the farmer needs the proceeds, needs the extra income from selling those carbon credits or the reduction units in the decarbonization supply chain solution, to be able to make the transition, to explain the word additional.

Barbara Baarsma (21m 25s):

I have solar panels in my roof. I don't need any subsidy to actually have a viable business case there because it already pays off by having for having those solar panels. So if I would have credits because I emit less carbon dioxide equivalent, because I have solar panels, I would consider that to be low, not additional carbon credits and also therefore low quality. These credits, these reduction units that we have are additional and that's one part of being high quality. The other is that we aim for much wider benefits than just combating climate change by reducing and removing carbon dioxide equivalents. We also want to improve biodiversity, which is so unbelievably important or water management, or those kinds of things and we do not the third aspect. We do not want double counting to occur. That's why we have a register. We built a register right now which makes sure that we can prevent reselling from happening. So if a corporate, like the credits we sold last week, if a corporate buys those credits, he is not allowed or it is not allowed to resell it.

David Greely (22m 43s):

And that sounds similar in many ways, to some of the other approaches in the voluntary carbon markets, things that have been like proven necessary and I was curious how you compare your approach to that of some of the, these standards, programs and registries that people might be familiar with like Vera, like gold standard, do you see like there as being similar, are you looking to carve out something different for the carbon bank?

Barbara Baarsma (23m 08s):

Oh, I think that the demand for high quality carbon credits nature based that is so high, so I really believe that the more diversity in suppliers the better, but I think that we're both active on the voluntary carbon market, both active when it comes to nature based solutions, but we focus only on food and a they have a broader focus. We worked with our clients, the farmers are our clients, and I think that's unique. We have land access. We have access to those kitchen table talks with the farmers. We know them they trust us and that's, I think unique also the fact that we have the corporate, off takers in our books that makes us uniquely positioned, but also because we are such a large player in the food sector, we also have a responsibility to act there.

Barbara Baarsma (24m 00s):

So that's the mirror of having this unique position and we need Vera Gold Standard and other verification bodies to help us in the certification process. They are one of the independent players that can actually validate what we are doing and I very much believe in those third parties, those independent parties, because as we talked about before the voluntary carbon market, especially those on soil sequestration and so on is, is still so immature. It's still taking off. So we need to make sure that there is indeed high integrity, high quality in the market, no cargos and these verification bodies can actually help to set the standard high enough.

David Greely (24m 46s):

That's great and I wanted to return to a point that you had brought up earlier because within the carbon bank approach, you have the carbon farmers adopting practices that produce credits that you issue and the credits are then purchased by agri businesses, looking to decarbonize their supply chains and deal with their own scope three emissions. This seems to be a middle ground between corporations that purchase carbon offsets that might be wholly unrelated to their own carbon footprint you know, it still represents a ton of CO2 reduced or removed from the atmosphere, but it might not really be related to what they're doing. It's very fungible and a focus on you know, corporations that made net zero commitments strictly focused on reducing their own emissions directly and so this seems like almost a middle ground between those two and I was curious if you see it that way, and how did you come to this idea?

Barbara Baarsma (25m 41s):

Most of the times, we're interested in working together with corporates that actually aim to reduce not just their own emission scope, one, those of their energy supplier scope two, but also aim to actually decarbonize their entire supply chain also look at scope three. Why is that, because in a typical food and act supply chain, most of the emissions are not with the corporate, like 85% and like I said, typical food and act chain is emitted at farm level. If you do not include the farmers in trying to combat client change and changing the food system, you will not be successful. So that's why we as Rabo Carbon Bank work on both sides of the carbon ballots and not just have the removal credits, but also the reduction credits and that's quite innovative.

Barbara Baarsma (26m 36s):

I'm, I'm actually quite proud of that. So let me briefly tell you something about it. What we hear from those corporates who have pledged to the world that they want to be a net zero emitter in let's say 2030, or 2035 or whatever that pledge actually means that they will be a net zero emitter, not just for scope one and two, but also for scope three and once they realize that, and they see that like 85% or even more is emitted on farm level and at the same time, those farms are scattered all over the world it is quite difficult for them and then we work together with those food corporates and set up large scale reduction projects at farm level and for every ton of carbon dioxide equivalence, that is not emitted because of that reduction project, the farmer earns one reduction unit and the reduction unit very much like a carbon credit can be traded along the various supply chain players.

Barbara Baarsma (27m 38s):

And then the farmer has an extra revenue. So next to carbon credits, it also has the revenues from those reduction units and at the same time, the corporate has those reduction units and can prove to the world that it actually lives up to their pledge and the accountant will make sure that those reduction units are actually eligible under the accounting rules. So everybody's happy and especially the climate and our food production is more sustainable. So that's really that we next to those carbon credits also thought of something like reduction units we did that by the way, together with sustain sort. So it's not like all the credits go to Rabo Bank or, or the Rabo Carbon Bank. Now we did that to together with our partners and I very much believe that all of those nature based solutions, we work together and together we are stronger to make solutions like this.

Barbara Baarsma (28m 29s):

And, and that's really, really important. So that's why we work together with them but the original idea of having a carbon bank was actually, it was the idea of Rabobank's CEO, Wiebe Draijer and he came, he was in Davos, I think one or two years ago or something and he came back with the idea of monetizing carbon storage on farmland. He came back and he went back to the bank he said, oh, I have this idea. I don't know what to do with it and then he had like a couple of people, handful of people and he said, come on go work on the idea and then a few months later, I was asked to work with that group and to accelerate and, and have more propositions and that's how, for me, it all started and now that our Carbon Bank has grown both in number of team members it's like many more handfuls than just one and as well as in propositions, we do not just have this carbon farming soil sequestration. We have the decarbonization supply chain with the reduction units. I was telling you about, we have a Petland proposition in the Netherlands. We have trees for farmers that is putting idle land back to agricultural purposes by using forestry in Brazil and we have, especially for small holders in developing countries forestry proposition. So those small holders are not clients of the bank that's, but it is very important if you want to change the food system and make it more ecologically efficient, you also need to work with those small holders and that's why we also have that proposition. We've also developed that proposition

David Greely (30m 05s):

And it's a lot that's occurred in the little more than a year since you become CEO of the carbon bank at Rabobank, but I also wanted to go back to, you know, you're not just the CEO of the Rabo Carbon Bank, you're also a Professor of Applied Economics at the University of Amsterdam and as an economist, you've been thinking about and researching ways to price and in value environmental goods, since you earned your doctorate, how do you see those ideas and research contributing to what you're doing today and in what ways do you feel the, the time is right for putting a lot of those ideas you've been thinking about for quite some time into action?

Barbara Baarsma (30m 42s):

Well, yes, indeed. I wrote my PhD on the Monetary Evaluation of Environmental Goods and I studied various methodologies from a theoretical point, but also did some empirical studies and actually now I'm putting them into practice and it is a dream come through because yes, we can do it in practice and I see now that with all of the, those IPCC reports and also because weather conditions are indeed changing and people feel as though the climate crisis is closer to them as it, than it was before when I was writing that PhD was

in the 90. So yes. to your question, yes. The time is I think it has come the time is right and we also, at the same time, all of us acknowledge yes, we do need to change the food system and on the one hand, we need to produce more food because the world population will start growing to, let's say, 10 billion people in 2050, and on the other hand, so we need to double the food production.

Barbara Baarsma (31m 45s):

And on the other hand, we need to half, at least half our emissions. So we need to become four times as ecologically efficient and we can only do that by really changing the food system, but that comes at a price and that price is external to the system. So we need to internalize that price. That's putting a price to carbon in order to make the change happen and that I can work on that. Using the knowledge that I actually had in my PhD is, well, as I said, it's dream comes through, comes through,

David Greely (32m 17s):

Well, it's a big agenda and a big ambition having to rework the global food system to become four times more ecologically efficient as you put it and so, you know, as we wrap up, I just love to hear, you know, what's next for you and what's next for Rabo Carbon Bank over the next year or two?

Barbara Baarsma (32m 35s):

Well, I'm, I'm living the dreams this year is a very exciting year. We go to want to go to market in the tum with both the carbon farming soil sequestration and decarbonization supply chain and proposition and then we move from startup to scale up and in the end, our dream is to have more propositions go to market. We have an incubator in the carbon bank that makes sure that we keep innovating, keep developing new propositions. Some of them fail. Some of them succeed. I hope we can pull them through to, to the market phase to really start scaling up, but in the end we have a dream and it's in 2030 we want to have removed and reduced 1 billion, tons of carbon dioxide, equivalence and we believe it can be done and that's what we are working on.

David Greely (33m 24s):

Thanks again to Barbara Baarsma CEO of the Rabo Carbon Bank. We hope you enjoyed the episode. Join us next week with our guest Maryam Ayati, Co-Founder of Watr Blockchain. We'll be discussing the role of Blockchain and decentralized finance in supporting transparency, liquidity, and choice in the carbon markets.

Announcer (33m 43s):

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