

**SM60 | 3.12.2022****Demystifying the Carbon Markets | Episode 6**

Neil McDougall, Chairman, DelAgua Group

**A lack of understanding of carbon projects, their efficacy and reporting methods has contributed greatly to what we've dubbed 'carbon confusion' for ESG minded investors and corporations — specifically concerning the generation and verification of carbon credits. Neil McDougall, Chairman of DelAgua Group, shares a Saturday morning with David Greely to explore carbon markets through the lens of project design and development.**

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**Neil McDougall** (00s):

Well, I think a number of things have transformed the market over the last year or two. One is that the carbon pricing has obviously gone up and that means that we can support much more investment and make more difference to more and more people and reduce carbon emissions. So that has clearly been totally transformational for us and gives the opportunity to do more and more things in more and more countries.

**Announcer** (26s):

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** (53s):

Welcome back to demystifying the carbon markets on Smarter Markets. I'm Dave Greely, Chief Economist at Abaxx Technologies. Today we kick off part two of our series where our guests will take us through the carbon market supply chain from the project developers through the carbon crediting programs and registries market intermediaries and to the ultimate end users of carbon offsets. I'm joined today by Neil McDougall, Chairman of Delagua whose to Tubeho Neza or Live Well Program is one of the largest cook stove programs of its kind and is addressing critical climate and health challenges at scale and for the long term in partnership with the government of Rwanda. Neil has worked in the international water sector for over 20 years, including projects in Mexico, Panama, Chile, Kazakhstan, and Indonesia. Hello, Neil, welcome to Smarter Markets.

**Neil McDougall** (01m 43s):

Hi David. Thanks for inviting me.

**David Greely** (01m 44s):

Well, I'm very glad to have you here today to share with us your perspective on the carbon markets as a project developer. I imagine that while carbon financing can be very helpful in advancing Tubeho Neza's mission producing carbon offsets was never your primary motivation. Can you tell us your story. I know you began in the water industry, what brought you to develop cook stove projects?

**Neil McDougall** (02m 09s):

It's a fairly long and perhaps slightly interesting story I have, as you say, worked in the water and utility sector for a number of years often with the private equity sector and investment banks. I was Chairman and CEO of a company which worked in a number of countries around the world, including Chile, South Africa, Indonesia, the Philippines Kazakhstan and also a UK water company that was all part of our portfolio. So I had a lot of international experience and when I was training as a Chartered Accountant with PWC I was very fortunate in that I was allowed to go to Liberia before I was qualified and I worked there for a number of months and I just loved it out there. It was very important for me personally and also professionally and it was, you know, looking back at it now I can see what an important part it was in my professional developments as well.

**Neil McDougall** (03m 12s):

A few years ago, I teamed up with a German Investment Bank and we bought a UK water company taking it private from the London Stock Exchange. I was the Chairman and also the largest shareholder. It was a company with quite a few problems operational problems. It had very poor customer service, so we sorted all those issues out and then we subsequently put in a much more attractive

financial structure in place, much more lower cost financing and at the end of all that process we sold that onto an Australian Investment Bank. It was a very successful acquisition and sale and I was very interested at the end of that process to put something back to the world and in particular something in the developing world, particularly given my experience, working in Liberia, I was approached shortly after the sale of the water company by the University of Surrey, which had a company called Delagua, which was a partnership between the University and Oxfam.

**Neil McDougall** (04m 24s):

And it had a interesting bit of kit, which did water testing principally in the developing world. So I was very interested in it whenever there was a crisis somewhere which required someone to test the water quality. This was the de facto kit to go to. It required a little investment. It required an invigoration of the management team and I bought in a new management team and put some money into it to turn that round again, that was very successful, but once you've done something like that, you recognize that you've just beginning to recognize some of the problems and issues, which there are in the world. Once you have identified that there is water pollution in the households water which they receive from, whether it be stamp pipes or streams or whatever, how do you then treat that and that was the next stage. After we sorted out the water testing to get water filters into households at some kind of scale, to make a difference to those populations.

**Neil McDougall** (05m 31s):

We decided that we needed to test this at some scale, we looked at various countries, we had some relationships already with Rwanda where I had previously worked using our water testing kit and we approached the Ministry of Health to see if they might be interested in seeing the impact that a water filter might have in their population. The Ministry of Health were extremely helpful towards us, and they made one very interesting and important suggestion. They said, well, as well as the water filters, why don't you look at fuel efficient stoves as well. They made some interesting points that the stove technology, which was used was extremely basic typically in Rwanda and also 2 billion other households across the world.

**Neil McDougall** (06m 22s):

They use a traditional three stone fire, which is incredibly inefficient and is also very dirty and they said well, if you're going to do water filters, why don't you do some stoves as well. So that's in a very sensible thing to do. We had a small trial back in 2012 of 2,000 units and we tested various water filters and stoves to see which would be the most appropriate for the conditions where the conditions are extremely difficult as one might imagine. That was successful. We focused on a particular brand of stove and a particular water filter and on the back of that, we did our first large scale distribution back in 2014 where we distributed a hundred thousand stoves and a hundred thousand water filters. The next step and again in partnership with the Ministry of Health was to ascertain what benefits there might be in providing the stoves and the water filters to the households.

**Neil McDougall** (07m 28s):

And we concentrated on those households who had who were the poorest 30% of the population who simply couldn't afford buy a stove or a water filter and we commissioned the London School of Hygiene and Tropical Medicine to look at the program to see the benefits and the benefits were, you know, absolutely astonishing to us. We found that they did a random randomized control trial and that demonstrated that there was a reduction in infant mortality of 47% and there was a 72% reduction in indoor pollution. So it was clearly making a, a very significant difference. So that's really where we got to and that's when we decided, well, how are we going to be able to do this at scale.

**David Greely** (08m 15s):

Those are really staggering numbers in terms of the reduction in infant mortality and pollution. I'd like to understand how carbon markets and how carbon financing has helped you further your mission. How did you get started with carbon financing and what has it allowed you to do that you otherwise wouldn't have been able to do?

**Neil McDougall** (08m 34s):

Well, frankly, the whole project without carbon financing, we would not be working on this project. Now we had done a little bit of work on the carbon market back in 2012 and 2014, but we're looking really the way how we could do this at scale. We didn't want us to do a very small project and stop and not be able to support over the longer term and the carbon markets are what enabled us to do that. So by using a fuel efficient stove, you can reduce greenhouse gas emissions by 35 tons per stove over the length of the stove, which now is about 10 years. That meant that we could generate 35 credits per stove and that was really the basis of what we've been

doing to expand the project from the initial a hundred thousand to where we are now, we've completed 640,000 distributions in Rwanda and I am expecting to do 2.3 million over the next three years in total.

**David Greely** (09m 36s):

Have you encountered any problems in using the carbon markets?

**Neil McDougall** (09m 40s):

One of the biggest problems was the slump in the carbon price soon after the 2016 distributions, which meant that we couldn't do any more distributions until the carbon markets approved a couple of years ago. So yes, there have been a lot of challenges which we've had to face, but I would hope now that we have seen the worst of those and with the uptick in prices and the level of interest, I would hope that we won't have those same issues in the future. So yes, there are some issues volatility of price is one of them and the other significant factor for us has been the they hiatus with CDM, which is, I'm sure you are aware of effectively stopped issuing any credits post 2020, which were in the compliance market, that's caused them a great deal of issues.

**David Greely** (10m 34s):

And is there a price for carbon that, you know, is a level which really helps you expand the scale of the cook stove projects?

**Neil McDougall** (10m 42s):

Well, when we first went into the project pricing was somewhere between \$20 and \$30, it then fell back to \$0.50 somewhere around about that and that pretty much stopped everything. We are now between \$8 and \$11, somewhere around that price, we tend to get a premium because all the co-benefits that these stoves bring and at that price we can afford to fund the purchase of the stove distributed and most importantly, continue to support the stove over the life of the project.

**David Greely** (11m 16s):

What do you look for in an investor or a partner from the carbon markets?

**Neil McDougall** (11m 21s):

Well, first of all, I think we have to show them that they can make a commercial return. They're not simply not going to invest if they don't get their commercial return, but we are looking for more than that. Lots of people are looking for commercial returns. We're really looking for, for people who appreciate the additional benefits that we bring. So as well as the benefits of the carbon reduction, we provide a range of co-benefits associated with that. One of the obvious ones is for women and children because they're the ones who typically have to go out and find the fire woods and then cook because our new stove reduces the firewood by 71% there's much less time looking for firewood and also the stove cooks at a much higher temperature. So the amount of time which is spent on cooking is significantly reduce, which means that girls who typically do the cooking after school can finish before darkness comes so they can do some homework called other gainful employment.

**Neil McDougall** (12m 22s):

Obviously there's a range of nature benefits associated with the, the project as well were reducing deforestation and the amount of carbon which we will produce from the project is very significant. It's equivalent to taking all the cars off the streets of London and New York. So really what we find for people is that they are interested not just in the commercial tenement, also the additional benefits which they which they bring and it's important to us that they share our vision. We went into this sector to benefit the developing world. Carbon is a route to do that. It's the fuel, which funds it. We are looking to do more than just reduced carbon. It's a much more holistic approach, which we have and I'm delighted to say that many investors share our, our vision. We've got some, a range of blue chip investors. People like Shell, Base Carbon Hanwa Energy and South Korean, Ancient Petroleum from Korea, German Governments, Swedish Energy Agencies. So there are many people which share our concerns and our interests and there's been a noticeable number of new investors who are also looking to expand into this market and we're looking forward to working with them too.

**David Greely** (13m 40s):

And you mentioned some of the attributes of the projects that investors are looking for. So of course, starting with a return on investment, but also the co-benefits and the additional benefits beyond the carbon reduction. Are there things about the project developer themselves that you find investors are looking for?

**Neil McDougall** (13m 59s):

There certainly are. This is a very, very complicated exercise and it's also a long term relationship from the time that the stoves are delivered to the time we finish collecting carbon credits, it's typically 14 years. That's a long time to have any kind of partnership arrangements and it's important, therefore, that the investors are confident that we have the relevant experience to do a project of this scale. We've been working now in Rwanda for over 10 years, we've delivered 640,000 stoves to do households and we clearly do have that that experience and that's extremely important for people. It's also important that investors appreciate and can see that we have the infrastructure across the whole country because this is a countrywide project, to be able to deliver the stoves, install them and then continue to support them. That is absolutely critical to investors and the difficult part of that and the bits which not everybody does is the ongoing support.

**Neil McDougall** (15m 10s):

So as well as the original distribution, where our community health workers go to a village, they look at every household due to receive a stove. They do a village sort of teaching about the benefits of the stove, how to use it, the issues associated with using the traditional stove. They do the distribution. They then follow that up. So every single household gets a visit from a community health worker. The community health workers are trained. They use technology. All the data is uploaded in real time, including pictures of the recipients, the contract, which they sign and our community health workers spend an hour and a half, at least at every household who receives the stove, showing people how to use it and asking a whole series of questions. We typically ask 120 questions to every household which receives the stove.

**Neil McDougall** (16m 07s):

So we know how many children they have, how they cook all these kind of things, which is very important as part of the generating the credits and also providing additional support in the future, but that's not something we just do as a one off. We do that every single year of the project. So every household will receive a visit from a community health work worker who will support them. They provide ongoing education, do any amendments or any repairs to the stove itself as well as giving general health advice. So that's, I think one of the most important things which people are, are looking for, that you can deliver that at scale across the whole country. I think the other thing is that the investors are increasingly recognizing that not all stoves are created equal in the same way as not all credits are created equal.

**Neil McDougall** (16m 58s):

They are looking that people use the most appropriate stove and that's something which we spend a lot of time on we are technology agnostic. We will use whatever is the best and most appropriate technology that's improving over time. So we will always use the latest and the best technology and that's definitely a, a big differentiator, I expect that to be the case increasingly with time. I think the other issue which investors look at is the relationship with the government and again, I think that's going to be something which is increasingly important. We have enjoyed a fantastic relationship with the government of Rwanda from the very first days when we approached the Ministry of Health over 10 years ago. Now the government has been incredibly supportive. We work now not just with the Ministry of Health, but we work with the Ministry of the Environment, the Ministry of Finance and a dozen other government agencies.

**Neil McDougall** (17m 56s):

And they've been very, very supportive over the years and they ensure that we have access to the community health workers. We currently employ 4,000 community health workers. We are ramping up our distribution capacity by the beginning of next year. I expect we'll be employing about 10,000 community health workers. So we're a very significant employer now in the in the country and I think the, the final thing just to talk about what people are looking for is the information technology and the database that's important, not just for generating the credits cause that's the source data, but as we look to expand and provide additional goods and services to people that will be the route, we can identify those recipients who might be interested in additional goods and services.

**David Greely** (18m 51s):

I can't help you sure by the long term relationships that seem to go throughout what you've said between the, the investors and the project developer between the project developer and the people that are using the cook stoves between the project developer and the government of the area. And I imagine those relationships it's, you know, beyond the education that also helps provide real confidence that the stoves are being used and the carbon is being reduced as well and I guess that falls in part of the monitoring piece of it that you talked about.

**Neil McDougall** (19m 24s):

Well, that's absolutely right and the carbon markets are critical to that. One of the reasons why we go back every year to each household is to encourage them to use the stove cause they don't use the stove. We don't generate credits. It's a pay for performance model, but the recipients love their stoves. We have ordered data now, which shows two years post distribution, 99% of households use their stove on a daily basis.

**David Greely** (19:54):

And I wanna turn to some of those stories, but before I do, I just wanted to ask you quickly, are there some things that you need from the carbon market that you aren't getting. I know you mentioned, you know, having a price that meets a certain threshold, having stability in price are things that are, are very helpful are there other things in the carbon market that would help you in your mission and your projects?

**Neil McDougall** (20m 18s):

As you said, as well, volatility is an issue on pricing. I am somewhat concerned that the hiatus with CDM has undermined the credibility of certain parts of the market, but otherwise I think the carbon sector is very interesting and I think it'll show a very long life.

**David Greely** (20m 36s):

And so I wanted to get back to hearing a little bit more about the impact these cook stoves are having beyond carbon, because it's easy for us all to get focused on things we can quantify like the tons of carbon emissions avoided and it's, you know, important and impressive, but can you also share with us some stories of the impact that these projects are having on people's lives?

**Neil McDougall** (20m 59s):

Well, the project completely transforms people's lives. You can see it from the very first moment you come into a village, a village, which doesn't have one of our stoves, there's a pool of smoke hanging over the village. When you get into the village itself, which doesn't have a stove, you go into people's houses and they are black inside because of all the smoke, which is produced by the stove. Imagine living in those conditions, having to breathe in all that smoke. So by using our stove, we very significantly reduce those emissions, reduce the smoke and we also encourage people to cook outside. All of which is a huge health benefit to people. The other issue is the fact that women and children as huge avoidance of drudgery and when we go to villages, the people who are the most keen to talk to the us and thank us for all the work which we've done is are the women and children because it significant reduces the drudgery associated with cooking and getting fired and so on as well.

**Neil McDougall** (22m 02s):

And of course, people spend a lot less time ill, so they they're more productive. They don't have to spend as much money on doctors and medicine. They lead a much healthier and more productive life and the other factor obviously is the financial difference. It makes to people for those people who buy wood rather than collect it, it typically costs \$19 per month to buy your firewood by using the stove that reduces your monthly expenditure to \$5.50. So over the life of the stove, that's almost \$1,700, which has been saved all of which is goes to the income and these people are very poor. They live on a dollar, \$1. 50 a day and to release that amount of funding does transforms people's life. They can invest it in their business, in their children and their education, all sorts of improvements, which can come from the savings, which are, are made.

**David Greely** (22m 59s):

Those are wonderful impacts.

**Neil McDougall** (23m 01s):

So what, I should also explain that when we go back to villages and we show the investors where their stoves have actually gone for them, I've seen some extraordinary reactions from investors, hard-nosed investors who know we've arm wrestled with over the final details of the investment terms, go into a project, see the difference they're making and just start crying. It's the most extraordinary, emotional thing for people to see the difference which these projects make.

**David Greely** (23m 31s):

Yeah. It's wonderful to see the impact on those who are the recipients of the cook stoves and also the impact on those who are making the contributions, the investors. Now your program to Tubeho Neza is one of the largest and most impactful of the cook stove programs. What do you see are some of the key reasons for your success?

**Neil McDougall** (23m 52s):

I think the biggest difference and something which I think we just made a policy decision on very early on was to distribute the stoves free of charge. That may seem quite obvious now, but given that people are, as I say, earning a \$1, a \$1.50 a day that has to cover all their costs, their education, food, heating, their housing costs, all these types of things on a dollar, a \$1, \$1.50 and they simply couldn't afford to buy a stove asking them to buy a stove for \$25 or \$35 it was just impossible for them to be able to do that. You might as well asked them to go and buy a Rolls Royce it couldn't happen. It was somewhat controversial to do the distributions on a free of charge basis. A lot of institutions wanted us to charge for the stoves, even though it was clear to us that people couldn't afford to, to do that.

**Neil McDougall** (24m 51s):

But I think that the free of charge is the main reason why this project has been so successful and our other projects, which we're looking at expansion into Rwanda in other countries, we will certainly be adopting the free of charge route. That's a key to our success has been the adoption of the FOC route. I think also the partnership with the government of Rwanda has been very important for us. The government have been very helpful. They've been very supportive. We couldn't really do what we're doing now, unless we had that relationship and that's a relationship with not many other stove projects have and we are very keen to work with the government in introducing other goods and services, providing water filters and so on to their population in the fullness of time as well and the other issue of course is the ongoing support that we provide to the recipients.

**Neil McDougall** (25m 48s):

Very few other stove projects provide annual visits to all the households. That's a very unusual and we see there as a key differentiator, and it's one of the reasons why we've been so successful, not least to which of course to generate additional carbon credits and I think the other issue is, you know, we've made mistakes. We've learned from those mistakes and we continue to tweak our program 10 years later and as we expand we will learn the lessons which we've derived over the last few years to expand and accelerate our program.

**David Greely** (26m 21s):

And with having I believe you said it was over 10,000 workers in Rwanda, it sounds like it's, you're a real part of the community as well and I imagine that makes a difference.

**Neil McDougall** (26m 30s):

That's why they're called community health workers and that's why our program is called Tubeho Neza, our t-shirts were, all of our team have got Tubeho Neza on them and on those t-shirts, it shows that it's a partnership within Delagua and the government of Rwanda and that's what makes a difference. People were an integral part of people's lives. Now people trust us, which is why we are. I say, we are keen to expand into other areas, sanitary projects, toothpaste, soap, solar power, these types of things. So that's something which we're moving into in the future.

**David Greely** (27m 03s):

Yeah. You mentioned a few things that you learned along the way that, you know, when you look back think, oh, maybe that shouldn't have been a surprise, you know, cook stoves over water filters. Think you had just mentioned as well, giving the stoves away as opposed to charging them to people who would have difficulty affording them. Are there any other things that surprised you or important lessons you learned along the way?

**Neil McDougall** (27m 24s):

There are a number of, I think important lessons. The first to them is to do things at scale. You want to make a difference, do them at scale, the bigger you are, the lower your costs are in term because you can negotiate with your suppliers. You have the same overhead costs. So we keep our unit costs very, very low as a result of the efficiency of our program. I find it incredibly frustrating when I see people who spent \$12 million distributing 5,000 stoves, think how much benefit you could give to people if you had access to that money. So that is a little bit frustrating as I say, I think the other important thing is that we are technology agnostic. We will use whatever is the best technology for that particular country and location and household and that's something which we, we continue to monitor all the latest technologies to make sure we have the most appropriate technology available to pay for.

**David Greely** (28m 20s):

In what ways do you think that your experience is similar to that of other project developers and in what ways do you think it may be different?

**Neil McDougall** (28m 26s):

There are many things which are similar. There are many things also, which are different. We do things that are different scale. We are by far the largest individual project by some margin, anywhere in, in the world and we want to bring the benefits of that scale and knowledge to other countries. Free distributions obviously is another issue, which we are committed to, which not everybody is committed to and also the ongoing support. That's another sort of differentiator, but I think there are a lot of good work going on at the moment in this sector, some high quality projects and we look forward to working with all those other organizations, because what we're interested in is improving people's lives.

**David Greely** (29m 05s):

So sometimes better to be colleagues than competitors.

**Neil McDougall** (29m 08s):

Absolutely. Yes.

**David Greely** (29m 09s):

I'd like to close today by getting your assessment on the outlook for cook stove projects. As we wrap up, what do you think's going, right. What's going wrong and you know, what's next for you and Tubeho Neza?

**Neil McDougall** (29m 21s):

Well, I think a number of things have transformed the market over the last year or two. One is that the carbon pricing has obviously gone up and that means that we can sport much more investment and make more difference to more and more people and reduce carbon emissions. So that has clearly been transformational for us and gives the opportunity to do more and more things in more and more countries. The second area, which has been transformational to us is the new technologies which have been introduced. The latest stoves are much more efficient than before they now use 71% less wood, which is much more efficient. They reduce harmful gas emissions, obviously as part of that, that exercise and also they last a lot longer. So a combination of more carbon generated and higher prices means that it's a much more attractive market for investors, which means that we can look to expand it and bring the benefits of stoves and other goods and services to a wider range of people.

**Neil McDougall** (30m 27s):

So that's really our next step now is to look beyond Rwanda. We've got a short list of about 12 countries. We're talking with various people in various governments to transfer the skills and knowledge and IT, and so on from Rwanda into different locations and that's key thing which we are looking to do now as well. So that's a very interesting part of our activities and interesting and we are also now looking back at the water filters, which as I said earlier, were not as popular as the stoves, but we found some people were extremely interested in using water filters and those tends to be families with young children, where they wanted to ensure that they got water or formula milk, which wasn't contaminated and cause of the data which we've generated from my household visits. We can now target those particular families who have younger children who will be much keen to use the water filters. So this is the kind of thing which we can use our existing infrastructure to do, to bring the benefits of other products to the population all based on carbon markets.

**David Greely** (31m 36s):

Thanks again to Neil McDougall, Chairman of Delagua. We hope you enjoyed the episode. Join us next week with David Antonioli CEO of Verra, who'll help demystify the role of greenhouse gas crediting programs and registries in the carbon markets.

**Announcer** (31m 59s):

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