

Creating sustainable livelihoods through group farming: podcast transcript

INTRO: [00:00:00] You're listening to a podcast from The University of Manchester.

In this podcast series hear The University of Manchester's Dr Nic Gowland interview some of our leading experts about how their research is helping to deliver the UN Sustainable Development Goals for global health, equality and sustainably.

Dr Nic Gowland: [00:00:25] Today, I am delighted to be speaking to Professor Bina Agarwal, Professor of Development, Economics and Environment at the Global Development Institute at The University of Manchester. Bina thank you very much for joining me today.

We'll be discussing your research over the last five or 10 years, looking at sustainable livelihoods through group farming in places such as India and Nepal.

But before we jump into the research, as ever, I'm keen to understand your journey that took you to this very successful point in your life. You've studied at, or worked at, some of the most esteemed universities in the world - Cambridge, Princeton, Harvard, New York, now Manchester. Picked up many awards along the way, including the Padma Shri, which I understand is India's equivalent of an OBE, roughly, and also the 2017 International Balzan Prize. You were the second woman from the global south to ever receive this, the first being Mother Teresa.

Before all of that, I'm interested in any experiences or inspirations early in life that, kind of, set you on this path towards your passion for global development and social change... Any examples?

Professor Bina Agarwal: [00:01:30] Well, you know, the issues of social justice and inequality have always been important to me. and also, quite early on, gender inequality. So, I had my maternal grandmother, who still lived in the village, while we were living in Delhi, and when I visited her, I remember I was about four or five and you still had quite a feudal structure in the village. You had caste differences. You also saw that there were gender differences. There were quite a lot of restrictions on where women could go and not go. And as a child, you really observed that, and you also see difference as injustice. So, for me those were the earliest I can remember of feeling that these issues are important.

Of course, I was not able to..., at that point in time, it was not part of any curriculum..., and my taking up research on these questions only happened around the time of my doctoral dissertation, or even earlier. Actually, one of the earliest articles I'd written on women in agriculture was in the 1970s, after my undergraduate in Cambridge.

And I decided to return to India, and before I took up a short job for a month and a half, and before I started my PhD I did some writing. So these questions have remained, have been important - of looking at inequality and poverty, but also from particular perspectives such as of gender.

Dr Nic Gowland: [00:03:16] And were you always, I suppose, a good student at school, always keen to learn always keen to, kind of, push the boundaries?

Professor Bina Agarwal: [00:03:21] Yeah. I, you know, I did Physics, Chemistry and Maths in school, but also I was a voracious reader. I loved English Literature and poetry, so I devoured books, you know, whatever I could lay my hands on, and particularly fiction, so I..., you know, in choosing economics for college was incidental. I didn't study it in high school.

I was thinking of either taking Physics or English Literature and then my father..., I was not 16 then, we went to college quite early in those years..., and my father sat me down and then discussed it and he said, well, you know, with Physics, you might end up just in an underfunded lab and you can obviously read literature... so why don't you think of Economics, which is scientific and you could tell a good story. So, I was quite open to it and I said, 'okay, let's try it out'. And so I took up Economics (Honours) in college.

Dr Nic Gowland: [00:04:37] Yeah. Brilliant, fascinating story. So, let's jump into your research then, and your research with Manchester.

So, today we're focusing on, generally, on farming in South Asia, specifically to start with the abundance of small scattered farms and these farm plots.

Can you set the scene as to what you mean by, you know, a small, scattered farm and what these would involve? Just so our listeners can, kind of, picture what we're starting with.

Professor Bina Agarwal: [00:05:06] Well, I think if you look at it globally, something like 84% of farms across 111 countries are less than two hectares in size. And in India, 86% of farmers cultivate less than two hectares, some 70% cultivate less than one hectare. So, these are very small farms. And so, not only do they face diseconomies of scale, but they can't invest viably in machinery.

They also have less access to inputs and credit and they don't have much bargaining power in markets. So I thought about that for quite a while and I thought that, well, why... Wouldn't an answer lie in people pooling their resources to more, especially land, and move from a marginal farm to at least a medium-sized farm, which could bring various kinds of benefits, including economies of scale and so on?

So, I might mention that the notion of group farming, you know, it can take various forms. Farmers coming together to cultivate jointly, and you have the infamous examples of forced collectivisation in socialist countries, you know, in the USSR and in early years in China, and in many Eastern European countries.

And we know now that they were disastrous in terms, by and large, in terms of welfare and productivity, and so on. So, you have those examples, but you wouldn't see as excess stories, but you also have examples in the 1960s where countries, post-colonial countries, were getting their independence from colonial rule across Asia, Africa, and Latin America, and they were undertaking land reform.

So, they decided that - let's try also forms of group farming, partly influenced by the socialist experience. So sometimes entire villages were encouraged to do this, like Tanzania, but also in India, there were experiments where the government encouraged farmers in the village to come together.

Now, these didn't succeed, because they were very large, they brought in people who had conflicts of interest, large and small farmers have different conflicts of interest, so they didn't work either. And you have then examples of success stories, which emerged in the post socialist period.

And the examples that I'm studying now, in India and parts of Europe, are very different. Which is that they're voluntary. They are small in terms of groups by and large, and people can bring their own land, and they can leave the group if they want. So, there's no forced pressure from outside.

Dr Nic Gowland: [00:08:20] So, just so I can, kind of, picture some of the simple benefits of group farming, is it things like many farms can all pool their resources to buy a significant piece of equipment that they would then share? Is it that sort of thing?

Professor Bina Agarwal: [00:08:33] So, if you imagine... So you take a landscape where you have very large numbers of one hectare farms, so even half a hectare farm, and then if you imagine that some of them have scattered plots, so they have even that one hectare may be divided into three or four plots in different parts of the village. So, you need land consolidation of some sort, in order to be able to just save time and put in labour and of course invest in machinery.

So, the advantages of a group are firstly, there's the advantage of size itself. That you have certain kinds of economies as you scale up, then you can save on inputs, you save on labour, labour costs and, as you said, you can also purchase machinery together, and don't forget, you know, different people have different skills and different knowledge systems.

So, you pool together skills and knowledge systems, as well, and in parts of India, you still have feudal relations. You have large landlords and very small tenants. So as a small tenant, you often have to give unpaid labour to the household of the landlord.

So, you don't have a very much bargaining power. But, if you're working as a group, you could scale down the rent and you could say, "no, we're not going to give this unpaid labour". So, there are many examples and many advantages, potential advantages. And then if you are women farmers, you know, increasingly again, you find globally in most parts of the world, except Europe, you'll find that, as men move out of agriculture, much faster than women do, you have large numbers of women left behind who are effectively managing the farm, but without owning the land.

And as individuals and, you know, on their own de facto female headed, it's much more difficult for them, in all these respects. And then if you can think of social norms that, you know, you have difficulties of mobility if you're on your own, you know, you want to go to the town to buy some inputs, and, traveling alone, isn't always an option. So, these advantages get multiplied if you're talking about women farmers.

Dr Nic Gowland: [00:10:59] Okay. And these group farms can be several hundred small farms, all grouped together... They can be quite sizeable?

Professor Bina Agarwal: [00:11:06] No... Well, at least in South Asia, that is not the case and if you have very large numbers, it's not also very effective. You can think of size in two ways.

One is how many people come together, how many farmers come together to form a group? And that has to be small usually because you're going to have problems of coordination. Now, then, depending on your access to machinery and so on, how much land you then command in the group can be large.

Typically, land is very scarce in most countries, in developing countries, and especially in South Asia. So, you can't lease large amounts of land. In Europe it's quite different. I've also been looking at group farming in Europe - in France, in Norway, in Ireland, and there's some examples in the UK as well, and Romania. So here you have only a small group of people, but the area is large because they're very mechanised.

Dr Nic Gowland: [00:12:19] Okay. Understood. So, looking at the, kind of, timeline now of your research and your work, I suppose, it all starts with your 1994 book, 'A Field of One's Own', a very successful book. Multi-multi award-winning book, referenced by policymakers, in government, UN, researchers around the world. Can you briefly tell us the key messages of that book, which then led on to some of the work around group farming?

Professor Bina Agarwal: [00:12:47] You know, prior to that, I had been working on agriculture, technological change, and found that women farmers had very little access to technology.

And that also revealed that they had rather little access to land. So, this book covers five countries it's quite ambitious and it was the first book of its kind, which actually asked the question: why do women need independent rights in land that is independent of their families?

Because in economics, that was an assumption - that if you're married to, or you're living or born into, a rich household you are rich, but you'll find that there's huge amounts of inequalities within households. So, this argued that women need to have, if you like, a field of their own, which is the title of the book. And in that I both made the case of why it was important, but I also then looked at where are the obstructions and constraints?

I looked at inheritance laws and social norms and practices, which made a gap between law and practice.

Now, in the last chapter of that book, then I discuss..., because there is rather limited land available in most countries, in developing countries, individual titles may still not make them give you viable livelihoods.

So, I discussed for the first time, the possibility that if women came together and either jointly purchase land, or they managed land, or both, then that it could provide viable

livelihoods. So, the notion, the embryo, of the ideas that I'm currently researching go back a long way.

Dr Nic Gowland: [00:14:31] So before we move on with looking at group farming a little bit more, you mentioned inheritance laws, and you were telling me before that you taught yourself the inheritance laws for five different countries.

Professor Bina Agarwal: [00:14:40] I did. And these are extremely complex because they vary by region, by religion and type of property.

So, if you're a Hindu woman in Northern India, your rights in land will not only be different from those of Muslim women or Parsi women, but they will be different from other Hindu women in Southern India. So I had to look at all the states in India and then Pakistan, Bangladesh, Nepal and Sri Lanka. And that was a fascinating journey because I actually went back historically also when laws were not codified to the Dharmaśāstras, you know, and the 11th, 12th century codes, which defined how people would inherit property as well.

Dr Nic Gowland: [00:15:30] Incredible. And then you said you, you eventually taught inheritance law.

Professor Bina Agarwal: [00:15:33] I was invited to teach law in a dual course and in inheritance law, at the New York University School of Law, to law students and I enjoyed that. Yes.

Dr Nic Gowland: [00:15:46] It's impressive, such a vast self-taught thing, to then teach that to others is very impressive.

So, focusing on group farming then, you've given us a really good introduction to what group farming is, what the benefits can be... Following your book, going through this timeline again, many places took on the kind of suggestions in your book and implemented group farming. Is that correct?

Professor Bina Agarwal: [00:16:10] Not entirely, because, after 'A Field of One's Own', I was also simultaneously..., I prior to that worked on environmental governance, especially forests. So, I had a book before 1994, book on forest, and I had suggested community forestry, another form of corrective action.

So out of that came my book, 'Gender and Green Governance' in 2010. And subsequent to that, I decided to more systematically research group farming. And I was, you know, although I had written about this, as having potential benefits, the literature I could draw upon empirically, was not from India. Most of it was, for instance, from post socialist countries - Romania, Kyrgyzstan, Nicaragua, East Germany, where literature was emerging.

And I was actually looking for ways to do empirical research. And for that, you, as an economist, you need a sufficiently large sample to drop on. And it's so happened that I was asked to chair the working group on disadvantaged farmers, including women, by the Indian Planning Commission in 2011.

So, in 2010..., I'd written this conceptual paper in 2011. I then traveled in India and I found that some of my ideas were operational in Telangana. And then I discovered that Kerala had a very large-scale prior programme, which they started in the early two thousands, on group farming and there was sufficient number of cases in both instances.

So we decided to test out more empirically, to answer this question, whether they'll say, 'okay, you've told us, conceptually that these things matter, these are the advantages, but can you prove it?'. And so, I took on that challenge for myself - to a question I had posed to myself - and I collected data to compare group farms and individual family farms in both Telangana and in Kerala.

And it was very complicated and very detailed data to collect because we collected weekly data. For a sample of individual and group farms, weekly data on every input and output on every crop in every plot for an entire year, 12 to 13 months.

Dr Nic Gowland: [00:18:52] And how many groups was that?

Professor Bina Agarwal: [00:18:53] The total sample was about 760 in Telangana and it was 250 in Kerala.

Dr Nic Gowland: [00:19:04] So about a thousand groups and on each, in each group farm, you were looking at the output of every crop?

Professor Bina Agarwal: [00:19:07] But these were not all groups. They have a group and individual farms and the similar data were collected for both the individual and group farms.

Now, the 95% of the individual farms, as it turned out, were male managed. And the group farms were all women group farms.

Dr Nic Gowland: [00:19:29] Why was that?

Professor Bina Agarwal: [00:19:31] Because in both places they had proactively decided that women were the most disadvantaged and they would support that. The parameters and the principles on which they were formed, were not similar, however.

So, in the case of Kerala, you had, groups which were all women, they were small, they were constituted of the men who lived in the same neighborhood, they knew each other, and they were somewhat heterogeneous in terms of caste, and they were not very poor. I mean, they were poor, but some of them had own land. And in the case of Telangana, it was different. They were very large groups, because the NGO who implemented this, as a project for five years, they grafted it onto a pre-existing women's empowerment programme. So they had these very large groups for social empowerment in villages, in some 500 villages.

Some of the groups varied on average, there were 22 women, per group, and some of them went to 50 women. In the case of Kerala six women was the average.

In Telangana also the groups were all mostly, caste disadvantaged. So, the interesting thing was that in my results I found that Kerala was hugely successful in comparison to individual family farms.

Dr Nic Gowland: [00:21:14] Well, what was the measure of that success?

Professor Bina Agarwal: [00:21:15] So for instance, I looked at the annual value of output by hectare and I found that it was 1.8 times higher in the group farms compared to the individual family farms. The net returns per farm were five times greater. And, you know, I did what economists do, I did regressions, I controlled for all inputs and outputs and demographic variables, and you found that these results just held very strongly.

And in particular crops, like bananas, the women were able to negotiate contracts, but individual farmers couldn't because they couldn't deliver on contracts.

Dr Nic Gowland: [00:22:01] Why not?

Professor Bina Agarwal: [00:22:03] Well, you know, you have constraints. If you're a group you don't need new..., you don't need to import labour. You can use your own labour and so on. So, the person in this case, the temples, they had confidence that the women will be able to deliver. But if you are dependent entirely on a very small family, Kerala families are quite small, then you would be less confident that they would deliver on the contract.

I would imagine that's one of the factors. Now Telangana didn't do as well. It was not as successful in terms of productivity, although in terms of net returns it was almost even because it saved on hired labour.

So, then the question, of course..., an important question for me, because I was looking for principles of what would make for success... So, comparing the two was important. And that's where I arrived at this, these aspects that a small group, which is somewhat heterogeneous, which is open to commercial farming and so on, is more likely to succeed.

And they were also connected to each other. So they formed what one could call a spine. So if you have, say 20 groups, in a small area, and if they're all connected to each other and they are federated upwards... So what Kerala had done, it was a very well designed..., very well designed programme.

They had connected all these women's group farms vertically to the level of the village council. And so they were called Community Development Societies and they were registered as autonomous bodies. So they were independent and they could independently negotiate with the village council and with the government. And that negotiating power meant that they wouldn't easily be subject to political interference.

Dr Nic Gowland: [00:24:08] It sounds like quite an innovative approach they took then...

Professor Bina Agarwal: [00:24:12] It was very innovative. It was designed by... actually, there were three main people who designed it, but in interaction with a lot of others. Kerala had a very participative way of planning. It was called People's Plan Campaign. This was in around the late 1990s, early two thousands. So you had the current Finance Minister of the current government <who> was an important person, or one of the important leaders in this. He was then, you know, earlier he was a Professor, like I am, of economics. And so, he had written a lot on decentralisation.

Dr Nic Gowland: [00:24:55] So now then, moving from group farming to groups of group farming, am I understanding that right?

Professor Bina Agarwal: [00:24:59] Well, the groups are small, but then when you can be at different levels. So suppose you want to market together, you cultivate in small groups, but then you can bring your produce together to market jointly, or you can even set up machine stations.

So individual groups may find it difficult, even though it's five or six women, they would find it difficult to get enough finances, even if they get credit. But if there are many of them, then you could set up, say, a machine station or something else. In both states, the government did provide support, but in Telangana, it was only for five years.

Dr Nic Gowland: [00:25:41] That makes sense. That makes a lot of sense. So, in Kerala it was a huge success. But there were still some changes, are still some improvements, that you help them with?

Professor Bina Agarwal: [00:25:49] Yeah. I shared my results with the Kudumbashree, which is the mission, which was responsible for the poverty eradication programme in all of Kerala. And they were very open, because this was the first very detailed empirically rigorous study, which firstly showed them that yes, there is success.

Dr Nic Gowland: [00:26:10] There is no real evidence before that?

Professor Bina Agarwal: [00:26:14] There were case studies, but you know, there wasn't a systematically-collected, randomly-stratified sample with such detailed data.

When I started the research there was nothing to indicate that I would find these results. It could have very well gone the other way, because you know, women in general have faced much more disadvantage. Many of these women had never managed farms, they had worked as farmers and family farms.

So, they've got disadvantages that they started out with. So these results were helpful to them, as an indicator... Yes, this works in terms of productivity as well. But also my results showed that they could be much more inclusive of caste disadvantaged women.

So, they did a correction on that..., they wrote to me saying that they found it useful and they would now bring in more valid women into the groups proactively or encourage them. And the women themselves, there was a big flood in 2018 in Kerala, so some of these results could be used to support the applications for bank loans and so on, to show that they were very productive and this was informal feedback that I received as well from Kerala.

Dr Nic Gowland: [00:27:39] So all this research you did, I suppose, informed the right way to do group farming and that the kind of successful way of doing it. And that's now been implemented in many, many areas? Do you have any idea of numbers or is it difficult?

Professor Bina Agarwal: [00:27:51] In Gujarat for instance, which is in Western India, I did a workshop and they started group farming using these principles, and similarly in Eastern India, I didn't hear about this until later, but they wrote to me saying Eastern India, Nepal.

So, this is a much more feudal context - that you have large landlords - and they then began group farming and I've done research on that, and that's again, quite successful. In terms of numbers, they are small, but they now want to scale up. And it's only when the state government is willing to invest, as Kerala did for instance, that I think you can scale it up to that level.

Dr Nic Gowland: [00:28:43] We're looking at impact here. Is it possible to, kind of, pick a number of how many people may be impacted by your research or is that just too difficult to even estimate, do you think?

Professor Bina Agarwal: [00:28:57] Several hundred, I would say, if you take the, Eastern India, Nepal and the Gujarat Western India case. In the case of Kerala, it's difficult to say, because it was only an addition to what they were already doing. But I think it has huge potential, the more people hear about it as a possibility.

And if one can then convince policymakers that this is a good way to go, then it could be scaled up much faster. I might mention that, you know, among policymakers, the 1960s experiments, which didn't succeed. It's often mentioned that, you know, it didn't work earlier, so it won't work. So, you have to then tell them that 'look, the principles were just not adequate'. You have to build them on a very different model and that model can be successful. So, for instance, India has 6.6 million self-help groups. Which are small groups, which, you know, do savings and credit and they could become the basis for group enterprises.

During COVID for instance, you know, large numbers, thousands of these self-help groups then, created masks, the sanitisers, PPE kits, and they worked together. It wasn't like each individual woman working on her own, you know, piece of livelihood. And so this is the model which is successful in terms of other things. And this, this is what can be built on.

Dr Nic Gowland: [00:30:45] You mentioned COVID as well. COVID proved, I suppose, as another test that these group farms are more viable... They can stand up to the challenges such as COVID or such as flooding?

Professor Bina Agarwal: [00:30:57] Very much so. So, for instance, in Kerala there were figures that some 31,000 group farms were cultivating in March of 2020 and 87% of them survived economically. They were able to sell their produce, they had enough labour among themselves to harvest their crops... Whereas, a lot of the individual farmers, both in Kerala and elsewhere, were not able to survive because of shortages of labour, harvest labour, and because of shortages of transport and the ability to sell their produce.

So then again, I also inquired from the Gujarat groups and the Eastern India groups. And they again said that they were much more food secure, as a group, than they would have been, if they had only remained as individual farmers.

Dr Nic Gowland: [00:31:48] Okay. Brilliant. And obviously we're very much focused on the UN Sustainable Development Goals. For me this research seems to tick loads of them. You know, poverty, safe work, food... is there one that stands out to you as the, kind of, the key SDG that this research addresses?

Professor Bina Agarwal: [00:32:08] I think three of them. I mean, poverty, food security and gender equality. All three of them emphasise that my model doesn't have to be this model, doesn't have to be an all women model.

So, in Eastern India, there are also all-male groups and mixed groups. So I'm very glad to see that it's been adapted in different ways, much more organically by local communities. But I would say at the very least those three, because even in the mixed groups in Eastern India, you know, the women have learned new skills, they handle machinery, they go to markets. So there's always a gender component, even in the mixed groups.

Dr Nic Gowland: [00:32:56] So this really is a model to empower women then in these countries?

Professor Bina Agarwal: [00:32:59] Women and small farmers and marginal farmers in general. So, even when I was doing my research in Kerala I found that all-male groups were emerging because they found that the women's groups are successful you see, so certainly poverty and food security, and then, of course, the gender equality question comes in as well, SDG 5 as well.

Within SDG 5, you know, it brings it full circle in a way because, one of the targets in SDG 5 is women's rights in land and property. So it brings it full circle to 'A Field of One's Own'... and when I first started talking about it.

And that book, because it was embraced by civil society, by policymakers and the United Nations, and globally, the messages of it were then carried by multiple people upwards. When I didn't have to do workshop, I did do workshops and that helped, but the message has become so generic now that it's going to stay. It's not going to go away.

Dr Nic Gowland: [00:34:21] Yeah. And how is that message going to keep being spread then? Is, is it really key to get the policymakers on board with it? And then the policies can trickle down?

Professor Bina Agarwal: [00:34:29] Well, you see, when 'A Field of One's Own' came out in 1994 and I had a book release and so on, it sort of clicked, you know, every newspaper within a month had carried reviews of it.

There were interviews on television and very soon after, the Chief Minister of Madhya Pradesh, one of the states of Central India, he had framed a new policy on women in 1995, and there were large parts of, you know, there's a whole section on it, on women's land rights, which had never existed before.

So, they'd pick that up. The women's movement and the civil society said to me, 'you've written a book for us'. There were left-wing groups who said, this is a new way to approach land reform. You know, we've kind of come to a dead-end almost, and now this is a new way to approach land reform.

So, then the book began to win a number of prizes. So, it stayed in people's attention and in the media attention for a long time. And then I organized some panels in the Beijing

conference, as well and encouraged a colleague of mine working on land in Latin America... I said, why don't you do something for Latin America?

So, she did, she wrote a book..., she and a colleague wrote a book on Latin America. It was a different kind of book. But what I'm saying is that for some it's..., sort of, it was something that people felt 'Aha! It's such a simple idea, why hadn't we thought about it?'

Dr Nic Gowland: [00:36:11] They always are... the best ideas are always obvious.

Professor Bina Agarwal: [00:36:12] It was just a shift away from the idea that it's not enough that you are born into a household which owns land, because you're still very valuable if you don't have a field of your own. So, I think that it just went on and on, you know, as I said, it sort of flew on its own. I do write for the media as well, so I wrote a pamphlet, which could be used by grassroots groups for their training. It was translated into several languages, and Indian languages, and so on and it's still around. It's called 'Are We not Peasants Too?'

Dr Nic Gowland: [00:36:51] I mean, I could speak to you for hours Bina about this because there's so much work you've done, it's so fascinating. My last question is - what's next for you in this area, but also generally in your research?

Professor Bina Agarwal: [00:37:05] Well, in this area I'm going to now pull together many of these case studies. I've also done research on France, on Romania..., and I've looked at the work on Norway, and I might do some follow-up work on Ireland.

And these are models with variations on the theme. And so I want to do two things. One is to see how one might refine these principles, from a context where land is very scarce, especially in Europe, it's not land but labour, which is much more scarce. And can we talk about contextualizing the models and the principles.

And then bringing the case studies. So with the book, I hope it'll expand the ways in which people think about things. Often people don't always read journal articles, but when it's an entire book, it gives you much more space to reflect and think.

Also, if you might remember, you know, there's a vast amount of work on collective action around the Commons. As you know, Elinor Ostrom's work on governing the commons. She was a Nobel Laureate, as a woman Nobel Laureate in Economics, and I've done work on governing the commons and forests as well. But the question is the principles here are different because here it's collective action around private property.

So that's collective action around public properties, forest, water bodies, parks, and so on. And so, this could be complementary, but it requires theorizing on a similar scale and I'm hoping that the material I have will provide that.

Dr Nic Gowland: [00:38:59] Will that take you to different parts of the world again? Those sort of studies?

Professor Bina Agarwal: [00:39:04] No, I've already had my, as I said, I've been to..., I did this paper on Romania, we went to Romania, we followed up old group farms. Done work on

France... You can't do a field cases everywhere globally. But I think what you can do is see if the context is similar and then you can extrapolate.

Dr Nic Gowland: [00:39:23] Well, Bina... Thank you very much for your time today. It's been a fascinating conversation for me. I found it really interesting. Your work is incredibly impactful. And I just want to say congratulations for that body of work and your books and awards very well deserved. All the best with your future research and thanks again for speaking with me.

Professor Bina Agarwal: [00:39:42] Thank you very much for having me. I enjoyed talking to you.

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