SESSION 2 CASE STUDY 3

How do we partner for impact? Communication, co-design and outscaling

Dr Uday Nidumolu

Principal Research Scientist & Research Team Leader, Resilience and Adaptation, Sustainability Programme, Agriculture & Food, CSIRO

ABSTRACT

Achieving widespread development benefits from science requires a deliberate focus on enhancing both the research and development aspects of R4D activities and 'planning for scaling out'. To build good partnerships, we need to invest in good partnerships, not just good science. Authentic partnerships, common language, and innovative communication are critical to bringing science and community together, fostering co-ownership, and ensuring impactful outcomes. In development science, and particularly within climate adaptation projects, the synergy between partnerships, communication, co-design, and outscaling is paramount. Agriculture in rainfed systems is risky, and climate-related challenges can be managed to some extent using science, technology and data. However, addressing climate risk is inherently complex and dynamic, so not only does it require contextual knowledge and robust adaptation science, but authentic and complementary partnerships are critical. Farming communities managing climate risk in rainfed farming systems require access to reliable, locally contextualised information enabling them to act, learn, and generate new knowledge and skills. Research for development (R4D) in smallholder farming must integrate both scientific and community-driven approaches. In a case study project in southern India, the convergence of science and community in the use of climate information has been facilitated by finding a common language and employing innovative communication methods. This approach has proved useful in bridging the gap between scientific research and community needs. In a case study in Bangladesh and West Bengal, the co-design, co-development, and co-ownership of crop choice models highlight the importance of investing in partnerships from the outset. A project for scaling water management research across three states in India has highlighted the importance of designing R4D activities that can be scaled. Improved understanding by researchers in how to engage with large development project partners has led to enhanced uptake of R&D solutions.

How we partner for impact is a huge topic. This presentation shares a few actual case study examples from India and Bangladesh. I focus only on those three topics: communication, co-design and outscaling. Co-design is one of the themes of this conference.

Adapting to climate change in Asia

The Indian case study in Figure 1 was an ACIAR-funded project across four countries, and the focus in the Indian part of the project was on managing climate risk. As we know, climate science is more complicated than other sciences because it is a science that is probabilistic in nature with in-built uncertainty, so that when you talk to a farmer about seasonal climate forecasts and you say there is a 40% chance of exceeding the median, it is very hard for them to grasp. It is hard for anyone to grasp in its completeness! Although climate science relies on data and information, communities rely on local contextual knowledge, so we need to translate climate science into something meaningful for them when we engage in research for development (RFID or R4D).

To do that requires very strong partnerships: authentic, complementary partnerships between many people – from climate modellers to people who can translate that model into something science-based yet understandable by the communities who need the information. It is a big ecosystem of partners, and the partnerships must be very strong for this sort of uncertain science to have some impact on-ground.

Figure 1 includes a paper of mine (available online) called 'Enhancing adaptive capacity to manage climate risk in agriculture through community-led climate information centres'. The key point is that this cannot be 'top-down' climate science. Although we understand climate science fairly well, farmers have been dealing with it in farming for many many years. We need to connect them, to link from the bottom up, to talk in the same sorts of words that our users use: not about equations and graphs because that doesn't really help.

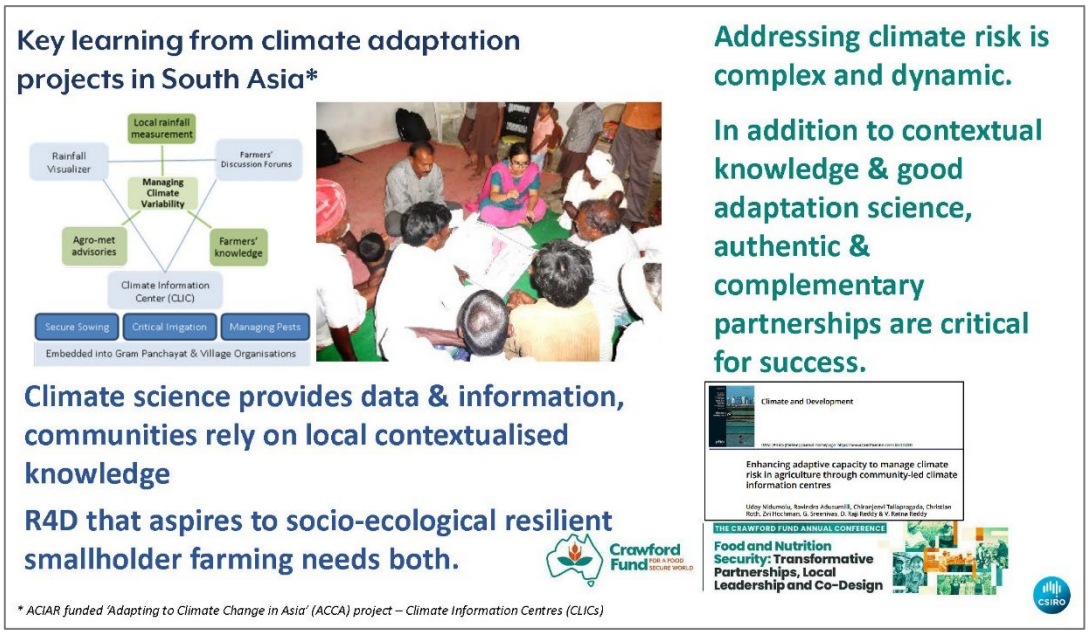

Figure 1.

One way we explored in this project to translate science is via theatre. Figure 2 is a still from a video of a little street play. We didn't plan this; it evolved organically. This street play translated our four years of research into a two-hour dance and song. It was fascinating for us because we didn't expect it. These performers learned all our key research findings in a week and they presented it in this format over a two-hour show! (As a scientist who can speak the local language, it is hard for me to get the farmers' attention to listen for more than ten minutes!)

Figure 2.

This is partnership in action: these performers are as important as the scientists because they are doing the big job of translating our science for the real people. In this photo the man is talking about sowing. Most people think a few millimetres of rain is enough to start sowing, but actually you need much more than that. This performer is saying 'Don't sow your seed at the first rain. Wait until there is enough soil moisture, and *then* you can sow the seeds.' Overall, the whole story took two hours. This group invested its effort into this R4D, and turned it into 200 shows, which meant our work got into 200 locations at no extra cost but in a very impactful manner.

My point in this is we need to find a common language between science and our target audience, and we need to find ways to translate our findings into action.

As researchers we should think about how to communicate our science, and for that we need very good partnerships. We believed in these guys; they believed in our science; we were equal partners. We never dismissed this as a little street show team. Instead, we said, 'You guys are much better than us in this way of communication, so why don't you do it?'.

Co-designing, co-developing and co-owning

What is co-designing? What is co-developing? Co-owning? I want to give you an example from Bangladesh and West Bengal. In traditional modelling there are three full steps. You collect data, build the model, and demonstrate it (Figure 3), and then you write your paper and report it. However, in this example, which is another ACIAR project (Socially Inclusive Agricultural Intensification (SAIGI)), I wanted it to involve the end-users from the start.

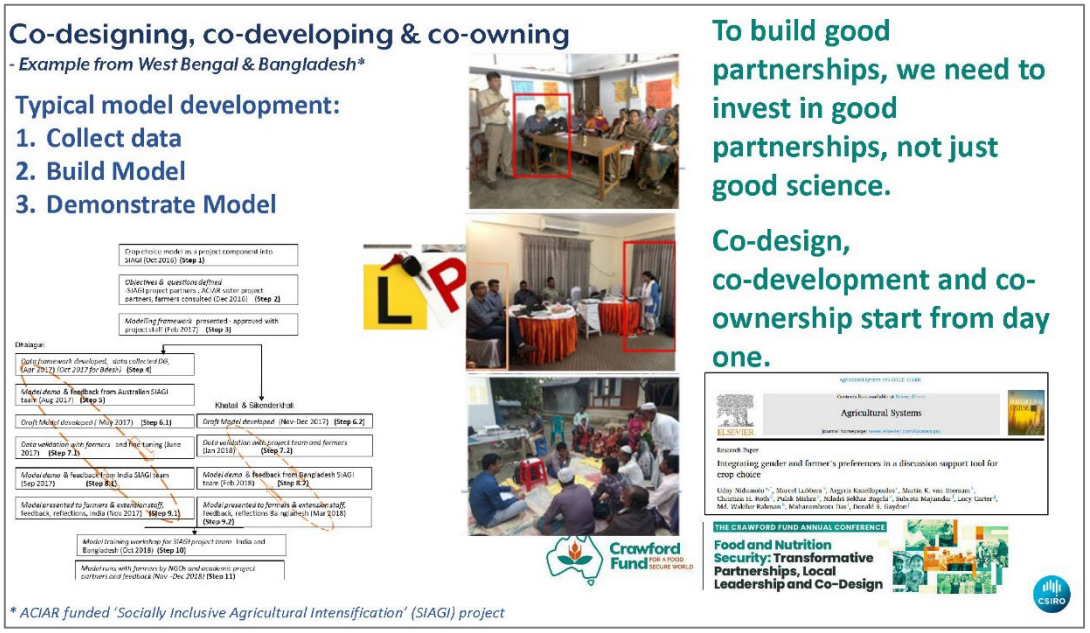

Figure 3.

It was not a three-step model, it was an 11-step model. We co-designed the model as a crop-choice model in the post-monsoon season, which meant farmers had a lot of choice between crops to plant. We asked 'What do you think? What do you plant?', etc. This was initially designed as a bioeconomic optimisation tool, which it still is, but it started as a tool where farmers would be part of the initial design. Somebody said gender is important, so we looked at how to include gender. The model took several iterations. For me as a scientist the easiest course of action would have been just to develop a three-step model. Instead, this model took a lot of effort, a lot of travelling in rural Bangladesh, eight hours on the rickety roads for example, and I did several trips just because I wanted to make sure it is inclusive. In the end, I feel satisfied that it has been done well.

The photos in Figure 3 show me running the model in a village in Bangladesh (top); one of the NGO partners running the model (middle); and the NGO partners running the model in the village without me present (bottom). That is, the ownership which was co-owned has now been transferred to them; they are running this on their own. (In Australian learner-driver terminology, they have passed their driving test and graduated from L plates to P plates.)

The point here is, this can be done if you put your mind to it and are prepared for the extra effort required, but it is worthwhile doing it. As it says in Figure 3, 'To build good partnerships, we need to invest in good partnerships, not just good science.' They do not happen by themselves, but they do happen when you put effort into it, just as in relationships and with friends.

Co-design, co-developing, co-ownership, they start from Day 1, in my opinion; they have to start from Day 1. It cannot be happening later. We published a paper, 'Integrating gender and farmer's preferences in a discussion support tool for crop choice', to share these ideas with other peers and show that these things can be done this way. I think that to include gender in a bioeconomic model was a new thing!

Scaling

The last case study is scaling. We talk about scaling a lot, but most research scientists are doing research (leftmost box in Figure 4) and are happy in that space. I think most of us in this room have ventured to the next box in Figure 4: that is, research for development. That is where, more or less, our boundaries are.

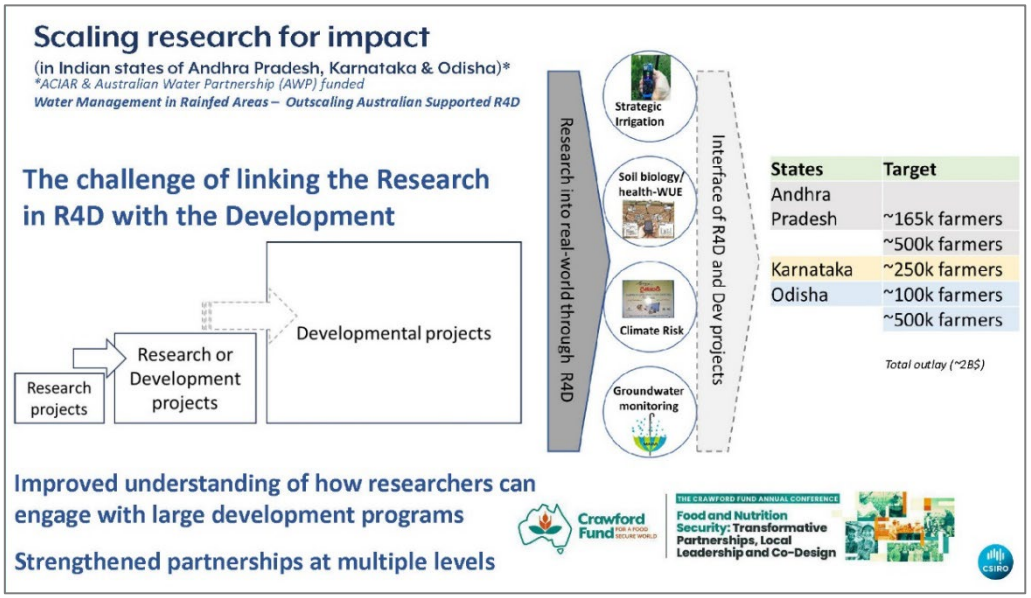

Figure 4.

In a new project, thanks to ACIAR and the Australian Water Partnership, scientists are discussing big development projects. It is not often done.

In this project, previous research has already produced four mature technologies: the Virtual Irrigation Academy strategic irrigation (devised by Richard Stirzaker); soil biology/soil health; climate risk (which I mentioned earlier); and groundwater monitoring. The methods for these four mature technologies were evolved in Australia and overseas, and they are largely Australian methods, techniques, tools. How do we scale them to reach the target farmers?

This involves five large projects in India trying to reach 1.5 million farmers (Figure 5), involving outlay of around $2 billion. We cannot scale them on our own, and so again partnerships come into play. We worked with them as an interface between science and the development projects. It was hard work because the research

language we speak is very different to the language spoken in the development space. We needed to understand how the projects will work, and they had to understand what research means. We had different country languages also, but in the process we learned how to do this well.

This project was successful, thanks to ACIAR for the confidence and partnerships at multiple levels. Now we are confident we can talk to the development projects staff. We can talk to the World Bank if you want to. It gave us confidence. Again, partnership is very important.

In summary, we need authentic complementary partnerships, common language, co-design, design for R4D.

References

Uday Nidumolu, Ravindra Adusumilli, Chiranjeevi Tallapragada, Christian Roth, Zvi Hochman, G. Sreenivas, D. Raji Reddy, V. Ratna Reddy. 2021. Enhancing adaptive capacity to manage climate risk in agriculture through community-led climate information centres. *Climate and Development* **13**(3): 189–200. DOI: 10.1080/17565529.2020.1746230

Uday Nidumolu, Marcel Lubbers, Argyris Kanellopoulos, Martin K. van Ittersum, *et al.* 2022. Integrating gender and farmer's preferences in a discussion support tool for crop choice. *Agricultural Systems* **195**:103300 https://doi.org/10.1016/j.agsy.2021.103300

Uday Nidumolu is a Principal Research Scientist with CSIRO Agriculture and Food, and a research team leader for the Resilience and Adaptation area. He has over 25 years of professional experience and has strived to make a difference to the lives of farmers and smallholders. He has a strong interdisciplinary background and a systems approach to research for improved primary productivity and natural resource management outcomes. He has a Masters degree from University of Cambridge, UK, and a PhD from Wageningen University, the Netherlands, and has over 100 publications. He has led large project teams in multi-cultural, multi-institutional, multi-country and multi-disciplinary projects both in Australia and overseas. The focus of his work has been on achieving impact and scaling of research to maximise benefits to the key stakeholders. He has wide international experience in work, education, living and travel in India, UK, France, the Netherlands, Sri Lanka, Bangladesh and Australia.