Global Solution Networks for
Climate-Resilient Agriculture and Global Food Security

Transcript of Interview with Rikin Gandhi

Guest:

Rikin Gandhi, the chief executive officer of Digital Green, has a strong interest in sustainable agriculture and technology for socio-economic development. He co-founded Digital Green as a research project in Microsoft Research India's Technology for Emerging Markets group and now leads the spin-off of Digital Green that works to amplify the effectiveness of agricultural development in South Asia and Africa. Rikin is a licensed private pilot and received patents for linguistic search algorithms that he helped develop at Oracle. He has a master's degree in aeronautical and astronautical engineering from Massachusetts Institute of Technology.

Interviewer:

Alastair Marke, a project leader of Global Solution Networks and a fellow of the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA), dedicated to driving social progress and spreading world-changing ideas. Previously a researcher at the Overseas Development Institute and The ResPublica Trust in the UK, he has extensive policy research experience in with various publications on climate change, sustainability and new economies issues.

The Interview:

Marke: First of all, thank you for your time today, Rikin.

Gandhi: No problem.

Marke: Tell us about the genesis of Digital Green as a facilitator of agricultural knowledge transfer among local communities in India.

Gandhi: I came out to India about eight years ago (2006) working with some friends who were starting up a biodiesel venture. One of the things we found is that there are some farmers who are very progressive and prosperous while most farmers are surviving at a subsistence level. Then we came

across a group at Microsoft that was working with an initiative called "*Digital Study Hall.*" They video-tape teachers delivering curricula for science, math and English in good private schools and distribute the videos to schools in slums in urban areas, and to teachers in government rural schools. The videos essentially helped them move away from a rote-based style of teaching to interactive activities and teaching techniques that Indian private school teachers would use. That inspired us to think that a similar approach might work in agriculture. So we started Digital Green as a part of Microsoft Research here in India in a group looking at technology for emerging markets.

Obviously agriculture is very different from education. There is no set curriculum; there is no young audience interested; there are no teachers per se in agriculture. So we had to adapt and consider many questions. Who should produce the video? Should it be us? Should it be the community? Should it be the NGO? Where do you share the video? Do you share it over a cable network like a DVD rental service, or have a TV setup where people can just watch the videos of their choice? We experimented and then we started seeing what really worked. What was working was teaching local individuals through the use of videos that people could relate with.

We don't just passively screen the videos, but rather we have a facilitator present at the time of these screenings to connect what people are seeing with what they are doing on their farms. That was also really important. And these weren't just one-time screenings. A peer group of farmers would watch one new video every two weeks. Thus, it creates a little bit of community over time.

Then, we capture data and take feedback about what people liked, what they didn't like, what else they wanted to see, what practices they actually adopted and followed through after the video screenings. So, that kind of user feedback was really informative in terms of the production of new concepts.

After that initial learning and experimentation phase, we fixed on an approach that we evaluated through a controlled trial. We had to find out how this approach compares to other modes of communication and extension of agricultural knowledge amongst communities of rural farmers. We were really trying to assess the knowledge transfer rate across different modes of communications (including videos, MP3 players, posters and regular face-to-face training by NGOs); what are the attendance and interest levels; and what practices farmers are adopting on their own farms as a result of these interventions. We found a 10x increase in efficiency with the video-based approach, which then leads to us spinning off Digital Green from being a part of Microsoft into becoming an independent non-profit.

In 2008, as we spun off, we wanted to explore the potential for expansion. Would the model work with other organizations and in other geographies? What needs to get adapted? And what is the value of this? That's what we've been doing.

Marke: Would you mind summarizing some of the notable achievements of Digital Green so far?

Gandhi: One of the notable achievements is that we are currently working with 150,000 farmers, who are watching one new video every two weeks on a regular basis. 2,900 videos have been produced to facilitate this. We work in about 2,000 villages in seven states across India. What that turns out to be is about 40% of the farmers who are watching videos today have adopted at least one new practice in the

last two months. In terms of cost efficiency, we measure what it costs to get one farmer to adopt one new practice.

The conventional system of some of our partners, who are planning face-to-face demonstrations or training sessions, can cost them US $30-35 to get one farmer to adopt one new practice. Whereas in our approach, we have seen that cost being able to be reduced to about US$3-3.50.

With respect to the practices that farmers are adopting, we have seen people able to realize around 30-50% increase in productivity or reduction in cost in a single season. During the main monsoon season, depending on the crop, we are currently running a large scale randomised control trial with the Poverty Action Lab in Bihar. We are looking at 1,400 households and trying to again assess the reduction in cost per farmer adoption with our approach and what the gains are with respect to productivity and consumption, particularly for people who grow rice in the state of Bihar.

Marke: Tell us more about how you leverage technology to achieve your goals?

Gandhi: After we spun off from Microsoft to become an independent non-profit, we had to think about how to scale this approach from 20 villages (which were how many we were working with as a small pilot) up to the initial 1,200 villages which we reached in 2012.

Eventually, we developed a lot of systems during that period of time. We developed tools like a data management system that would record data about who was watching what video, what questions they had, what they liked, what they did not like, and what practices they adopted. When we were just at 20 villages, we were able to get away with just passing around Excel files. Whereas once we started scaling, we needed to build a management information system. We were confronted with challenges like the limited connectivity in a lot of rural areas which made us develop the MIS to be capable to work seamlessly in online and offline environments.

Then, we started working in areas that didn't even have electricity. Earlier in our research pilot, we were using a TV and a DVD player to screen videos among village communities. But once we started working in areas without electricity, it was a more difficult terrain. So we started working with manufacturers of mobile projectors, which are the size of your mobile phone, are powered by an internal battery, and can project a 30-40 inch diagonal type of video. Some of those things came along as we grew.

Also, we had to develop a standard operating procedure and set of training modules. We conduct trainings because we don't produce the videos ourselves; we train members of the community in each district in which our partners work on how to produce these videos. In each of the villages, there are village-level facilitators who screen these videos using those mobile projectors. And so these are the people who needed training on "How do I use the projector? How do I facilitate a discussion? How do I capture a video? How do I write a storyboard?" That's why we had to develop all those modules and essentially systematize the approach.

Marke: Who are your main stakeholders and partners?

Gandhi: Initially, we worked with four NGOs in India, but then we expanded to an additional group of partners and started going beyond NGOs. Now we are scaling our approach with the Ministry of Rural

Development here in India. Outside of India, we are working with the Ministry of Agriculture in Ethiopia, with the World Cocoa Foundation, and even with some private companies in various parts of India and also in Africa. In fact, we also have funding from the Gates Foundation. We also have support from Google and from the British Government's Department of International Development. So those are some of our main supporters.

Of course, we work with a variety of different groups on the ground, including some extension organizations like those who are training farmers. Those can be NGOs, Ministries of Agriculture, or private companies. We partner with companies like JK Paper, which are working with farmers and trying to improve their productivity, because then they want to buy their produce from them.

Then we also work with research organizations like the International Rice Research Institute, and health groups, like PATH, which has technical knowledge on various issues of maternal and new-born health as well as nutrition. These issues are relevant to the rural communities that we work with. These organizations provide technically-sound knowledge input into the mix.

So, we have donors, we have our extension partners, we have technical or knowledge partners, and then, of course, there are the communities. They are the ones who are mainly involved in driving the production and distribution of the training content and adopting these practices for their own gain.

Marke: How have you adapted to the challenges present in particular localities like the relatively low literacy levels of the villagers that you would like to help?

Gandhi: Definitely, literacy was a challenge, especially since most of the people that we work with are women who have a higher illiteracy rate. That was part of it. But in agricultural training, they have this kind of slogan, which is, "Seeing in Believing." People just don't trust generic words. They really want to know who is sharing this information, so that they can see if this person is trustworthy, relatable to themselves and their situation. It's hard to ascertain that over voice or a text message, because people also look at what clothing this person is wearing and what house he or she has. If the watchers were poor farmers and they were seeing a richer farmer telling them to do something, they might just think, "Yes, maybe that guy can do anything because he's rich, but is that relevant to me?" So this approach is much more than a video project. It's more about institutionalizing an approach that aligns with the vocation and the types of communities that are involved in agriculture.

Marke: Your project is truly a multi-stakeholder network. How do you resolve conflicting interests and perspectives when you partner with so many different organizations?

Gandhi: Sometimes, when we are dealing with multiple partners on the same program, we facilitate relationships that might not have previously existed. For example, we might be working with some research organizations that have developed new varieties of rice. We want to see if those are relevant for any of our extension partners, like the government. Sometimes, there can be some ideological conflict in agriculture. This can happen because a private company might want to sell a seed that promotes chemical-based agriculture whereas a government department is just ideologically opposed to hybrid seeds or may be promoting organic cultivation.

We try to serve as the facilitator between these types of organizations to identify what makes sense. Say you have us and two other organizations. An organisation is trying to promote fertilizers, but the

government does not want to promote fertilizers. Generally, what we try to do is cut through the conflict by saying, "Well, if you can demonstrate your practice or your technology with a particular community, then our grassroots level partners will have the opportunity to see that." If the community actually accepts that and thinks that it's useful to them, then there's no real issue as it's now in the hands of the community to decide essentially instead of making this too ideological.

That's why our focus on data and feedback from the community has been very helpful in the sense that it has cut through a lot of these ideological debates between organic or non-organic; fertilizers or not fertilizers; or this seed or that seed. We can actually just tell our partners, "Let's see what the community says." We already have the database. It's all open and online for anyone to see about what really is working and what's not, and where the gaps might be.

Marke: What are some of the key benefits and challenges of the multi-stakeholder model?

Gandhi: Our approach depends on leveraging existing extensions that are already in place, whether they are of the government, private sector or non-profit organizations, already mobilizing community groups, having the expertise on various agricultural practises and whatnot. The extent to which they existed determined how far we could scale and, later, replicate our approach. We fundamentally depend on partners already on the ground before we can start working.

But on the flip side, the ownership of the approach rested with us, and hence the success of the model was to rest with us as researchers, as opposed to the partners, because we were the ones trying to pilot an idea with them.

However, we then moved into a mode where we started growing. We started saying, "Okay. This has been the experience from these pilots via the studies that we have conducted." We would say, "This is what we have to offer. This is our approach. This is the type of service that we can provide to support you, and the facilitation that we are willing to provide to connect you with other folks. But you also come with certain core competencies of your own, and if you want to work together, then apply to us." This created a dynamic where our partners were the owners who took the onus upon themselves to actually do the work with us and then to drive the program.

That really allowed us to have a very massive step change with respect to how we are able to scale, because ours is a pretty small team and we are not actually involved in producing and showing videos ourselves. If we are in the mode where we are trying to push our partners to do that, it will never work. It really needs to come from our partners who have to see value in our approach and then will say, "This is how we see your approach integrating with ours. We will then drive this for ourselves, with some of the technical support that you can possibly provide." This is what has allowed for a much wider collaboration over the last few years.

Marke: Are you replicating the model that you use in India in African countries?

Gandhi: There are certain core elements of our approach that remain similar even in Ethiopia, for example. It is basically the same approach of having videos produced by the community at the district level. These videos are then screened at the village level by facilitators from the community amongst farmer groups. Then, data and feedback are captured to inform that process. So the general approach has a lot of similarities but there are a lot of differences because of the uniqueness of the context.

For example, Ethiopia doesn't have a long history of having self-help groups for women as we have here in India. In India, there is a lot of micro-finance work, or micro-credit activities which involve women self-help groups. There are not so many in Ethiopia. But there are other types of groups, mostly male groups that have been mobilized by the government for agricultural development. There are some women's groups that are just more informal in nature. So we are trying to work with both types of groups, but it's different from India.

On the other hand, there is more investment in extension in Ethiopia than India. In India, there is one extension officer for every 10 or 15 villages, whereas in Ethiopia there are three extension officers for every village. It is a much more intensive pool of people who are trying to support farmers.

Other differences there include more limited media penetration in Ethiopia. Television and mobile phones are much less than what we see here in India. So there is a novelty factor associated with videos in Ethiopia; a lot more people coming and participating in the process. This is because they just see it as interesting and different from the norm.

Marke: Given the increasingly ubiquitous Internet availability in the developing world, would you believe the impact that you are delivering is potentially much bigger than you can currently measure?

Gandhi: Yes, it's just starting. What's funny is that we have been putting all of our videos online, on YouTube as well as on our website, where we are actually seeing a pretty large following of folks watching. In India, people are getting greater access to the Internet via mobile devices. We've received about 1.3 million views to our videos in the last year on YouTube. On our website, you can see the split between both the online and the offline viewership. Though we rigorously track the practices that offline viewers actually follow through upon through physical observation, we have a limited ability to track online users to understand what they do as a result of watching the videos, whether they adopted the practice or whether they even care. But sure, I think there is a spill-over effect in the wider region.

Marke: Tell us more about how you collect and analyze your usage data. Is your data shared with relevant government departments to facilitate their decision making?

Gandhi: The data is all open, so you can see it on our website in various views. We have our Analytics Dashboard, Farmerbook, and the videos pages. All the data that you see on all those pages comes from COCO. Those pages are used by different people for different purposes.

Farmerbook shows you an individual farmer view of the data set, what videos a farmer has seen over time, what questions they had, what practices they adopted, and how that compares with other members in their community. The aim is to support local village reflection to think about why one woman adopted one practice while another women didn't, or if these women can be brought together to support an exchange.

We've also developed an analytics suite of dashboards that enables a user to slice and dice the data, such as viewership and adoption rates, in time and geographic dimensions. It's useful at state and national levels to be able to monitor the progress of a project and see how many people are being involved and not being involved, etc.

We've also created video pages that are more often used by the district level staff of our partners. The district level is where the videos get produced, so they use the video pages to view the frequently asked questions from farmers, adoptions for each video, etc. to figure out what videos should be produced next. Though most of the videos are screened in the same district in which they are produced, sometimes, they take videos from an adjacent district that might be relevant for the farmers.

Marke: Now we've come to the final question. What do you think are the broader implications of your "digital" projects for global problem solvers or decision makers?

Gandhi: We partner with a number of these state and also non-state actors, who are working on food security types of issues. Essentially, what we found is that by bringing technology together with these social organizations, we can systematize their work and make their work much more efficient and much more accountable to the communities that they are serving and supporting. We actually see digital technology as a real opportunity to take the good they are doing and to amplify its effectiveness.

We are not in a world where the private sector is the only solution for agricultural development. In India, agriculture is still in a transition phase. There are definitely more private sector activities, but relative to the government, it is a very small player in these rural areas. For us, it's about working with both. In terms of scale, we think we can improve the effectiveness of the government with our approach that supports them and captures data and feedback from farmers to hold them more accountable. We are starting to work with the private sector, though we recognize it's still a very small player.

Marke: Rikin, thank you so much for your time and information today.

Gandhi: No worries. I appreciate you sharing our work.