

Shared Value in Agriculture: Strategies for Sustainable Growth
May 25, 2016
Conference Summary

The Stanford Value Chain Innovation Initiative hosted a conference at the Stanford Graduate School of Business on May 25, 2016 focused on *Shared Value: Strategies for Sustainable Growth* in developing economies. 64 faculty, students, agribusiness entrepreneurs, civil society leaders, impact investors and other executives were in attendance. The goal of this conference was to explore key challenges balancing agricultural growth with sustainability and poverty alleviation in developing economies. Over the course of four panels and one wrap up session, attendees discussed and debated operational strategies to promote social progress, sustainability, and inclusivity along agricultural value chains. This summary highlights some of the key discussions and debates from the day.

Panel 1 - Market-Based Incentives as Drivers of Change

Moderator: Ananth Iyer, Susan Bulkeley Butler Chair in Operations Management, Krannert School of Management, Purdue University. *Panelists:* Leonardo Fleck, Program Officer, Conservation and Markets Initiative, Gordon and Betty Moore Foundation, Eric Lambin, George and Setsuko Ishiyama Provostial Professor, Stanford University; Senior Fellow, Stanford Woods Institute for the Environment, Laura Keen, Supply Chain Manager, Fair Trade USA

In this session, participants explored effective market mechanisms which have incentivized sustainable practices in agricultural value chains. As one panelist inquired, “How does one reconcile preservation with production?” Several examples of effective market schemes were discussed:

- Leonardo Fleck discussed the Novo Campo project in Brazil. Significant deforestation takes place related to cattle ranching in the Amazon. This project provided intensive rancher training to improve production techniques, avoid deforestation, and find buyers and investors for the more sustainable beef. Results were higher profits, higher productivity, lower greenhouse gas emissions, and sales to a major meatpacker and retailer. A B-corporation has now been formed and 11.5M euro has been raised from the Althelia Climate Fund. One challenge with this program is how to quickly scale given the intensive training required and large up-front investment needs.
- Eric Lambin shared research from several studies on certification and deforestation. Given advances in satellite mapping technology, monitoring deforestation has become easier, with company-level tracking sometimes possible. Lambin’s research has found linkages between voluntary corporate agreements and reduced levels of deforestation. He noted, however, that perverse effects can take place: exclusion of smallholders because they are less-equipped to meet certification standards, and leakage where unsustainable activities move to regions getting less attention from regulators.
- Laura Keen of Fair Trade USA discussed certification of sugar in Cote d’Ivoire. There are several risks involved in the international sugar industry, including child labor. Fair Trade USA provided farmers in Cote d’Ivoire training and ownership over the process and outcomes related to certifying sugar. Fair Trade USA has found that through capacity building, coalition building, multi-sector actors and consumers willing to reward business that is transparent on their (sometimes slow) progress, a sustainable sugar market can be developed.

Several themes were explored in the subsequent panel discussion, as described below.

End-to-end value chain focus: Panelists discussed the importance of using a holistic value chain approach to market-based programs, where efforts to strengthen the supply chain were complemented by building a consumer market for sustainable products.

The role of technology: Satellite mapping and other tools can help to reduce the costs of monitoring. Using a sampling approach can help contain costs of verification. In the case of deforestation, being able to map company-owned land enables better monitoring of the problem.

Scale: Scaling up sustainable programs can be particularly effective when a private pilot demonstrates results, and lessons are then adopted into public policy so that sustainable practices can be more broadly implemented.

Overcoming costs of promoting sustainable agriculture: Changing practices in agriculture can be expensive due to the costs involved in working with smallholders in rural locations, and the need for localized solutions. Intermediaries such as NGOs that can access investments and provide technical assistance help to spread out these costs. To promote behavior change at the farmer level, a farmer-centered approach to training is important. Farmers value stability in price and other aspects of farming, given its many risks.

Risks of certification schemes: Some risks of certification schemes are that smallholders are excluded in favor of larger farms better equipped to meet standards, and that leakage can occur, where “dirty” activities move to places with less attention from regulators. This essentially builds a 2 tier market, with leaders and laggards. It was also noted that one could scale without a strong certification, or conduct strong certification on a small scale until it is adopted via a government policy on a larger scale.

Public versus private interventions: Private interventions take place in a broader public policy environment, rather than in isolation. The key is how to maximize alignment between private and public initiatives in order to make them synergistic. Research has uncovered certain patterns: There can be high complementarity between private and public regulation, private actors can focus on monitoring, while public actors can be effective at sanctioning the laggards, substitution can take place: private implementation can be adopted into policy, helping it to scale, and government policies can override private actions due to corruption.

Business benefits of sustainability: Price premiums are not the only incentive for farmers to improve sustainability. Market access, higher productivity, increased knowledge and higher literacy are all additional benefits that produce business value for farmers.

Research questions: How can one use market-mechanisms to raise the performance of “bad actors”? Can a jurisdiction approach be an effective way to certify an entire region, rather than focusing on individual farms? What types of tax incentives can be deployed to promote sustainable agriculture? What is the right mix between public policy and private initiatives? Which attributes matter more when consumers purchase sustainable products: health, environmental sustainability, or social measures?

Panel 2 – Leveraging the Power of Information Technology

Moderator: Syed Zahoor Hassan, Professor, Lahore University of Management Sciences, *Panelists:* Geoffrey Otieno, Managing Director, Enreal Limited and Business Coach, Stanford Institute for Innovation in Developing Economies (SEED), Heather Franzese, Executive Director, Good World Solutions

In this session, panelists explored the various applications of information technology in agricultural value chains, along with challenges in scaling solutions.

- Syed Zahoor Hassan described how IT can be analogous to a car. It can be used as the front seat (to control and coordinate activities), used as a back seat (in a supportive role), as a trunk (a repository of information), a rear view mirror (as in the case of monitoring and evaluation), and as headlights (to make strategic choices in tough situations when you are “in the dark”).
- Geoffrey Otieno discussed the challenges of solutions deployed in Kenya and other parts of Africa. He commented that most systems start with the developer, rather than the user. He commented on the potential for IT to migrate value from the farmer to the consumer, as long as a platform

approach is taken. He gave an example of chicken farming, in which IT training in Cote d'Ivoire helped farmers improve chick turnover, leading to better community nutrition and higher farmer incomes.

- Heather Franzese discussed LaborLink, a platform provided by Good World Solutions. The solution enables more timely monitoring and evaluation, and gives a “voice to the voiceless” by enabling factory workers and farmers to report on their working conditions and other aspects of their lives. Her organization decided to pull out of agriculture, due to poor connectivity and high up-front investment needed for operating in agriculture. The solution is doing well in factory settings for other industries. Her talk illustrated the complexities of deploying IT in agriculture.
- Zahoor Hassan shared insights on several IT interventions which had challenges. Ricult was formed as an online marketplace for farmers in Pakistan. Since the organization didn't have local staff, they had challenges deploying the technology. Ultimately they decided to take orders on paper, build farmer trust and then deploy the technology. He discussed another company called Kissanbook, which uses a platform approach to do crop lifecycle management. He pointed out that IT is simply one of many ingredients needed in an intervention. He suggested minimizing up-front investment and commented on the challenges involved in scaling IT.

Several themes were explored in the subsequent panel discussion, as described below.

Information technology is not a panacea: One cannot start using IT at a strategic level when the basics are not yet in place. People and infrastructure are critical in how IT is adopted. As one panelist commented, “Companies with a long history with farmers succeed”. There remain very real trust, confidentiality and security issues with IT in the farming setting. One panelist commented that “human contact can't be replaced”.

Scaling IT: Given the high costs of deploying IT solutions in the agricultural context, one participant suggested that large value chain actors with sizable funding and a laser focus on the problem they are trying to solve may find greater success. One example is Telenor in Pakistan, which is looking to expand into rural areas. Telenor is offering farmers incremental services to get them more comfortable with using mobile technology.

Spectrum of applications: IT solutions in the developing economy context can be as basic as using an enumerator to collect data via an android phone, and as advanced as developing a sophisticated yet simple to use app such as WeChat. Typical applications involve using IT to achieve scale, coordinate horizontally or vertically, provide access to know-how, enable more timely monitoring and evaluation, provide traceability, create price and information stability for farmers, to give hope, shape norms and more. There needs, however, to be mutual trust when using IT – it cannot be exploitive. One participant suggested there are three key roles for IT: 1) peer-to-peer communication (which farmers inherently trust), 2) central intelligence (e.g., weather apps), and 3) connecting farmers with buyers.

User-centered design is critical: Most systems start with the developer rather than the user, which may explain the failure of so many apps. Successful developers start with the minimum viable product and minimize the up front investment, adapt it to the local context, and iterate. Given the challenges of scaling IT solutions, leveraging people that have relationships with farmers is important (e.g., middlemen).

Opportunities: One panelist commented there is a need for platforms, not apps. Kenya alone has over 40 market access apps. Voice platforms in simple language are easier to adopt than certain smart phone apps. Social media is underutilized in agriculture today - one panelist called for a “Facebook of agriculture” to be developed in order to enable farmers to share information on inputs, processing, and pricing. One participant called for platforms that can leverage the sharing economy trends seen in other markets (e.g., Uber, Airbnb) to share things like farming equipment and warehousing. IT can give a voice to the voiceless, and translate their needs into actionable analytics. The democratization of data is increasing, which can help actors along the value chain to make timely and better decisions. Data visualization technologies are growing, helping people to make better decisions. Expert agritechicians

are needed that can interface with farmers. One agribusiness entrepreneur commented that he had to build his own IT systems internally because of the lack of quality off-the-shelf solutions available.

Research questions: What are the positive and negative roles middlemen can play in leveraging IT in agricultural value chains? Are user-centered IT apps ultimately more effective? Do platforms gain more traction than apps? What forms of training are most effective to enable farmers to leverage IT? What are ways to cost-effectively scale IT in the high cost agricultural context?

Panel 3 – Operational Solutions: Improving Productivity, Efficiency, and Sustainability

Moderator: Jay Swaminathan, GlaxoSmithKline Distinguished Professor of Operations, UNC Kenan-Flagler Business, *Panelists:* Sebastian Teunissen, Managing Director, Solidaridad North America, Roz Naylor, William Wrigley Professor in Earth System Science, Stanford University, Beau Seil, Managing Partner, Unitus Impact

In this session, panelists explored solutions that can improve operations in a sustainable and inclusive manner.

- Jay Swaminathan proposed an AAA framework for agricultural operational improvements: Farmers must be shown that improvements are A – advantageous, A – affordable, and A – available at the right time. He discussed agriculture equipment provider AGCO, which runs a demonstration farm in Zambia that helps farmers see benefits of improved operations side-by-side with an unmanaged plot. The company uses a train the trainer model to scale its solutions, and is testing a “farm in a box” concept which provides value chain partners with access to equipment, implements and training.
- Roz Naylor discussed a large research project at Stanford focused on promoting sustainable and inclusive palm oil. She shared that palm is a perennial crop which lasts 25 years. Indonesia has many large farms, making big changes possible. Still, 40% of production comes from smallholders who often burn forests in new areas, leaving opportunity to work with smallholders on poverty alleviation strategies. In Africa, palm is still primarily harvested by smallholders. Traceability with palm oil is challenging given its fungible nature, which reduces the incentive to preserve forests. Among other questions, her team is exploring whether improving yields reduces the incentive to deforest.
- Sebastian Teunissen discussed the fact that 70% of global agriculture involves smallholders. Solidaridad works with smallholders and other actors, taking a value chain approach. It manages a partnership, for example, with Unilever to raise standards in its value chain, working with Olam and other value chain actors. With cocoa in Ghana, Solidaridad found low yields, aging farmers and unemployed youth. It established incubators that provided business and agronomy training for youth. This ecosystem approach is critical to growing sustainable agriculture.
- Beau Seil described Unitus Impact’s Livelihood Impact Fund, which is scaling businesses in Asia, including Vasham and Big Tree Farms. Vasham is a social enterprise that leverages a closed loop business model to provide Indonesian smallholder farmers with the financing, expertise, and income security they need to achieve better standards of living. Big Tree Farms processes coconut to build sustainable livelihoods for their farmer partners, while being good stewards of ecology.

Several themes were explored in the subsequent panel discussion, as described below.

Holistic view of the farmer: Farmers often switch crops during the year or have multiple streams of income. Therefore, we must take a holistic view of the farmer and work on all of their issues, rather than a commodity-by-commodity approach. As one panelist said, “Changing human behavior is key.” One participant called for anthropologists, agronomists, computer scientists and other experts to study how best to train farmers to make sustainable improvements.

Yields: Several participants discussed the opportunity to raise yields that remains in most developing countries.

Opportunities: Credit is needed to invest in sustainability. Promoting agriculture entrepreneurship in universities and other environments is important, because it is not currently considered a lucrative or exciting field.

Research questions: In products that are linked with deforestation such as soy, beef and palm oil, does increasing yields reduce the incentive to deforest? Does informing the consumer of the price you pay to a farmer cause the consumer to want to pay you less, or will the consumer say “pay the farmer more”? Does the response vary by geographic market? How can environmental damage arising from intensification strategies be better controlled?

Panel 4 - Restructuring the Value Chain to Develop Sustainable Local Economies

Moderator: Richard Chivaka, Associate Professor, University of Capetown Graduate School of Business, *Panelists:* Yemisi Iranloye, Managing Director & CEO, Psaltry International Company Ltd., Jeffrey Atkin, CEO, Sustainable Forest Systems, Daniel Spitzer, Chairman and CEO, Mountain Hazelnuts Group Limited

In this session, three CEO founders discussed how they structured their value chains differently than others in their industries, and reflected on how their approaches improved sustainability and livelihoods.

- Richard Chivaka opened the session discussing how people generally agree on measures of success in value chain development – job creation, increased revenues, increased productivity, and more. Various value chain structures are well-known such as vertical integration, aggregation, etc. Chivaka’s focus is on the controversies – social downgrading, negative consequences of value chain development and more. He emphasized the need to promote pro-poor value chains to make positive changes in the value chain that have social benefits such as economic development, gender equity and environmental sustainability. In his opinion, “market-based approaches can leave people behind”.
- Yemisi Iranloye shared the story of founding Psaltry, her cassava business in Nigeria. Traditionally, cassava farms were 300-400km away from processing factories, leading to many product losses. She decided to establish a factory near the farms, built a demonstration farm, and moved into one of the farming villages to stay connected to the community. She provided training to the community. Given her background in biochemistry, a bank took a chance on her and provided a loan. She restructured the cassava value chain by locating processing closer to farms, and by providing inputs to farmers at cost. She contributes 2% of her profits to development activities such as water and power projects. She has seen an increase of children in school, more protein in local diets, and more female farmers (40%). She hopes to use cassava processing waste for power, and train young people to do capacity building.
- Jeffrey Atkin’s company Sustainable Forest Systems has a “do no harm” philosophy to sustainable forestry. He manages large tracts of land in South America with very low population density, making it challenging to monitor deforestation. While he has legal land tenure, it can be a challenge to also secure physical tenure. Atkin uses an “open access supply chain” model to procure timber. He provides technical assistance and financing to local social groups and has conducted GIS mapping to monitor forest. Social group members tag trees with GPS trackers, and decide how they wanted to retrieve timber. Since they had more control over the process, their interests became aligned with SFS. Previously, community members sold timber to a timber company and their value ended. Now, since they provide more value added services, their profits increase. Community members have seen that they are paid on time, so they build great loyalty to SFS and become advocates of sustainable forestry management.

- Daniel Spitzer’s social enterprise Mountain Hazelnuts in Bhutan has enabled subsistence farmers to become involved with the cash crop of hazelnuts, which are grown on degraded un-farmable slopes and improve water and land quality, along with reducing greenhouse gas emissions. Farmers receive heavy training, and are guaranteed offtake of each product, not simply a select portion. To save costs, Spitzer began on a large scale, providing millions of trees to farmers, with the goal of involving 15% of the Bhutanese population.

Several themes were explored in the subsequent panel discussion, as described below.

Starting a value chain from scratch: Each panelist was a CEO/founder, and had a choice in how to develop their value chains. SFS had staffing challenges in early days. They began with using one female forester, and slowly grew once the community saw that people were paid on time. Psaltry had initial challenges obtaining financing. They grew by establishing strong relationships with the local community, and by eventually securing financing from a bank willing to take a risk on the founder given her background in biochemistry. Mountain Hazelnuts faced big risks that their plants would not survive or perform well. Given their data-based approach, the company could cultivate the plants in a scientific and successful manner.

Supply-side vs demand-side challenges: Psaltry has found that meeting buyer needs is more challenging at this stage than maintaining a strong supply chain, due to high demands from buyers. Mountain Hazelnuts has had challenges balancing needs of its stakeholders on the supply side. 20% of their profits go to farmers.

Building a culture: These founders each began their businesses with a profound cause. They built their teams very carefully with extraordinary people. However, one panelist pointed out that if market incentives do not exist, having extraordinary people does not matter. One panelist shared the strategy of finding someone local that shares your vision, which then enables the founder to step back a bit over time. This is the least risky, most adaptive strategy.

Opportunities: There is a need for better analytics in forestry and agriculture. There are opportunities to bridge barriers when building a company in a developing market – barriers between urban and rural communities, between domestic vs international. In the case of Psaltry, Iranloye moved to the rural areas, ate the local food, and slowly found a way “into their hearts”.

Research questions: When working on value chain development, how can we ensure that women are equipped to respond to challenges at work and at home? Since the input side of value chains has power and the demand side has power, how can one ensure the “small guys” involved in farming and other small scale activities in the value chain develop power? When business income increases through a value chain strengthening program, do the benefits necessarily make their way to families? Can an “open source” supply chain be applied to other agriculture contexts beyond forestry? How can incentives be structured so contractors don’t only focus on faster/better/cheaper?

Group discussion

Moderator: Hau Lee, Thoma Professor of Operations, Information and Technology, Faculty Co-Director of the Stanford Value Chain Innovation Initiative

Following the four panels, Hau Lee led a group discussion to distill key learnings and potential future research questions. Key themes which emerged are described below.

People matter: Farmer-centered interventions take time and focus, but may have increased chances of success compared to interventions designed from the outside. Researchers need to spend time in the field

to study agriculture. Given the many risks in agriculture, farmers will need to remain diversified. They will rarely have just one source of income.

The meaning of shared value: There was a debate around the true meaning of shared value. While it may be easier to quantify shared value from one company's perspective, how can one create shared value for entire communities, or regions?

Business benefits of sustainable strategies: There were discussions around the fact that premiums paid to suppliers for responsible practices are only the "tip of the iceberg" in terms of benefits that could be earned. Other benefits include a social license to operate, having security of supply, and higher yields which lead to higher income, among others.

A holistic approach: Discussions centered around thinking more broadly than one issue such as deforestation, but rather, focusing on the complete ecosystem for shared value. In terms of social issues, child labor, human trafficking, environmental health and safety and other issues are critical. In terms of environmental issues, waste, water, carbon and other forms of pollution are important. How can companies monitor and address all of these issues in a holistic manner?

Cultivating demand for sustainable agriculture: One participant commented that consumers receive diluted messages about sustainable products, given the proliferation of labelling systems. How can one cut through the confusion as a customer? One participant responded that a platform with a strong governance system is needed for sharing public and private data on sustainable products. It would ideally be a cost-less system to track products.

The importance of perspective: Discussion centered around whose perspective one takes when considering value chain innovations for sustainable agriculture. The farmer, processor, retailer? One participant commented that part of agriculture is the food itself, and the rest is processing. Certain agendas can be hijacked in a system. What is the ultimate goal of a value chain strengthening program? Is it to have a pro-poor perspective, or another perspective? One participant inquired whether, given the lack of equality in global value chains, perhaps improving inequality is the key. But then, he said, consider a hypothetical example of dairy. If Nestle buys all the milk in a region and a family earns certain income from it yet can't afford the yogurt Nestle then sells to the community, is the family truly better off? Another participant pointed out "Is it a win-win because you forgot about who lost?" This is similar to arguments in the U.S. against sending manufacturing jobs to other countries. One participant commented that given resource constraints in the context of a growing population, we will have to produce more with less. There will certainly be displacement as one side effect.

Research opportunities: How can organizations mitigate the risk to agricultural value chains from climate change? How can organizations take a systems approach to problems (e.g., deforestation grows elsewhere once you crack down in one area)? What happens to those left behind as globalization and development grows? Is the accumulation of capital more important than seeing increases in income? What are the incentives and disincentives that promote sustainable, inclusive value chains? Can we somehow collaborate to synthesize research and evidence in order to develop an approach that informs future interventions?

Summary

This conference highlighted several approaches to building sustainable, inclusive agricultural value chains. These approaches typically involved balancing the flow of information, money and materials along the value chain. Key components of successful initiatives included finding a valuable market opportunity, building meaningful incentives for actors along the value chain, using a local approach built on strong relationships, finding an effective project champion, utilizing both private regulation and public policy, and involving many different stakeholders. Questions arose as to how best to scale successful agricultural pilots, which can be more costly than developing economy interventions in sectors such as apparel.

Participants debated and discussed at length why some interventions fail, pulling on many examples of information technology solutions which did not succeed. Several hypotheses were posed as to the reasons behind IT failures, including the lack of a user-centered design approach, an “app” strategy rather than an end-to-end value chain platform strategy, the lack of telecom and other infrastructure to enable IT to flourish, among others.

Given the unique risks and high costs of operating in agriculture in developing economies, there is a particular need to develop cost-effective solutions which can scale. There is ample opportunity for researchers from operations, earth systems science, economics, computer science, anthropology and other disciplines to partner with practitioners to build the knowledge base of effective value chain interventions in various settings in agriculture, in order to ensure the continued growth of a sustainable, inclusive and economically successful agricultural sector.