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Positive Impact Case Study

Unlocking Full Value in the Ecosystem

Delivering Sustainable Agricultural Value Chains at Scale

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By 2050, food production will need to double to meet the rising global population while conditions such as climate change and water scarcity make production increasingly difficult. Furthermore, both consumers and authorities have developed higher expectations regarding food and agricultural sustainability. This has become especially relevant for multinational corporations operating in developing countries who face recurring issues in their sourcing. Simultaneously, systemic market failures have contributed to low and volatile productivity of smallholder farmers, which traditional sustainability programs have been unable to successfully resolve. This article lays out the key challenges in food and agriculture supply chains, examines the root causes of why traditional approaches have achieved only partial success in lifting smallholders out of poverty, and details how systemic ecosystem approaches deliver breakthrough and scalable supply chain transformations.

By 2050, food production must double in order to feed the world.

According to the UN, the global population is rapidly increasing, and it will reach 9.7 billion by 2050.[1] This growth, in combination with increased urbanization and changing food habits like increased meat consumption in emerging markets that has been enabled by increased purchasing power, means that food production must double by 2050 to meet the growing demand.

However, conditions to increase production are increasingly challenging...

Greater risks from current and anticipated climate change call for increased resilience, especially in developing markets. This is exacerbated by increased scarcity of fresh water. Currently, 1.2 billion people lack access to water while another 1.6 billion people face economic shortage of water or lack infrastructure to take water from rivers and aquifers.[2] Meanwhile, water consumption has grown at double the rate of population growth, resulting in some regions experiencing chronic water shortages.

... and consumers and authorities have increasingly high expectations

Changing expectations have resulted in increased scrutiny on food supply chains. This often translates to consumers doing their homework—looking for information on the manufacturing practices and company commitment to sustainability—on the brands they purchase. This may be linked to the emergence of organic food items, improved transparency and traceability measures in supply chains, and certifications like Fairtrade, Rainforest Alliance, and UTZ. In a survey conducted by Nielson in 2015, 66% of consumers said they were willing to pay more for sustainable brands, up from 55% in 2014.[3] While this has positive outcomes for the planet and potential profits of already sustainable consumer brands, these new norms put pressure on local and multinational mainstream food producers to ensure that they are meeting sourcing requirements, and at the very least, taking a 'do no harm' approach.

1 UN DESA Report: World Population Prospects; the 2015 Revision
2 UN Water for Life. Human Development Report. UNDP.
3 The Sustainability Imperative: New Insights on Consumer Expectations. Nielson Global. October 2015.

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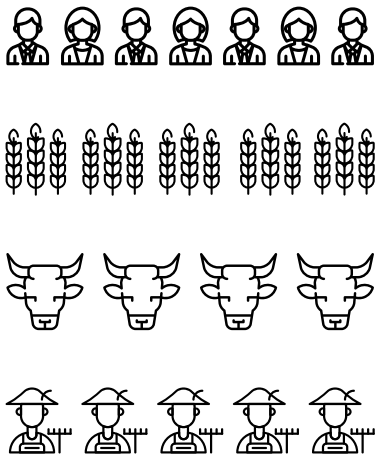
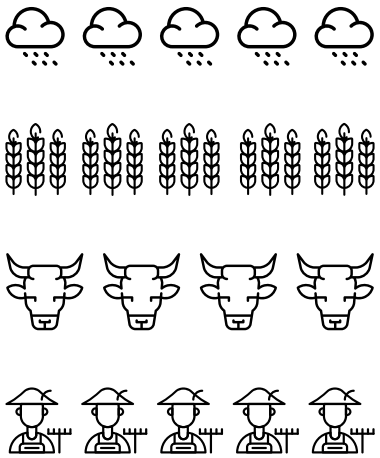
Feeding the world requires systemic change in supply

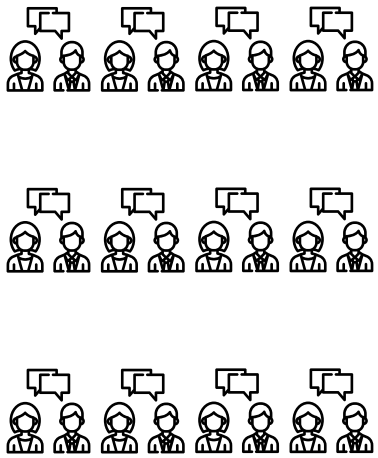
Now is the time for systemic transformation of multinational corporation food and agriculture supply chains



By 2050, the world has to **double net food availability**



Greater risks from climate change call for **increased resilience**



Increased expectations from consumers and authorities

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Discussions with over a dozen Multinational Corporations (MNCs) revealed four recurring sustainability issues.

- Food Reliability & Traceability

  how to secure reliable, regular access to high-quality ingredients and how to effectively deploy traceability to respond to increased need for product differentiation;

- Smallholder Viability

  Cote d'Ivoire is the largest cocoa producer of the world (>40%). However, the average income of an Ivorian cocoa farmer is 90 cents (USD) per day.[4] This is less than half of the UN threshold for extreme poverty. This income level makes farming itself unsustainable, ultimately threatening long-term supply for corporates and consumers as well as potentially triggering practices including child labor and deforestation;

- Environment, Land, and Water

  There are increased demands on agricultural and production practices that require companies to invest in reducing CO2 emissions, provide guarantees to stop practices that lead to deforestation and soil depletion, and more effectively use scarce fresh water.

- Scale-up Business Case

  Many corporates have launched initiatives to improve the sustainability of their supply chains. However, initiatives centered on smallholder farming tend to be limited in scale, and we have seen that corporates struggle to scale these new practices up to a company-wide level, as the traditional business case is not viable.

Systemic market failures lead to low and volatile smallholder farm productivity

Many smallholder farmer ecosystems suffer from systemic market failures leaving significant untapped value in ecosystem. The farmers have very small plots of land with very low and volatile productivity. The lack of steady income prohibits investment and access to credit to improve their agronomic practices. Instead, it often triggers practices like child labor, inadequate storage, high post-harvest losses, and deforestation (by depleting existing soil and burning forest to create new farmland every few years). To add to the barriers, smallholders offer limited business opportunity to financiers and banks, as they are considered not bankable under the current adverse conditions.

Besides the farmers, other supply chain partners are struggling in these ecosystems as well. Input suppliers face uncertain and underdeveloped markets translating to low volumes and high sales & distribution costs, driven by the fragmented farmer and customer base. Many smallholder ecosystems are adverse to off-takers, or buyers of products who frequently agree to buy a certain amount of the future production from suppliers that can guarantee a consistent supply of good-quality products. Off-takers are facing volatile supply, fluctuating quality levels, lack of traceability and effective quality grading. The latter is mainly caused the several middle-men involved in aggregation (farm-gate buying, storage, post-harvest processing, and logistics) that lack the required incentives and capability. Consequently, current commodity market systems do not support effective quality or sustainability differentiation sought after by MNCs and brands.

4 Barry Callebaut study for Forever Chocolate

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Multinational corporations connected to sustainable food and agriculture have recurring concerns

1. Reliability & Traceability
2. Smallholder Viability
3. Environment, Land, Water
4. Scale-Up Business Case

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Traditional approaches generally do not lift farmers out of poverty

While many companies and NGOs currently offer training and credit programs to farmers to increase their incomes, they do not deliver breakthrough results or create commercially viable and self-sustaining ecosystems. Instead, these programs remain dependent on subsidies or grants, ultimately making the programs themselves unsustainable. Furthermore, the traditional programs' inability to create self-sufficient farmers fundamentally limits the scalability of these programs as a whole.

Palladium has demonstrated that systemic ecosystem transformations deliver breakthrough and scalable results for all ecosystem actors

Palladium created the Peru Cocoa Alliance, which tripled the incomes of approximately 30,000 farmers, ultimately making their enterprises commercially viable and attracting significant new private investments in farm development. Similarly in Uganda, Palladium more than doubled the incomes of 27,000 maize farmers, effectively lifting them also out of poverty.

In addition to the economic value created for smallholders, these programs resulted in significant benefits for other actors across the ecosystem. Simultaneously, these delivered sustainable labor, environment, and forest management practices while also implementing effective farm-level traceability.

Based on the key challenges faced by MNCs and our diagnosis of where traditional approaches have fallen short, Palladium has distilled an approach to create scalable, sustainable supply chains.

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Palladium's new approach is centered on two principles.

1. Holistic Ecosystem Transformation

Palladium conducts a holistic system diagnostic to identify key value creation bottlenecks in the ecosystem. From there, Palladium designs a comprehensive set of interventions with other strategic supply chain actors, such as input suppliers, to unlock the full value creation potential. Recurring value drivers include farm productivity improvement through productivity packages and irrigation, effective agronomic and business skills training, improved quality and price realization, direct contracting with premium off-takers, reduced post harvest losses, improved access to credit, and improved access to mechanization. Based on these, Palladium implements the intervention program in order create an improved ecosystem that is commercially viable for all actors.

2. Active Orchestration

Effective ecosystem–wide transformation and management requires active orchestration and synchronized change among key supply chain actors. This can be practically achieved through the role of a Supply Chain Manager (SCM). Tasks of the SCM include the bundled development of input packages and procurement, negotiating collective off-take agreements with processors, the active management of standards and compliance, obtaining traceability, and securing access to finance for post-harvest equipment, working capital financing, and the like.

To implement and deliver this, Palladium works with existing supply chain actors who have the potential to become SCMs with capacity-building support from Palladium. If there are no suitable SCM candidates available, Palladium may establish the SCM function itself to establish a productive ecosystem, and ultimately, transfer the business to local organizations or investors, taking on a Build, Operate, and Transfer model.

Creating sustainable supply chains requires a phased approach.

Phase 1: System strategy map: Identify opportunities to create and capture value

In this phase, Palladium conducts a system-wide diagnostic by establishing a systemic value creation baseline, identifying key bottlenecks and improvement opportunities. These improvement opportunities (see 'Holistic Ecosystem Transformation') are developed in close cooperation with other supply chain actors and they are quantified in a business estimating the benefits to the key supply chain actors, including the financing requirements & potential sources. Finally, this phase produces a supply chain transformation roadmap.

Phase 2: Proof of Concept: Demonstrate value creation while learning

The first step of Phase 2 is to secure funding and the alignment of key actors. Subsequently, the team will establish the SCM function and the information system that supports performance monitoring, impact and traceability. In parallel, we will start initial contracting with supply chain actors and, where possible, establish nucleus farms that act as demonstration plots and mechanization hubs for surrounding out-growers. The actual impact on productivity, supply chain actor incomes, and the environment impact will be measured closely and the agronomic & SCM practices will be refined as needed. When the concept has been proven, the team will design the scale-up phase and funding.

Phase 3: Scale Up (and replicate elsewhere)

After proving the concept, we attract commercial funding to (co-) finance the scale up phase. Potential types of financiers include Impact Investors, local entrepreneurs, Development Funds, and other similar players. Palladium (or the SCM) then program manages the scale up and impact measurement. In programs like Peru and Uganda, we have scaled the programs to over 50,000 farmers thus far, and they are both still growing at a fast pace.

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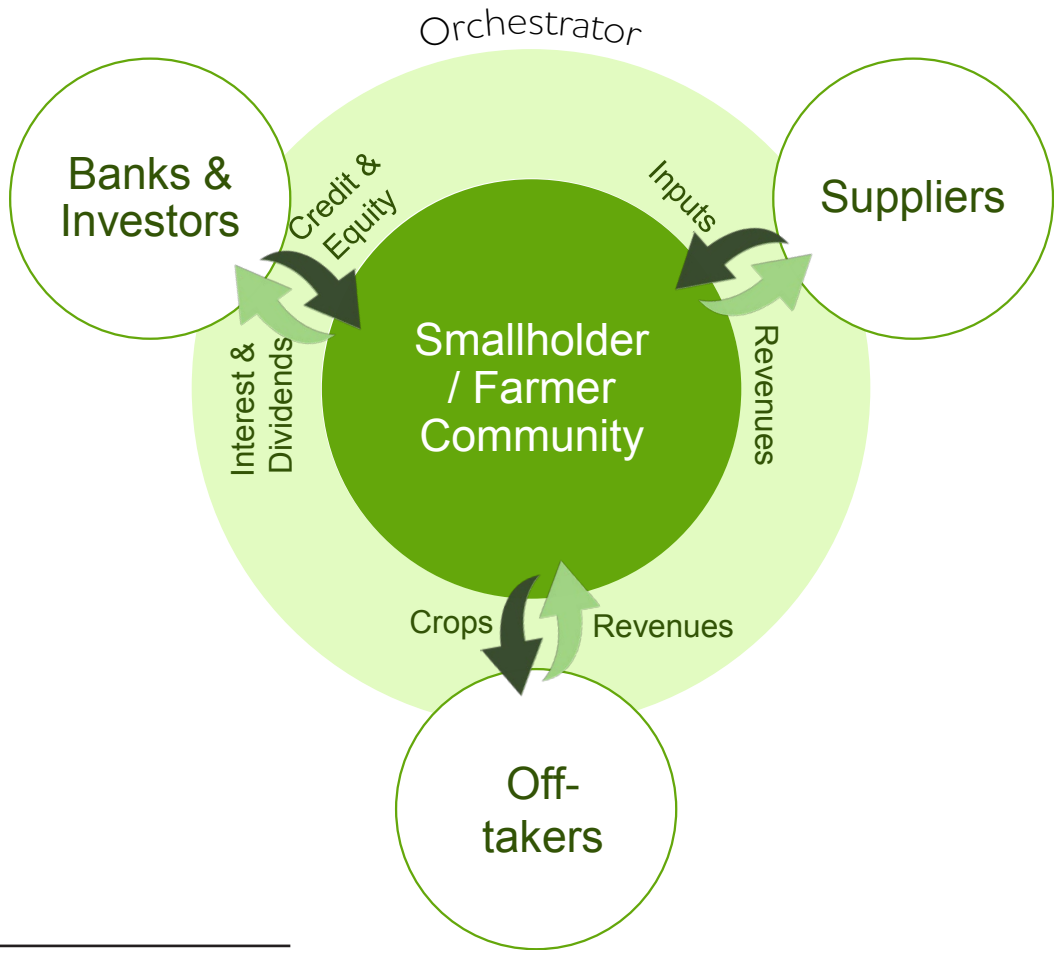
Active orchestration is key for managing effective ecosystems

Palladium upgrades existing business partners or departments into orchestrators



Key Orchestration Tasks

- Manage the new ecosystem
- Develop productivity packages with input suppliers
- Provide aggregation, storage, cleaning, and input distribution
- Obtain access to funding to finance supply chain transformation
- Broker commercial agreements among ecosystem actors like suppliers, off-takers, and banks
- Enhance cooperative capabilities, trust, and resilience
- Manage standards, compliance of proper business (no side-selling) and sustainability practices

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Palladium is well-positioned to deliver supply chain transformations

This work lies at the intersection of international development work conducted under various agricultural programs, Palladium's blended financing and Impact Investing expertise, and Palladium's strategy execution. With Palladium's array of in-house capabilities and deep technical knowledge of food and agriculture value chains, it is able to take on the challenge of delivering supply chain transformations from start to finish. Palladium combines three types of relevant capabilities:

International Development:

We have boots on the ground in developing countries, deep technical knowledge in agriculture, and expertise in market systems and coalition building that enables us to design and implement new supply chain solutions;

Strategy Consulting:

We understand corporates, strategy, and are the leading strategy execution firm in the world;

Impact Investing:

We understand investors, can structure deals, and can make investments ourselves as appropriate.

If you would like to better understand our experience and perspectives on sustainable agriculture and food production, please contact us:

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Palladium is a global leader in the design, development and delivery of Positive Impact, the intentional creation of enduring social and economic value. We work with corporations, governments, foundations, investors, communities and civil society to formulate strategies and implement solutions that generate lasting social, environmental and financial benefits.

For the past 50 years, we have been making Positive Impact possible. With a team of more than 2,500 employees operating in 90 plus countries and a global network of over 35,000 technical experts, Palladium has improved—and is committed to continuing to improve—businesses, economies, societies and most importantly people's lives.

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