The smallholder challenge

The challenges facing smallholders are well understood. As written in the MDF 2020 Annual Report, these farmers usually lack the capital to invest in productivity enhancing assets, inputs and techniques. This keeps them trapped in a cycle of low productivity and low income. Rather than earning a living wage, their livelihoods are in (near) subsistence. As a result, some of the world's most in-demand products, such as coffee and cocoa, are based on economically precarious supply chains. COVID-19 has made the situation worse, as movement restrictions reduced farmer incomes and further depleted their already meagre asset base.

Smallholders are also among the most vulnerable to the impact of climate change disruptions. Changing rainfall patterns, increased prevalence of natural disasters, pests and disease, and higher temperatures threaten crops and subsequently, key commodity supply chains globally. In 2021, MDF explored opportunities for agribusinesses to employ agritech-driven supply chain solutions that improve productivity and, thereby, increase farmer incomes.

Finance, mechanisation and information have significant potential to improve on-farm practices, drive efficiencies in supply chains and generate decent returns for all actors in the value chain. The challenge has remained because of a lack of incentives, such as economic returns, for businesses to bear the cost of rolling out new technologies to large numbers of smallholder farmers.

The pandemic, however, has pushed businesses working with smallholders to adapt. There has been an acceleration in the adoption of digital technologies, such as smartphone-based supply chain management, including the use of digital financial services. Agritech solutions to climate change have also become increasingly accessible in recent years and have the potential to support smallholder-based farming systems to adjust to the changing conditions. Remote sensing technologies, for example, can enable smallholders to monitor and forecast weather, improve water and soil management, treat disease and pests, and make informed decisions regarding fertiliser application. These tools also offer farmers the potential to validate certification requirements, such as 'organic,' or carbon sequestration outcomes, offering opportunities for diversified income opportunities.

But as history teaches us, technology alone is not the primary constraint. Market-ready solutions exist. The main barrier now is the challenge of driving uptake, that is, the required technology investments and behaviour change at scale. Which actor in the system has the incentives and the means to do this? Smallholders, acting as individuals, do not have the means nor the incentives to invest in technology solutions. First movers are unlikely to ever recoup their investment. The technology providers, for their part, do have an incentive to drive the necessary uptake, but they face unsustainably high transaction costs (e.g. marketing and product support) to sell technology solutions to large numbers of individual smallholders. They can only turn a profit in low-cost technology if they are selling in bulk.

MDF believes that widespread adoption is more likely to be driven by larger, more established input suppliers or buyers/exporters. These actors usually have extensive networks of agents and aggregators who have pre-existing relationships with large numbers of smallholders. It is these actors who have the incentives, know-how and capacity to introduce far-reaching solutions.

Unfortunately, even with incentives and means, many of these actors still hesitate to invest at the farm level. This is because smallholder-dominated markets are complicated and fractured. Subsequently, they are costly to change. Put simply, investments can take a long time to recoup. As a result, large-scale agribusinesses will often choose to accept the status quo; unless, that is, their competitors are branching into a new business arena and they risk losing market share.

In 2021, MDF addressed these challenges by helping potential first mover agribusinesses that chose to integrate agritech into their smallholder supply chains, piloting technology driven models that give smallholders more timely information, offer mechanisation technologies and optimise the supply chain. With the right support, these technologies are mutually beneficial, leading to higher profits for businesses and a living wage for smallholders.