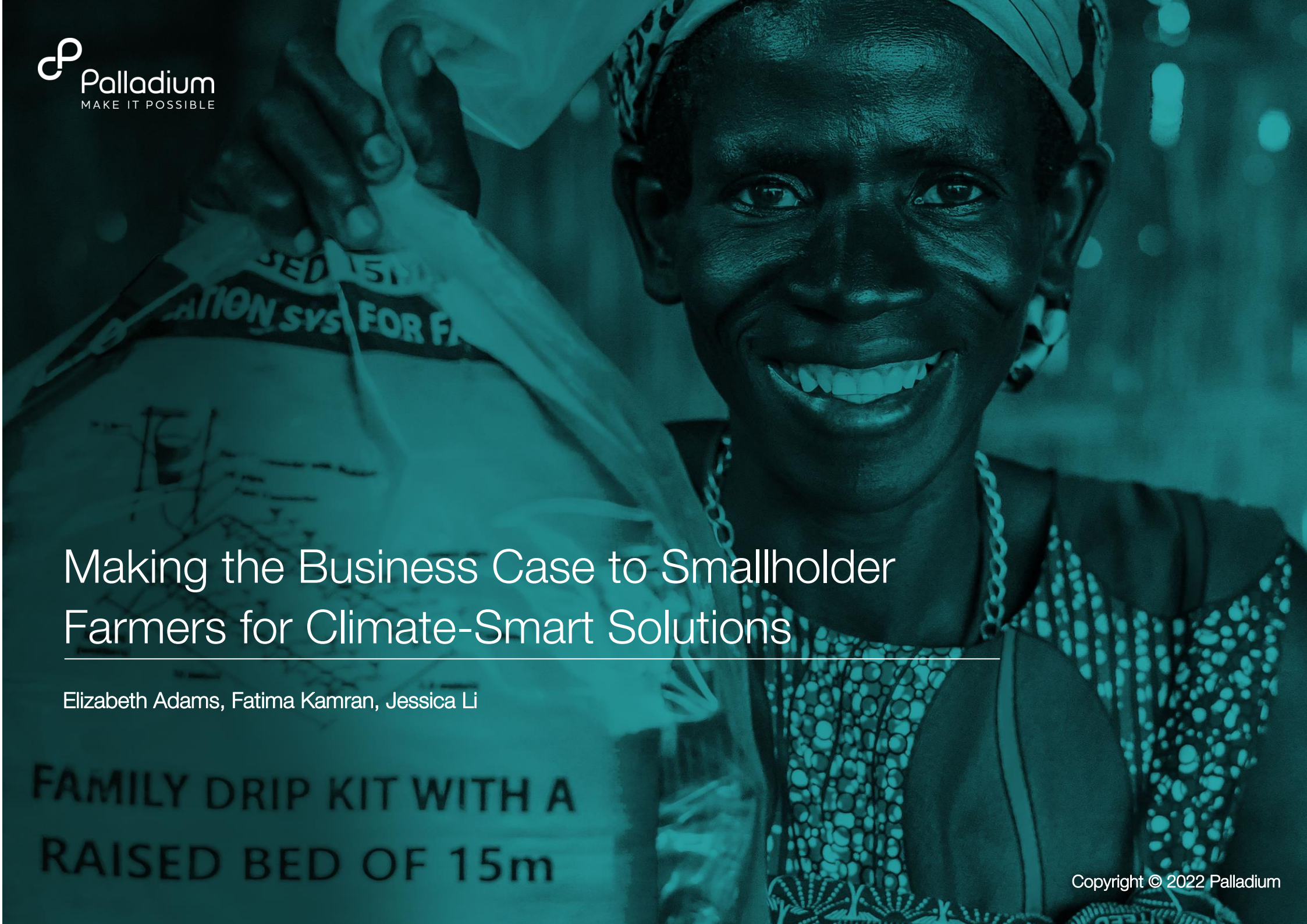

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Making the Business Case to Smallholder Farmers for Climate-Smart Solutions

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Introduction

Businesses around the world are embracing the idea that investing in climate-smart solutions are good for their bottom line. Quantitative analysis has supported this shift and as a result, business leaders across a wide range of sectors – including agribusiness – are making changes accordingly. Alongside these businesses, smallholder farmers have also begun to recognise the business case for increased uptake of climate-smart solutions. While these farmers may not always have a formal written business plan with clear cost-benefit analyses, they do make logical business-driven farming decisions, considering the same factors of financial, environmental, and social consequences for their actions as any large-scale business.

Recognising the importance of demonstrating the business case to smallholder farmers for greater uptake of specific climate-smart agriculture strategies, Palladium's Feed the Future Malawi Agricultural Diversification (AgDiv) Activity**,** has undertaken a few different activities to better make this pitch to farmers. AgDiv conducts field days and demonstrations to reach smallholder farmers with information on good agricultural practices such as early planting, timely weeding, and other recommended techniques. Field days and demonstrations expose farmers to the latest technologies such as inoculants, drip irrigation, and PICS bags, and are an opportunity to present AgDiv's cost-benefit analysis of technology adoption.

These programs have been successful in expanding the demand for and availability of many agricultural technologies used and helping farmers understand the value of technology adoption. A key driver of this uptake has been AgDiv's layered approach, which includes improving agricultural inputs, providing socioeconomic empowerment

trainings (i.e., Gender Action Learning Systems), and connecting farmers to financing so they can access the climate smart technologies being promoted.

The layering of technologies and empowerment training and resources has helped the beneficiaries maximise benefits from AgDiv interventions.

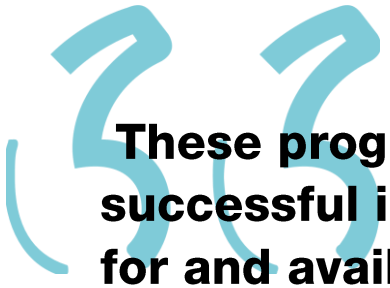
To showcase an integrated set of smallholder-specific climate-smart agriculture (CSA) strategies and technologies, Malawi AgDiv has also supported the establishment of 25 Resilient Villages. Resilient Villages are Palladium's version of the CGIAR's Climate Smart Village model, whereby a suite of climate-smart practices is introduced to the people in the community – this may include drip irrigation, conservation and regenerative agriculture, reforestation, waste-water recycling, among many others. An additional 52 villages are on track to be recognised by the program and local authorities by closeout in 2024.

One CSA practice demonstrated in the Resilient Villages is the planting of Dendrocalamus asper or giant bamboo – which improves water and soil management, replaces fuelwood, and only takes four to seven years to mature. This leads to reduced pressure on indigenous trees and reduced deforestation, while also supporting household income generation and diversification. For more information on this intervention, please see The Catalyst articles: "Is Planting Bamboo the Answer to Preserving Forests in Malawi Without Disrupting Local Livelihoods?" and "How Bamboo is Saving Time, Money, and the Environment".

From a financial business case perspective, – a single stand of bamboo contains enough biomass to provide the equivalent of US$42 worth of fuelwood every year for sixty years. (A stand is one root system supporting many stalks or shoots).

With an initial investment of less than US$20 to plant 10 stands, the average household will have a lifetime supply of fuelwood – meeting all their fuelwood needs (a value of US$250 per year) and have excess biomass available which can be sold for an additional income of US$167 per year. This has social implications for the smallholder business case because women can save anywhere between 30 minutes up to 5 hours a day in walking and hauling firewood from nearby forests, freeing time for income generation, children's education, or other worthwhile endeavours.

Another CSA practice that AgDiv promotes in Resilient Villages is drip irrigation systems. These systems are often expensive and difficult to manage and maintain for a smallholder farmer. Also, with many different types of systems and options to choose from, coupled with limited availability in many countries and rural shops, smallholders often don't know how to select or have access to the right one. In Malawi, AgDiv promotes three drip systems geared toward smallholder household gardens (average 30 m^2) and larger fields (500 m^2, 1 hectare) suitable for commercial agriculture production.



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All size systems can grow nutrient-dense vegetables and support farmers to withstand climate-related shocks, such as drought. The systems use relatively simple technology, relying on gravity to deliver the water through tubes to the field, and the larger ones using solar pumps to access groundwater. When AgDiv began this intervention, the Activity ordered the kits directly from the manufacturer. With the smallholders fully experiencing drip irrigation's benefits, the demand for the technology has grown. In turn, many private companies are now importing kits and distributing them through retailers.

To date, AgDiv has distributed 14,700 mini drip kits to farmers across nine districts as well as facilitated the distribution of 250 larger irrigation systems in partnership with CoFi, a microfinance institution that structured an in-kind loan product for this purchase. For all sized systems, smallholders were trained on installation of kits and technical agronomical information on horticulture production and how to ensure efficient watering. For more information on this intervention see previous The Catalyst article "Drip Irrigation Makes a Bit Splash in Malawi" and this Agrilinks article "Innovative Irrigation for Malawi's Agricultural Future"

Thinking about the business case here, a 2022 AgDiv survey found that these mini drip kits are mostly used in the dry season from August to December. At the time, this kit cost about US$10 USD (8,000 MWK) and the average annual financial benefit from using drip kits is about US$60 USD (50,000 MWK). About 67% of respondents reported they earned cash income from their irrigated crops. But benefits were more than financial - drip kits saved time - allowing them to spend less time collecting water and watering their crops and it enabled them to have their crops closer to home.

This is incredibly important for older people, caretakers of young children, people living with HIV/AIDS, and those who are challenged with mobility. "With this kit I will be able to produce various nutritious crops to sell and support my children and, most importantly, consume and improve my nutritional status," shared Agness Mohiya, a 33-year-old single mother from Misomali who has been living with HIV since 2017.

Respondents also cited cost and labour savings, improved income, and better soil moisture. They usually grow highly nutritious foods in their drip irrigation gardens – leafy greens such as mustard, kale, amaranth, and black-jack (a super food), as well as pumpkins, tomatoes, beans, okra, and sweet potato. These provide critical micronutrients such as Vitamin A, C, and iron that are often lacking in the diets of most rural households in Malawi.

These examples from AgDiv highlight that if climate smart solutions can increase production efficiencies, advance nutrition outcomes, and yield environmental improvements then they can make a strong appeal to farmers. Moving forward, the greatest momentum for change will arise when more initiatives match the supply side with the demand to spur widespread availability of climate smart technologies, practices, and information, while supporting farmers to harness the innovations that make the best business case considering the spectrum of economic, social, and environmental benefits.

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