



KENYA

GCP: Economic Viability of Coffee Farming



OBJECTIVES OF STUDY

Overall objective

- Identify opportunities for potential benefits to coffee farmers from improved farm profitability and increased efficiency along the supply chain

Detailed objectives

- 1 Understand overall farm-level financial benefits for the dominant farmer type in each country and how they compare to other countries
- 2 Describe the main green coffee supply chain in each country at a high level to understand supply chain efficiency
- 3 Highlight key opportunities to increase farmer profitability in each country and explore next steps to increase value add for farmers and the industry

ANALYTICAL PROCESS TO DEVELOP A BUSINESS CASE FOR COFFEE FARMING



Approach	Model Inputs	Model Outputs
1 Define producer types	<ul style="list-style-type: none"> • Farm size • Coffee yields • Coffee quality metrics • Production volume • Number of growers 	<ul style="list-style-type: none"> • Farmer types
2 Establish farmer financial benefits	<ul style="list-style-type: none"> • Coffee price premiums • Potential increase in yield • Incremental changes to costs 	<ul style="list-style-type: none"> • Potential increase in net income for farmer
3 Describe value chain structure	<ul style="list-style-type: none"> • Key actors in value chain • Costs and margins • Share of value captured 	<ul style="list-style-type: none"> • Map of supply chain • Supply chain overview
4 Present recommendations	<ul style="list-style-type: none"> • Selected opportunities to optimize business case 	<ul style="list-style-type: none"> • High-level recommendations for priority opportunities • Potential partners to address gaps

Note: Assumes that demand for coffee will increase as coffee supply increases, thus maintaining static coffee prices

POTENTIAL ANNUAL VALUE CREATION OF \$55M ACROSS 571K FARMERS



Potential for yield improvements

Reduced production costs at the farmer level

Reduced processing costs and improved supply chain

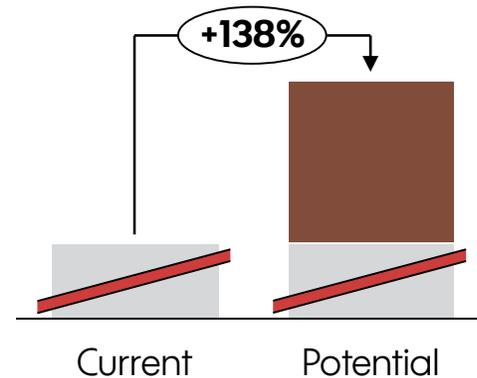
Price premiums from processing improvements

- There is high potential for value add through yield improvements. Yields are low at 300 kg green / ha and could be increased by 65% on average
- Production volume is decreasing as the sector faces competition from housing developments and other enterprises in traditional coffee growing areas
- There is moderate potential for value add through reduction in costs (~10% savings in input costs)
- Production costs are high. In particular, some farmers misapply or misuse agro-inputs, leading to high production costs without improvements in yield
- There is moderate potential to increase value to both farmers and cooperatives through reduced processing costs
- Smallholders can only process through cooperative wet mills, which have relatively high cost structures and may limit farmers' share of the FOB price
- Timeliness of payments to farmers could help them avoid cash shortfalls
- There is modest potential for farmers to attain price premiums through processing improvements, as current quality is quite high, though there is room to improve processing and minimize loss of quality

POTENTIAL REVENUE INCREASE FROM HIGHER YIELD AND PRICE PREMIUMS

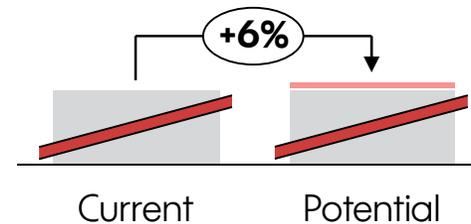


Net income from yield improvements (\$ / ha)



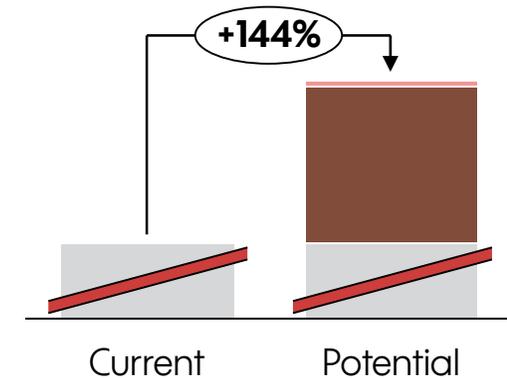
+

Net income from price premiums (\$ / ha)



=

Total net income increase (\$ / ha)



Yield improvements
 Processing improvements
 Certification premiums

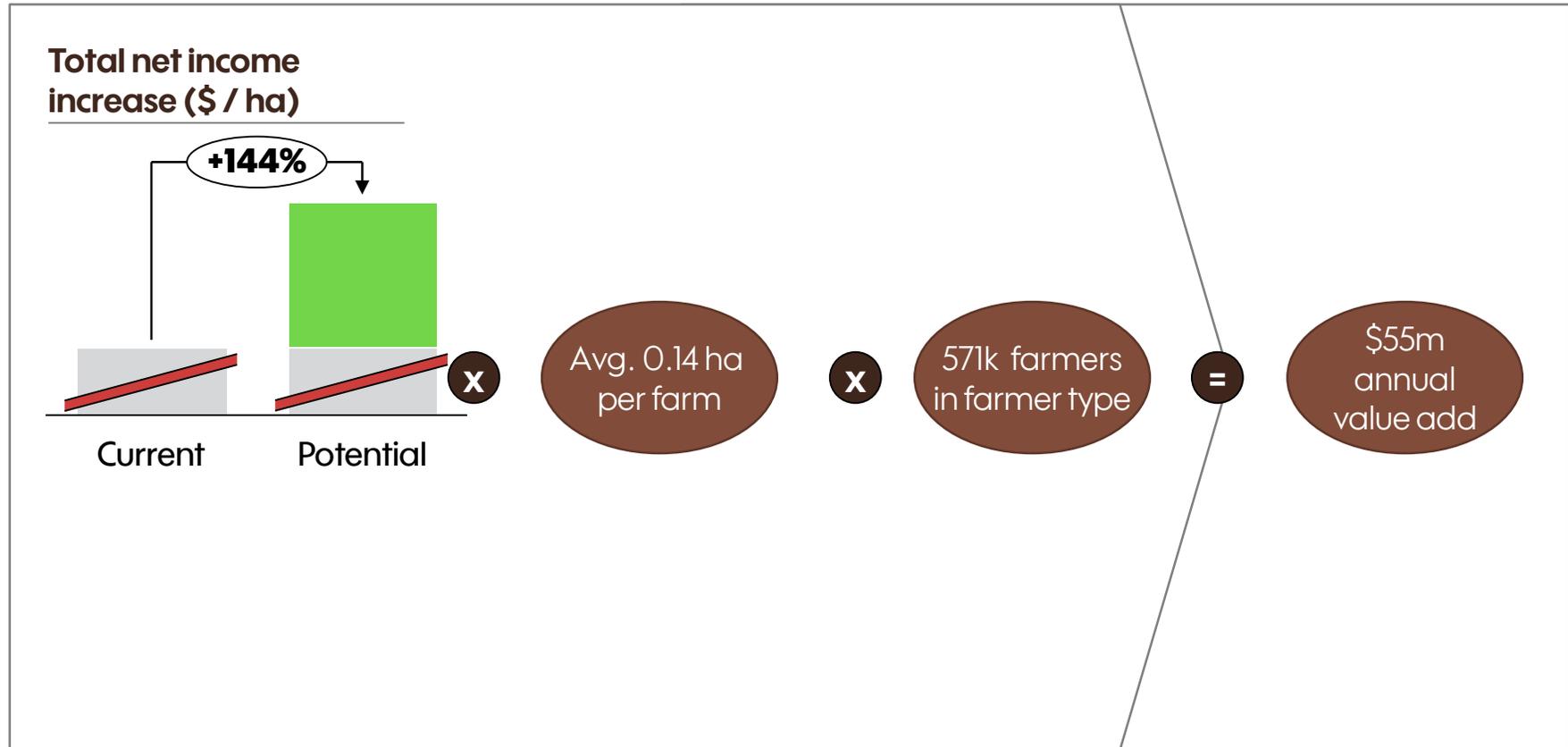
- Production is low at 300 kg green / ha, with potential for a 65% increase in yield on average. This potential may be higher for regions with poorer soil and older trees, such as East of Rift
- Key levers for yield improvement include farm rejuvenation, training in GAPs and targeted fertilizer and pesticide application

- There is modest potential for farmers to attain higher price premiums if wet mills could achieve better quality through improvements in processing practices.*

- There is significant potential to increase yields in Kenya at a net reduction in production costs, as most farmers in Kenya tend to use fertilizer inefficiently
- There is modest potential for value add through processing improvements

* Cooperative level investments beyond the scope of this study; only increase in net income for farmers modelled.
 Note: Assumes that three interventions are separate and independent.
 Source: See appendix.

\$55 MILLION OF POTENTIAL INCREMENTAL VALUE ANNUALLY

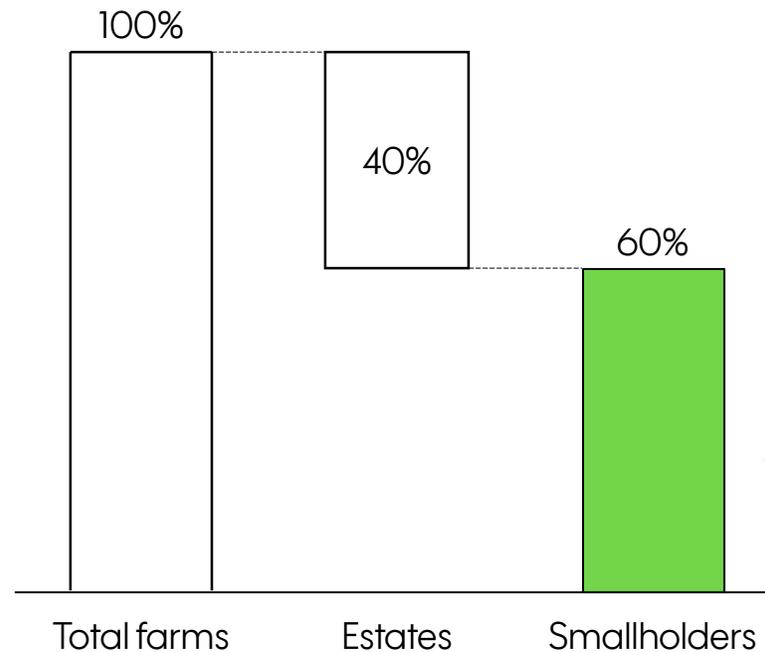


- There is an opportunity for a 144% increase in profitability for farmers, which translates into an estimated \$55m annual potential value across the 571k farmers in this farmer type (smallholders)

Note: Extrapolated estimate annual value; improvements in profit for individual farmers may vary.
Source: See appendix.

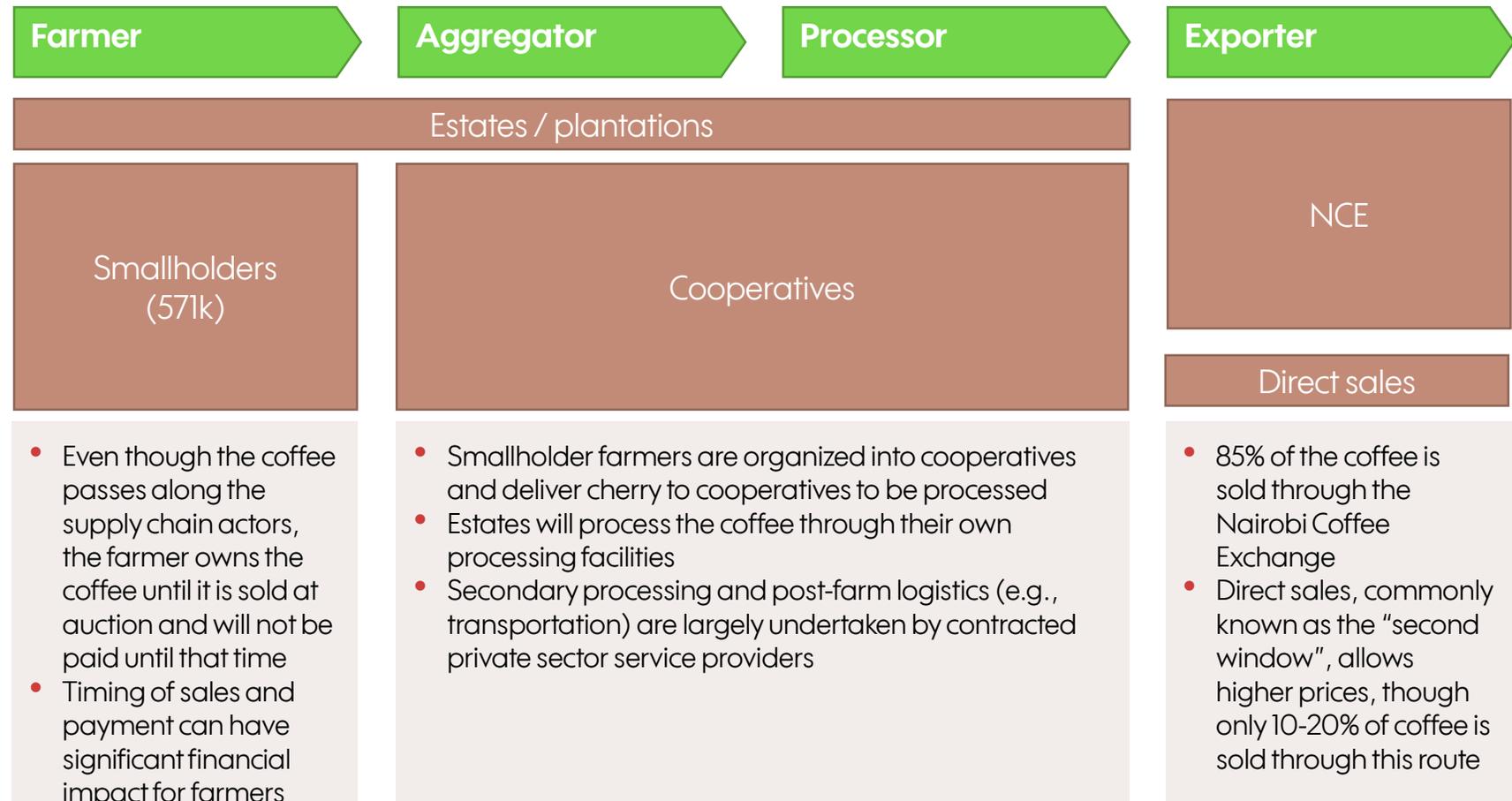
IDENTIFYING FARMER TYPE WITH HIGHEST POTENTIAL IMPACT

Farmer types by share of volume



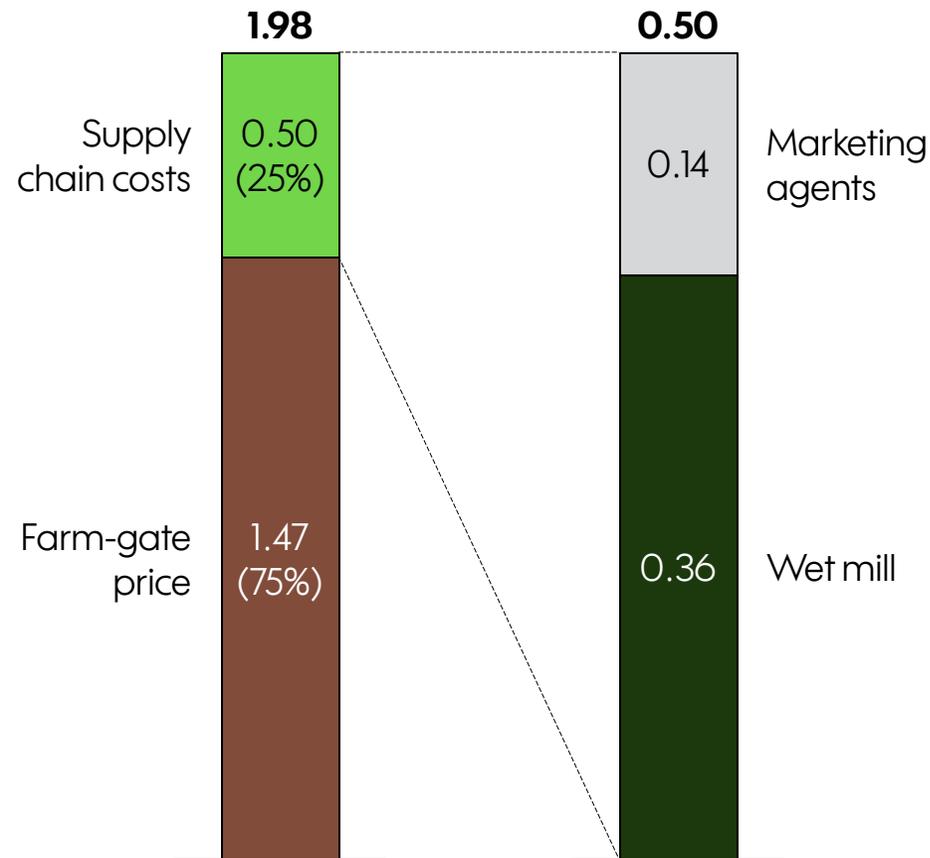
- There are an estimate of 571k smallholders in Kenya, accounting for ~60% of the supply
- Overwhelming majority of smallholders join cooperatives for access to coffee processing
- Coffee is a key source of foreign currency and an important livelihood crop for Kenya. There has also been more interest from the private sector in non-traditional sourcing regions.

SUPPLY CHAIN OVERVIEW



SUPPLY CHAIN COST BREAKDOWN FROM FARM TO EXPORT

Supply chain cost breakdown (US \$ per lb green)



- Farmers have the option of selling their coffee directly to international buyers, or they can contract and authorize their marketing agents to sell through the Nairobi Coffee Exchange
- Cooperative wet mills could be more efficient and decrease operating costs, which could increase farm-gate price
- Marketing agents can take up to 3% of the FOB price for bagging, transport and marketing
- Timeliness of payments throughout the steps in the supply chain could help farmers avoid cash shortfalls



APPENDIX

DETAIL ON FARMER TYPES



Type	Region	Farm size (ha)	Variety	Number of farms
Estates	N/A	over 2 ha	Arabica	450
Smallholders	N/A	under 2 ha	Arabica	571,000

DETAILED DATA APPLICABLE TO SELECTED FARMER TYPE



Data point	Unit	Data
Farmer data		
Average coffee farm size	ha	0.14
Number of farmers in type	#	571,000
Assumptions		
Exchange rate	USD to LCU	101
Market Data		
Farm-gate price	cts/lb	147
Average FOB export price	cts/lb	198
Yield		
Average coffee yield	lb/ha	661
Potential yield increase	%	65%
Price		
Potential quality premium	cts/lb	29
% of production eligible for quality premium	%	15%
Potential certification premium	cts/lb	1
% of production eligible for certification	%	3%

Note: Costs of production updated to 2016 exchange rates. All volume units are for green coffee equivalent.

Data point	Unit	Data
Production costs		
Operations	\$/ha	0
Inputs	\$/ha	233
Labor	\$/ha	260
Incremental costs of increasing yield	\$/ha	-30
Processing costs		
Paid processing labor	\$/ha	0
Drying service	\$/ha	0
Other	\$/ha	0
Incremental costs of improving processing	\$/ha	0
Third-party costs		
Other	\$/ha	0
Incremental costs of certification	\$/ha	0
Outputs		
Current revenue	\$/ha	975
Potential increase in net income from:		
Yield improvements	\$/ha	664
Processing improvements	\$/ha	29
Certification premiums	\$/ha	0

SOURCES



Organization	Data inputs	Detailed references
TechnoServe	Farmer data, market data, yield, price, costs, supply chain	Stakeholder interview (2017); TechnoServe implementation project data
Agri-Logic	Farmer data, market data, yield, costs, certification, supply chain	Agri-Logic and GCP, African Coffee Sector: addressing national investment agendas on a continental scale (2016)
FAO	Market data, yield, costs	FAO, Good Hygiene Practices along the coffee chain (2006); FAO, Analysis of Incentives and Disincentives for Coffee in Kenya, Monitoring African Food and Agricultural Policies (MAFAP) (2013)
CIDIN	Farmer data, cost, certification	CIDIN and Solidaridad, The Impact of Coffee Certification on Smallholder Farmers in Kenya, Uganda and Ethiopia (2014)
Other	Farmer data	USDA, GAIN Report: Coffee, Kenya (2016); Kenya Coffee Directory (2012); ICO, Sustainability of the coffee sector in Africa (2015)
	Farmer data, market data, cost	Bagal et al, Study on the potential of marketing of Kenyan Coffee, European Commission(2013)
	Certification	ICO, The State of Sustainability Initiatives Review 2014 – Standards and the Green Economy (2014)
	Farmer data, market data, price	Report of the National Task Force on Coffee Sub-Sector Reforms (2016)



LIMITATIONS OF METHODOLOGY

This scan is intended to initiate conversations between coffee origins, rather than to be an exhaustive study of farmer economics. It seeks to provide a synthesis of existing databases, studies, and reports as well as a comparative analysis across origins. However, given wide variation in methodologies, regions, and characteristics of available information, there may be credible and important data sources not incorporated into this study.

Since national averages of production indicators do not represent real farmers, our scan focuses on one farmer type within each origin. These farmer types are not representative of the national averages and opportunities may not be uniform within each farmer type.

This scan is not meant to evaluate certification schemes, but rather assesses incremental contribution of certification premiums to farmers' incomes. Impacts of certification achieved through the promotion of best practices and improved access to markets are outside the scope of the scan. Prices are assumed to be static and therefore the scan does not account for volatility of coffee prices and exchange rates, both of which have a significant impact on farmer incomes. Climate change, droughts, and diseases such as coffee leaf rust also pose risks for farmers, but are outside the scope of this scan. Intercropping and other household incomes are also outside the scope of this scan.



Acknowledgements

Solidaridad, UTZ, KALRO (Kenya Agricultural & Livestock Research), Nespresso

About the Global Coffee Platform

The GCP is the leading facilitator of the coffee sector's journey towards sustainability. The GCP improves the livelihoods, ecosystems and resilience of coffee farming communities and the sector as a whole by enabling producers, international roasters, governments, traders, and NGOs to align and multiply their efforts and investments, collectively act on local priorities and critical issues, and grow and scale successful sustainability initiatives across the coffee world.

About TechnoServe

TechnoServe works with enterprising men and women in the developing world to build competitive farms, businesses and industries. A nonprofit organization operating in 29 countries, TechnoServe is a leader in harnessing the power of the private sector to help people lift themselves out of poverty. By linking people to information, capital and markets, we have helped millions to create lasting prosperity for their families and communities.