

# Forging alliances: Coffee grower and chain leader partnerships to improve productivity and coffee quality in Papua New Guinea

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**Abstract:** *Partnership discourse is making advances in development dialogue as a means to improve the livelihoods of the agrarian populace. In Papua New Guinea, productive partnerships flourished during the early growth of the coffee industry. After the demise of plantations and rural mills in the lead up to political independence, the support services that plantations used to provide to smallholders, including centralised processing, have ceased as have price incentives for quality. Consequently, smallholders began to produce coffee of inconsistent quality and their productivity has also declined. However, coffee value chain partnerships have the potential to reverse the present decline of coffee production and increase the productivity of coffee farmers and address the inconsistency and the supply of low-grade coffee. Using two case studies of farmer cooperatives, we investigate collective action and also assess partnerships among present value chain actors. The case studies were supported with interviews of value chain actors to gain further insights into partnerships with farmer groups. This paper illustrates that through collective action and partnerships, coffee farmers can improve coffee production and quality, enhance governance systems in grower groups, attract community development services and diversify into other entrepreneurial activities.*

**Keywords:** *collective action, partnerships, productivity, coffee, smallholders*

## Introduction

Coffee remains a primary income source for many rural households and is a major export commodity and foreign exchange earner in several developing countries, including Papua New Guinea (PNG). Smallholder farmers dominate coffee production in PNG and currently they produce over 85% of total coffee exports (Coffee Industry Corporation (CIC) Ltd, 2008). Coffee earnings are spread among a substantial proportion of the rural population, especially in the Highlands where approximately 524 400 rural households are directly engaged in coffee production. For these households, coffee is the primary source of household income, especially in the more remote areas of the Highlands where other income generating activities are limited.

The coffee industry expanded rapidly in PNG in the 1960s and 1970s from initial small beginnings in the 1950s to become a thriving industry

(Finney, 1973; McWilliam, 2013). The early European planters who established the industry forged partnerships with customary landowner groups and other village coffee farmers by providing support services, centralised processing and by assisting villagers to plant coffee. As a result, PNG developed a reputation for consistently producing premium quality coffee for overseas markets (Sinclair, 1995). However, by the late 1980s, coffee production started to plateau, and coffee quality began to decline (Quirke *et al.*, 2007; Allen *et al.*, 2009; Batt *et al.*, 2009). From the 1990s to the present, the coffee industry has been in steady decline, despite coffee's economic importance for rural livelihoods and a rapidly growing population in the Highlands coffee growing areas.

Numerous factors have been identified as contributing to the decline of the coffee industry since the 1990. Among the most important is the decline of the plantation sector. As plantation production declined through time,

smallholders have steadily increased their share of total national production. However, several structural constraints have limited the growth of smallholder production and productivity including lack of extension support services for smallholder growers, poor and declining access to markets, high transport costs and limited access to credit (Collett, 2008; Imbun, 2014). These structural constraints, together with the failure of the rate of depreciation of the exchange rate to compensate for rising production costs, have limited productivity and investment incentives in coffee (NZIER, 2006: 74). Moreover, despite several sectoral and industry-based programs targeting the smallholder sector, most have failed or only partially succeeded because of a mix of weak institutional leadership and governance, and poor program design, implementation and monitoring (Sengere, 2016). The result has been stagnant smallholder production and declining quality of parchment coffee delivered to exporters. Yet, research indicates that there is enormous potential to increase the productivity and quality of coffee of smallholder farmers in PNG (Batt *et al.*, 2009; Sengere, 2016). This paper, through the use of case study analysis, explores the potential of collective action and coffee value chain partnerships to improve smallholder coffee production and quality and help revitalise the coffee sector in PNG.

Evidence indicates that two approaches to support and improve market access for coffee smallholders are intended to strengthen collective action among farmers and facilitating partnerships among value chain actors (Murray-Prior, 2013; Ferris *et al.*, 2014; Kolk and Lenfant, 2015; Wollni and Fischer, 2015). The current growth in the international speciality coffee market, which demands higher quality coffee and closer trading relationships between farmers and exporters, provides an opportunity for such an approach to fill the void created by the departure of plantations and their mills and also to meet the extension gap between government extension and what is required. A large body of research shows the potential advantages and opportunities for farmers when collective action and value-chain development are improved and strengthened (e.g. Hartwich *et al.*, 2010; Murray-Prior, 2013; Ferris *et al.*, 2014; Kolk and Lenfant, 2015; Wollni and Fischer, 2015).

Higher prices, greater support services, better market access, enhanced governance structures and social and welfare improvements have been some of the tangible benefits identified. However, it is not always the case that farmer mobilisation and cooperative formation and value-chain development will enrich farmers (Singh, 1974; Sengere, 2010) or provide the best solution to livelihood improvements (see Neilson and Shonk, 2014). Some poor and remote farming households may not have the necessary resources and economic or social assets to take advantage of value-chain development, and other households may be part of a community where few people hold the necessary knowledge or skills to manage successful farmer groups or cooperatives.

In this paper, we argue that when PNG coffee farmers (smallholders, blocks and plantations)<sup>1</sup> are linked with chain leaders, sustainable and competitive value-chain linkages with markets can be developed that mutually benefit farmers and chain leaders through collaborative partnerships. Such partnerships can help improve productivity and the delivery of good quality coffee through building the capacity of smallholders by providing agro-services and other incentives. However, this does not deny that many challenges remain at the community level that may undermine or constrain group cooperation and effective partnerships, thereby limiting the potential of the new coffee market environment to enhance the economic and social well-being of smallholder farmers and their families. Indeed as the paper shows, such challenges may include poor leadership, weak governance, absence of trust and the different and divergent expectations and concepts of 'business partnerships' between smallholders and chain leaders. Understanding why some farmers and communities are able to benefit from the opportunities of collective action or value-chain partnerships while others fail, provides insights into the potential benefits of the expanding international speciality coffee sector in PNG and in other developing countries.

## Research methodology

Fieldwork was undertaken in the coffee-growing provinces of Morobe, Eastern Highlands (EHP),

Western Highlands (WHP) and Jiwaka (Fig. 1). These four provinces were selected because they are the main coffee producing provinces in PNG and host many smallholdings, blocks and plantations. Two research approaches were used to collect and analyse the data. First, two case studies on coffee cooperatives from Morobe Province (MP) and EHP, PNG (Fig. 1) were undertaken to examine how smallholder coffee cooperative groups and chain leaders develop productive relationships to raise production, productivity and the quality of coffee. Individual interviews and focus group interviews with coffee cooperative members took place between December 2013 and April 2014. The second research method involved interviewing 12 chain leaders<sup>2</sup> and a non-government organisation representative across the four study site provinces, and in Port Moresby, National Capital District (NCD), and one in Australia. These interviews collected data on partnerships that chain leaders had with smallholder farmers or farmer groups. Data were also collected on the support services chain leaders

provided to farmers and relationship problems in partnerships.

The paper is in three parts: the first part explains the concept of value chain partnerships; the second outlines efforts to consolidate collective action in PNG and the third gives an overview of the advances made to strengthen alliances in partnerships and the challenges to them.

### Partnership framework

The theoretical framework for partnerships encompasses resource use (material and social) and stakeholder management across multiple levels: local, national and global (Austin, 2007; Biermann *et al.*, 2007). Institutional partnerships comprise of two or more entities which collaborate to pursue a shared vision (Bitzer *et al.*, 2008). Collaborators have their own aims and aspirations, but through consensus, their agendas can coalesce as a continuum in pursuit of collective goals (Gray, 2007). Public, civil



**Figure 1.** Provinces of Papua New Guinea (Source: modified from CartoGIS Services, ANU College of Asia and the Pacific, Australian National University)

society organisations (CSOs) and private actors can cooperate to address public issues. These institutional frameworks are sometimes known as public–private partnerships, global networks, cross-sector partnerships, multi-stakeholder alliances and inter-sectoral partnerships (Glasbergen, 2007).

‘North–South’ relationships originate from global agri-food value-chain partnerships. Multi-national companies and CSOs in Western countries require or press for sustainable farming practices to be applied in the South, so as to meet new niche market requirements in the North (Ibnu *et al.*, 2015). The collapse of the International Coffee Agreements quota scheme in 1989 reshaped coffee policies and coffee farmers were no longer protected from price fluctuations, which gave an advantage to multi-national companies (Linton, 2005; Auld, 2010; Gathura, 2013). Government capacity to modify regulations to benefit or protect farmers was considerably weakened and this created opportunities for CSOs and the private sector to intervene. Consequently, value chain actors began to modify social, economic and political engagement in coffee production patterns and trading.

Partnership discourse arising from the pluralist approach to sustainable development is gaining prominence against state-centric approaches, although the state has significant roles in policy formulation and politics (Glasbergen, 2007). The trend for collaboration across public, CSOs and private actors to provide service delivery and public goods is advancing (Markelova *et al.*, 2009; Bitzer *et al.*, 2013). Globalisation has allowed partners to network and thus reduce their costs of operation, and enabled their goods and services to be available simultaneously in different geographic locations.

There are two perspectives on partnerships: partnerships as a tool for governance or as instruments of development (Bitzer, 2012). The governance view entails rule setting that facilitates sustainable production and guides how businesses behave (Bitzer, 2012). The receding role of government in development has given rise to partners such as non-state actors who engage in development activities. Involvement of the private sector or chain leaders has changed state-market-society relations and has given more room for collaborative action (Glasbergen,

2007). In coffee production and trading, governance systems are enforced through certification processes (Linton, 2005; Auld, 2010). However, chain leaders are profit driven and may pay little attention to governance issues that are critical in partnerships, particularly the sustainability of farmer groups, if these are not profit linked. Thus, lead partners like CSOs and state actors are perhaps more suited to policing governance systems.

The main debates in partnerships revolve around the unequal power relations among actors, and whether market-based approaches where diverse, sustainable standards for production are promoted to alleviate socio-ecological issues are achieved (Daviron and Ponte, 2005; Linton, 2005; Auld, 2010; Bitzer, 2012). Others are critical of the ambiguities that prevail in partnerships where there is no clear understanding of the different roles of partners who participate in collaborations (Bitzer, 2012; Bitzer and Glasbergen, 2015). In contrast, the development perspective recognises development issues and efforts are made to remedy societal problems (Bitzer, 2012). For instance, innovative approaches in collaborations involving the market, expertise of business, bottom-up approaches to development and participation of CSOs can be utilised to advance development (Bitzer, 2012). Although the pivotal role of chain leaders has been elevated, it is sometimes perceived that while partnership arrangements enhance their business interests, this can sometimes be at the expense of less powerful groups like smallholder coffee farmers.

## Background

Coffee began as a plantation crop in PNG. The plantations laid the groundwork for the expansion of coffee as a major cash crop for villagers and the successful development of the coffee industry in the country. In the early stages of the PNG coffee industry, European planters organised and assisted landowner groups and local villagers to form relationships that benefited both the planters and local village farmers. These mutually beneficial relationships also facilitated a ready supply of plantation labour, recruited locally.

From the 1960s to the mid-1980s, coffee buyers typically purchased coffee cherries from smallholders and supplied the rural coffee mills (Finney, 1970; Stewart, 1992). Coffee cherry purchased from smallholders was processed at central mills that had quality assurance mechanisms which ensured the processing of high quality coffee. The mills demanded and bought only quality cherry and parchment from coffee farmers. This resulted in farmers producing and delivering coffee according to the mills' quality standards. John Fowke, a former coffee plantation manager in PNG with 21 years' experience, reported (interviewed 2 June 2014) that European planters during the early coffee industry also established wet mills specifically for land owners so that the quality of smallholder coffee could be maintained. Downs (1986) reports similar practices in the Highlands at the time. The planters processed villagers' parchment into green bean and charged processing fees to meet their running costs. European planters also organised the marketing of partner villagers' coffee to overseas markets. Planters often rejected poor quality cherry and parchment thereby maintaining quality. With no avenues to sell poor quality coffee, farmers had to comply with the coffee quality requirement of the mills when selling coffee. Also, by labouring on local plantations, smallholders learned coffee husbandry and processing skills. These skills were largely lost in later generations of smallholders with the closure of the plantations and rural mills. The mills also provided easy market access for selling coffee in smallholders' own localities. Thus, coffee cherry was sold immediately after harvesting and fermentation commenced the same day. These practices contributed to PNG coffee being renowned for its premium quality in international markets.

However, with the demise of plantations and the closure of rural mills quality assurance mechanisms for smallholder coffee weakened. This led to the decline in the quality of smallholder coffee (Hunt and Eko, 2001; West, 2012). For example, the practice of harvesting cherry and starting fermentation the same day declined. Now, batch processing of cherry harvested on different days is common practice leading to uneven fermentation which detracts from the quality of parchment produced (Curry *et al.*, 2017: 53).

Declines in coffee production and quality were deepened when plantations were sold to local landowner groups and corporate companies through government policies such as the Plantation Redistribution Scheme in the 1970s (see McWilliam, 2013). Management problems began to emerge that undermined their profitability and contributed to their subsequent decline (Sinclair, 1995; Conroy, 2016). Experienced managers departed after the plantations were sold leaving plantation management to inexperienced local business managers. The support services delivered by the plantations and mills to surrounding smallholders such as extension, planting material, centralised processing and to some extent credit to growers also declined. Government extension was unable to fill this gap effectively (Sengere *et al.*, 2008; Giovannucci and Hunt, 2009; Orlegge, 2010; Imbun, 2014; Sengere, 2016). Smallholders were increasingly left to fend for themselves in producing coffee. As a result they processed their cherries using various substandard methods and relied more on selling their coffee to village and roadside buyers who did not practise the same quality checks as the mills. Coupled with the relocation of rural mills to urban centres, declining rural infrastructure more generally (especially the road network), rising costs of farm inputs and law and order problems, smallholder production and coffee quality was further undermined.

Today, plantation production makes up less than 5% of total national production while 10% comes from blocks. Smallholder productivity is low and they produce poor quality parchment and as a consequence they receive poor prices for their coffee. The inconsistent supply of quality coffee led to international buyers in the 1980s labelling PNG coffee as 'inconsistent' (Sengere, 2016). As a result farmers receive lower prices than they would if they were to consistently produce quality plantation grade parchment. This creates another disincentive for households to invest labour in coffee production. Through time, the skills and knowledge of the early smallholder pioneers in coffee husbandry and processing were eroded, particularly with generational change and the absence of a price signal for quality which the plantations and rural mills once provided.

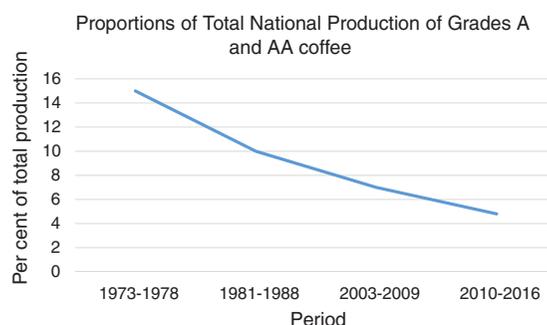
Thus, PNG's reputation for quality which had been underpinned by informal partnerships between the plantations/mills and smallholders and quality assurance mechanisms that such informal partnerships provided, began to collapse with the decline of the plantation sector. With roadside and village buying becoming prevalent, and without the same quality checks that existed previously, price incentives for quality were lost and thus there was no financial incentive for producing quality parchment. This is reflected in the long-term decline in the proportions of total national production of premium quality coffee grades (Harvey-Jones, 1988; Giovannucci and Hunt, 2009; Curry *et al.*, 2017). Premium grades A and X made up 25% of PNG's exported coffee in the mid-1990s, but by the mid-2000s, this had fallen to just over 12% (M. Wheeler report<sup>3</sup> cited in Giovannucci and Hunt, 2009: 10). Moreover, the top premium grades A and AA, declined from about 15% of total national production in the mid-1970s to under 5% from about 2010 onwards (Fig. 2).

### Coffee cooperatives in PNG

Despite the decline of the plantation sector in PNG, opportunities exist for smallholder farmers to collectively market their coffee through grower cooperatives and develop partnerships with value-chain leaders (such as processors, exporters and successful plantations). This would improve the availability of services and support for smallholders and assist them to increase their coffee incomes and raise coffee quality. In this section, we present two case

studies of coffee cooperatives and partnerships between coffee growers and chain leaders that show some of the opportunities and challenges such partnerships present for farmer cooperatives. We also examine some of the factors affecting the sustainability of cooperatives and their long-term partnerships with value-chain leaders. First, we provide a brief background to coffee cooperatives in PNG.

In the 1940s, the cooperative movement started initially in the coastal areas of PNG. In 1964, village coffee farmers in Kundiawa, Simbu Province (Fig. 1) started the first coffee cooperative in the Highlands (Singh, 1974) and from the 1970s to the end of the 1980s cooperatives were established in most coffee growing areas of PNG. However, many of these cooperatives failed. Several studies reported that the demise of cooperatives was due predominantly to the absence of good supervision, poor financial management, lack of social cohesion and poor leadership (e.g. Singh, 1974; Murray-Prior *et al.*, 2009; Sengere, 2010). Many cooperatives which were established using western management models did not recognise or accommodate local socio-economic, political and cultural factors and therefore encountered problems as indigenous structures, practices and values undermined their success (Murray-Prior *et al.*, 2009; Conroy, 2016). Jena *et al.* (2012: 439) recommended that institutional structures such as the 'technical, financial and human capacities of cooperatives' must improve if they were to be sustainable. Thus, to advance collective action in farmer groups, non-market concepts should be taken into account in the management of cooperatives.



**Figure 2.** The decline in premium grade coffee as proportions of total production. (Source: CIC data) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

Smallholder farmers are dispersed and produce small quantities of coffee that they typically sell individually. However, there is potential for farmers to collectively market their coffee and negotiate better prices. In 1989, collective marketing was re-introduced in the PNG coffee industry as an extension policy. It was forced upon farmers and failed (Overfield, 1993). In 2003, a farmer demand-driven extension (FDDE) approach was adopted. FDDE allowed smallholders to collectively source services from development partners and this assisted in minimising marketing challenges for the farmers (CIC, 2008). Lan *et al.* (2014) argue that cooperatives in rural areas can operate as social enterprises because their main agenda is to achieve development that is sustainable and has a communitarian agenda. The potential remains for chain leaders and lead partners to collaborate with grower groups and to assist them to improve governance systems to make them more sustainable (Murray-Prior, 2008; Murray-Prior *et al.*, 2008). Improved governance systems in grower groups can strengthen leadership, elevate social capital and thereby facilitate effective collective action. Social cohesion and social capital are paramount in collective action as they facilitate networks, build trust among members and promote shared visions, values and norms that drive members to achieve common purposes (Coleman, 1990; Falk and Kilpatrick, 2000; Hall, 2006). Murray-Prior *et al.* (2009) showed that in the Highlands, rivalry among kinship groups for leadership roles was a constant threat to collective action.

Finally, through collective action, farmers can also overcome information deficiencies, minimise transaction costs (Issa and Chrysostome, 2015), negotiate better prices with chain leaders, and their groups can become avenues for sourcing extension services and farm inputs.

### Case studies

The two case studies presented here are: Coffee Cooperative 1 (CC1) in Morobe Province and Coffee Cooperative 2 (CC2),<sup>4</sup> a Highlands-based group in EHP. Case study 1 examines the CC1 group, a smallholder cooperative that has been operating successfully for almost nine years. The group has several long-term partners and has diversified into other business

enterprises. The success of this group illustrates that grower groups can be sustainable and they can actively engage in community development. The group continues to remain viable and has made significant progress in acquiring business assets and growing its membership.

Case study 2 examines the CC2 group. Although the group is engaged in collective marketing, it is less successful than the CC1 group. The CC2 group does not have regular meetings and has fewer long-term partners. This has led to lower levels of social capital among group members. The group was able to partner with chain leaders, a lead partner and CSOs to source support services for the benefit of member farmers and the group. However, group cohesion and social capital were lacking. The group does not have other business enterprises apart from coffee. As illustrated, the quality of leadership and levels of trust among members varies between the two case studies.

The two case studies highlight the factors that facilitate or undermine group leadership, social capital and entrepreneurial activities which can affect the sustainability of cooperatives and the subsequent longevity of partnerships.

*Case Study 1: CC1.* The CC1 group was formed in 2008. It currently has a total of 647 members with 226 ha under coffee. From 2009 to 2015, the group sold 233 tonnes of green bean, earning its members K2.4 million. Average annual income from coffee sales per member was K765 from 2009 to 2014.<sup>5</sup> Farmers averaged 876 kg green bean per ha, which is relatively high compared to a recent productivity estimate of 384 kg green bean per ha reported for central highlands farmers (UniQuest Pty Ltd., 2013), but within the range (750 to 1090 kg/ha green bean) of smallholder yields reported from 1973 to 1993 (Allen *et al.*, 2009). The above average productivity and the success of the group can be attributed to Fair Trade certification which has improved governance systems considerably. An enhanced governance system has enabled the group to leverage with partners to advance its interests in coffee production and to diversify into other entrepreneurial activities. Partners have provided the group with training, farm inputs, credit, extension services and issued certification. Certification has enabled the group to earn

price premiums totalling K70 000 for community development, with some of the funds used to establish a community water supply system and construction of an elementary school. In 2010, the group also secured financial support of K1.6 million from partners to build a coffee mill. Group members contributed their share of K400 000 which came from coffee sales.

The CC1 group has diversified their income sources and now has two enterprises in addition to coffee. The first is a transport business consisting of two trucks and two land cruisers. The trucks provide transport and freight services between CC1 and the provincial capital of Lae for members and non-members. Second, the group buys parchment coffee from members and non-members. Moreover, farmers are diversifying into other income-generating activities like apiculture and inland fisheries. The Fair Trade standards have also positively affected leadership and the delegation of group work. The members exercise their delegated functions effectively and efficiently, particularly in agricultural extension services for the group and as work crews for their trucking business. The subgroup leaders also maintain good rapport with senior management and farmers. They are the glue that holds members together and thus social capital is high.

The CC1 group displays high levels of social capital and group cohesion. This was apparent in the regular holding of meetings to make decisions for: group activities and to review their progress; collective marketing; delegation of responsibilities to members; and active participation of members in community development activities. The CC1 group's success is attributable to its regular collaboration with development partners, which has enabled relationships of trust to grow between group members and partners. Consequently, the development partners were able to supply farm tools, coffee processing equipment and training, all of which have helped group members to develop their capacity to produce coffee. Also, the Fair Trade regulations strengthened governance systems, further raising social capital (e.g. Fairtrade Labelling Organizations International (FLO), 2005; Ortiz-Miranda and Moragues-Faus, 2015; Bravo-Monroy *et al.*, 2016). Group members spoke highly of their group leaders especially concerning the honest and transparent use of

group assets. As part of Fair Trade requirements, the subgroup leaders<sup>6</sup> have a close bond with members in their respective villages. This has facilitated the development of relationships of trust and fostered cohesiveness in the group at the broader level. Furthermore, the CC1 group has four long-term partners, several business enterprises and members actively participate in group activities like group marketing, resulting in high levels of social capital within the group.

*Case Study 2: CC2.* The CC2 group started in 2010. In 2014, the group had 97 members with a total of 155 ha of coffee trees. From 2014 to 2015, 87 tonnes of green bean were sold with a net revenue of K628 042. The CC2 group has good market access and some farmers have been selling their coffee outside the group.

The CC2 group attracted several partners which included a lead partner, chain leaders and politicians. The partners have conducted training, supplied farm tools, facilitated certification and provided awareness of services available to farmers. These interventions have improved farmers' knowledge and skills to produce coffee, and farmers were attaining productivity of 610 kg green bean per ha. In 2013, CC2 group members, other villagers and partners collaborated to establish a reticulated water supply in the area.

In 2015, NASAA Organic<sup>7</sup> certified the group, thus enabling farmers to earn a premium price for their coffee. However, its certification standard primarily focuses on sustainable production and does not encompass the socio-economic welfare of farmers. Thus, governance within the CC2 group is weak. Group members meet irregularly, and communication among members is poor. The group also has village representatives, but they rarely meet. The group's chair resigned in 2015 because of conflict with other executives of the group. The change of leadership was also prolonged when the former manager delayed the handover of the leadership to another member. The unstable leadership and lack of delegation among members led to low levels of social capital and poor group cohesion. This has resulted in distrust and lack of communication among group members and the under-performance of the group overall.

**Table 1.** Achievements of the CC1 and CC2 coffee cooperative groups

Achievements	Grower group	
	CC1	CC2
Leadership	Motivated and focused, delegate responsibilities to members.	Not motivated, lack of delegation.
Level of social capital	High	Low
Level of social cohesion	High	Medium
Certification	Fair Trade	NAASA Organic
Office	Semi-permanent building with cement floor	Semi-permanent building
Partners	Long-term	New Guinea Highlands Coffee Exports, Coffee Industry Corporation
	Short-term	PNG Sustainable Development Project, Local parliamentarians
Business enterprises	Four vehicles (two trucks and two land cruisers). Has K1.6 million to build a coffee mill. Contributions from farmers and partners. Export licence issued to group in 2014	Nil
Community development	Obtained an eco-pulper Established water supply project with price premiums from Fair Trade in 2015.	Water supply set up in 2014.

The performance of the CC2 group concurs with Murray-Prior's (2008) findings where Highlands-based grower groups tend to have low trust levels among members. The CC2 group has low levels of social capital and lacks group cohesion leading to lower trust levels among members, especially between group leaders and ordinary members. The delayed handover of responsibilities to the new group leader further undermined trust levels in the group. Delegation of responsibilities is lacking, and most of the group's tasks were carried out by the group manager. Although the group has representatives in each of the participating villages, they rarely meet to discuss important agendas for collective action. Unlike the CC1 group, the CC2 group has no business enterprises and only two long-term partnerships. NAASA Organic issued the group's certification, and its imposed governance system is weak. Unlike Fair Trade, NAASA Organic certification does not require strong governance systems which would augment the social capital of the group (Hernandez-Aguilera *et al.*, 2015; Ortiz-Miranda and Moragues-Faus, 2015).

*Outcomes of collective action.* Coffee farmers in both case studies were able to access services effectively from a range of organisations that included chain leaders, local politicians,

CSOs and state actors; in this, they were quite successful (Table 1). However, in the CC1 case, collective action has enabled the group to improve governance systems, enhance production capacities, and propel it into other entrepreneurial activities. Conversely, the CC2 group is an example of a group lacking cohesion, which stems from lower levels of social capital because the group leaders do not delegate responsibilities and the number of long-term partnerships is very low.

### Value-chain partnerships

Value-chain linkages can improve efficiencies in the production of good quality coffee. Farmers can also benefit through better and more consistent coffee prices. Improved prices have motivated farmers to invest labour and other resources in coffee production and to improve the quality of their produce (CIC, 2008; Murray-Prior *et al.*, 2008). Moreover, smallholder cherry can be processed by chain leaders to the same standard as plantation coffee, and farmers can earn higher incomes as a consequence. Likewise, through these partnerships, chain leaders are guaranteed a consistent supply of quality coffee from smallholders. Most

of the partnerships revolve around participation in high value and Fair Trade coffee markets.

Since 2003, there has been a steady growth in local coffee exporters selling into differentiated markets and total exports of differentiated coffee are rising rapidly (Fig. 3). In 2017, differentiated coffee exports accounted for more than 11% of total exports by value. Growth in the specialty coffee market is continuing to increase while consumption of regular blends remains stagnant (Daviron and Ponte, 2005). Thus, there are prospects to enhance PNG's share of the differentiated market, to further improve returns to farmers.

From interviews with chain leaders in PNG, the duration of chain leader/lead partner relationships with coffee growers ranged from 1.5 to 14 years, with a mean of six years. The four longer-term partnerships that had been in place for 10–14 years were all participating in differentiated markets. Partnerships ranging from 1.5 to 6 years were mostly engaged in cherry delivery to coffee mills, and farmers were obtaining farm inputs, cash advances and extension services from chain leaders.

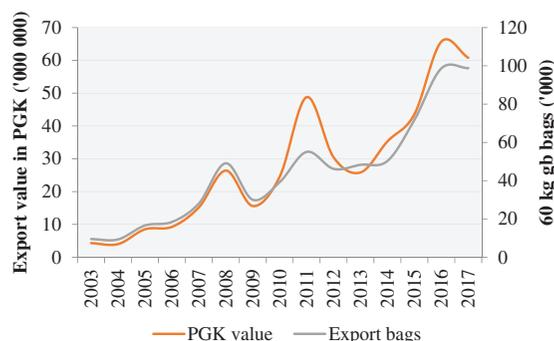
### Agro-services in partnerships

This section focuses on chain leaders who engage in commercial relationships with small-holder coffee farmers. Chain leaders together with lead partners were supplying coffee growers with farm inputs such as tools, agro-chemicals, extension services, training, cartage of crop and cash advances. The 12 chain leaders interviewed reported that they provided support services such as training, extension and advisory services.

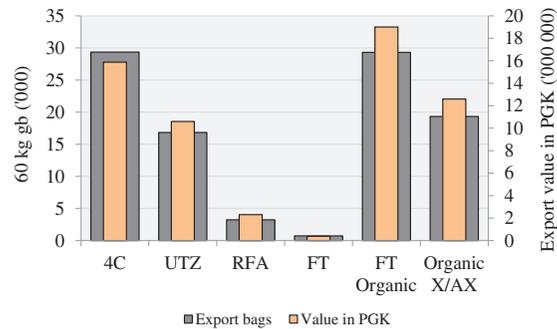
### Quality of coffee delivered through partnerships

Coffee growers and farmer groups who have strong relationships with chain leaders tend to deliver consistently good quality coffee. One processor reported that 'organised groups were producing top quality coffee and had done this consistently' (Chain leader (CL) #5, 04/02/14). Another processor claimed that his growers knew the kind of product that needed to be supplied to the mill (CL #7, 04/02/14). This concurs with Imbun's (2014) findings that collective action of PNG farmers who partner with chain leaders tend to produce better quality coffee. The two chain leaders have been facilitating sales of the group's coffee to differentiated markets, and farmers had been receiving steady and good prices.

Several chain leaders assisted individual farmers and farmer groups to have their coffee gardens certified. The certification schemes under which PNG coffee growers participate include Fair Trade, Common Code for the Coffee Community (4C), Tree Kangaroo, Fair Trade Organic, Utz and Rainforest Alliance, while the high-value coffee is Organic A, Organic X and AX (Fig. 4). In 2015, specialty and high-value coffee accounted for 10% of total exports. Chain leaders pay above-market prices to growers who supply coffee consistently from certified farms. These growers directly liaise with the chain leaders for certification and to source farm inputs (Batt *et al.*, 2009). The chain leader coordinates harvesting and organises transport of harvested cherries from partner coffee growers. Certification would be very difficult for individual farmers and groups to achieve without the assistance of chain leaders through partnerships (Fig. 4).



**Figure 3.** The growth in differentiated coffee exports from 2003 to 2017. kg gb, kilograms of green beans. (Source: CIC data) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]



**Figure 4.** Foreign exchange earnings for specialty coffee in 2017. kg gb, kilograms of green beans. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

Partnerships with chain leaders also enable smallholders to obtain higher prices for their coffee. The price premium paid to farmers in our study ranged from K0.10–0.20/kg on top of the prevailing market price for cherry, which was approximately a premium of 10–20%. Certified coffee growers earned premiums of between K0.20 and 0.50/kg (20–50%) from chain leaders. Price premiums provide an incentive for growers to supply cherry or parchment consistently to the coffee mill. Chain leaders who were not paying price premiums did not have formal relationships with growers or farmer groups.

As mentioned above, chain leaders pay a price premium for cherry over parchment. By processing smallholder cherry in their own mills, chain leaders can produce high quality parchment. However, they can do little to further improve parchment coffee processed by smallholders. This is because farmers use a diversity of processing techniques to pulp, ferment, wash and dry coffee and often there are problems in processing, particularly in fermentation, that result in low grade parchment (Curry *et al.*, 2017). Also, smallholders delay pulping, use poor quality water to wash fermented coffee and many do not dry parchment on raised drying beds, so variation is introduced to the quality of parchment coffee. Elsewhere, Rao (2010) showed that when a Fair Trade farmer group in India began delivering coffee cherry to a central mill, coffee prices received by farmers increased by 251% (Rupiah 25–35/kg to Rupiah 123/kg). Indian farmers received much lower prices when they used their own methods to process cherry and traded coffee individually.

## Discussion

Organised grower groups can forge strategic alliances with chain leaders and lead partners for their mutual benefit. The partnership framework in which chain leaders, CSOs, lead partners and farmers collaborate can address low productivity, inconsistent supply and poor quality by improving the production capacity of coffee growers to increase productivity and improve quality. Support is typically in the form of training, payment of premiums, financial assistance, farm inputs, extension services, freighting services and market access. These were similar to some of the services that the plantation sector delivered to farmers in the early days of PNG's coffee industry. The support from partners led to farmers attaining an average productivity of 747 kg of green bean per ha and higher quality coffee. This is almost double the average productivity of smallholders recorded in other parts of the PNG Highlands (UniQuest Pty Ltd., 2013; Curry *et al.*, 2017). This finding also concurs with Issa and Chrysostome (2015) who reported higher productivity among Rwandan cooperative farmers who achieved a productivity of 759 kg of green bean per ha while non-members attained 635 kg of green bean per ha. Studies elsewhere also show increased productivity of smallholder cooperatives that are participating in certification schemes (e.g. Rao, 2010; Beuchelt and Zeller, 2011; Hernandez-Aguilera *et al.*, 2015). This is mainly because of the technical, production and extension support provided by chain leaders. Thus, chain leaders can now perform a similar role for smallholders as the plantations did through decentralised mills and grower

groups. Moreover, they can plug the gap in extension services resulting from under-resourced government extension agencies since the 1990s.

There is also evidence that partnerships with chain leaders and lead partners have helped improve institutional governance systems in grower groups. The CC1 group was able to delegate responsibilities among members which arose from the improved governance systems taught and required by Fair Trade certification (see FLO, 2005). Batt *et al.* (2009) and Hernandez-Aguilera *et al.*, (2015) point out that the Fair Trade imposed governance systems facilitated high levels of social capital and trust among groups in PNG and Columbia. At CC1, the governance system imposed by Fair Trade overcame the management skills deficiencies of group leaders and ensured their accountability through regular group meetings. The rigid governance structure that ensured democratic processes for collective decision-making through committee systems in the CC1 group created an environment for entrepreneurial activities. Partnership with Fair Trade facilitated long-term business relations with partners and enabled other business activities among farmer groups to be initiated and grow (Krupka, 2012; Ruben and Fort, 2012). However, the organic certification criteria at CC2 focused on the organic and sustainable production of coffee without addressing social aspects and management, which partly undermined the success of the group.

Group participation has brought new marketing opportunities and established new social and institutional networks to the benefit of farmers and grower groups. International certification agencies through local-based chain leaders or lead partners were able to certify coffee farmers' gardens, which has given them entry into differentiated markets offering premium prices. Also, productivity and quality is usually higher in value-chain relationships as farmers in grower groups participate in social learning and are more likely to adopt innovations (Hartwich *et al.*, 2010). Hartwich *et al.* (2010: 239) further expounded that the type of communication flow in a value chain is about 'upgrading' which is derived from up-to-date information transfer from chain leaders to coffee farmers. Thus, social learning among CC1 group

members has led to several farmers adopting apiculture in their coffee gardens, further boosting productivity through increased pollination rates.

### *Challenges to collective action*

Despite the advantages and opportunities which partnerships offer smallholders, undertaking collective action is challenging as has been reported in other studies of coffee cooperatives in PNG (e.g. Murray-Prior, 2008; Murray-Prior *et al.*, 2009; Sengere, 2010). The CC2 group is a case in point. The poor performance of past cooperatives means that partners must find ways to build sustainable groups. Institutional leadership from chain leaders and lead partners through regular contact and engagement with groups, particularly group leaders, is one way to build sustainable groups. Such institutional leadership can be an effective way to overcome some of the management constraints on grower groups and strengthen social networks. Sengere (2010) reported that building the trust and confidence of ordinary members through regular contact and through roles such as auditors or overseers of group performance is an effective method of improving the stability of groups and their cohesiveness. Ordinary members become more trusting of their leaders.

However, self-interested group leaders can undermine grower groups and partnership efforts through eroding trust and cooperation among members and between groups and partners. Batt *et al.* (2009) reported that some cooperative group leaders from the PNG Highlands competed for local political office as councillors (Local Level Government), and this undermined group cohesiveness and even led to the disintegration of some groups. Chain leaders, lead partners and coffee farmers can collectively identify individuals with moral and ethical standing, with social networks in the community and good management skills who are best positioned to lead groups. The 'policing' by institutional leaders acts to constrain unscrupulous or self-interested behaviours that have the potential to undermine group solidarity and effectiveness. Unscrupulous leaders have taken advantage of their people to solicit favours from state actors and the private sector (Sahlins, 1963; Finney, 1968; Brown, 1995; Ketan,

2004). Thus, self-interest and lack of leadership in grower groups has led to the demise of many groups.

Additional challenges that sometimes negate advances in coffee value-chain partnerships include the following:

- The distrust that prevails between chain leaders and coffee farmers can harm partnerships. Trust takes time to develop.
- Coffee growers who have agreements with processors and exporters fail to honour the agreements. For example, some small-holder farmers did not respect agreements they had with chain leaders to supply coffee and sold their coffee elsewhere (usually in the early stages of developing relations with chain leaders).
- Some chain leaders have refrained from providing cash advances to farmers and coffee buyers because of the difficulties they have had recovering these advances. These farmers and coffee buyers spent the money elsewhere and did not deliver the coffee.
- The lack of communication between grower group members and their leaders.

## Conclusion

The value-chain approach through partnerships between coffee farmer groups and lead partners has enhanced institutional leadership at the grower group level. This has improved governance systems in grower groups. It has also led cohesive farmer groups with a shared vision to diversify into other entrepreneurial activities. This has resulted in more sustainable grower groups and enhanced supply chain linkages. Additionally, collective group action has been used effectively to attract development agencies to initiate community development in rural areas. Moreover, there is a willingness from chain leaders to work with groups of farmers rather than individuals. The case studies illustrate that farmers in grower groups can attract agro-services from development partners. Partners are providing farm inputs, savings and credit access, certification services, organising group marketing and freight services. The close collaboration of chain leaders and farmers

through training and the provision of extension services has improved communication and trust levels among partners. Thus, extension efforts focusing on elevating partnerships in the value chain are beneficial and have significantly improved coffee productivity and quality as well as the consistency of supply.

Chain leaders are forging strategic alliances with farmer groups as a means to source quality coffee on a consistent basis. Partnerships have enabled coffee farmers to become conscious of the quality requirements of high value markets. Also, coffee growers directly benefit from price premiums by participating in differentiated coffee markets. Thus, chain leaders are capable of filling the extension and quality assurance roles that the plantations with their central mills performed during the early growth of the coffee industry in the 1960s and early 1970s. However, lead partners must continue to provide extension and advisory services for their farmers and be encouraged to source coffee from farmers in remote areas of the Highlands. The regulatory requirements associated with certification, especially those associated with sustainable production systems and governance frameworks, provide this direction and incentive.

## Acknowledgements

This paper is derived from the principal author's doctoral thesis and from the ACIAR project: 'Improving Livelihoods of Smallholder Families through Increased Productivity of Coffee-based Farming Systems in the Highlands of PNG' (ASEM/2008/036). The authors are grateful to Curtin University, the CIC Ltd of PNG for the scholarship and logistics for fieldwork respectively. We acknowledge the support of Steven Asilala, Papsy Kanipa, Gie Bolong and Risio Kele for providing information on the cooperatives. We are also grateful to Joachim Lummani for reading the initial draft.

## Notes

- 1 Smallholders typically own several hundred coffee trees, manage less than 5 ha of coffee and rely largely on family labour. Blocks are mini-plantations of between 5 and 29 ha. They employ hired labour and regularly invest in agrochemicals. Plantations are larger than 30 ha and

follow a high input, high output system of production with their own wet or dry mills, and labourers residing on the plantation (see Sengere, 2016: 9).

- 2 Chain leaders are defined as processors and exporters (Batt *et al.*, 2009) while lead partners are state actors and CSOs. Lead partners can play a strategic role to facilitate and monitor partnerships between growers and chain leaders.
- 3 M. Wheeler report 'Outlook for the International Coffee Market and Options for PNG'.
- 4 The two coffee cooperative groups have been given pseudonyms to protect their identities.
- 5 Sales records were not calculated for 2015 because new members joined the group in late 2014.
- 6 Subgroup leaders were second tier leaders. A subgroup typically includes one or two villages.
- 7 NASAA employed the following criteria to assess farmers' gardens: (i) no chemical inputs used in coffee plots; (ii) no 'parallel production' is practised (producing exactly the same crop on an organic and non-organic farm by the same farmer – NASAA Australia Ltd., 2004); (iii) activities carried out in the coffee gardens are consistent with sustainable agricultural practices; and (iv) record keeping is carried out for farm activities.

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