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## Introduction

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The previous issue of the PNG Coffee Journal was published in 2010, since then it has been in abeyance. With technical and editorial support of research partners in ACIAR coffee-related projects, we are very pleased that this special issue of the journal has been published.

The special issue is the first of two comprising of research papers based largely on collaborative ACIAR-funded research projects among CIC, Curtin University and CSIRO. The papers are the culmination of a capacity building exercise to build the research skills of CIC's early career researchers. Several workshops have been held since 2010 on survey design, data collection and analysis and writing-up of research that were led by senior Australian and PNG ACIAR team members. This special issue contains three papers originating from a recently concluded ACIAR project (ASEM/2008/036); two papers by CIC officers based on their postgraduate research through Australian universities; and a concluding paper by Mr Joeri Kalwij of New Guinea Highlands Coffee Exports (NGHCE) that provides an industry perspective on the research.

CIC is strengthening its links with the private sector. Under the National Coffee Development Roadmap 2020-2030 and the CIC Strategic Business Plan 2020-2024, the private sector will take a prominent role in the development and sustainability of the coffee industry while CIC adopts a facilitative role. Involving the private sector in CIC research and extension makes good sense given their central role in the coffee industry. The collaboration with NGHCE is a step in this direction.

The first paper in this issue investigates the main livelihood activities pursued by coffee smallholder farmers in Eastern Highlands Province (EHP), and how the interactions between different livelihood activities influence farmer-decision making. The paper argues that being aware of the factors influencing farmer decision-making, is critical to providing extension advice and training that fits with the everyday lives and challenges faced by small farmers and their families. This paper provides the context for the second paper which probes the socio-economic constraints on smallholder coffee production in the highlands of PNG. This paper focuses on household labour as farmers juggle various livelihood activities that can lead to reduced labour inputs in coffee production as a consequence. As lucrative new livelihood opportunities like large-scale vegetable production for urban markets arise in rural areas close to town, the supply of women's labour for coffee can become scarce as they switch to these new livelihoods.

The third paper examines smallholder coffee farmers' levels of knowledge of coffee pests and diseases at four different sites in EHP. The paper shows that smallholders' knowledge of methods of cultural control of pests and diseases is very low. This does not bode well for control of the recently arrived pest, Coffee Berry Borer, which poses such a threat to the highlands coffee industry.

The fourth paper identifies and quantifies the movement of nutrients into and out of food gardens in EHP and interprets the net effects of these nutrient movements on soil fertility. Crop harvesting and preparation produces residues or wastes that might be better managed to retain nutrients in the gardens. Some farmers do not apply the waste back to their gardens because they believe it makes their gardens look untidy, while others do not apply it as the waste provides a breeding ground for pests and diseases. However, the value of the nutrients in the waste should be considered for future soil fertility management.

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The last paper analyses the extension approaches employed in the coffee industry and its evolution over the years since large-scale production began in the 1950s in Papua New Guinea. A variety of extension approaches have been tried which have had limited success with no significant improvement to the industry. This study establishes that the entry points for extension services are grower groups and value chain partnerships.

The research papers in this issue were based on a large ACIAR project in which many people were involved. We wish to acknowledge their contributions here rather than at the end of each paper. Data collection amongst coffee smallholders was undertaken by CIC and National Agriculture Research Institute (NARI) staff. CIC staff included Emma Kiup, Susan Inu, Leo Aroga, Matilda Hamago, Michelle Bafeo, Baro Asiota, Jonah Aranka, Jenny Bekio, Kessy Kufinale, Marvin Paisava, and Wein Bore. NARI staff included Johannes Pakatul, Barth Apis, Pennuel Togonave, Debbie Kapal, Joel Kua and Richard Alepa. Others at CIC and NARI deserve recognition for sharing their knowledge and expertise with the research team, in particular, Dr Reuben Sengere, Tom Kukhang, Dr Mark Kenny, Dr Arnold Parapi, Charles Dambui, Samson Jack, Matei Labun, Stanley Mapua, Bob Kora, Simon Gesip and Wahapo Kokorime.

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