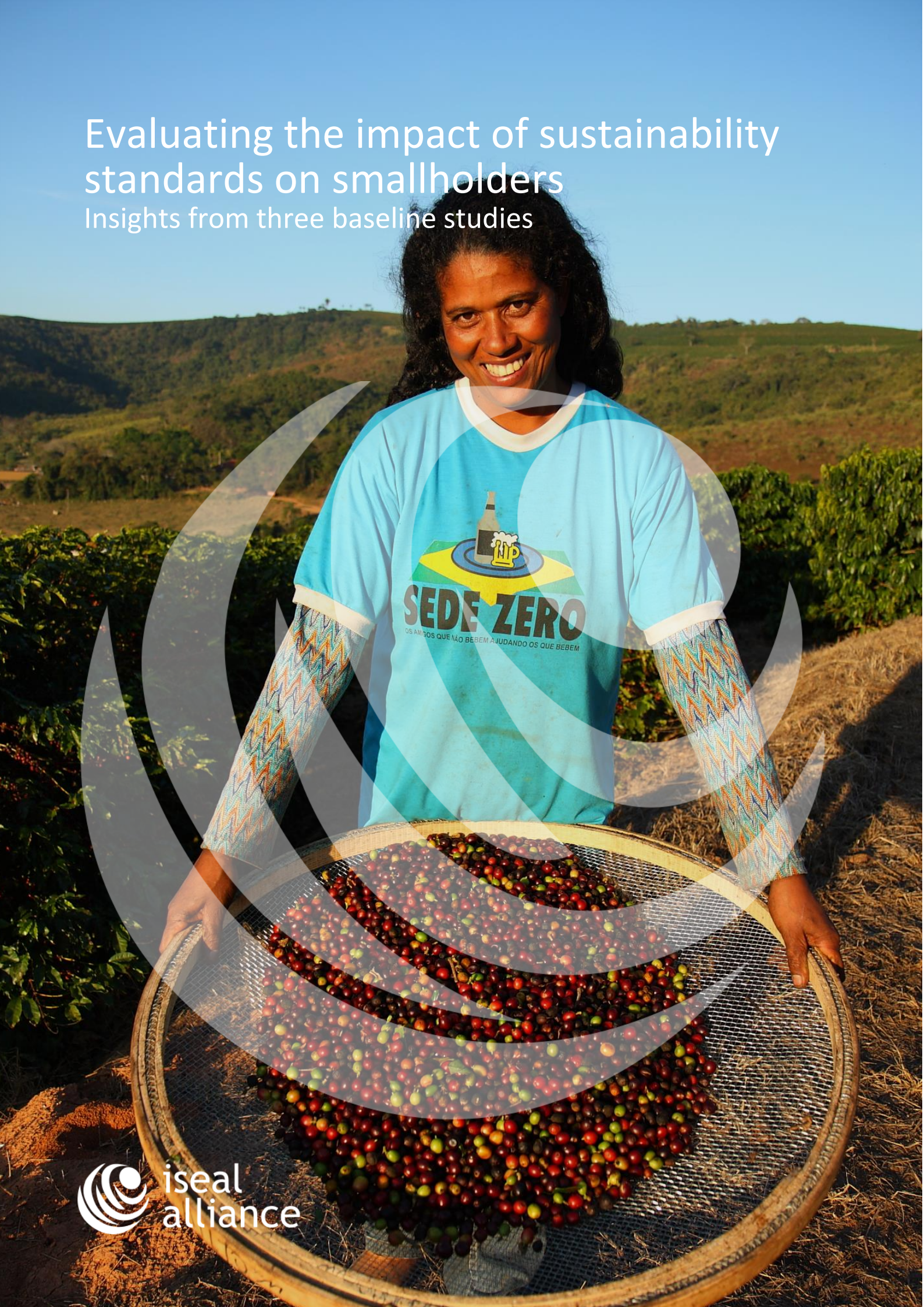
Evaluating the impact of sustainability standards on smallholders

Insights from three baseline studies



iseal alliance

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ISEAL is the global membership association for social and environmental sustainability standards. It represents the movement of credible and innovative sustainability standards and its mission is to strengthen sustainability standards for the benefit of people and the environment. The ISEAL Alliance works to improve the impacts of standards, define credibility for sustainability standards, increase the uptake of credible sustainability standards, and improve the effectiveness of standards, including driving innovations in standards.

In this report ISEAL offers insights from three baselines of evaluations that it commissioned in 2015 and were published in June 2016. The full baseline reports are available from ISEAL's website[1].

For further information about the research designs and methods used in these studies, please read the report *Demonstrating and improving the poverty impacts of certification: Lessons learnt on research design and methods from the baseline phase of three impact evaluations.*

1.1 Why has ISEAL commissioned three evaluation studies?

The highest aim of the ISEAL Alliance is to improve impacts for people and the environment. ISEAL supports standards to measure their performance and put learning and improvement at the centre of their work. Sustainability standards, such as those in the ISEAL community, address significant challenges in the world today and are one of the few proven vehicles for making production and trade more sustainable. But there remains a critical need to understand more about the effects and long-term outcomes of certification on the ground and for standards to improve in the areas where they could be performing better. Demonstrating impact is the strongest demand from partners and standards' users across all sectors and is widely agreed as an essential foundation of a credible standards system. Governments, companies and other stakeholders need to know that the standards they use are making a difference and certification programmes that are not transparent about their impacts are unlikely to maintain trust. ISEAL's aim is to add to the growing body of knowledge on the impact of sustainability standards and address questions that are important but still under-studied in existing literature[2].

The Ford Foundation is supporting ISEAL and its agricultural and forestry members to build robust monitoring and evaluation systems and to generate both performance monitoring and impact evaluation evidence about the contribution of sustainability standards to improving the livelihoods of smallholder farmers. Over the past year, as part of the Demonstrating and Improving Poverty Impacts project, ISEAL has commissioned three rigorous and technically sound impacts evaluations in Western Kenya, Indonesia and India. Baseline data was collected in 2015, which formed the basis of reports, which were published in June 2016. Follow up studies to these baselines, which will seek to understand the early impact[3] of the interventions, will take place in 2018/19.

In commissioning this work ISEAL has three overarching general objectives:

- To **generate rigorous evidence** and relevant and **useful findings** about the contribution of being prepared for and participating in a sustainability standard for improved livelihoods for smallholder farmers, particularly the poor
- To **generate lessons and learning for ISEAL and ISEAL members** about designing, commissioning and contributing to independent impact evaluations of standard systems, and using the evaluation results to inform system improvements
- To **promote consistency and coordination in evaluation and monitoring approaches**, to drive wider collective learning from the many independent studies on certification impact and the internal performance monitoring systems that ISEAL members are developing

[1] Available at: http://www.isealalliance.org/online-community/resources/iseal-dipi-project-three-commissioned-impact-evaluations-baseline-full-reports-and-

[2] For more information on the research agenda on poverty impacts of standards, devised by ISEAL and members visit: http://www.isealalliance.org/online-community/blogs/agenda-to-drive-increased-knowledge-about-standards-and-poverty-reduction

[3] The term early impacts is used here to reflect that time is a critical factor in materialising change. After three years of intervention one some benefits may have realised. Further time will be needed to materialise the long term outcomes that standards systems have defined as part of their theories of change

1.2 The three studies: commonalities and differences

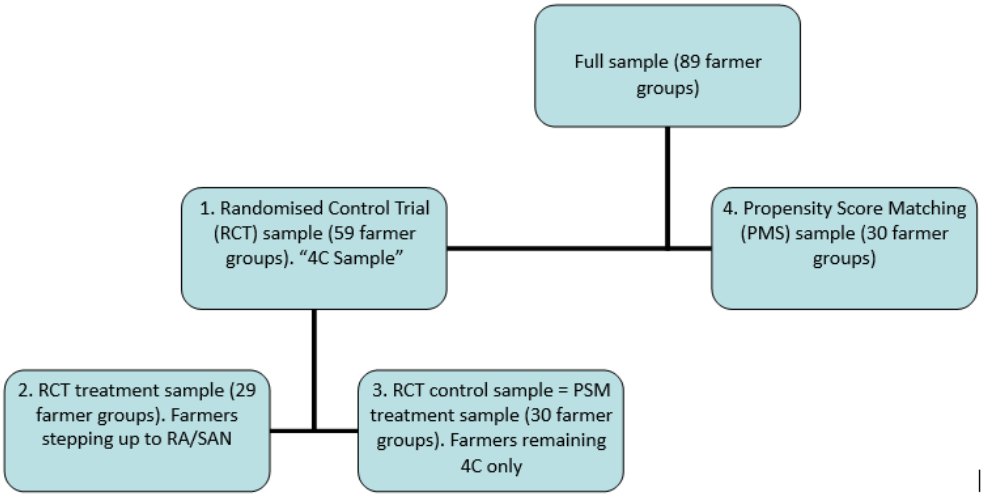
The three evaluations are taking place in Western Kenya, Sumatra (Indonesia), and Andra Pradesh (India).
The Mount Elgon region of Western Kenya is one of the country's poorest regions and is emerging as Kenya's next "coffee belt". With funding from an international NGO, Solidaridad, one of Kenya's marketing agents, Coffee Management Systems (CMS) is preparing two large coffee societies (cooperatives) to become double certified to Fairtrade and UTZ. CMS decided to work with these two standards systems because they saw them as complementary and with potential to help groups and farmers ascertain traceability, improve efficiency and increase market access. The data collection for baseline took place in 2015 and the data in this document refers to the 2013-2014 coffee production year.

The study in India focuses on the Adoni Mandal (subdivision) in Kurnool district of Andhra Pradesh. The intervention is a Better Cotton Initiative (BCI) project, implemented by a BCI implementing partner in India and funded by the Better Cotton Fast Track Fund (BCFTP). It aims at building the capacity of smallholder cotton farmers to enable them to be licensed according to the Better Cotton Standard. In the initial phase of the project, the implementing partner is working to develop one producer unit of approximately 2,000 farmers to prepare farmers towards BCI license. Up to 10,000 farmers will be reached before the end of the planned five-year project and there are plans to develop a producer company at the end of the project. The study site was identified before the implementing partner had identified the farmers that were going to receive the intervention, which allowed for a randomised control trial type of research. The data collection for baseline took place in 2015 and the data presented in this document refers to the 2014 cotton production year.

The Indonesia study focuses on the impact of interventions that aim to bring robusta coffee famers in the Semendo region into compliance with two different levels of sustainability standards: (1) 4C code of conduct (a baseline coffee standard), which is now part of the Global Coffee Platform (GCP) and (2) preparation of 4C verified coffee farmers for certification to the Sustainable Agriculture Network/Rainforest Alliance coffee standard. In 2012 IndoCafco-ECOM (ICC) established a local buying station and linked that to a 4C production unit (with support from Mondelez Coffee Made Happy programme). The data collection for this baseline study took place in 2015 and the data presented in this document refers to the 2014-2015 coffee production year.

Compared to the two other studies this one is unique in the sense that this baseline measurement brings a snapshot of farmers that have been 4C verified for a couple of years. In this study, improvements of 4C verified farmers will be looked at using Propensity Score Matching (PMS) (point 4 in figure 1), and changes related to stepping up to RA using Randomised Control Trial (RCT) (point 1 in figure 1).

Figure 1: Research design. Indonesia study



Source: Adapted from Neilson and Toth, 2016

Figure 2: Location of Studies

The three studies have a number of common features:

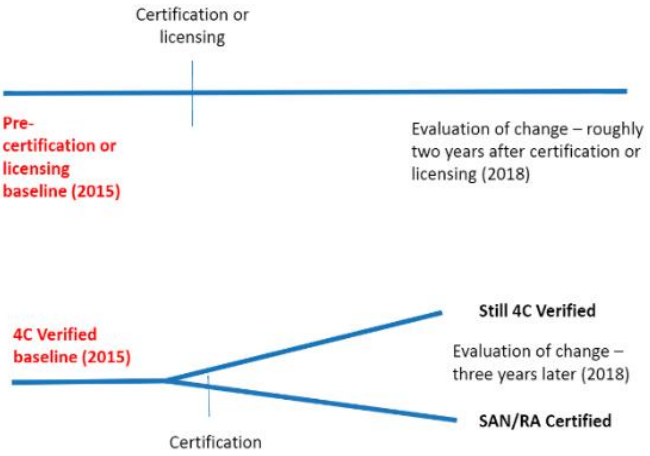
- Most existing studies about the on the ground impact of sustainability standards have compared outcomes of certified and non-certified farms to determine whether certified farms perform better than non-certified farms. These studies fail to capture the changes that may take place in farms and farmer households as they prepare for certification or in the initial years after becoming certified. By contrast, **these three studies are considering the early years of certification, and the process of becoming certified or moving from a baseline standard to a higher-level standard**. In fact, the studies intend to evaluate the **early impact (three years after) of certification or verification** to a sustainability standard on smallholder farmers, to better understand the contribution that sustainability standards make to improving well-being for poor farmers.
- The cases chosen for the evaluation represent an emerging future direction of sustainability standards and certification and are **the new frontiers of certification: interventions driven by market players**, aimed at producers in **production areas not previously involved** in certification, with a goal of moving certification out of niche markets to play a more mainstream role in commodity markets, and often involving **multiple certification** to more than one scheme. The studies will shed light on the extent to which this future direction for certification offers the potential to reach and to significantly improve the well-being of smallholder farmers, and of the poorest among them in particular.

All cases examine the extent to which the interventions:

- **Target smallholders.** We are interested in understanding if and why different types of farmers, such as those with different initial assets, poverty levels, or gender, experience differing changes in outcomes over time
- **Increase the amount of and the stability of net revenue** from farming activities (through improved productivity, quality, price, market information, credit and financial facilities, etc.)
- Result in any **change in household income and/or the development of assets** (e.g. investments in productive assets, and improvement or expansion of natural assets, housing and/or basic services, and the building of human capital through school attendance)
- Produce **feeling of increased choice, influence, and/or control** for farmers and landowners over productive decisions and livelihood strategies and options

The insights from the three studies are baseline findings. This means that the bulk of the evidence is on characterizing the farmers and groups that are part of the intervention (treatment) and control groups of farmers. Although there are no comparisons over time, baseline findings offer a great opportunity to better understand the interventions and hypothesize about the changes that may occur in a few years. The three baseline studies also shed light on the conditions and contextual factors that could play an important role in farmers' livelihoods, acting in some cases as catalysis and in others as barriers to improving their living conditions. There is an important difference in one of the studies though - the Indonesia baseline information is about farmers that have been part of a 4C verified unit for two years.

Figure 3: Timing of certification in the studies



In this report, we focus mainly on information and characteristics presented in the three baseline studies about the farmers entering standards systems. For the Kenya study, we refer to farmers entering the system as target farmers. In the Indonesia case we refer these farmers as 4C farmers, and in the India case as treatment farmers. In some cases we do share insights from comparisons groups or talk about the group (control and treatment/target) as a whole, but when doing so we make this explicit to aid the interpretation of results.

The following page summarises the three studies and the characteristics that make these market led interventions. There is also information on the research teams commissioned to undertake this work and the research design and methods used to gather information.

Table 1: overview of studies

RESEARCH TEAM	MARKET LED	INTERVENTION	METHODOLOGY
The Committee on Sustainability Assessment (COSA) in collaboration with their local research partner, IITA.	CMS (Coffee Marketing Services) is one of the eight coffee marketing agents in Kenya. These market agents are responsible for selling the coffee to local and international coffee buyers.	Fairtrade and UTZ – Coffee – Western Kenya The Mount Elgon region of Western Kenya is one of the country's poorest regions and is emerging as Kenya's next "coffee belt". Western Kenya has less experience with standards and certification, and it also faces processing and quality challenges. With support from Solidaridad, CMS is training farmers and assisting them to achieve Fairtrade and UTZ certification. CMS sees UTZ and FT as having complementary strengths and providing better access to international markets.	Quasi-experimental (2 treatments and 2 controls) research design examining change over time in 6 cooperatives and a sample of farming households. Household survey sample size 696 (120 households from each of the 6 select producer organisations) with buffer for 10% attrition at end line. Mixed methods include: household and producer organisation surveys, participatory rural appraisals, farmer focus groups and key informant interviews.
Natural Resource Institute of the University of Greenwich in collaboration with local partners (Centre for Economic and Social studies, Gujarat Institute of Development Research, Pragmatix).	BCI's commercial members use the BCI platform to procure sustainable cotton. Projects like this one run by PRDIS (Participatory Rural Development Initiatives Society) help increase the availability of BCI licenced cotton. Adoni town is also an important trading centre in Andhra Pradesh with more than 200 ginning and pressing factories.	Better Cotton Initiative – Cotton- Andhra Pradesh, India The site chosen for the study is Adoni Mandal (subdivision) in Kurnool district of Andhra Pradesh, India. Adoni offers favourable conditions for cotton production, with more than 18,000 farmers deriving their main livelihood through cotton farming. The intervention is a BCI project implemented by a BCI implementing partner in India and funded by the Better Cotton Fast Track Fund (BCFTP), aiming at building the capacity of smallholder cotton farmers to be licensed according to the Better Cotton Standard. In the initial phase of the project, the implementing partner will work with one producer unit (to be developed) of approximately 2,000 farmers; up to 10,000 farmers will be reached before the end of the planned five-year project.	Theory-based experimental design using a clustered randomised control trial (RCT) implemented in 5 intervention villages and 5 non-intervention villages. Mixed methods include: household survey- sample of 729 households (320 each for treatment and control households) with buffer for 35% attrition at end line), qualitative interviews, focus group discussions, and a 'blind' household panel survey tracking the experience of a small number of households in more detail over the life of the study.
University of Sydney working in collaboration with the University of Lampung, J-PAL (Poverty Action Lab) SurveyMETER.	Robusta coffee from Indonesia is often sold into the global market as a cheaper filler for commercial blends or to be processed as instant coffee. Many international market actors are actively promoting the verification and certification of smallholder coffee farmers to sustainability standards in Lampung and more recently in South Sumatra to meet their own sustainability commitments.	4C/GCP and SAN/Rainforest Alliance – Robusta coffee- South Sumatra This study focuses on the impact of interventions that aim to bring Robusta coffee famers in the Semendo region into compliance with two different levels of sustainability standards: (1) Maintenance of compliance with the 4C code of conduct (a baseline coffee standard) and (2) preparation of 4C compliant coffee farmers for certification to the Sustainable Agriculture Network/Rainforest Alliance coffee standard. This is implemented by a local implementing partner, IndoCafco (Ecom's Indonesian coffee export operation).	Experimental design using a randomised control trial (RCT) for evaluating changes from 4C to SAN/RA standard, and quasi-experimental matching design (propensity score matching – PSM) for assessing changes over time of 4C verified farmers. Mixed methods include: Stakeholder interviews, quantitative survey (979 households for RCT and 609 for PSM) and a pilot of a village case study. Additional research is planned in 2016 (village case studies and farmers' perceptions survey)

2. Baseline Findings

2.1 What do we know about the study areas? Quick facts and figures in baseline reports

Table 2: Characteristics of study regions

	Better Cotton Initiative – Cotton- Andhra Pradesh, India	Fairtrade and UTZ – Coffee – Western Kenya	4C and SAN/Rainforest Alliance – Robusta coffee- South Sumatra
Location	Adoni Mandal (India)	Bungoma county (Kenya)	Semendo region (South Sumatra)
Importance of agriculture	• About 70% of the working population of the district are either directly or indirectly engaged in agriculture	• Agriculture is the primary occupation in the county with 50.3% involved in agricultural production compared to 43.5% in rural Kenya	
Natural resource production	• India currently produces 27% of total global cotton supply (with 36% of global cotton producing area) • More than 60 million people in India are associated with cotton farming, processing, ginning and in the textile industry • India is unique in cotton production due to the range of agro-climatic and soil conditions • There has been a shift to Bt cotton (genetically modified) which is leading to increased agrochemical and labour inputs and higher yields	• Coffee production has declined more than 60% from peak production in 1987. • In 2013, there were 600,000 smallholders with less than one hectare of coffee production, accounting for 75% of all land dedicated to coffee production in Kenya • Highly regulated market where famers must be organized in producer organisations (POs) and coffee societies, and must sell via marketing agents approved by the government	• 1.2 million hectares in coffee production in 2012, 96% of which is managed by smallholder farmers • Sumatra was responsible for nearly three-quarters of coffee production in Indonesia
Coffee and cotton in the study region	• Roughly 10% of the cultivated land in the region is used for cotton production • Cotton production, ginning and pressing takes place in Adoni/ Kurnool while the spinning happens in Tamil Nadu and other states • Adoni offers very favourable conditions (black soil) for cotton production • About 39% of cotton farmers in Adoni are smallholders (less that two hectares of land dedicated to cotton production). • The shift to Bt cotton has been comprehensive • There were no prior sustainability programs	• Kenya's next "coffee belt" with potential for increasing productivity levels • Border with Uganda, where the coffee market is liberalised. There are issues with Kenyan coffee being sold illegally • Bungoma county has 30 coffee producer organisations representing around 6,000 members • This region produces approximately 4% of Kenya's total coffee production	• Coffee growing region since 1870s • Around 15,000 hectares of coffee land cultivated by 8,000 households • Coffee land area surrounded by rotection Forest • Considerable out-migration responsible for coffee expansion across southern Sumatra • No prior sustainability programs in the area
Livelihoods	• Mixed livelihoods of agriculture (mainly cotton but also chilli, groundnut, sorghum and paddy). • Hired labour and migration • Cotton is the main source of income for more than half (18,232 households) of Adoni households	• Mixed livelihoods of coffee, maize, wheat, sugar cane and tea • One of Kenya's poorest regions	• Mixed livelihoods of coffee, rice, fruit trees and off-farm income

2.2. The dynamics of certification

2.2.1 How are these farmers becoming part of standards systems?

The three interventions[4] that were the focus of the baseline evaluations are **primarily driven by market players**. There are interesting differences between each of the cases, and the end line results will provide an opportunity to unpack the effectiveness of various market-driven models directing certification.

The Indonesia case brings the example of a coffee value chain **led by an international trader**, ECOM. The organisation is committed to advancing their sustainability agenda and is emerging as an important player in the Indonesian coffee market, where it operates through its coffee export partner Indocafco. The other coffee case represents a slightly different market-led initiative. In Kenya, the intervention is driven by a **local marketing agent (CMS) connected to international markets**. This is a more 'localised market-led approach', which is influenced at the margin by an international NGO (Solidaridad), which funds CMS's activities to get farmers certified. Contrary to the Indonesia case, where the market is liberalised, in Kenya the coffee market is highly regulated. In practice this means in Indonesia, coffee farmers can choose whether or not to sell to Indocafco, while in Kenya farmers have no other choice than to become members of coffee societies (equivalent to coffee cooperatives) and sell their coffee to marketing agents approved by the government. In both cases the exporter is also the implementing partner that drives the delivery and content of the training that farmers receive.

In the India case, the pull factor from the market comes from the international brands and important players that are members of BCI, who have made commitments to source BCI licensed cotton through BCI's traceability portal and market place. This specific project in the region of Adoni is funded by the Better Cotton Fast Track Programme[5], defined by BCI as a "market-driven coalition of like-minded private and public partners". With the support of the fund, one of BCI's implementing partner in India is executing the project on the ground. So while the Indonesia and Kenya market players are directly involved and acting as implementing partners, in India, **BCI's implementing partner is a local NGO**.

Generally, standard-setting organisations such as SAN, Fairtrade International and UTZ are not directly involved in preparing farmers towards certification.[6] These processes are normally led by other actors that are part of standards' systems - capacity building organisations. In this context of market-led certification, market actors take the lead in deciding the regions and groups to become certified and preparing them towards certification. Unless this is done in close collaboration with standard-setting organisations (e.g. in a joint pilot or project), it is even more complicated for standard-setting organisations to be aware of what the pipeline for entities applying for certification looks like. The BCI case is slightly different because this project was funded via the Better Cotton Fast Track Programme, which gives the BCI secretariat the opportunity to be closer to a range of projects that involve getting farmers licensed, as the implementing partner in charge of preparing farmers towards obtaining the BCI license are also part of BCI's system.

2.2.2. What does the intervention package look like?

Access to training is a central component of interventions seeking to get farmers into a standard system. The content and level of the training typically starts with an initial assessment against standards' criteria and guidance provided in the standards. All three cases employ various models of 'train the trainers' approaches, which means that it is normally the lead farmer that attends the training provided by the implementing partner and demonstration plots are normally used in these approaches. The lead farmer is then expected to replicate the lessons learned and teach other farmers the new practices that he/she has learned about.

In Indonesia, the implementing partner invested in setting up a training centre in Semendo. In India and Kenya, the approaches followed 'farmer field school' and 'promoter farmers' models. Training takes place before the audit or verification process with the aim of driving improvements that will enable farmers to meet the requirements needed to pass the audit. There are also follow up trainings and services, which vary in intensity across the three cases. The training services are provided by the implementing partner, who typically hire agronomists for this, as training has a heavy focus on Good Agriculture Practices (GAP). As mentioned earlier, standard-setting organisations like SAN, Fairtrade, UTZ and BCI are not involved in training farmers directly. Their capacity building activities focus on providing training to other capacity building

[4] Interventions refers to the package of activities implemented to support farmers achieve and maintain certification/verification
[5] More information on the Better Cotton Fast Track Progamme is available on BCI's website: http://bettercotton.org/wp-content/uploads/2014/07/Better_Cotton_Fast_Track_Programme.pdf
[6] For a description of what a typical standards systems intervention looks like, please refer to section 4 of the methodology report *Lessons learnt on research design and methods from the baseline phase of three impact evaluations (*Rangan, 2017*)*

actors or their implementing partners and, in some cases, offering informative sessions directly to the groups that are interested in becoming part of their system.

Table 2 below represents key components of the intervention package. We constructed this table with information available in the three baseline reports and used the interpretation of the interventions by the research teams. Without parallel information across the three studies this table does not intend to compare the intervention packages.

Table 2: Key components of the intervention package in each of the three locations

India	Indonesia	Kenya
• Training groups formation - BCI Learning Groups (LG)	• Training groups formation	• Training groups formation Existing formal group
•Cost covering: training and verification (audit) covered	•Cost covering: training and certification (audit) covered	• Cost covering: training and certification (audit) covered
• Training[7] – Farmer Field Schools approaches	• Training – train the trainers farmer groups Access to training with agronomist from the Farmer Training Centre in the Semendo	• Training – Farmer Field Schools approaches
• Post-harvest monitoring, recording and submission of data on BCI results indicators by each BCI LG	• Post harvest monitoring	• Post harvest monitoring
•The project plans to engage with ginners to sensitize them about better cotton custody system. Similarly PRDIS is expected to facilitate financial and market linkages for the BCI project farmers.	• "Certification premium" - To encourage Semendo farmers to participate in the production unit, ICC offers a 'certification' premium of 300IDR/kg (around 3US cents/kg), in addition to a variable quality that may reach 2000IDR (20 US cents/kg).	• Farmers have to sell to the producer organisation, which has annual contracts with marketing agents. The list of agents is approved by the Kenyan authorities.
• No license premium guaranteed	• Farmers are not obliged to sell their coffee to ICC	• No certification premium guaranteed

Source: Bennett et. al., 2016, p11

CMS proposed process for Fairtrade certification

1. Perform gap analysis
2. Oversee meeting between the Fairtrade liaison officer and board members of each FCS (Farmer Cooperative Society) to introduce the principles and standards.
3. Conduct promoter farmer elections, form farmers into groups and train on Good Agricultural Practices (GAP). Promoter farmers will be trained to do all pest control spraying for farmers.
4. Perform fortnightly quality analysis during processing period with CMS-Eldoret Mills and use results for quality monitoring.
5. Conduct soil testing and distribute results to farmers.
6. Set up six demonstration plots and conduct monthly training on coffee calendar of activities.
7. Train processing staff on good processing practices.
8. Make sure all required signage is posted and FCSs meet all good labour practices for processing staff.
9. Purchase, distribute and train promoter farmers and FCS management on use of complete personal protective equipment (for pesticide application).
10. Purchase, distribute and train on use of first aid kits (during Occupational Health and Safety training).
11. Develop the Internal Control System, help the producer organisation internalize and comply with it.
12. Complete application and registration with FLO for FLO Audits in May/June upon confirmation.

[7] Key topics for training interventions in the India case. 1) Soil Health: in-situ water conservation, deep ploughing, enrichment with compost, ploughing across the slope, 2) Repeated inter-cultivation, crop rotation, plant population, 3) Collective marketing and better bargaining 4) Reduction in use of pesticides and fertilisers, timely application, correct dosage, 5) Proper harvest and storage.

2.3 Profiling farmers and groups: Who makes it into the system and why

2.3.1 What is the status in terms of group formation and strength of producer groups?

To deliver training the implementing partners need to work with farmers organised in groups. Hence, one of the first outputs of the early phases of the projects was that farmers became part of groups.

The three cases have **different starting points regarding the stage and strength of organisational strength**. On one side of the spectrum, when the implementing partner in India started the mobilisation phase, farmers were unorganised and had little experience in tapping into the potential of social capital provided by community institutions. At baseline, only one third of the farmers in the treatment group were part of any community institution. In Indonesia, at baseline there were already 95 farmer groups organised under one 4C unit. Of those 95, 29 were offered to step up to SAN/RA but were not certified yet when the baseline measurements took place. When the Semendo 4C programme started, farm households were recruited through existing farmer groups. On the other side of the spectrum, the implementing partner in Kenya is working with formalised producer organisations that have been established for more than forty years. At baseline, two groups were going to be certified and together they represent more than 3,900 active farmers.

Producer organisations play a pivotal role enabling or hindering sustainability changes at the farmer level. For this reason, the research team leading the study in Kenya made producer organisations one of the units of analysis for the baseline. Findings depict a rather **challenging situation for producer organisations in Kenya**, characterised by weaknesses in transparency and democratic processes, gender inclusion, business planning as well as services to members. Frequent changes in leadership is both a sign and a symptom of weak organisations and although this is not covered in the baseline reports, we recently learned that a consequence of this is that producer organisations change marketing agent very frequently, sometimes on a yearly basis. This makes the process of implementing new practices and giving continuity to the support given through a marketing agent intervention increasingly difficult. Another consequence and sign of weak organisations is that farmers do not have a lot of trust in their producer organisations. In the groups that were part of the intervention in Kenya, "fewer than 50 percent of farmers thought that their producer organisations 'always' or even 'sometimes' acted in their best interest" (Kenya baseline, p.44). The follow up study will shed light on the extent to which producer organisations have been strengthened and what factors played a role in that.

Groups and farmers involved in the three interventions:

India: Unorganised farmers are organised into learning groups. 2,055 farmers are expected to join 56 learning groups. In three years from now there is also the option to develop a producer company.

Indonesia: 2013 data shows that the Semendo 4C programme included 2,216 mostly organised farmers (groups were formed taking existing groups where possible). Farmers were grouped into 95 groups and formed a 4C unit. For the second intervention, stepping up from 4C to RA/SAN, the research team identified 29 4C verified farmer groups in the Semendo programme that were offered to become RA/SAN certified

Kenya: Farmers organised in POs that have been established for at least 40 years. 3,953 farmers in two groups.

2.3.2 Which farmers get chosen and why?

The three interventions are aimed at farmers in regions not previously involved in certification. This is partly influenced by a global trend whereby leading brands and manufacturers are trying to mainstream sustainability. They have made important public commitments around their sustainability agendas and the goals that they strive for. Meeting those targets requires a shift in terms of the speed and volume of sustainable products entering global supply chains. As many of these market players believe in certification as a market-based tool that can help meet their sustainability goals, they are putting efforts into bringing certification to new sourcing areas. In these new supply chain investments they appear to be reaching more vulnerable farmers, although the need to secure certain volumes and quality means that farmers with most production potential are entering the system first. In the three studies, **production volumes and yield potential has proven to be an important selection factor.** This is mainly because the market viability of these interventions is fundamental and market actors are trying to minimise the risk associated with entering new areas.

In the case of India, the implementing partner prioritised farmers in the Adoni region that were producing cotton in black soil areas, which is the best type of soil to maximise cotton production. Likewise, in the two coffee cases there is a tendency from market players to focus on areas with greater production volumes and potential. In the Mt. Elgon region, also known as the

'new coffee belt', there is a high potential to increase coffee yields, making this an attractive area for the marketing agent. The research team found, "conditions in the region can result in yields of more than 2,000 kg gbe[8] and some farmers achieve this" (*Bennett et. al., 2016, p6*). However, average yields for the target farmers is 537 kg.gbe/ha[9]. Technical efficiency analysis shows high potential for interventions to increase incomes by raising the efficiency of farmers toward the level of the most productive farmers - average technical efficiency for farmers entering the system is 49%. The Kenya case also offers an interesting perspective in terms of how intervention areas are selected. In this case, the international NGO funding the intervention included specific selection criteria highlighting the need to reach out to areas with more vulnerable populations of coffee growers. This meant that the marketing agent acting as implementing partner chose an area with clear potential, but that it is perhaps more challenging than their typical supply chain investments.

Table 3: Characteristics target farmers in Kenya (%)

Indicator	Target
Farmer age	47.8
Farmer years of experience	20.7
Farmer school grade completed	8.3
Female principle decision maker (percent)	35.6
Number of household members	5.9
Dependency ration	88.5
Owns all land (percent farmers)	90.4

Source: Bennett et. al., 2016, p27

In Indonesia, the baseline findings, concluded that coffee productivity was notably higher in the 4C verified group (even though this is a baseline study, it included 4C verified farmers that had been in the system for two years). Interestingly, for those outside of the programme there was also a perception that being 4C verified led to better performing producers. Interviews with farmers that were aware of, but did not participate in, the intervention highlighted how some farmers believed that they needed to have a minimum between 50 to 100kg of coffee available for sale and that coffee needed to be of certain quality.

Land area, and especially land area dedicated to these cash crops (coffee and cotton), plays an important role in determining the potential for production volumes. The farmers selected to enter standards systems have small farms,[10] but in most cases their total land area is larger than for the control groups. There are differences between the three studies in the percentage of production area dedicated to the focus crop (81% in India, 72% in Indonesia and 31% in Kenya).

Although market actors are reaching new areas, the farmers entering the system are still relatively close to market centres. This is particularly important for making sure that the right amount of product and desired level of quality are entering the supply chain and the Adoni and Semendo regions provide great examples of this. Adoni town has become an important trading centre in Andhra Pradesh, because the region is a large producer of cotton and because of the presence of more than 200 ginning and pressing factories. In the case of Semendo, before enrolling farmers into the sustainability standard, the implementing partner established a local buying station in the region, which is a sign that market access is a necessary condition in laying the ground for a sustainability programme. In Kenya target farmers were on average 2.15km from the nearest commercial centre.

Although type of evidence is not consistent across the three baseline studies, one could say that among treatment farmers there are examples of 'entrepreneurial farmers'. In Indonesia and Kenya the majority of targeted farmers owned their land (87 % in Indonesia and 90% in Kenya). In India, 91% of famers had a bank account. In the case of Indonesia, this is actually a requirement of the buyer implementing the 4C Semendo programme (and not a 4C/GCP requirement). This is because

[8] Green bean equivalent or the final product to permit global comparisons

[9] The level of yields for control farmers is 458 and 466 kg. gbe/ha

[10] Average farm size of treatment farmers in each of the studies is lower than 3 ha

payments by the buyer are made electronically. The study in Indonesia also brings interesting insights regarding the 'entrepreneurial spirit', which showed that compared with other farmers, 4C farmers were more likely to store and sell their coffee later. They were also more likely to rent their coffee plot.

The majority **of farmers entering the sustainability programmes are experienced middle-aged men**. In Kenya and Indonesia, the average farmer age was 48 and 46 respectively. In India more than one third of the treatment farmers (38 per cent) are in 25 to 40 age group and about two-fifth of the farmers (39 per cent) are in 40 to 60 age group. In both Indonesia and Kenya, farmers had more than 20 years of experience growing coffee.

The fundamental role of women in agriculture is indisputable, yet these studies have shown how it is still men that take the majority of the decisions regarding the focus crop. In Kenya, about a third of the decision makers of the treatment group were women, and in Indonesia about 94% of the 4C verified farmers were men. In the case of India the researchers highlighted that "to date very few women are involved in the learning groups (4%), and also, information is not shared with them by their husbands on matters relating to cotton farming and marketing, because it is often assumed that they do not need to know this information" (*Kumar et. al, 2015, p105*).

2.4 Household profiles

2.4.1 What are the household characteristics of the farmers? A closer look at poverty, assets and food security

A household is a group of people, regardless of relationship, who normally live in a particular residence, occupying it wholly or partially, and who together fulfil their nutritional needs and share expenses from a common pot. In Kenya, Indonesia and India the average household size for was 6 (target), 5 (4C farmers) and 5 (treatment) respectively. Various well-being and poverty-related measures in these baseline studies indicate that the **interventions are indeed reaching relatively poorer and vulnerable segments of the farmer population**. Even if these are not the poorest households, as comparisons with other farmers and the regions as a whole show, it is clear that interventions are not only focusing on 'better off' farmers who already meet or are very closed to meeting the standards' requirements.

Table 4: Poverty related analysis in the three studies

Topic	Similarities	Differences		
		Coffee, Kenya	Cotton, India	Coffee, Indonesia
Poverty Analysis	Use of Progress out of Poverty Index (PPI) for understanding poverty status of households	Income-based poverty measure; UN's Multidimensional Poverty Index (MPI); 696 (120 households from each of the 6 select producer organisations)	Income-based poverty measure benchmarked against poverty lines; Asset-based poverty measure based on an asset ownership index, Progress out of Poverty Index (PPI)	Simple income-based poverty measure; Progress out of Poverty Index (PPI)

Source: Rangan, 2017, p7

The Progress out of Poverty Index (PPI)[11] is a poverty measure based on household characteristics and assets ownership. The three studies used this to assess the likelihood of poverty amongst treatment farmers. In India, farmers with small and marginal landholdings had a PPI score of 61.5, and those with larger landholdings 54.4, which shows that those with smaller plots of lands are more likely to be poor. The researchers also concluded that "when measured by the international poverty line of $1.88/day (at purchasing power parity –PPP), the poverty rate among participating households is 57.8 per cent" (*Kumar et. al., 2015, p72*). The average per capita per day income is $1.20 for treatment households and there are approximately 61% of treatment households at or below the internationally defined poverty line at both 2005 PPP and recent 2011 PPP. The research team in India also used an asset based methodology, the Multidimensional Poverty Index (MPI)[12] to

[11] "The PPI is statistically-sound, yet simple to use: the answers to 10 questions about a household's characteristics and asset ownership are scored to compute the likelihood that the household is living below the poverty line – or above by only a narrow margin." http://www.progressoutofpoverty.org/about-ppi

[12] The type of assets included in the MPI methodology are the following: 1) Education(At least one child aged 6-14 is not attending school, no one in the household has 6 years or more of education (among those old enough), 2) health (any child or adult in the family is malnourished , a child has died within the last 5 years) and 3) living standards (access to electricity, if there is a source of clean drinking water within a 30 minute walk from home, improved toilet, Wood, charcoal or dung are used for cooking, The floor is made of dirt, sand or dung, It has no assets that allows access to information or no assets for mobility or livelihood support.

characterise farmers at baseline. The results showed that 48%[13] of the households in the treatment groups were MPI poor or nearly MPI poor.

In India one of the most critical aspects of the households' economy is **the level of indebtedness of cotton farmers**. The majority of the farmers depend on informal loans from the 'dalal'/commissioning agent and only five percent of farmers declared selling directly to ginners. Commissioning agents charge extremely high interest rates, which can be around 24 percent. The researchers highlighted that it can take from six months to two years to recover from it financially. These 'dalals' also take two percent of sale value of the cotton when selling it to the ginner.

The research team in the Kenya found that the PPI score was 41 and on average 88% of the farmers in this group earned less than $2 a day. Overall, 66% of the farmers in the treatment group were below the Kenyan poverty line. The average asset score for the farmers involved in the programme is 2.7.

Table 5: Kenya study. Poverty measures (target farmers)

Poverty measures (target farmers)	
PPI score[14]	41
Measures using farmer reported income in the farmer survey data	
Percent poor against the Kenyan poverty line (USD 22/month)	66
Percent poor against $1.25 per day	79
Percent poor against $2 per day	88
Percent poor against $3.1 per day	93
Average asset scores[15]	2.7

Source: Bennett et. al., 2016, Appendix B

The PPI score for the 4C farmers in Indonesia was 29.4. Although in first instance the PPI value for the farmers in Indonesia does not seem very high, it is important to notice that the poverty rates exceed the 13 per cent poverty rate for Muara Enim and S.Sumatra. Insights on per capita household income and further comparisons with national poverty lines were consistent with the PPI findings in this study.

A snapshot on insights about assets (farmers entering the systems)

Kenya (on average for target farmers):

- 35% of households entering the programme have to walk for more than 5 minutes to obtain drinking water
- 34 % of the children (6-14) of farmers that are entering the programme are not in the appropriate school grade level

India (on average for treatment farmers):

- About 21% of households entering the programme have access to clean drinking water available within their house. Most of other household fetch water from a source located within 30 min walk
- About 70% of households entering the programme do not have access to a toilet and practice open defecation
- Close to 70% of the heads of household are either illiterate or have not received schooling

[13] The MPI scale is: Not deprived, deprived but not poor, near MPI poverty, MPI poor, severe MPI poverty

[14] Likelihood that households in the sample live on less than USD 1.25 (2005 ppp) per day per household member by percentage)

[15] "Asset-based identification of households is formulated according to profiles of capital stocks (human and asset capital) households possess. We categorized farmers in the sample from questions in the survey that quantified their assets and then evenly distributing the households into five quintiles according to the asset score" (*Bennett et. al., 2016, p34*). *Set of physical and human capital assets used in constructing the asset groups in the Kenya case:* Farm size, tropical livestock units (TLUs), school grades completed by household head, number of small farm equipment and vehicles owned, number of habitable rooms, electricity in the home, and possession of other household assets: radio, TV, telephone, refrigerator, bicycle, motorcycle, automobile.

- The level of agriculture asset ownership in Adoni is very low

Indonesia (on average for 4C farmers):

- 38% of households entering the programme have access to running water in their household and for those that do not have it they have to walk an average of 21 minutes to obtain water
- 41% of households entering the programme do not have a toilet in the house
- 26% have a refrigerator
- 75% have a TV
- 90% of households entering the programme have access to electricity.

The land that these farmers use to support their livelihoods is a fundamental asset. On average, in India, the smallholders entering the system have less than thee hectares of land. Researchers noted that "close to half (47 percent) of the treatment and control group of farmers in Adoni have small and marginal land holdings (< 2 ha)" (*Kumar et. al., 2015, p49*). Compared with findings from the other two studies, farmers in India have the largest land size and also dedicate the largest proportion to grow cotton. On average around 81% of total land is dedicated to growing cotton. The authors of the study in India showed the relationship between land size and poverty likelihood, which, as depicted in figure 5, is that small and marginal farmers are more likely to be poor.

In Kenya, average farmers becoming certified have less than one hectare of land and dedicate a third of their land to the production of coffee. In Indonesia, the proportion of land held specifically for coffee is larger, around 72%. With these scenarios, it is predictable that the role and leverage of standards systems for improving livelihoods will not be the same in the three cases.

Figure 4: Av. Farm size area (ha) of farmers entering standards systems

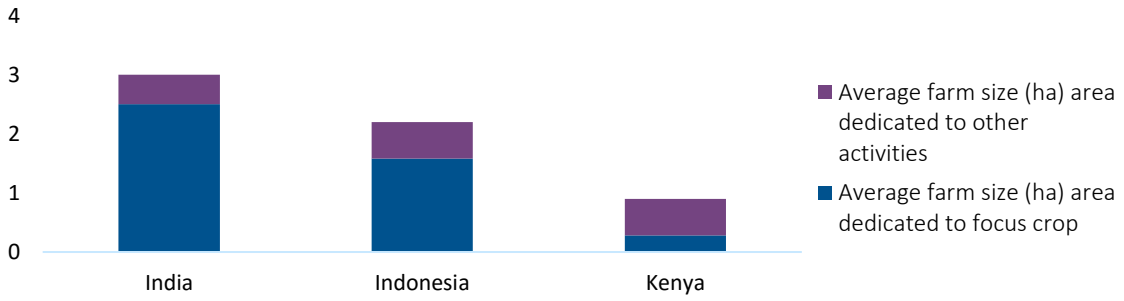
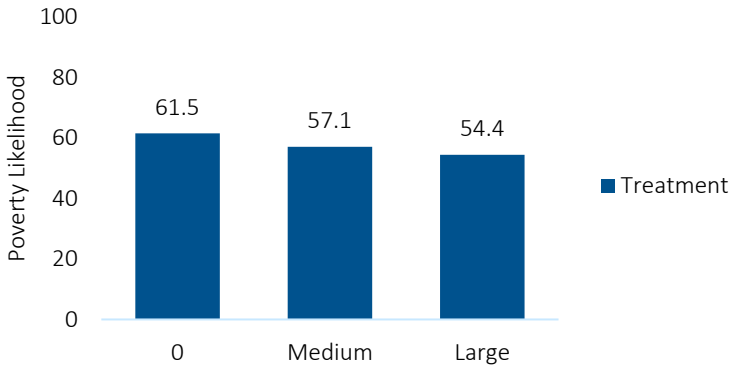


Figure 5: Poverty likelihood $ 1.90 2005 PPP (India, treatment farmers)



Source: Adapted from India baseline study, Kumar et. al., 2015

The baseline findings also reveal that there are cases of **food insecure households**. In Kenya for example, 36 percent of farmers reported that they have had some hunger days. In India, since most of the land in the farms is dedicated to growing cotton, families have to purchase food and they do so in the open market and public distribution system. The researchers

pointed out that basic levels of food security are being achieved and they expect small and marginal farmers, as well as migrant labourers, to be suffering moderate levels of malnutrition.

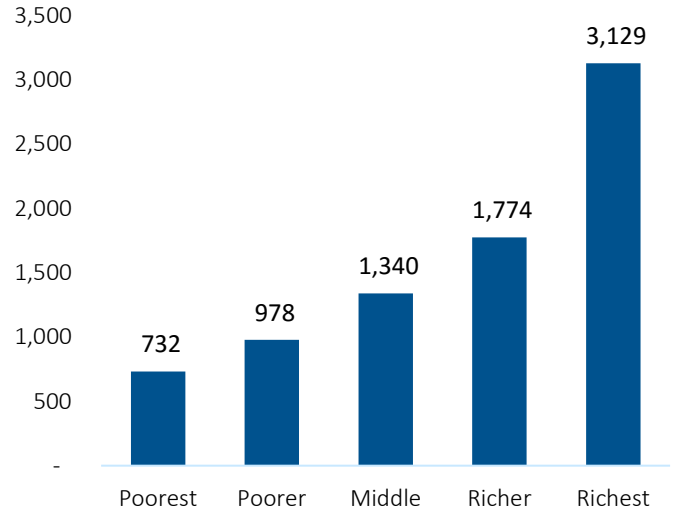
With these studies we are interested in understanding if and how sustainability outcomes vary depending on the type of farmer. The research team in Kenya gave insights on how farmer characteristics and a number of sustainability outcomes varied for different levels of assets and poverty. Table 6 below shows how the poorest farmers have the lowest yields and lowest net income from coffee. The poorer and poorest farmers also get a larger percentage of total household income from coffee - 26 and 23 per cent respectively. Interestingly the poorest and poorer farmers are receiving, on average, higher proceeds per kg of gbe coffee. Figure 5 clearly illustrates the relationship between the level of assets and the total household income, with the poorest farmers having the lowest income and the richest farmers according to asset levels having the highest incomes.

Table 6: Farmer results by poverty classification (target and control farmers)

	Income compared to Kenyan Poverty line		Asset measure comparisons				
Indicator	Below	Above	Poorest	Poorer	Middle	Richer	Richest
Farmer characteristics							
Education household head (years)	7.9	9.8	4.8	7.2	9.3	10.0	11.2
Total farm area (ha)	1.01	1.32*	.63	.82	1.0	1.2	1.9
Coffee area (ha)	0.26	0.34	0.22	0.21	0.31	0.31	0.38
Sustainability indicators							
Average price of coffee received (USD/kg gbe)	36.2	39.3***	38.7	38.1	37.1	34.7	37.1
Average yield (kg gbe ha)	458	555**	410	492	481	506	566
Cost (USD/ha)	100	212	87	99	130	136	215
Net coffee Income (USD/ha)	795	934**	741	917	836	827	896
Total net income	752	3,572**	732	978	1,340	1,774	3,129
Net income (USD/ha)	1,091	4,060	1,416	1,571	1,926	2,114	2,804
Percent total household income from coffee	25	10**	26	23	21	18	13

Source: adapted from Kenya study, Bennett et. al., 2016, p36

Figure 6: Total household income ($) by asset group (Kenya study. target and control groups)



Source: Bennett et. al., 2016, p43

2.4.2 What are the livelihood strategies for households? What is the role of the certified crop in the household economy?

The three studies show how, in addition to producing cotton and coffee, the households targeted by these interventions rely on **other important economic activities**. This in turn leads to questions around the role of coffee and cotton in the overall household economy, and their potential to improve livelihoods when these interventions are undertaken without additional actions from the public and/or private sector.

In India, cotton is reported to be the main source of household income for farmers entering the BCI system (80% considered this their main source of income). The second main source of income for Adoni households is agriculture wage labour, followed by other agriculture crops. Given that cotton plays such a central part in households' economic activities, it is not surprising to see that for farmers entering the BCI system, **75% of the household income comes from cotton.[16] For the two coffee cases, the percentage of household income coming from coffee around 52%[17] in Indonesia and 24% in Kenya.** For economically vulnerable households every activity is a key piece of the puzzle. In the Kenya case, for example, even though the income from coffee is less than a quarter of total household income, the timing of when this income is received makes it quite central to the household economy. "According to the focus groups, even though the percentage of income from coffee is modest, farmers feel they have little choice but to grow coffee because of the role it plays in bringing a lump-sum of cash for school fees or food purchasing during the lean or 'hunger months'" (*Bennett et. al., 2016, p60*). The importance of coffee farming for these Kenyan households is also proven by the fact that most farmers would be satisfied if their children became coffee farmers. For these Kenyan households, income generated from wages is the most important income category.

In Indonesia, "whilst it is clear that agriculture is important to a large number of households, non–agricultural income was identified as more important by the majority of households, reflecting the relatively advanced stage of rural transformation in the village" (*Neilson and Toth, 2016, p23*). Contrary to farmers' perceptions in Kenya, in Indonesia many parents expressed preferences for a future where their children could have access to off-farm employment.

[16] This percentage has been calculated dividing the average annual household income from cotton (101,880) by the average annual household income (INR) 134,991.

[17] This figure is not for the all 4C farmers, but for the propensity score matching sample of 4C farmers. The 4C sample in this case is 742 farmers.

Table 7: Primary income sources in Adoni (treatment)

Occupation	Treatment	
	Primary	Secondary
Cotton cultivation	80%	20%
Other agricultural crops	4%	27%
Agri labour	9%	38%
Agri allied	0%	3%
Casual labour	2%	4%
Trading	0%	0%
Government service	0%	0%
Private service	3%	3%
Petty business	1%	1%
Domestic household worker	0%	0%
Other	1%	2%

Source: Kumar et. al, 2015, p70

Table 8: Annual household income estimation from combined primary and secondary income sources (average treatment)

Income estimation - household	Treatment
Primary Source: Cotton incomes per ha.	₹40,752
Average land holding under cotton	2.5
Average annual household from cotton	101,880
Annual income from other sources (estimated)	33,111
Average annual household income (INR)	134,991
Average household income per day (INR)	370
Per captia per day (INR)	78
Per captia per day (USD)	1.20

2.4.3 A closer look at the profitability of coffee and cotton at baseline

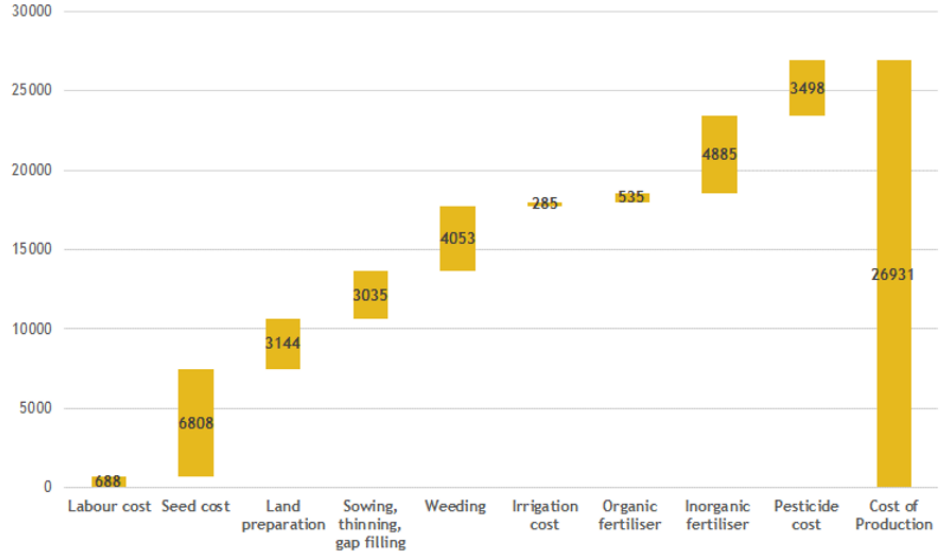
In Kenya, the researchers noted that for farmers participating in the intervention, yield and prices were key to understand the profitability of coffee, more so than costs. They noted the relationship between prices received, international coffee market prices and the quality of the coffee. It is interesting to see how, after including the opportunity cost of family labour into the calculation of net income, the research team concluded that coffee is not a profitable crop for these households entering certification programmes. This is supported by farmers' perceptions, since only 25 percent of the farmers thought that coffee was profitable. However, as noted earlier, coffee revenue is important because it generates vital cash for low cash investment.

Source: Kumar et. al, 2015, p70

The research team in India highlighted differences in profitability between farmers with different land sizes. Large and medium-scale farmers had higher profits, which were associated with having lower production costs. At the same time, medium-scale farmers had better yields than small and large-scale farmers. Of the group of farmers entering the BCI system those with access to irrigation and those planting on black soil were better off in terms of profitability. As for costs, the two most important components are labour and agrochemicals. Just like the research team in Kenya, the team conducting the research in India also noted the important role of unremunerated household labour in calculations of real profitability. For treatment farmers the baseline values of profits from cotton cultivation is Rs.40,752 per hectare but after deducting the cost of household labour that comes to Rs.25,932 per hectare.

With regards to agrochemicals, if the BCI intervention manages to reduce the excessive and unbalanced use of agrochemicals, there is a great potential to not only improve the environmental and health conditions, but also to reduce costs and improve yields.

Figure 7: Cost of production of cotton (Rupees per Ha) – treatment group



Source: Kumar et. al., 2015, p62

2.5 Practice adoption: The key to deliver sustainability outcomes

The implementation of good agriculture practices (GAP) is a central piece in the theory of change of all the standards systems studied in these evaluations. These practices, which are typically specified in the content of the standard, are short term outcomes with a great potential to unlock medium and long term outcomes such as higher yields, better health for workers, and reduction of pollution. The baseline studies took a snapshot of the knowledge, type and intensity of practice adoption and in most cases[18] before farmers became certified, and in the follow up studies planned for 2018/2019, we will explore changes in the level of practice adoption.

When researching[19] the impact of standards systems, it is necessary to have a good understanding of the content of the standard and that includes clarity in terms of if and when each of the criteria are applicable. For instance, the five standards systems (FT, UTZ, 4C/GCP, BCI and SAN/RA) that are part of these three evaluations, all have some sort of stepwise approach (e.g. minimum requirements, critical criteria etc.) to demonstrating compliance with the standard. This means that to become certified or verified in first place, not all the criteria may apply, or it might not be necessary to comply fully with each of them.

The findings from the three baseline evaluations present a clear picture: **a low and uneven level of knowledge and application of GAP amongst farmers entering the programmes**. There is also consistency across the studies in highlighting the potential for standards and implementing partners to improve this situation, although the influencing factors currently posing a barrier for the adoption and maintenance of GAP are likely to challenge that potential. Some of these barriers are outside of the sphere

[18] In the Indonesia case the baseline measure was taken before farmers became certified to the SAN standard (RA) but farmers had been in the 4C system (now Global Coffee Platform) for two years.

[19] For more information on this please read ISEAL's guidance for researchers: http://www.isealalliance.org/sites/default/files/private/Researchers'%20Guidance%20Note%20Final%20Apr%202016.pdf

of influence of standards systems, while others will require close collaboration with other actors that also have a responsibility and interest in improving farmers' livelihoods.

Before digging deeper on the findings, a reminder that the three interventions expect to drive the adoption of practices via 'train the trainer' models, although there are differences between the models. Access to critical inputs, such as fertilizer and credit, are also part of the intervention package, but these have been explored to a lesser extent in the baselines. The three interventions are led by different types of actors: an exporter that is partnering with an international trader (Indonesia); a local exporter/marketing agent connected to international markets (Kenya); and a local NGO that is an implementing partner of the BCI system (India). When the follow-up studies are finalised, this set up could be an opportunity to unpack the strengths and weaknesses of the various intervention models in relation to practice adoption.

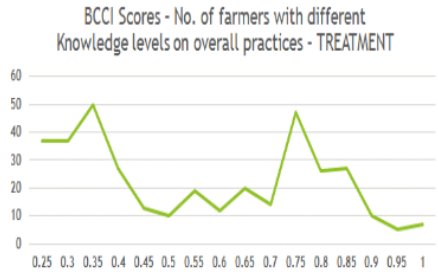
Table 9: General characteristics of the training package of the three interventions

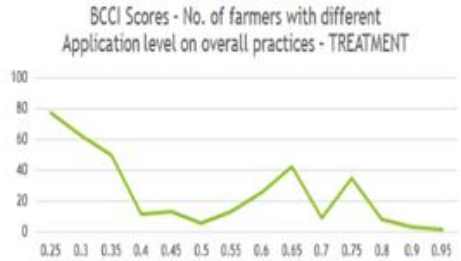
India	Indonesia	Kenya
• At the time of the baseline data gathering effort, the implementation partner was mobilizing learning groups. One of them is a women only group. • Lead farmers were starting to be sensitised about their role. • As the project is only starting now, only a few farmers reported to have received the Farmer Field Book and are starting to record information on it.	• Pre-certification training: 10 training sessions that cover 4C/GCP's unacceptable practices, use of equipment, safety procedures, and quality assurance. • Follow-up services • There is not always dedicated training given prior to SAN/RA certification, though ICC uses SAN/RA online training materials to make presentations at ICC events with the farmer groups.	• 24.3 % of farmers have attended training so far, but not necessarily related to this intervention • Coffee farming was the topic that most farmers attended. Within that, the most attended topics were pruning, synthetic and organic fertilizer use, and soil fertility management, with between 11.3% and 25.2% of farmers participating depending on the training and sample group. • Average hours of training: 8

A common causal chain for driving change towards sustainable livelihoods is based in the assumption that for new practices to be adopted, knowledge has to increase. Thus, increased knowledge on GAP is the first short-term outcome that a training intervention aims for. To capture insights on this aspect, the research team for the BCI case in India developed a "Better Cotton Composite Index"[20]. The Index is built in such a way that it will be able to indicate progression as farmers demonstrate increased knowledge and application of Better Cotton practices. The research team prioritised 39 Better Cotton practices as part of this study, and of those 17 (15 for rainfed plots) are recommended by BCI as part of the Minimum Production Criteria (MPC). The baseline results indicate that the overall BCCI knowledge and application score for treatment farmers is 0.55 and 0.43 respectively, highlighting the opportunity of this project for increasing the knowledge of cotton farmers.

Figures 8 and 9: Knowledge and application of practices by farmers entering the BCI system (treatment)

Figure 8: Distribution of farmers on BCCI score

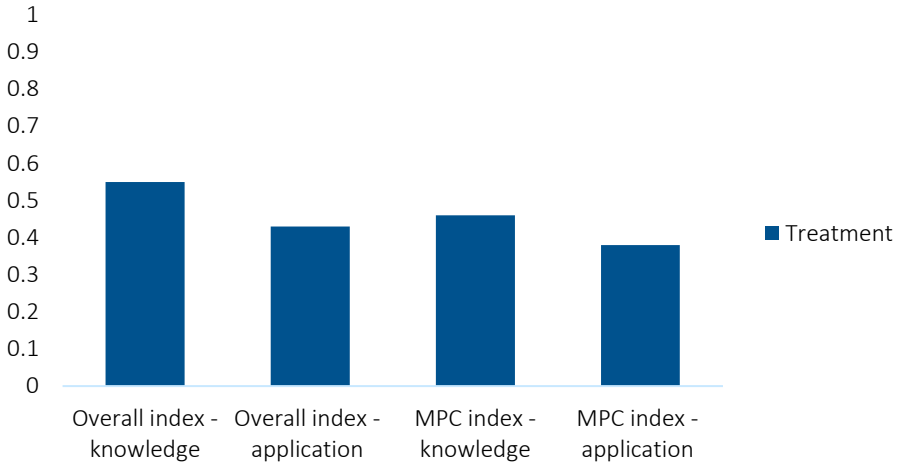




Source: Kumar et. al., 2015, p60

[20] The basic unit of construction of the BCCI is the six production principles within which BCI has recommended certain practices to be applied by the Better Cotton famers. Some of those principles are min. production principles and others not. If all the farmers in the BCI project adopt 80% of the Better Cotton Practices, then the project will be able to achieve the maximum score of 1.

Figure 9: Better Cotton Composite Index – BCCI (Rainfed) – on BCI Recommended Cotton Production Practices. MPC (min. principle criteria)



Source: Kumar et. al., 2015, p58

As discussed frequently in the literature on interventions aiming towards sustainable livelihoods, **even when knowledge is gained, farmers might not put it into practice**. The study in Kenya, for example, shows that "in at least five of the focus groups, the farmers said that since all coffee is delivered into a single processing stream with the coffee from all other producer organisation members, with no provision made for price differentials, it dampens farmers' willingness to make extra efforts to improve quality" (*Bennett et. al., 2016, p45*). In the last section of this document, we present in more detail the influencing factors identified in the three studies. Some of those influencing factors are not only preventing farmers from adopting new practices but also from maintaining that practice over time. One of the hypotheses outlined in the ISEAL Research Agenda on the effectiveness and impacts of sustainability standards[21] that we are testing in these three impact evaluations is whether certification/verification (one specific component of the intervention package) plays a role in maintaining best practices longer than those who receive capacity building support alone. Another important point with regards to practice adoption and change is that most practices do not have immediate and tangible results. The implementing partner in Kenya made clear that it takes a minimum of two years to see change in yields after successfully trained farmers implement GAP in an appropriate manner. The research team in Indonesia also highlighted that practice adoption is a long term endeavour, after the baseline findings revealed that the differences between 4C farmers, who had been verified for two years, and non-verified farmers was minimal.

2.5.1 Practices related to economic and environmental outcomes

Overall, the studies reveal a baseline situation of **low and/or inadequate adoption of practices** that can lead to economic outcomes, such as better quality, higher volumes of production, and higher crop revenues. On the environmental side, there seems to be a widespread situation of unbalanced and inadequate use of fertilizers and pesticides, although there are differences between the three studies. On the more positive side, some farmers are applying conservation practices and all the studies highlight the opportunity for improvement.

In Kenya, there was low adoption of the use of fertilizer, pesticides, weeding and pruning, which are key productivity related practices. Interestingly, the Kenya study distinguished between adoption and intensity (the amount use). In the case of weeding, for example, while the percentage of farmers using this practice exceeded 95 percent, the intensity of weeding was low. The authors' conclusion is that not using good coffee production practices was the main reason why many of the farmers had lower yields. This reflects the concept that, to better enable sustainability outcomes, we need to understand which GAP are being implemented, the intensity of implementation, and what this means in the context in which the farmer is operating. Another useful baseline insight is that 76% of the farmers entering the programme mentioned that the main reason for not using fertilizer was the lack of funds to pay for it.

The research team from India also found that cotton practices that are directly linked to enhancing the quality of cotton fibre could be improved. It was also noted that "few farmers [control and treatment] use border crops or do intercropping – a few grow red gram alongside the cotton. Very few farmers use the refuge seeds, that they are supposed to use alongside the Bt

[21] Available at http://www.isealalliance.org/online-community/resources/researching-sustainability-standards-what-are-our-priorities

cotton as a resistance management strategy. Intercropping practices among farmers are not very popular" (*Kumar et. al., 2015, p60*).

In the Indonesia case, the authors concluded that pruning and grafting of new planting material are the most widely implemented crop management practices. Most of the farmers were weeding the coffee trees at least three times a year. Post-harvest handling appears to be the most significant positive change in the time that the implementing partner has been working with these farmers. They also drew attention to farmers relying on chemical input and the small emphasis on organic soil nutrition. One of the main reason for not applying chemical fertilizer is that 86% of farmers cannot pay for it.

Table 10: India study, Percent of farmers aware of and applying management practices related to fibre quality (treatment)

Management Practice – Fibre quality	% Farmers – Treatment Group	
	Knowledge	Application
Seed rate and row spacing	89%	83%
Ensuring low trash and contamination	7%	4%
Harvest management and general hygiene	52%	17%
Proper storage	49%	24%
Proper transport	51%	37%

Source: Kumar et. al., 2015, p73

Table 11: Kenya study. Practice adoption - percent of farms using specific coffee production practices (target)

Proportion of farms using specific coffee production practices	
Synthetic fertilizer	45%
Synthetic pesticides	27%
Pruning	62%
Weeding	98%

Source: Bennett et. al., 2016, Appendix B

Table 12: Indonesia study. Pruning and weeding practices (4C farmers)

Proportion coffee trees pruned in last year	
All/almost all coffee trees pruned in last prod year	65%
Most coffee trees pruned in last prod year	7%
About half coffee trees pruned in last prod year	14%
Less than half coffee trees pruned in last prod year	13%
No coffee trees pruned in last prod year	2%
Proportion of times farmers weeded coffee plots	
Coffee trees weeded zero times in last production year	2%
Coffee trees weeded once in last production year	7%
Coffee trees weeded twice in last production year	14%
Coffee trees weeded three times in last production year	38%
Coffee trees weeded four times or more in last production year	38%

Source: Neilson and Toth, 2016, Appendix. Housestatkey

As for practices that could lead to positive environmental outcomes, in the Kenya study, nearly 50% of farmers from the sample of those entering certification apply two or more soil conservation and water-use improvement measures[22]. The percentage is lower for water conservation measures (use of water catchments) at around 37.7%. The researchers explored the relation between the number of conservation practices applied and levels of assets of farmers and found that the richer the group, the higher the percentage of farmers (treatment and control) in that group that apply two or more conservation practices.

In India, the research team found that "farmers are neither aware of the right type of pesticide and its appropriate quantity to be used nor are they much aware about the right time of application of the pesticide" (*Kumar et. al., 2015, p79*). Some fertilizers (e.g. urea) are over-used while others under-used or not used, which is having negative consequences for soil health. A second direct consequence of the inadequate use is the increase in production costs - at the same time, organic fertilizers are not used and most farmers are firmly convinced that their yields will be severely affected if they do not spray non-bio/organic pesticides. Compared with five years ago, "the number of spray applications of pesticides has increased up to seven to nine times during cultivation" (*Kumar et. al., 2015, p79*).

With regards to water conservation, the study in India highlighted that farmers (treatment and control) with access to irrigation tend to flood irrigate their farmers. They do not employ water saving technologies and that leaves them without access to water after March, once the canal has dried up.

The studies show how changing the culture around the use of pesticides is going to be challenging. In Indonesia, where farmers have received more training on sustainable agriculture practices, even though farmers are aware of the buyer's requirements to reduce the use of pesticides, there appears to be little change. The studies points to the lack of local norms on this topic and enforcement as one of the factors contributing to the difficulty of changing behaviour. The handling of empty pesticide containers also shows room for improvement. In India, the main approach for this is throwing the containers off the farm- not in a dump or land field. The interviews also revealed that farmers are burning the cotton residues in the field itself and are not aware of the implications of burning the crops.

Table 13: Indonesia study. Percentage of farmers applying conservation practices (4C farmers)

Water savings measurements(percentage of farmers using)	
Water catchment/rainwater cistern used to save water	50%
Low water pulping used to save water	21%
Other method used to save water	7 %
None	22%
Environmental conservation practices that are used on the farm (percentage of farmers using)	
Natural vegetation along water	14%
New vegetation planted along water	22%
No chemical spray within 6m from water	11%
Forest protected by vegetation	9%
None	55%

Source: Neilson and Toth, 2016, Appendix

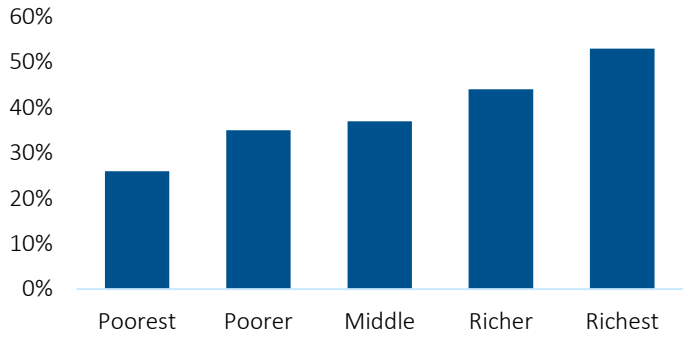
[22] "Measuring the percentage of farmers using practices for soil conservation and plant water use improvement indicates whether farmers are taking reasonable care to prevent soil erosion, maintain soil structure, and promote water percolation. Practices covered by the survey were: drainage channels or diversion ditches for water runoff, soil ridges around trees, live or deadwood fences, shade trees, hedgerows and any others that the farmer listed*" (Bennett et. al., 2016, p55*)

Table 14: Kenya treatment farmers (target)

Soil conservation and water use improve measures (percentage of farmers using)	
1 or more practices	81%
2 or more practices	48%
3 or more practices	18%
Water conservation measures (percentage of farmers using)	
Water catchments	38%

Source: Bennett et. al., 2016, Appendix B

Figure 10: Kenya study. Percent of farmers using at least two soil conservation practices by type of assets. Target and control



Source: Bennett et. al., 2016, Appendix

Figure 11: India study. Destination of empty pesticide containers (Treatment).

Source: Kumar et. al., 2015, p90

Figure 12: India study. Other destination of empty pesticide containers (Treatment).

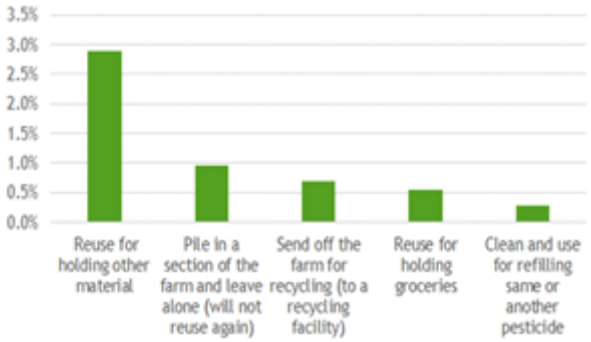


Table 15: Indonesia study. Destination of empty pesticides containers (4C farmers)

Destination of empty pesticides containers (percentage of farmers that)	
Reuse for holding other materials	75%
Send off the farm for recycling (to a recycling facility)	0.2%
Send to dump or landfill	3%
Throw off the farm, not in landfill or dump	6%
Pile in a section of the farm and leave alone (will not use again)	2%
Burn empty pesticide containers	12%
Bury empty pesticide containers	4%
Other	1%
None	12%

Source: Neilson and Toth, 2016, Appendix

2.5.2 Practices related to social outcomes

Findings indicate that there are practices related to social outcomes that would also need special attention in order to drive change. The study in India paid careful attention to this, partly because of the importance that some social issues have in the Indian cotton sector and also due to Better Cotton's interest in driving change on this topic. Poor working conditions were present and issues such as discrimination of women (e.g. lower payment, not equal access to training) and child labour were identified. The authors note that poor working conditions are partly grounded in the lack of awareness of decent work principles. This resonates with the situation in Indonesia, where farmers were not fully aware of minimum wages. Health and safety is also one of the focus of standards' requirements around social outcomes. In India for example, 37% of farmers were not using any type of protection when spraying pesticides, which poses direct negative consequences for cotton farmers' health, many of who reported health problems associated with exposure to pesticides. In Kenya, only 13% of farmers wore one or more items of protective gear and in Indonesia, the use of protective equipment is not widespread.

Table 16: India study. Health and safety knowledge and application (Treatment)

Better Cotton Practice	% Farmers- treatment	
(Production principles – 6)	Knowledge	Application
Access to potable and washing water is provided for workers/hired labour	87	77
Workers receive regular health and safety training appropriate to the work that they perform	51	34
There is no child labour	36	33
For hazardous work, the minimum age is 18 years	41	33
Employment is freely chosen: no forced or compulsory labour, including bonded or trafficked labour	37	34
Waged workers are paid wages at least equivalent to the applicable legal national minimum wage	69	47

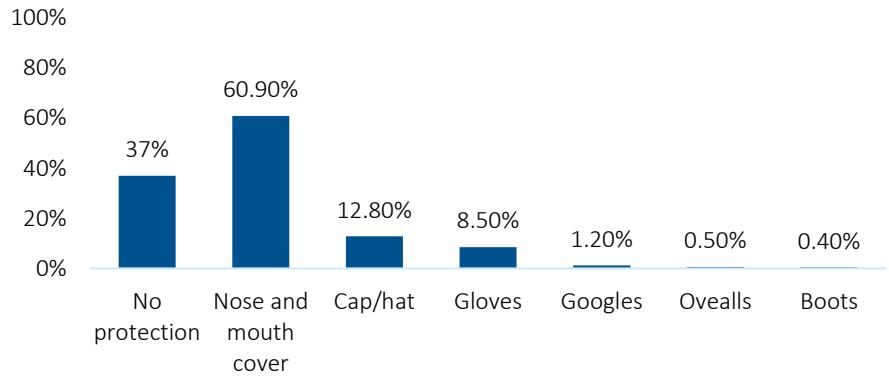
Source: Kumar et. al., 2015, p85

Table 17: Kenya study. Health and safety practice adoption

Percentage of farmers (target) who used pesticides that:	
Wore 1 or more items of protective gear	13%
Wore 2 or more items of protective gear	9%
Wore 3 or more items of protective gear	6%
Wore 4 or more items of protective gear	2%

Source: Bennett et. al., 2016, Appendix B

Figure 13: India study. Protection when applying pesticides (Treatment)



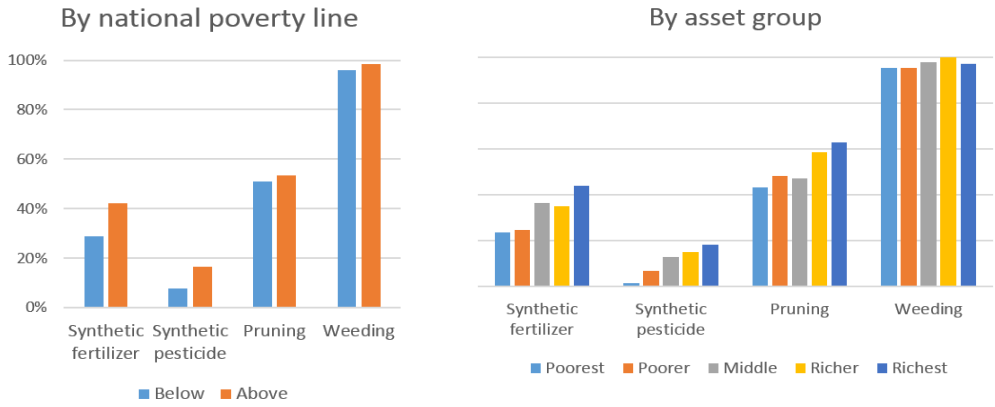
Source: Kumar et. al., 2015, p90

2.5.3 What is or could get on the way for the adoption and maintenance of GAP?

Looking across the three baseline studies, one can identify a number of influencing factors that have been a barrier for practice implementation and could pose challenges for new practices associated with becoming part of standards systems- the figure below summarises those factors. For standards systems and partners, being aware of these factors is already a useful point of departure for programme implementation and collaboration between various actors. Take the case of the lack of access to credit and input. Although standards that are part of these interventions are not designed to solve the problem of access to credit, together with other institutions or in combination with other tools they can certainly become a mechanism to open doors for credit. On the other side of the spectrum, it is outside of the scope of standards systems to address some of these major social issues such as illiteracy or changes in culture. There are other aspects such as the lack of transparency and trust at the level of organisations, where many standards do seek to make a difference.

Working with poorer and more vulnerable farmers does mean that the process of practice adoption can be slower and less straightforward than when working with better-off farmers (the 'low hanging fruits'). In this sense, the Kenya study offers some interesting correlations between poverty levels and practice adoption: "the poorest groups showed the lowest rates of practice adoption, both for practice requiring cast outlays and for pruning, which requires time" (*Bennett et. al., 2016, p42*). The study also showed that due to the lack of resources, Kenyan coffee farmers entering the standard system have to choose between investing resources on coffee or other crops they cultivate.

Figure 14: Kenya study. Percentage of farmers adopting practices (target and control)



Source: Bennett et. al., 2016, p42

Figure 15: Overview of influencing factors that can be a barrier for practice adoption

Market structure/conditions

- No collective marketing and sale of cotton by farms who sell individually
- Better quality not being rewarded
- Volatile/ low coffee prices making investments related to practice adoption not profitable at times
- Lack of transparency and trust in the implementing partner (training provider) and/or the group
- Commitment of lead farmer

Input for production

- Lack of extension services/ technical support from governments
- Lack of adequate training
- Lack of access to affordable credit and input
- Limited access to quality seeds
- Lack of good quality pesticides
- Shortage of labour
- Access to irrigation
- Farmyard manure more expensive than chemical fertilize

Characteristics of farmers

- Illiteracy
- Poverty levels
- Competition for resources (i.e. other crops also requiring inputs)
- Urgent need for cash/ indebtedness levels

Local formal institutions

- Lack of enforcement of local law

Local Culture

- Entrenched gender norms and discrimination or tradition around land allocation towards less productive resources
- Resisitance to behavioural change
- Labour market culture: informal

External environmental conditions

- Weather conditions: Changes in rainfall and climate change
- Animals damaging crops
- Pests and diseases

3. Final remarks

These three baseline studies offer an overview of sector and farmer characteristics in the three study regions. There is also information that allows us to understand the early phases of the intervention package and plans for roll out.

Insights have confirmed that these different market-led interventions are indeed reaching small and vulnerable farmers. The households in these regions have different levels of dependency on the crops under study, or, in other words, the role of the certified crop in the household economy varies between the three studies. Within this scenario, driving livelihoods improvements through one commodity offers limitations and opportunities. This report has outlined a number of limiting factors (e.g. prices, literacy, indebtedness), recognising that many of them are outside of the sphere of influence of standards systems. These factors challenge the application and maintenance of GAP, which is at low and uneven levels of adoption. Other sets of limiting factors come from the actual availability of land that they farmer has to produce and how much of that land is dedicated to the production of coffee or cotton. On the more positive side, we have learned how commodity income covers critical needs and comes at crucial times. The low and inadequate level of adoption of GAP also offers opportunities to realize the yield potential, reduce costs related to inputs, and improve processing activities that have a direct relation with quality.

The follow-up studies will bring insights about sustainability changes and if and how outcomes vary depending on the type of farmers.

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