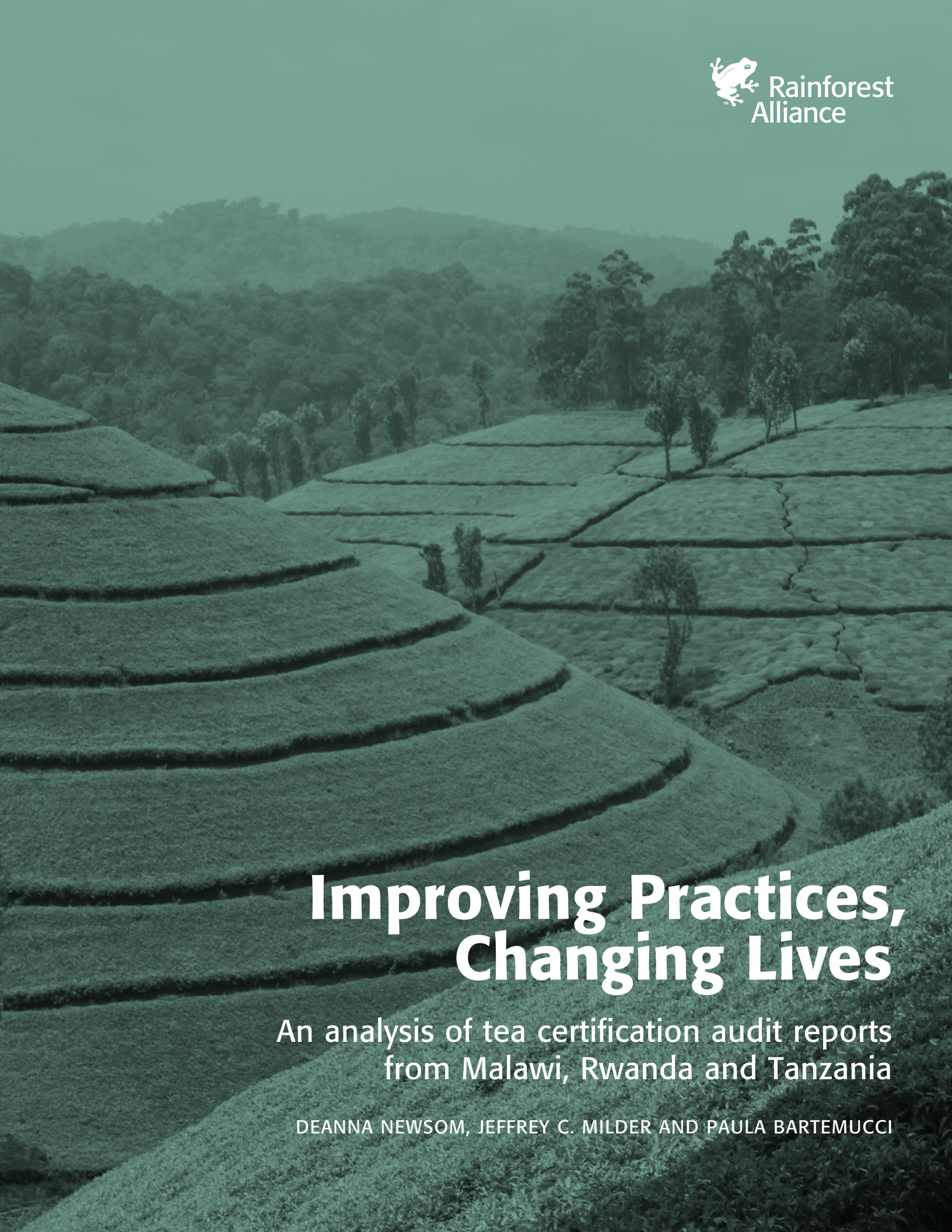

Rainforest Alliance

Improving Practices, Changing Lives

An analysis of tea certification audit reports from Malawi, Rwanda and Tanzania

DEANNA NEWSOM, JEFFREY C. MILDER AND PAULA BARTEMUCCI

INTRODUCTION

In 2007, a farm in Kenya became the first tea producer to achieve Rainforest Alliance certification. Today, more than 659,000 farms—covering just over two million acres (830,000 hectares) in 17 countries—produce Rainforest Alliance Certified™ tea. And with commitments from Unilever, Taylors of Harrogate, Tata Global Beverages and other prominent tea companies to source only Rainforest Alliance Certified tea, the tea program is sure to expand even further.

Given this rapid growth, the Rainforest Alliance undertook a preliminary assessment of how the certification process affects the implementation of best agricultural practices specified in the Sustainable Agriculture Network (SAN) standard— the standard farms must meet in order to earn Rainforest Alliance certification—which include farm management methods designed to protect the environment, increase productivity and improve farmer livelihoods.

Currently, research on the outcomes and impacts of Rainforest Alliance training and certification on tea farms is sparse (see the literature review below). To begin to fill this gap in an accountable and transparent yet cost-effective way, the Rainforest Alliance looked at data found in certification audit reports from Malawi, Rwanda and Tanzania.

These certification audit reports are valuable because they include data on a farm's compliance with specific criteria in the SAN Sustainable Agriculture standard (Sustainable Agriculture Network 2010) at the time of the first audit and at all subsequent audits, allowing us to determine how compliance rates for individual criteria change over time. This information is also important to providers of pre-certification technical assistance, who can use the results to tailor their support to the specific needs of farms in study countries. The audit reports also reveal the areas of relatively low compliance, offering important information to technical assistance providers, who can then tailor their support to the specific needs of farms in study countries.

This analysis focuses on implementation of best practices and does not establish a direct causal link between Rainforest Alliance certification and its biodiversity, social and livelihood impacts. However, the positive environmental, livelihood and social impacts of the best practices outlined in the SAN standard are well supported by scientific research, expert opinion and the experience of farmers. These impacts extend beyond farm owners to their their workers and nearby communities. By demonstrating that the certification process can lead to gradual improvements in the implementation of best practices, we infer that these improvements lead to positive impacts on the ground.

The SAN standard has ten guiding principles, each with criteria ranging in number from five to 20, for a total of 99 criteria. To achieve certification, farms must be in compliance with 100 percent of 15 "critical criteria," at least 80 percent of all applicable criteria, and at least 50 percent of the criteria within each of the ten principles (Sustainable Agriculture Network, 2010).

If an auditor finds that a tea producer is not in compliance with a criterion, that auditor will assign a "non-conformity," which describes the way in which the producer did not fully comply with that criterion. For example, SAN Criterion 2.7 requires that farms establish vegetation barriers between the crop and areas of human activity; one producer in Malawi received a non-conformity that stated, "The farm has not established vegetation barriers between the crop and areas of activity, such as between production areas and edges of public or frequently used roads passing through the farm." Non-conformities are classified as minor or major depending on the level of non-compliance. Only one non-conformity can be assigned per criterion.

In subsequent annual audits, the SAN-registered auditor of an accredited certification body, such as the Rainforest Alliance, reviews the non-conformities recorded during the previous annual audit and, after a field visit, reports whether the producer has improved his or her practices sufficiently. If the non-conformity has been addressed, this is reported in the audit. In the case of group certificates, where a rotating subset of group members is audited each year, group managers and/or auditors must document the progress that group members have made in addressing non-conformities.

In the following analysis, we track each producer's initial set of non-conformities through all subsequent audits to determine whether improvements were made and non-conformities addressed. We use these data to answer the following questions:

1. When tea farms first undergo certification, what is the relative frequency of compliance with each of the SAN Principles and Criteria?

2. Of those producers given non-conformities during the initial audit, what percentage make improvements that are substantial enough to justify eliminating the non-conformity in a subsequent audit? How do rates of improvement vary among

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Deanna Newsom and Jeffrey C. Milder of the Rainforest Alliance and Paula Bartemucci of Gentian Botanical Research

Photo: Caroline Irby

The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behavior. www.rainforest-alliance.org

the different SAN principles and criteria?

3. Are there country-level differences in any of the above results?

The answers to these questions show how farmers respond to the certification process, including details about the nature and rate of incremental changes that benefit the bottom line, their workers and the environment. The information found here also helps technical assistance providers in East Africa tailor their offerings to the needs of producers, making further changes in practices—and, potentially, further improvements to livelihoods and biodiversity—possible.

Review of previous research on tea certification

A review of academic literature and non-academic research reports revealed that third-party evaluations of sustainability on certified tea farms are rare, with only two studies specifically comparing tea farms compliant with the SAN standard to a control group of non-certified farms. Ochieng et al. (2013) examined a range of environmental and social indicators on three Rainforest Alliance Certified farms and three non-certified farms in Kenya. No statistical analyses were undertaken and only a small number of farms were sampled. The researchers interviewed three farm managers and 31 employees from certified farms, as well as one manager and 30 employees from non-certified farms. Based on the interview data, researchers found that certification had an overall positive impact on social and environmental indicators (economic data were not available). For example, certified tea farms maintained protective buffer strips and monitored river water quality, whereas non-certified farms did not. A higher percentage of employees of certified farms than non-certified were aware of written environmental management policies (100 percent vs. 33 percent) and waste management policies (94 percent vs. 37 percent). Employees of certified farms had more training and education in conservation than their non-certified counterparts (94 percent vs. 30 percent), and participated in environmental activities at a higher rate (58 percent vs. 13 percent).

The biggest differences between certified and non-certified farms was related to access to water in the compound (97 percent on certified vs. 47 percent on non-certified farms), access to safety equipment (97 percent vs. 27 percent) and access to training in work safety and other job-related issues (100 percent vs. 37 percent). There was also a substantially higher rate of knowledge about child labor policies on certified tea farms compared to non-certified (100 percent vs. 37 percent).

Waarts et al. (2012) evaluated the impact of Rainforest Alliance and Farmer Field School training activities on tea farmers' knowledge, their use of Good Agricultural Practices (GAPs) and their production, income and well-being in four tea factory regions in Kenya. This particular study involved interviews with a large number of farmer households (331), followed them over time (2010 – 2012) and used statistical methods in data analysis.

Results showed that farmers had higher knowledge and adoption of GAPs after Rainforest Alliance training compared to farmers with no training. GAP improvements were observed in plucking frequency, application of composted manure, record keeping, use of local supplies, household waste disposal, adequate riparian buffers and the wearing of personal protective equipment. Farmers trained by the Rainforest Alliance were much more likely to adopt GAPs that are compliant with SAN standards than were untrained or FFS-trained farmers.

Photo: Caroline Irby

Leaf quality increased significantly after Rainforest Alliance training, likely from implementation of GAPs such as higher plucking frequency. Overall tea production did not change over the two-year sampling period; however, it is possible that improvements in yield could not be detected in a study of short duration. Unlike farmers with no training, those farmers receiving Rainforest Alliance training reported that their livelihoods had improved, unlike farmers with no training. Forty-six percent of the farmers who had been trained by the Rainforest Alliance became certified in 2012. About half of these farmers reported that they earned a higher price or bonus for their tea after becoming certified, though net income did not change significantly.

Methods

We included in our analysis all Rainforest Alliance Certified tea farms in Malawi, Rwanda and Tanzania that had at least two consecutive audits. We followed these 19 tea producers from their earliest audit[1] until the most recent audit available to us. On average, we examined 2.5 audit reports per farm. Five of the 19 tea producers were certified as groups; all combined, these groups consisted of

1. For all but four tea producers, the earliest audit was the onset of certification. Four producers failed the first audit but were certified after the second audit.

nearly 25,000 small, privately owned farms (smallholders). Twelve of the tea producers were individual companies, which often owned multiple farms or factories, and two were groups of large tea estates.

Table 1 shows the audit timeline and organizational type of each tea producer included in the study.

We examined each producer's first audit report, and entered each non-conformity (major and minor, combined) into a database. We then examined as many subsequent audit reports as were available, and recorded if and when each initial non-conformity was addressed. New non-conformities that were identified during subsequent audits were not included in the analysis.

For each criterion, we calculated the percentage of tea producers that were given non-conformities at the initial audit. We then calculated the percentage of non-conforming farms that addressed their non-conformities by the time of the most recent audit (again, each criterion was examined separately), thereby showing the rate of improvement in tea farming practices. Also, we examined these results for Malawi, Rwanda and Tanzania separately.

Table 1
Tea producers in Malawi, Rwanda and Tanzania included in this analysis

Name of Tea Producer	Country	Audit Years	Type of Organization
Producer 1	Malawi	2009, 2010, 2011	Group administration (5 tea estates)[2]
Producer 2	Malawi	2010, 2011	Group administration (4 tea estates and 1 factory)[2]
Producer 3	Malawi	2010, 2012	Individual company
Producer 4	Malawi	2010, 2011	Individual company
Producer 5	Malawi	2010, 2011, 2012	Individual company
Producer 6	Malawi	2011, 2012	Individual company
Producer 7	Malawi	2010, 2011	Individual company
Producer 8	Rwanda	2011, 2012, 2013	Group administration (cooperative of 3634 farms)[1]
Producer 9	Rwanda	2011, 2012, 2013	Individual company
Producer 10	Rwanda	2011, 2012	Individual company
Producer 11	Rwanda	2011(June), 2011(Nov), 2012, 2013	Group administration (cooperative of 4976 farms)[1]
Producer 12	Rwanda	2011, 2012, 2013	Individual company
Producer 13	Rwanda	2010, 2011	Group administration (cooperative of 2164 farms)[1]
Producer 14	Rwanda	2011, 2012	Group administration (cooperative of 4573 farms)[1]
Producer 15	Tanzania	2012, 2013	Individual company
Producer 16	Tanzania	2012, 2013	Individual company
Producer 17	Tanzania	2011, 2012, 2013	Individual company
Producer 18	Tanzania	2008, 2009, 2010, 2011	Individual company (5 tea estates and 3 factories)
Producer 19	Tanzania	2012, 2013	Group administration (9581 - 10891 smallholders)[3]

[1]SAN Group Model 1: membership groups or private farm organizations, such as cooperatives and associations
[2]SAN Group Model 2: multiple farms with a single owner
[3]SAN Group Model 4: suppliers and traders

Results

The 19 tea producers examined in this study were given an average of 18 non-conformities during their initial audit (with a range of six to 34). At the time of their most recent audit, the producers had addressed an average of 74 percent of their initial non-conformities (with a range of 27 percent to 100 percent). Four producers received a combined total of nine non-conformities for critical criteria; in these cases, the awarding of the certificate was delayed until a follow-up audit could confirm that the non-conformities for critical criteria had been addressed.

To gain a broad thematic understanding of performance, we examined how the non-conformities at the initial audit were distributed across the ten principles in the SAN standard (Figure 1). Because the number of criteria per principle ranges from five to 20, we found that comparing the total number of non-conformities per principle was biased against those principles with larger numbers of criteria. This made preliminary comparisons of non-conformities at the principle level difficult to decipher because principles with more criteria have more "opportunities" for non-compliance (since only one non-conformity can be awarded per criterion). Therefore we addressed this bias by presenting these data as the mean percentage of tea producers with non-conformities at the first audit. To calculate this mean, we first calculated the percentage of tea producers with a non-conformity at the first audit for each criterion, then we calculated the average of all of the criteria percentages for a given principle. For example, for SAN Principle 9, which has five criteria, there were five criteria percentage values (measured by calculating the percentage of producers given a non-conformity for each criteria 9.1 through 9.5). The mean for the principle was calculated by averaging all five percentages.

This analysis tells us about the starting point of tea producers in our study countries. We found that at the initial audit, producers performed best (i.e. the fewest farms received non-conformities) for wildlife protection (Principle 3), community relations (Principle 7) and soil management and conservation (Principle 9). Producers had the lowest compliance rates for principles related to occupational health and safety (Principle 6), followed by integrated waste management (Principle 10).

The rates at which the non-conformities highlighted in Figure 1 were addressed by producers over the course of their certification are shown in Figure 2 for each principle. Results show that those principles with the fewest non-conformities at the first audit tended to be addressed by producers at the highest rates. One hundred percent of non-conformities given for wildlife protection, community relations and soil management and conservation were addressed by the most recent audit.

Producers made the fewest improvements to criteria in Principle 5 (fair treatment of workers), with just 54 percent of initial non-conformities addressed by the most recent audit. Non-conformities for the remaining six principles were addressed by the most recent audit at rates ranging from 68 percent to 83 percent.

In the following sections, we examine each SAN principle separately, delving into criterion-level performance and improvement rates.

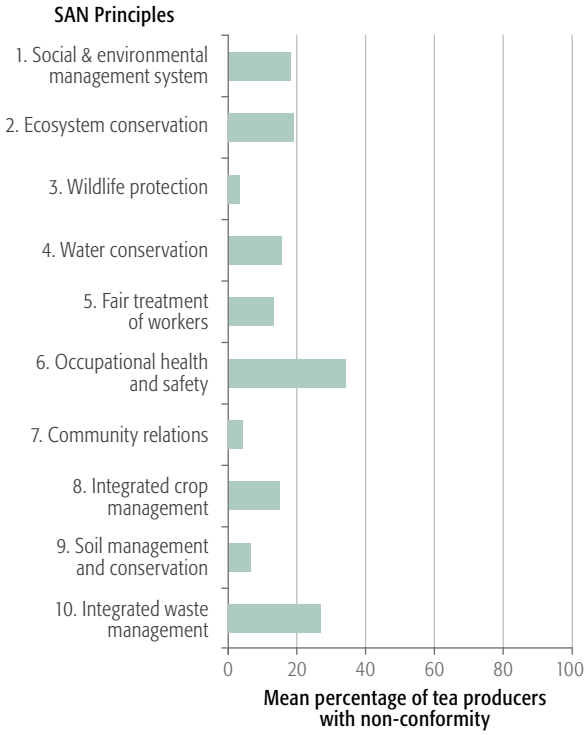


Figure 1
For each principle of the SAN standard, the mean percent of tea producers with non-conformances at first audit for 19 tea producers in Malawi, Rwanda and Tanzania.

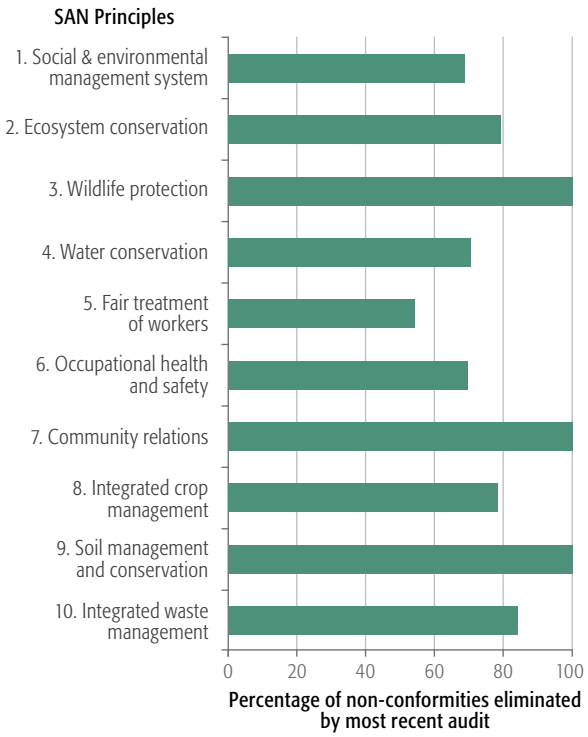


Figure 2
The percentage of initial non-conformances that were addressed by the most recent audit for 19 tea producers in Malawi, Rwanda, and Tanzania.

PRINCIPLE 1:
Social and environmental management system

Principle 1 of the SAN standard requires that farm managers or group administrators set up an adaptive system of policies and procedures so that farm operations will comply with certification standards and national legislation. This principle has 11 criteria. Of the 38 total non-conformities given to tea producers under Principle 1 at the time of the first audit, 26 (or 68 percent) had been addressed by the most recent audit.

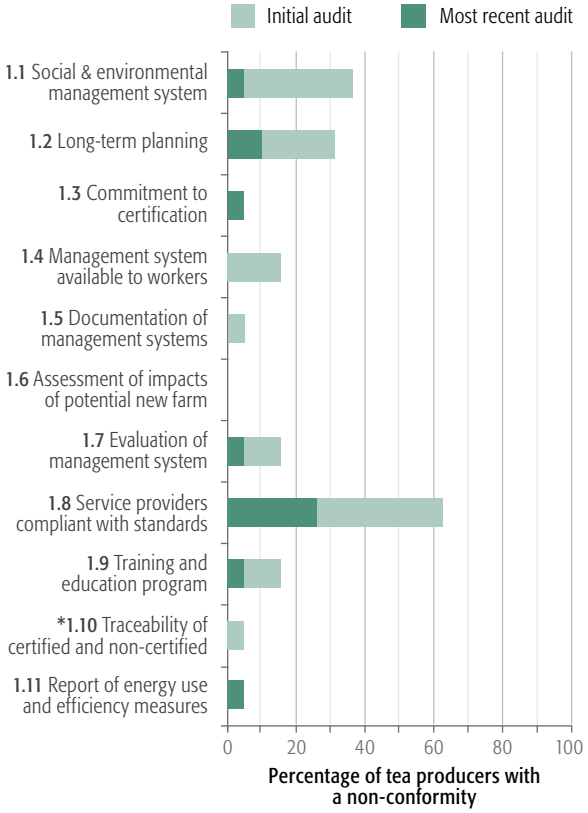


Figure 3 shows that the criterion with the weakest performance at the time of the first audit was Criterion 1.8, which requires that certified producers ensure that their service providers and subcontractors are also compliant with the certification standard. In our study region, the main subcontractors are fertilizer suppliers. Only 37 percent of producers were in compliance with this criterion at the first audit; by the most recent audit, the number had increased to 74 percent. While improvement is clearly happening, difficulty complying with this criterion likely reflects the broad nature of this criterion's scope; it is a difficult task for farmers without any formal training in auditing to confirm or ensure subcontractors' compliance with the SAN standard. And in landlocked countries such as Rwanda, Malawi and Tanzania, there are often few subcontractors to choose from.

The criterion with the next weakest performance was Criterion 1.1 (social and environmental management systems) with 63 percent of producers in compliance at the first audit, and Criterion 1.2 (long term planning), with 68 percent. By the most recent audit, compliance had increased to 89 and 96 percent, respectively.

Performance for the remainder of the criteria, including those covering systems documentation, traceability and training, was relatively strong, with 79-100 percent of producers fully in compliance at the time of the first audit.

Figure 3
For each criterion of Principle 1 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania. Star indicates a SAN critical criterion.

PRINCIPLE 2:
Ecosystem conservation

Principle 2 of the SAN standard requires the protection and restoration of natural ecosystems on farms. Of the 33 total non-conformities given to tea producers under Principle 2 at the time of the first audit, 26 (or 79 percent) had been addressed by the most recent audit.

At the time of the first audit, the creation of buffers around crop areas was the biggest area of non-conformity for tea producers: 90 percent did not have adequate vegetative buffers between crops and areas of human activity (Criterion 2.7), and nearly 50 percent did not have adequate vegetative buffers between crops and water bodies (Criterion 2.6) (Figure 4). Over 20 percent of producers did not have adequate buffers between areas of agrochemical use and natural areas (Criterion 2.5). Given that tea farmers in East Africa generally use very few pesticides, low compliance with buffer-related criteria might be explained by the low perceived risk of agrochemical drift by farmers. Also, the small average size of tea producers in this study means that the creation of buffer zones may cut down on the tea- or food-growing area substantially.

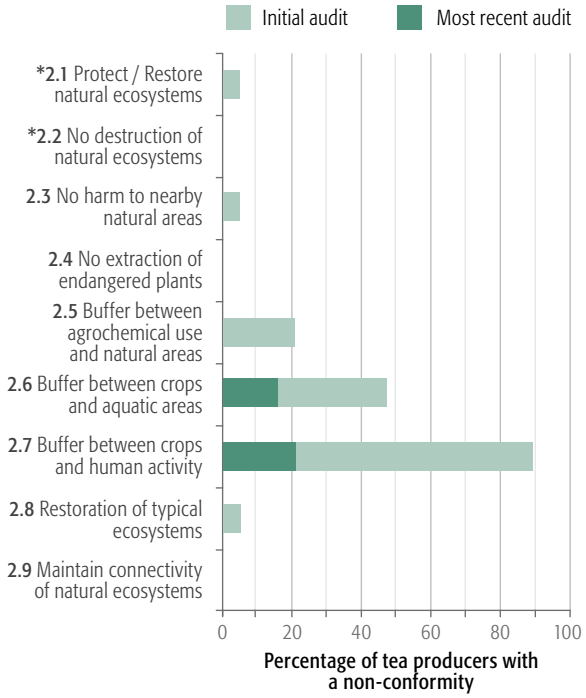


Figure 4
For each criterion of Principle 2 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania. Stars indicate SAN critical criteria.

Figure 5
Tea farm owned by the Kitabi tea factory in Rwanda. The forested area to the left has been left intact as part of the company's compliance with Criterion 2.1. Photo: Deanna Newsom

Despite this challenge, by the time of the most recent audit, producers did address all of the non-conformities related to Criterion 2.5, 67 percent related to 2.6, and 76 percent related to 2.7.

For all other criteria, such as those related to protection of natural ecosystems (Criteria 2.1 to 2.3), conservation of endangered plants (2.4) and ecosystem connectivity (2.9), performance at the time of the first audit was very good, with zero to five percent of tea producers receiving non-conformities. This is explained by the fact that farmers generally have lines of trees on their farms as boundary crops, and in the case of larger estates, tend to have mature and biodiverse forested riparian areas.

PRINCIPLE 3: Wildlife protection

Principle 3 of the SAN standard requires the protection of wildlife and the natural areas that provide their food and habitat for reproduction. Of the four non-conformities given to tea producers under Principle 3 at the time of the first audit, all four (or 100 percent) had been addressed by the most recent audit.

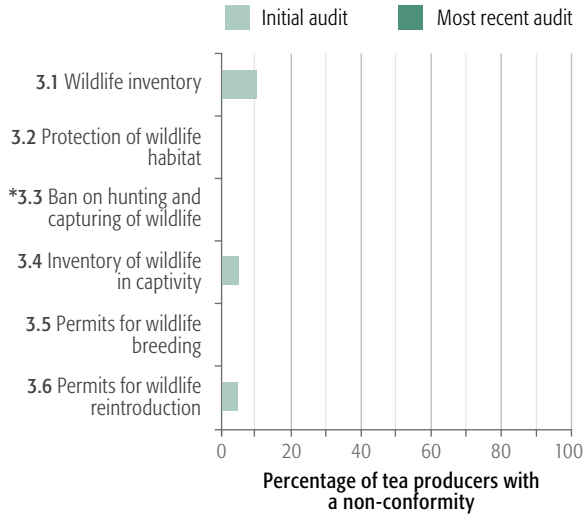


Figure 6
For each criterion of Principle 3 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; star indicates a SAN critical criterion.

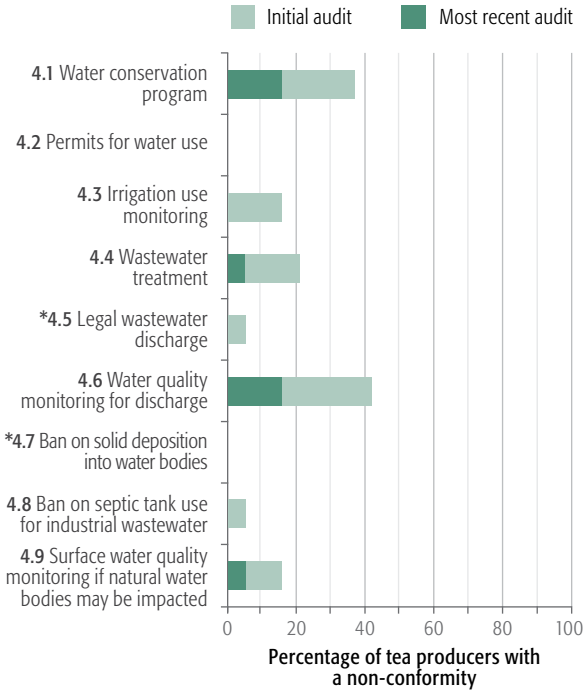
Figure 6 shows that certified tea producers are in near-complete compliance with all criteria related to wildlife conservation. This result is consistent with the tendency in East Africa to view the keeping of wildlife in captivity as unacceptable, as well as with the strong presence of wildlife tourism in the region.

PRINCIPLE 4: Water conservation

Principle 4 of the SAN standard requires certified producers to minimize water use and prevent water contamination. Of the 27 total non-conformities given to tea producers under Principle 4 at the time of the first audit, 19 (or 70 percent) had been addressed by the most recent audit.

At the time of the first audit, compliance was weakest for wastewater quality monitoring (Criterion 4.6), with 42 percent of producers receiving a non-conformity (Figure 7). This figure likely reflects the difficulty that farmers have in covering the cost of getting wastewater samples analyzed in a laboratory. The other criterion with relatively poor performance was 4.1 (which requires a water conservation program that includes water use monitoring and water source mapping) with 37 percent of producers receiving a non-conformity at the first audit. Over half (57 percent to 62 percent) of the non-conformities for these two criteria were addressed by the most recent audit.

A high proportion of producers were in compliance with the criteria related to wastewater and solid waste discharge (4.5 and 4.7), permits for water use (4.2) and the monitoring of water used for irrigation (4.3).



An example of a wastewater treatment system that was built in Rwanda to ensure compliance with Criterion 4.4 is shown in Figure 8.

PRINCIPLE 5: Fair treatment and good working conditions for workers

Principle 5 requires that all farm employees and their families receive fair treatment and good working and living conditions. Of the 50 total non-conformities given to tea producers under Principle 5 at the time of the first audit, 28 (or 54 percent) had been addressed by the most recent audit.

While the majority of criteria related to the fair treatment of workers show high compliance rates at the first audit, the data did identify a few red flags (Figure 9). Notably, over half of producers received a non-conformity related to worker access to potable water; by the most recent audit fewer than half of producers (45 percent) had addressed this problem. It is important to note that almost no water in the region is potable, even in cities. Most people boil water for safety, especially if they have young children. According to regional staff, even if tea producers were to provide potable water, workers would likely not trust it and would boil it anyway; therefore producers have little incentive to take this step.

Similarly, non-compliance with overtime restrictions were identified as a weakness in 53 percent of producers at the first audit—and none of these producers had made progress in addressing the non-conformities by the most recent audit. Overtime is an issue for agricultural crops like tea that have a very labor-intensive seasonal harvest period. Work in improving practices in this area is needed.

Tea producers did not receive any non-conformities in eight of the 19 criteria at the time of the first audit. These included criteria related to worker discrimination (5.2), minimum wage (5.5), underage workers (5.8, 5.9 and 5.19), forced labor (5.10), respectful treatment of workers (5.11) and access to education (5.17). A further five criteria had non-conformities for only one or two producers each.

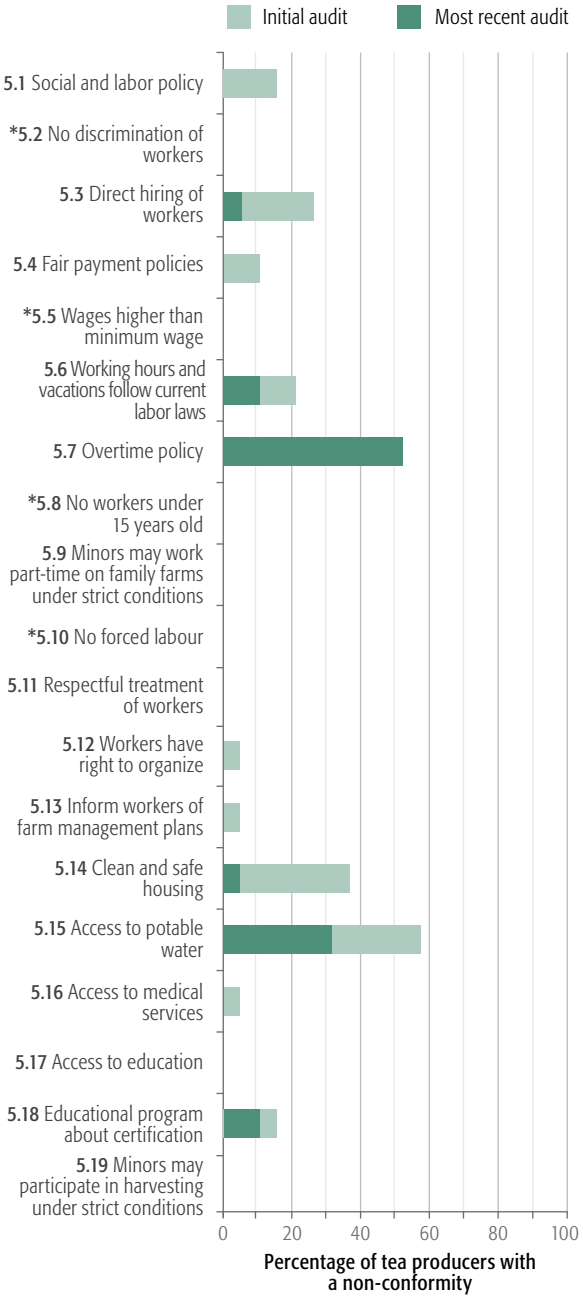


Figure 7
For each criterion of Principle 4 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; stars indicate SAN critical criteria.

Figure 8
Wastewater treatment system at the Kitabi tea factory in Rwanda. This system was built to bring Kitabi in compliance with Criterion 4.4. Photo: Deanna Newsom

Figure 9
For each criterion of Principle 5 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; stars indicate SAN critical criteria.

There were large improvements observed in the direct hiring of workers (Criterion 5.3) and housing conditions (Criterion 5.14), where 80 percent and 86 percent of non-conformities were addressed by the most recent audit, respectively.

PRINCIPLE 6: Occupational health and safety

Principle 6 requires safety precautions and training to minimize the risk of on-the-job accidents and poor health, particularly related to agrochemical application. Of the 131 total non-conformities given to tea producers under Principle 6 at the time of the first audit, 91 (or 69 percent) had been addressed by the most recent audit.

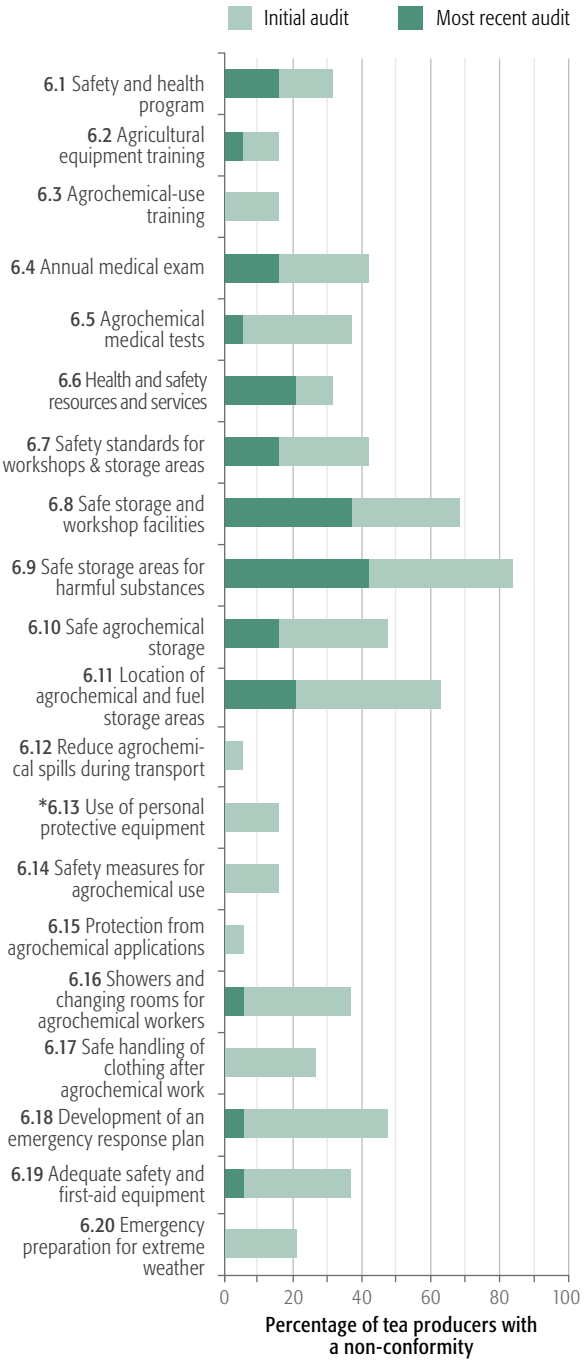


Figure 10 shows that, at the time of the first audit, compliance was lowest for criteria related to the safe storage of agrochemicals, fuel and other harmful substances (6.7 to 6.11). The percent of producers receiving a non-conformity for each of the storage-related criteria ranged from 42 percent (6.7) to 84 percent (6.9). Roughly half (46 percent to 67 percent) of the original storage-related non-conformities were addressed by the most recent audit, indicating that more work is required in this area.

On the positive side, performance was best for criteria related to agrochemical spills (6.12) and worker safety during agrochemical application (6.13 to 6.15). These criteria had the lowest rates of non-compliance in Principle 6, with the percentage of producers receiving non-conformities at the time of first audit ranging from 5 percent to 15 percent.

Major improvement was seen over time in practices related to medical testing to ensure no harm resulted from agrochemical application (Criterion 6.5), the provision of showers and changing rooms for workers who apply agrochemicals (6.16), the development of an emergency-response plan (6.18), and the presence of adequate emergency response and first-aid equipment (6.19). All non-conformities related to the safe handling of clothing after agrochemical application (6.17) were eliminated by the most recent audit.

Figure 11 shows a boot-cleaning and -storage room that was built to prevent workers from inadvertently bringing agrochemicals into their homes on their

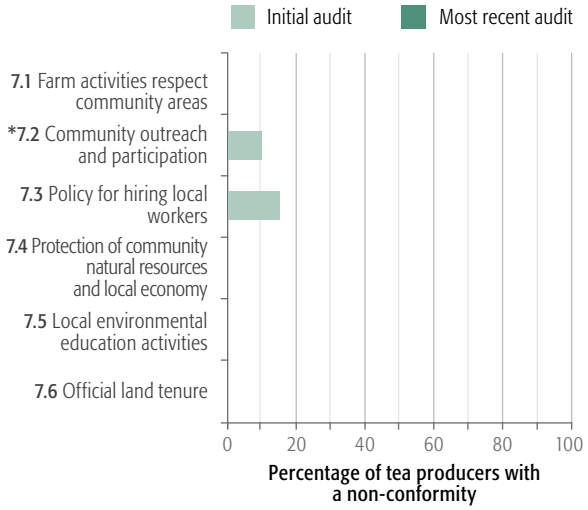
footwear.

PRINCIPLE 7: Community relations

Farms certified by the Rainforest Alliance must demonstrate positive relations with local communities. Only five criteria in Principle 7 were given non-conformities at the time of the first audit, and all were fully addressed in subsequent years. In many regions, the expansion of tea farming area

Figure 10
For each criterion of Principle 6 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; stars indicate SAN critical criteria.

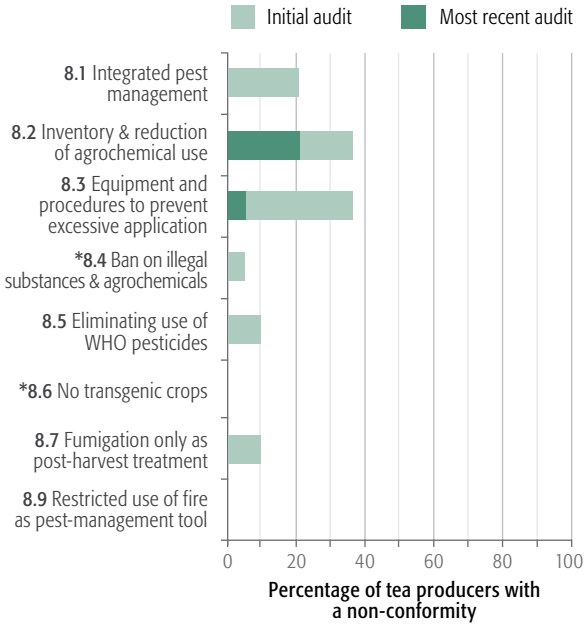
Figure 11
Storage facility for boots used for agrochemical application on the Kitabi tea farm in Rwanda, built as part of the company's compliance with Criterion 6.17. Photo: Deanna Newsom



into neighboring forestlands is the major cause of discord between producers and communities; the results shown in Figure 12 indicate that this is not an issue on the farms in our study.

PRINCIPLE 8: Integrated crop management

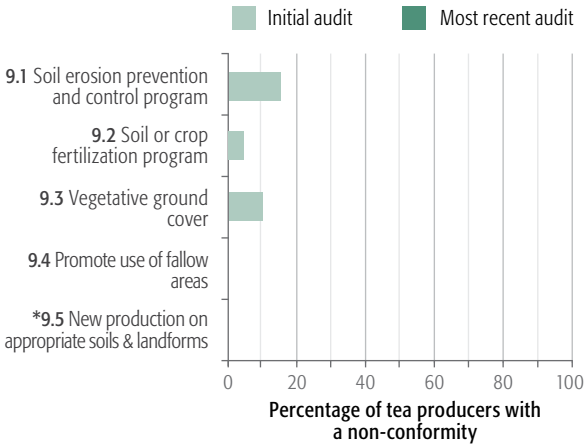
Principle 8 promotes the elimination of chemical products known to adversely affect human health and the environment, and the reduction and safe use of any agrochemicals used. Of the 23 total non-conformities given to tea producers under Principle 8 at the time of the first audit, 18 (or 78 percent) had been addressed by the most recent audit.



The weakest performance was seen for two related criteria: the use of equipment and procedures to prevent excessive application of agrochemicals (8.3), and the inventory and reduction of agrochemical use (8.2), which both saw 37 percent of producers receiving non-conformities at the first audit (Figure 13). Agrochemical use in the study region consists primarily of fertilizers and not pesticides. By the most recent audit, producers had addressed 86 percent of non-conformities related to the use of equipment and procedures to prevent excessive agrochemical application. Less than half of non-conformities (43 percent) related to the inventory and reduction of agrochemical use were addressed by the most recent audit; the reduction of fertilizer use is typically a longer-term process due to potentially negative impacts on farm productivity.

PRINCIPLE 9: Soil management and conservation

Principle 9 aims to improve soils for long-term sustainable agriculture by preventing soil erosion, implementing fertilization programs and using fallow areas and ground cover crops. Of the six total non-conformities given to tea producers under Principle 9 at the time of the first audit, all six had been addressed by the most recent audit.



Although performance for this principle is generally good, the creation of a soil erosion prevention and control program (Criterion 9.1) was the main area of weakness, with 16 percent of farms receiving non-conformities at the first audit. However, improvements were made and all non-conformities were eliminated by the most recent audit (Figure 14).

PRINCIPLE 10: Integrated waste management

Principle 10 requires maintaining a clean farm and managing waste to prevent contamination of the environment and threats to human health. Of the 32 total non-conformities given to tea producers under Principle 10 at the time of the first audit, 26 (or 84 percent) had been addressed by the most recent audit.

At the time of first audit, 53 percent of the producers were found to have open waste dumping and/or open-air burning of waste (Criterion 10.2) (Figure 15). There was dramatic reduction in this practice over time with 90 percent of the non-conformities eliminated by the most recent audit. Criterion 10.3, related to safe waste-deposit areas, also saw major

Figure 12
For each criterion of Principle 7 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; stars indicate SAN critical criteria.

Figure 13
For each criterion of Principle 8 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; stars indicate SAN critical criteria.

Figure 14
For each criterion of Principle 9 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania; star indicates a SAN critical criterion.

	Malawi	Rwanda	Tanzania
Number of producers in study[1]	7	7	5
Average number of non-conformities at first audit	16 (range 7-21)	17 (range 6-27)	21 (range 13-34)
Average percentage of initial non-conformances addressed by most recent audit	70%	76%	74%

[1] Many of the 19 tea producers in this analysis were cooperatives with thousands of members (see Table 1). All combined, the number of individual farms represented in the analysis is nearly 25,000.

Table 3
Comparison of tea producer performance in Malawi, Rwanda and Tanzania.

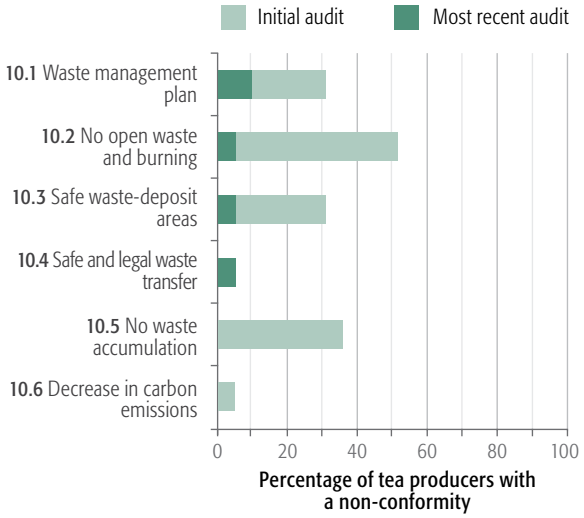


Figure 15
For each criterion of Principle 10 in the SAN standard, the percentage of farms that had a non-conformity at the initial audit and most recent audit, for 19 tea producers in Malawi, Rwanda and Tanzania.

improvement.
Three other waste management criteria were frequently given non-conformities and these were also mostly addressed in the first years following certification. Thirty-seven percent of producers received non-conformities for the accumulation of waste and the indiscriminate dumping of waste (Criterion 10.5), but all were eliminated by the most recent audit. Integrated waste management plans (including recycling) (10.1) and measures to ensure that waste deposit areas were better managed and designed to prevent environmental pollution and adverse effects on human health (10.3) were both areas of non-compliance for nearly one-third of producers at the first audit; by the most recent audit rates of non-compliance were reduced to 11 and 5 percent, respectively. Recycling of plastics in particular can be difficult in our study countries, as few governmental programs support this type of recycling. Sporadic initiatives by entrepreneurs have helped.

Figure 16
Scrap metal storage at the Kitabi tea factory in Rwanda. Before certification, this material would have been discarded; now it is stored and reused whenever possible.
Photo: Deanna Newsom

DIFFERENCES AMONG COUNTRIES

The average number of non-conformities given at the time of first audit and the rate at which those non-conformities were subsequently addressed were fairly similar in the three study countries (Table 3).

At the SAN principle level, rates of non-compliance showed roughly the same trends in all three countries (Figure 17), with high compliance rates in wildlife protection, community relations and soil conservation. Non-conformities were given most frequently in occupational health and safety criteria for all countries, followed by integrated waste management.

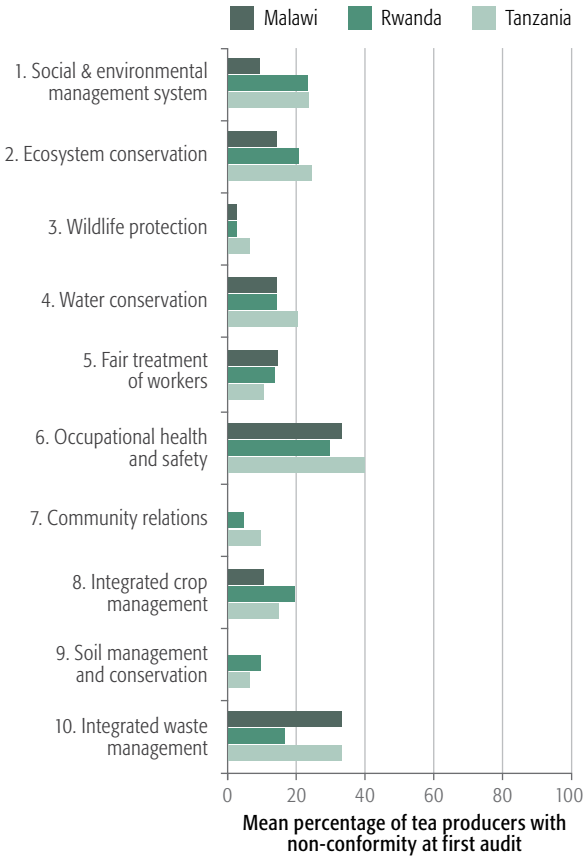


Figure 17
For each principle of the SAN standard, the mean percent of tea producers with non-conformities at first audit for 19 tea producers in Malawi, Rwanda and Tanzania.

All of the non-conformities recorded for the principles related to wildlife protection, community relations and soil management and conservation were corrected (Figure 18). For all countries, the least progress has been made in the principle related to the fair treatment of workers.

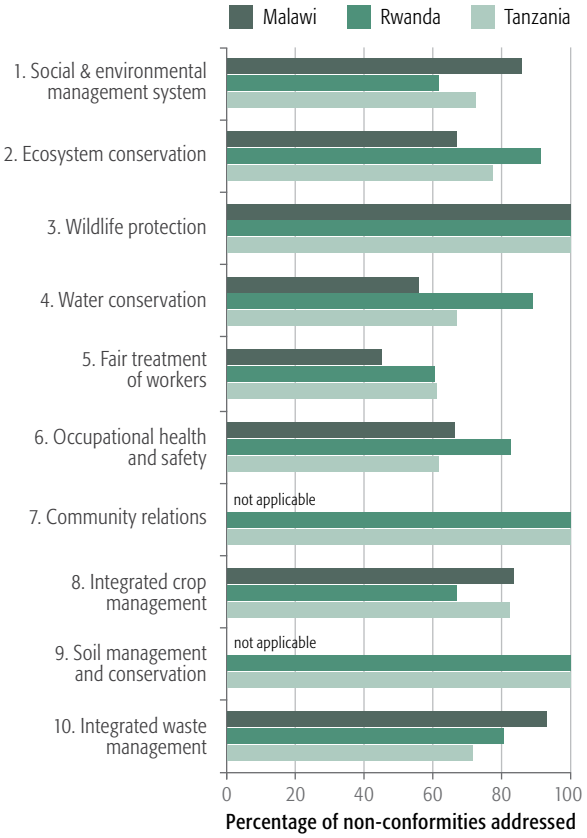


Figure 18
The percentage of initial non-conformities that were addressed by the most recent audit for 19 tea producers in Malawi, Rwanda and Tanzania.

CONCLUSIONS

Changes in performance over the life of the certificate

Our analysis demonstrated that tea producers in East Africa showed a consistent and high degree of action to correct the non-conformities identified at the time of their initial certification audit and thereby improved their implementation rate of beneficial practices. Three-quarters of all non-conformities identified at the first audit had been fully addressed by the most recent audit, which occurred, on average, 2.5 years later. Those principles with the highest rates of improvement (100 percent of non-conformities addressed by the most recent audit) were wildlife protection (Principle 3), community relations (Principle 7) and soil management and conservation (Principle 9); these were the principles with the fewest non-conformities at the initial audit.

By their most recent audit, tea producers achieved perfect compliance for 61 of the 74 criteria for which one or more tea producers were not initially in compliance. This means that for 82 percent of the SAN criteria, continuous improvement has led to full compliance.

The principle with the weakest rate of improvement (54 percent of non-conformities addressed by the most recent audit) was Principle 5, which covers the fair treatment of workers. Looking more closely at Principle 5, it is evident that complexities associated with two criteria are primarily responsible for the poor improvement rates. No improvement at all was made for criterion 5.7, which puts restrictions on the number of overtime hours and mandates higher rates of pay for overtime. Tea is extremely labor-intensive, and seasonal harvesting is most certainly the reason for the reliance on overtime; however, Rainforest Alliance trainers, auditors and producers must work together to identify why overtime conditions have not met the SAN standard's requirements for quantity and payment, and develop solutions. Criterion 5.15, which mandates access to potable water for workers and their family members who live on the farm, was also relatively problematic, with fewer than half of the initial non-conformities addressed by the most recent audit. As noted in the results section, the lack of potable water in the region and the default practice of boiling water for safety makes it likely that farm workers would not trust potable water provided by the producer and would boil it anyway, reducing the incentives for producers to comply with this criterion.

Photo: Deanna Newsom

Implications of the study findings for tea-producer training programs in East Africa

This analysis provides critical contextual information for technical staff who design agricultural training programs for the region, including the relative strengths and weaknesses of tea producers in East Africa at the time of their first Rainforest Alliance certification audit. Principles for which tea producers had the greatest number of non-conformities at their first audit were those related to occupational health and safety (Principle 6) and integrated waste management (Principle 10). Tea producers complied at the highest rates with the SAN principles related to wildlife protection (Principle 3), community relations (Principle 7) and soil management and conservation (Principle 9).

While principle-level trends are useful, there was a high degree of variability in performance within the principles, which calls for an examination of individual SAN criteria. Criteria with the highest number of non-conformities were those covering buffer

areas between crops and areas of human activity (2.7), safe storage for harmful substances such as agrochemicals and fuel (6.8, 6.9 and 6.11), ensuring that service providers are in compliance with the SAN standard (1.8), worker access to potable water on the job (5.15), the creation of an overtime policy (5.7), and the prohibition of open waste dumping and burning (10.2), none of which are critical criteria. For some of these criteria, there are contextual difficulties that make compliance difficult in East Africa, such as the relatively small farm size, meaning that the creation of non-farmed buffer areas is relatively costly. However, other criteria—such as those related to agrochemical storage and the prohibition of open waste and burning—could likely be addressed more thoroughly in training materials to improve compliance at the time of the first audit.

There were nine critical and four non-critical criteria for which compliance was perfect and none of the tea producers received a non-conformity at their first audit. (For the remaining six critical criteria, one or more producers received a non-conformity at the first audit but weren't awarded the Rainforest Alliance certificate until a follow-up audit ensured compliance.) There were another 20 criteria for which only one of the 19 tea producers had a non-conformity. The criteria with complete or near-complete compliance tended to be related to monitoring systems, product traceability, conservation and connectivity of natural ecosystems and wildlife habitat, protection of endangered plants and animals, prevention of solid-waste discharge into water bodies, respectful and non-discriminatory treatment of workers, compliance with the minimum wage, protection of children and their access to education, good relations with communities, soil health, and a decrease in carbon emissions. These results suggest that training materials do not need to place additional emphasis on these topics.

Looking Forward

The analysis presented in this report provides strong support for the contention that the Rainforest Alliance certification audit is a tool that promotes continuous improvement of farm management practices. It also identifies those areas where the Rainforest Alliance certification program has led to improvements in worker livelihoods and the natural environment on and around tea farms, and it identifies areas where more change is needed. The analysis has been performed in a relatively cost-effective way, with no additional data collected beyond what is already available in audit reports. While an analysis of non-conformities is not a replacement for research that includes a non-certified control group and measures field-level outcome variables before and after certification, it nonetheless provides useful insights into farm-level change. By streamlining the data analysis further and including only a select subgroup of high-priority criteria, it could be possible to create an "improvement index" that can be tracked with low effort across all crops and countries in the Rainforest Alliance certification portfolio—providing even more comprehensive insights into changes in worker lives and the environment.

CITATIONS

Ochieng, B. O., Hughey, K. F. D., & Bigsby, H. (2013). Rainforest Alliance certification of Kenyan tea farms: A contribution to sustainability or tokenism? *Journal of Cleaner Production*, 39, 285–293. doi:http://dx.doi.org/10.1016/j.jclepro.2012.07.048

The Rainforest Alliance. 2012. The Rainforest Alliance Certification Manual: Agriculture. http://www.rainforest-alliance.org/sites/default/files/site-documents/agriculture/documents/ra-cert-sustainable_agriculture_certification_manual.pdf

Sustainable Agriculture Network. 2010. Sustainable Agriculture Standard. www.sanstandard.org

Waarts, Y., Ge, L., Ton, G., & Jansen, D. (2012). Sustainable tea production in Kenya: Impact assessment of Rainforest Alliance and Farmer Field School Training (p. 145 pp). The Hague, Nederlands.

Rainforest Alliance

233 Broadway, 28th Floor • New York, NY, 10279-2899 • T: +1.212.677.1900

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