

## POLICY PERSPECTIVE

# Certification, Forest Conservation, and Cattle: Theories and Evidence of Change in Brazil

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**Abstract**

Voluntary certification programs for agricultural and forest products have been developed to improve the environmental and social sustainability of production processes. The new Sustainable Agriculture Network (SAN) cattle certification program aims to reduce deforestation in the cattle supply chain, with a focus on Brazil. Drawing on information from interviews with key actors in Brazil, this article discusses the mechanisms that may enable the SAN cattle program to achieve these goals and to avoid critiques that have been leveled at other commodity certification programs. The program sets higher standards for sustainability than any existing policy or incentive mechanism. Participation in the program may generate significant indirect financial and non-financial benefits. The program may also influence the supply chain more widely: by demonstrating that certifiable, traceable, sustainable cattle production is viable; by “raising the bar” of sustainability standards through rigorous criteria; and by creating new markets and incentives. While the scaling up and impact of the SAN cattle program will depend in part on how it is supported or constrained by other interventions in the same sector, the program appears to be characterized by a rigorous program design that is necessary, if not sufficient, to catalyze reduced rates of forest loss.

**Introduction**

Voluntary certification programs for agricultural and forest products have been developed as a mechanism for improving the sustainability of production processes, and are valued by supply chain and civil society actors for providing agreed, verifiable benchmarks against which to assess environmental and social responsibility (Steering Committee 2012). They empower consumers to make better-informed purchase decisions, and provide incentives to participating producers in the form of access to niche markets, price premiums, and increased production efficiency. Variations of the certification model have been developed for products such as timber, biofuels, palm oil, and coffee (Cashore *et al.* 2006; Laurance *et al.* 2010; Cohn & O'Rourke 2011; Scarlet & Dallemard 2011). In each case, the programs are designed to

improve environmental and social outcomes, such as forest conservation and labor conditions, in the production systems in which they operate.

The extent to which certification programs contribute to enhanced sustainability depends in part on the design and implementation strategy of the program (Cohn & O'Rourke 2011; McDermott 2013). Consequently, prominent certification programs have been variously critiqued for: (1) failing to set sufficiently rigorous standards that represent genuine sustainability (Greenpeace 2013); (2) failing to generate significant incentives, such as price premiums, that are rewards for participating in the program (Hartsfield & Ostermeier 2003); and (3) failing to influence the market at scale, since many programs have to date only certified a small proportion of total global production (Laurance *et al.* 2010; Bush *et al.* 2013).

The Sustainable Agriculture Network (SAN) *Standard for Sustainable Cattle Production Systems and Chain of Custody Standard* (hereafter, collectively, the *SAN cattle program*) is a certification program that was launched in 2010 with the aim of enhancing sustainability and reducing deforestation in the cattle supply chain in Brazil and elsewhere (SAN 2010). The SAN cattle program is the world's first voluntary, third-party certification program in the cattle sector with a specific focus on environmental sustainability, in addition to social and economic sustainability. It builds upon the existing SAN *Sustainable Agriculture Standard* (hereafter the *SAN standard*) that has been used to certify coffee, cocoa, and other products with the Rain-forest Alliance Certified™ (RA) seal for two decades, by adding an additional 15 principles and 36 criteria that pertain specifically to animal welfare and traceability.

In this Policy Perspective, we suggest that the design and implementation strategy of the SAN cattle program could enable it to avoid some of the critiques leveled at other certification initiatives. In doing so, it could contribute to the goal of enhanced sustainability and reduced deforestation in the cattle supply chain in Brazil, and could generate lessons for certification programs for other commodities and for other sustainability initiatives more broadly. First, we characterize the relationship between cattle and deforestation in Brazil, and the interventions that aim to improve environmental outcomes in that context. Second, in response to each of the three critiques above, we outline the experience of the SAN cattle program to date and discuss the mechanisms by which the program could develop and achieve its objectives over time. Finally, we indicate how lessons from the SAN cattle program might be applicable to certification and sustainability initiatives for other commodities and in other contexts. Our information and ideas come from extensive interviews with key actors in the cattle supply chain in Brazil (see online Supporting Information).

## Certification, forest conservation, and cattle in Brazil

Deforestation and forest degradation contributes approximately 12% of greenhouse gas emissions globally (van der Werf *et al.* 2009). In Brazil, land-use change and deforestation represented 22% of the country's total greenhouse gas emissions in 2010 (MCTI 2013) and cattle ranching is commonly cited as being a key driver of deforestation in the country (e.g., Nepstad *et al.* 2006; Barona *et al.* 2010).

Various interventions aim to reduce the extent of forest loss as a consequence of cattle ranching, including those that encourage lower consumption of beef in Brazil

and abroad (Ripple *et al.* 2014), and those that promote more sustainable cattle-ranching practices (Cohn & O'Rourke 2011). In Brazil, interventions developed and implemented by various sets of actors are acting concurrently to enhance sustainability in the cattle supply chain—for example, systems to ensure compliance with national laws (e.g., the *Cadastro Ambiental Rural*), guidelines to encourage best practices for pasture management (e.g., the *Embrapa Boas Práticas Agropecuárias*), and private-sector initiatives to incentivize high-quality beef production for the organic and export markets (e.g., the *Marfrig Club* program; Alves-Pinto *et al.* 2013).

## Theories and evidence of change

There are significant opportunities for lesson-learning between certification programs operating in different product sectors and in different countries (McDermott 2013; Newton *et al.* 2013). While the impacts of all sustainability initiatives are influenced to some degree by biophysical, political, social, and institutional contexts from local to national scales, there nonetheless remain numerous opportunities for comparing the experiences of structurally-similar programs. Many of the challenges for scaling-up and achieving impacts in the supply chain are similar between sectors, and so lessons from the SAN cattle program may be useful for certification programs for other commodities (McDermott *et al.* 2009, Steering Committee 2012).

## Certification programs need to set rigorous standards

The SAN cattle program principles and criteria set a high standard for sustainability. There is broad agreement among actors that the environmental and social criteria with which cattle producers must comply in order to achieve certification under the SAN cattle program are extremely stringent, such that SAN certification genuinely reflects a very high level of sustainability in multiple dimensions by any farm that achieves it. This is in contrast with some commodity certification programs, such as that of the roundtable for sustainable palm oil (RSPO), which have been critiqued for setting criteria that are less stringent and which may consequently enhance sustainability to a lesser extent (Greenpeace 2013).

The sustainability standards of the SAN cattle program exceed the demands and expectations of all other existing policy and incentive mechanisms in Brazil. For example, the program's requirements go beyond those of the national Forest Code, current traceability systems, and the cattle moratorium. Here, we briefly outline the additionality that compliance with the SAN cattle program

contributes, beyond that of the business-as-usual case or that of other interventions.

The Brazilian Forest Code is considered to be a stringent forest law, but the environmental criteria of the SAN cattle program exceed those of the Forest Code. First, no farm can ever participate in the SAN cattle program if any deforestation has occurred on its property more recently than 2005. In comparison, the Forest Code permits *legal* deforestation at any time, and an amnesty was granted to producers for *illegal* deforestation that occurred before 2008. Second, the SAN cattle program requires that all legally mandated forest reserves (*Reserva Legal* and *Área de Preservação Permanente*) on the certified property are protected from animals or other vectors of degradation, for example by the construction of fences around the perimeter of those reserves. It also requires restoration of degraded forest areas and riparian pastures. These measures afford greater protection of forested areas and waterways from grazing and erosion by cattle (SAN 2010; Forest Code 2012).

The SAN cattle program also requires more stringent traceability than any existing law or program provides for. Tracking the movements of cattle from breeders to other farms and to slaughterhouses is challenging, and has historically enabled some deforestation to be “hidden” within the supply chain, since cattle are often moved between multiple farms but slaughterhouses and retailers frequently only ensure that the last production unit is deforestation free. Some programs facilitate traceability, but are focused on animal welfare, health, and sanitation and do not yet incorporate information regarding environmental compliance. One of the SAN cattle program’s critical criteria is that the certified farm be able to demonstrate that all cattle are born and raised on SAN-certified farms, or that the purchased cattle come from properties that have not cleared any forest since 2005. Assuring full traceability is a significant step towards preventing the leakage of deforestation (SAN 2010).

The cattle moratorium, signed by four large meat-packers in 2009, also stipulates environmental criteria. The signatories agree not to buy cattle from ranches in Amazonia on which any deforestation had occurred after the date of the moratorium (Walker *et al.* 2013). Many stakeholders hope that the commitment to deforestation-free supply chains will be permanent, but the moratorium is by definition a temporary intervention. It functions as a stop gap until governance is improved and policies or incentives are implemented that can provide a longer-term solution to the problem that the moratorium addresses. The SAN cattle program could be part of this longer-term solution that eventually replaces the moratorium. Further, the moratorium aims principally to avoid worst practices (e.g., deforestation), in contrast to the SAN

cattle program which additionally fosters the implementation of best practices (e.g., forest conservation, farm management, and production practices). Finally, the SAN cattle program is an *incentive* to adopt sustainable practices rather than a legal *obligation* (such as the Forest Code) or a market *restriction* (such as the moratorium)—effectively complementing existing “sticks” with a new “carrot.”

In addition to setting high sustainability standards, the extensive historical experiences of the SAN and the RA seal in implementing the SAN standard for other agricultural products means that the SAN cattle program is also widely perceived as credible and legitimate. This includes a well-established mechanism of compliance audits. As a result, the SAN cattle program is well-respected by producers, consumers, and environmental groups.

### Certification programs need to generate significant incentives

The SAN cattle program has been implemented in Brazil since 2012. The Brazilian NGO partner of SAN, *Imaflora*, initially targeted a set of key actors who were likely to be motivated and able to engage with the program in its early stages, to help to launch the program and get it off the ground. These “pioneer” or “first-mover” actors were identified as those whose production and processing practices were already closest to the standards required by the SAN cattle program, and who had already demonstrated an interest in or commitment to enhanced sustainability. The farm *Fazenda São Marcelo* (FSM) and the slaughterhouse *Marfrig* matched these criteria, and were thus approached by *Imaflora* in the early stages of implementation of the program. As a consequence of their prior experience with sustainable practices, the changes needed to become certified were relatively few for both actors, though a greater investment is required by farmers to achieve the *Standard for Sustainable Cattle Production Systems* (the set of standards that apply to farms) than is required by slaughterhouses to comply with the *Chain of Custody Standard* (the set of standards, related to traceability in the supply chain, that apply to processors). The launch of the program and establishment of a complete set of certified supply chain actors (breeding farm, fattening farm, slaughterhouse, and retailer) was additionally facilitated by existing close relationships between FSM, *Marfrig* and the retailer *Carrefour*. This strategy of selecting the most appropriate first-movers was borne from the experiences of SAN with multiple other agricultural products.

Direct financial incentives were not the main motivation for these first-movers to participate in the SAN cattle program. Although the SAN certification system includes the right to use the RA seal on final products

and in the publicity materials of certified producers and processors, and is expected to generate some economic benefits through these for those that become certified, it is not principally oriented around the promise of premiums, fixed prices, or direct improved profit margins for participants. Indeed, while SAN-certified beef is sold for a slightly higher price than noncertified alternatives, this price premium is small and may not compensate for the investments needed for an actor to become certified. However, both FSM and Marfrig additionally reported multiple indirect financial benefits and nonfinancial benefits from gaining certification, including improved agricultural practices and management systems, increased market access and control, and expanded demonstration of sustainability commitments. Here, we discuss each of these benefits in more detail.

### **Improved agricultural practices and management systems**

Good agricultural practices can improve pasture management, cattle health, and product quality (Poisot *et al.* 2004). Improving productivity and efficiency of operations is an indirect financial incentive that can result through implementing the principles and criteria of the SAN certification system (Rainforest Alliance 2013). The agricultural and management practices introduced or improved in order to achieve SAN cattle certification were reported to have increased the production efficiency of FSM and to have reduced its operating costs. In addition, the regular audit process associated with the SAN cattle program has been useful to FSM in helping them to maintain these good practices and to achieve continuous improvement.

### **Increased market access and control**

SAN certification has generated opportunities for actors at all stages in the cattle supply chain: producers, slaughterhouses, and retailers. First, many cattle farmers in Brazil have to repeatedly negotiate contracts with slaughterhouses, and are often at the weaker end of the power dynamic when it comes to agreeing prices. FSM is one of the few producers in Brazil that has a pre-determined volume and price contract with a slaughterhouse, which provides financial security. Further, competing slaughterhouses have already demonstrated an interest in buying certified cattle from FSM. Second, Marfrig stated that SAN certification gave their beef more credibility with international buyers: during the export process, buyers required less information about slaughterhouse procedures after Marfrig had achieved the SAN cattle certification. Marfrig has also initiated a new business line, exporting certified leather to Gucci. Third, Carrefour is the only

retailer for SAN-certified beef and so far monopolizes the market for this new niche product. Finally, interviews with Marfrig indicated that they expect the market for certified beef to expand, and certified actors at all stages in the cattle supply chain are well-positioned to capitalize on this expansion.

### **Expanded demonstration of sustainability commitments**

Several of the certified actors already had a strong philosophy of sustainability before the development of the SAN cattle program. For example, FSM had a history of sustainable production practices; had previously been certified as an organic farm; and had a culture of pioneering and innovation. According to the farm manager, "getting the SAN cattle certification was a natural step in our process of continuous improvement" to achieve higher-quality and more sustainable products, as well as better farm management. Marfrig also had some prior experience with sustainability, having previously received an International Organization for Standardization certificate for environmental management.

Participation in the SAN cattle program afforded opportunities to strengthen those actors' demonstrations of Corporate Social Responsibility and their engagement with more sustainable practices. These opportunities included significant brand recognition and visibility for the pioneer farms, both nationally and internationally. Farms reported publicity in high-impact popular magazines, on TV, and on news websites. Their involvement in the SAN cattle program also earned industry-wide recognition for these actors.

### **Certification programs need to influence the market at scale**

Despite the multiple benefits that may accrue to actors participating in the SAN certification program, some observers have critiqued the SAN cattle program as having limited relevance in the Brazilian cattle supply chain at this time (L.F.G. Pinto, personal communication). This is both because the proportion and volume of certified beef in the market place is so low, compared to the entire Brazilian cattle sector, and because the changes in production and management practices needed to meet the expectations of the SAN cattle program are beyond the current capacity of the majority of cattle producers in Brazil. Key barriers include low levels of compliance with environmental legislation (a pre-requisite for certification) among producers; poor access to information and assistance with respect to pasture management, production control, and forest restoration; the absence of an

effective social and environmental management system in many cattle farms; and the high costs of additional infrastructure such as fences and water piping needed to comply with the SAN cattle program criteria. These barriers present challenges particularly to small- and medium-sized farms and mean that many cattle producers are effectively prohibited from participating in the SAN cattle program, at least in the short term.

However, direct recruitment of producers into the program is only one route to achieving impact, and is only one metric of success (Cashore *et al.* 2007). Proponents of the SAN cattle program argue that there are multiple mechanisms by which the development and implementation of a third-party cattle certification program can enhance sustainability both of participating actors, and of the sector more widely. Here, we discuss three possible mechanisms of change.

### **Proof of concept**

The SAN cattle program has demonstrated that the certification of the cattle supply chain is likely to be viable, at least at a small and pioneer scale. The program has already certified three farm units within the Amazon biome, and three slaughterhouse units. Further, actors at every stage of the supply chain have been certified, from the farm that initially rears the young cows, to the farm that fattens and sells the cows for slaughter, to the slaughterhouse. Certified beef displaying the RA seal is being sold to consumers in Brazilian supermarkets. None of these things were happening before 2012, so the SAN cattle program has already made some progress by recruiting a set of key actors that complement each other in the production process. Just the demonstration that these actions are possible and that certified sustainable beef is being produced and sold could have an impact on how actors view the potential for enhanced sustainability within the cattle supply chain in Brazil. For example, the *Grupo de Trabalho da Pecuária Sustentável* (Working Group on Sustainable Beef—GTPS), which convenes actors from across the cattle supply chain, recently acknowledged the SAN cattle program as a tool for increasing sustainability in the long term (GTPS 2013).

### **Rigorous standards**

As discussed above, the SAN cattle program sets high sustainability standards. A stringent, credible set of criteria has at least three implications for the possible contribution of the program to enhanced sustainability. First, farms that become certified are known to be operating in accordance with best sustainability practices. As a result of greater confidence that SAN-certified farms have achieved a meaningful sustainability standard, concerned

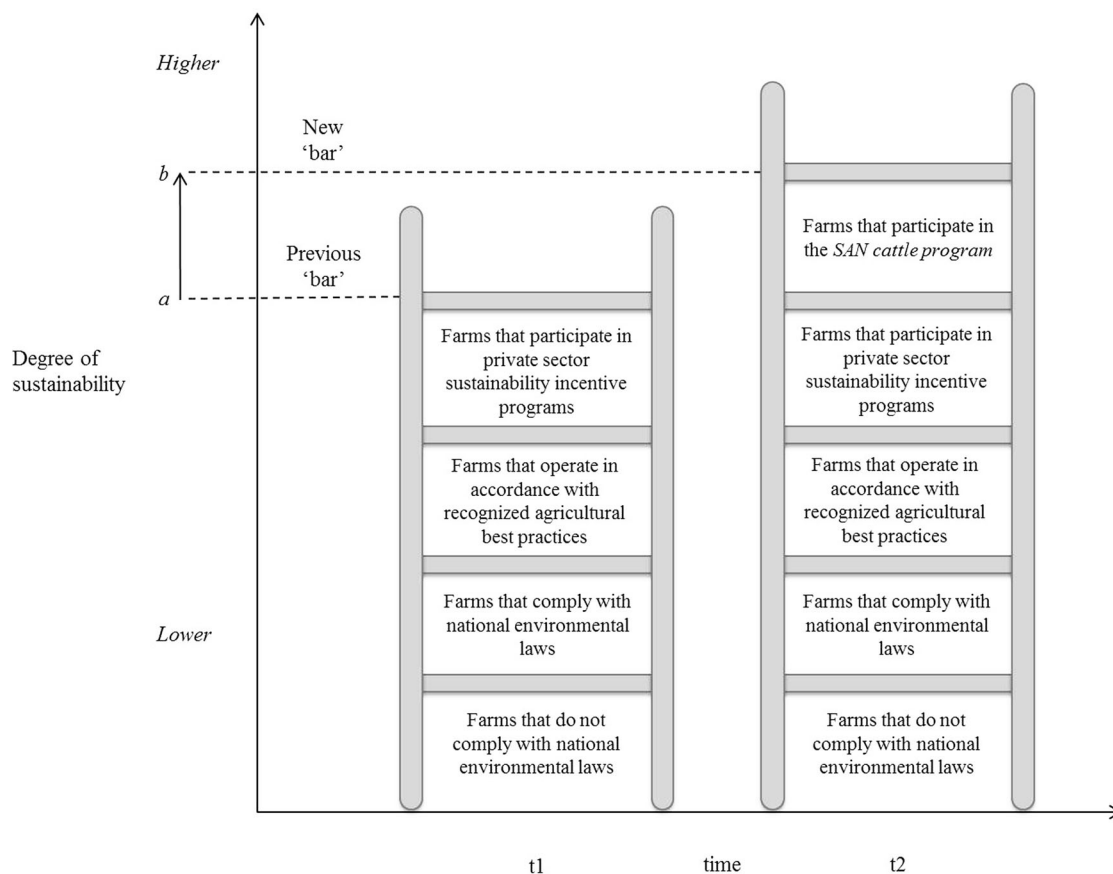
actors, including consumers and environmental NGOs, are more likely to buy into the program through purchase decisions and program support, respectively. Second, the program has defined new sustainability standards for the cattle supply chain, and in doing so has “raised the bar” and set a higher benchmark for the rest of the supply chain to aspire to (Cashore *et al.* 2007, McDermott *et al.* 2009; Figure 1). As a result, farms that were previously in the top tier of sustainable practices (e.g., the 69 farmers participating in the platinum category of the *Marfrig Club* program [Marfrig 2012]) have a new set of standards to aspire to and attain, and those already further from the top of the “sustainability ladder” may be motivated to improve to avoid being left behind by the top producers. Third, new high standards of sustainability may, in the medium or long term, become a “new norm,” and come to be considered a minimum requirement by the supply chain (Bernstein & Cashore 2007). For example, if producers and slaughterhouses are effectively required to adhere to these standards to participate in the market, actors who do not adhere are more likely to be excluded. This may include the least sustainable farms; it could also include smallholders who are less able to afford certification (Pinto & McDermott 2013), but this risk is somewhat mitigated by the option of group certification (Durst *et al.* 2006). Certification of timber, pulp and paper by the Forest Stewardship Council (FSC) has to some extent followed this trajectory: the certification standards were initially considered extremely difficult to achieve, and to be accessible only to the most sustainable producers, but now certification is more widespread and a proportion of the timber market is accessible only to producers who conform with FSC standards (FSC 2004; Perera & Vlosky 2006).

### **New opportunities**

The SAN cattle program could change the wider context of cattle production, by generating new incentives, opportunities, and rewards for enhanced sustainability across the sector (Drigo 2013). For example, the program has helped to establish a market for certified beef, which is sold for a small price premium. Though currently small in size, this market may expand: other retailers have expressed interest in buying SAN-certified beef, and if new contracts are agreed there will be an imperative to certify more farms to supply that demand.

### **Scaling up the SAN cattle program**

The SAN cattle program has certified only a small number of actors to date, and a significant challenge for the program is that of how to scale up to achieve greater



**Figure 1** An indication of how the SAN cattle program has “raised the bar” for the cattle supply chain, by setting a higher standard of sustainability than all other existing policy and incentive mechanisms. The introduction of the SAN cattle program, between times  $t_1$  and  $t_2$ , increased the highest demonstrated achievable level of sustainability in the cattle supply chain from  $a$  to  $b$ .

impact. A possible trajectory is that the program will recruit different actors over time (Bernstein & Cashore 2007). In the first stage, the program enlisted actors with existing high standards of sustainability and good practices. It has targeted pioneer actors who have been able to achieve certification in the short term, who already had a culture of sustainability and employed high-standard practices, and for whom the main motivations for participation were not direct financial incentives. Such actors comprise only a small proportion of producers in the Brazilian cattle supply chain, but this reflects a pattern observed for several other sectors. In those other sectors, the certification program began with a very small number of pioneer producers and one or two additional actors in the supply chain, but has eventually become more widely adopted, and larger areas of coffee (314 farms totaling 230,578 ha certified) and citrus fruit (seven farms totaling 39,194 ha certified) are now operating under the SAN standards in Brazil (SAN 2014).

However, the SAN cattle program itself does not include any specific mechanisms to enable the majority of producers to get closer to these high sustainability standards (Steering Committee 2012). The interaction between the SAN cattle program and other interventions in the cattle supply chain will therefore be critical in determining the rate at which less sustainable producers approach a position from where they are able to contemplate SAN certification (Alves-Pinto *et al.* 2013). The experience of other sectors suggests that market incentives are likely to be critical in leading the scaling up of certification, but government policies also have the potential to promote changes in the cattle sector toward sustainability and voluntary certification systems (Cashore *et al.* 2007). It may also be important to highlight the nonfinancial and indirect financial benefits that may arise from certification, though some of these benefits may be felt more significantly by pioneer actors, rather than those who subsequently become certified.

## Conclusions

The SAN cattle program has in a short period achieved initial, relevant steps toward enhancing sustainability in the Brazilian cattle supply chain. The program has certified actors at all stages of the supply chain, has created a new market, and has raised the sustainability reference level. It has also demonstrated that it may be possible for a well-designed and implemented certification program to evade the critiques that have been leveled at other commodity certification programs. Some of the lessons learned from this process may have application for certification programs and sustainability initiatives for other commodities or in other countries.

First, the SAN cattle program has demonstrated that it is possible to create standards that are stringent and that are widely accepted as representative of a high level of sustainability. A short-term trade-off of this approach might be that fewer producers are able or willing to participate in the program, but in the longer-term the credibility and legitimacy of the program is more likely to be maintained. Defining sustainability in the most meaningful terms possible may maximize buy-in from other actors (especially NGOs), and may avoid accusations of “green-washing” and compromises.

Second, the SAN cattle program has demonstrated that a number of indirect financial benefits and nonfinancial benefits may be available for actors who participate in sustainability initiatives, in addition to the direct financial benefits such as a price premium. Best practices can lead to environmental and social as well as economic benefits. Greater quantification, reporting, and visibility of these alternative benefits might motivate more producers to participate in this and other sustainability programs.

Finally, the SAN cattle program has demonstrated the viability of achieving high levels of sustainability in the cattle supply chain. Demonstrating viability and proof-of-concept may influence the perceptions and actions not just of actors immediately engaged in a sustainability program but also those of actors across a sector or throughout a country. The broader, indirect impacts of the program may therefore extend beyond the directly participating individuals.

Whether the SAN cattle program, other certification programs, or other sustainability initiatives ultimately make a significant contribution to enhanced sustainability will likely depend on how those programs are supported or constrained by other interventions in the same sector and country (Alves-Pinto *et al.* 2013). However, the SAN cattle program appears to be characterized by a rigorous program design and institutional arrangements that are necessary, if not sufficient, to catalyze reduced rates of forest loss.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher’s web site:

Online Supporting Information

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