Costs of responsible production standards in the cocoa sector

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Thesis Abstract:

Certification schemes such as UTZ Certified, Rainforest Alliance and Fair Trade are the most relevant and fast-growing certification schemes in the cocoa sector. Today their market share of certified cocoa account for about 20% of total cocoa production. Although their approaches differ, the standards are mainly formulated to address environmental and socioeconomic aspects of smallholder production. One of the key issues of certification is that it implies additional costs including training delivery, farm audits, certification fees and additional on-farm investments. To this respect, a framework for costs assessment is elaborated to study how these costs are distributed, from farmers to consumers, and to identify who bear them. Data on the costs have been collected through a literature study as well as through interviews with standard organizations and other key partners involved in cocoa certification. The study found that due to the current lack of demand for certified cocoa, a 60 to 67 per cent of compliant cocoa is eventually not sold as such, thus limiting farmers' opportunities to benefit from the premium. Furthermore, the data shows great variability in these costs (and benefits) of certification, and that these appear to be closely linked to production capacities, and to a less extent, to the size of the groups. In absence of investments and support from third-party funders, costs are beyond the reach for smallholder farmers. This raises questions over the long-term viability of certification schemes as well as over their actual capacity to support farmers in the future. Lastly, the lacks of transparency on the costs, as well as on premium distribution is one of the main shortcomings of certification, which in turn undermines the objectives that it attempts to promote.

Key words: costs, benefits, certification, cocoa, standards, requirements, premium, farmers, smallholders.

Table of Contents

List of tables and charts

Tables:

Charts and boxes:

Abbreviations

CoC: Chain of Custody

CB: Certification body

FLO: Fair Trade Labelling Organization

GAP: Good Agricultural Practices

ICCO: International Cocoa Organization

ISEAL: The global Association for social and environmental standards

ITC: International Trade Centre

RA or RFA: Rainforest Alliance

SAN: Sustainable Agricultural Network

TCC: Tropical Commodity Coalition

UTZ: UTZ Certified

WCF: World Cocoa Foundation

1 Introduction

Agricultural commodities constitute the engine of economic growth in rural areas of many emerging markets and accounts for about 10 per cent of developing countries' gross domestic products. Rural population contains 70 per cent of the world's poor. Worldwide there are roughly 50 million smallholder farmers engaged in the production of key – commodities such as cocoa, coffee, tea, and cotton. Although the commodity trading is a billion dollar industry, it relies on supply by low-income smallholder farmers. For example, 90% of the global supply of cocoa comes from 5,5 million smallholder farmers with 40 million dependants (WCF 2012b). West Africa is the world largest supplier of cocoa, contributing for about 70% of global production. Côte d'Ivoire and Ghana are the world's largest producing countries accounting for more than half of global production. In West Africa, most cocoa producers live and work under dismal conditions, well below the poverty line (TCC 2012). Issues such as price volatility, poor access to market, and inadequate farming practices are among the key factors that negatively affect yields, quality, and, consequently, the price paid to farmers. In recent years, concerns over low productivity, lack of investments in new cocoa trees, and environmental impacts have caused uncertainty over the sector's long – term sustainability (World Bank 2013). The issue of sustainable cocoa production was a top priority on the agenda of the 2012 World Cocoa Conference, held in Côte d'Ivoire. The Abidjan Cocoa Declaration that emerged from the meeting, aimed at creating a sustainable future for the cocoa sector[1].

On the demand side, chocolate is becoming increasingly popular worldwide. Sales are booming in several expanding markets including those of Brazil, Indonesia and China. Forecast indicates that global demand of cocoa is expected to rise by one million ton by 2020 (or 25% of current cocoa production), with a consequent substantial supply shortage in the coming years (TCC 2012). The youthful populations of BRIC countries (Brazil, Russia Federation, India, China) are the major force behind the rise in global chocolate consumption. While the industry is trying to keep-up with the rising demand, several environmental and socioeconomic issues undermine cocoa production. As a consequence, sustainable sourcing of cocoa by

[1] Agritrade, Executive Brief: Cocoa, December 2013. Available at: http://agritrade.cta.int/Agriculture/Commodities/Cocoa/Executive-Brief-Update-2013-Cocoa-sector#page=/(from)//(until)//(sortby)/date/(search)/cross/(nodeid)/20468/(commodities)/7798

major processors and manufacturers has recently grown in importance as the industry is trying to respond to consumers' preferences (ICCO 2012b), as well as to secure supplies and improve brand reputation.

Recently, there has been a proliferation of sustainability standards and eco – labels that certify the production of many commodities including coffee, tea, sugar, cocoa, timber and cotton etc. According to *Ecolabel,* by 2012 there were 447 registered certification and verification standards claiming some aspects of sustainability[2]. Systems such as UTZ Certified, Rainforest Alliance and Fair Trade are the most relevant and mature initiatives available in cocoa. Although their approaches differ, they all share the common objective of promoting sustainable development. Recently, production of standard – compliant cocoa has experienced exceptional growth. In 2012, the average annual growth rate of compliant cocoa production reached 69%. In terms of global production, its market share has grown from 3% in 2008 up to 22% in 2012. However, actual sales have not grown as rapidly, resulting in significant oversupply (only one-third of total compliant production is actually *sold as* certified) (Potts et al. 2014).

Changing consumer preferences and food security are the main reasons behind the proliferation of certification initiatives. Today consumers are increasingly demanding products that meet certain ethical production, trading, and environmental criteria (Byers et al. 2008). A Nielsen poll of more than 28,000 respondents from Asia, the Middle East and Africa found that two third (66%) of consumers are willing to pay more for sustainable products (Nielsen 2012). Similarly, an Oxfam study involving more than 5,000 women respondents from India, Brazil and Philippines, found that the majority of them were concerned about "how" and "where" the food they buy is produced (Oxfam International 2012).

The basic principle of certification is that a group of consumers are willing to pay higher prices for sustainable cocoa. *As long as the market places additional value on "sustainable cocoa" as compared to "bulk cocoa", certification has the potential to internalize the social and environmental costs of production* (i.e. price volatility, deforestation, unsafe working conditions etc.) *within the value chain* (Giovannucci & Potts 2008). However, yet it is not clear to what extent certification can actually benefit low-income producers. One of the key issues is that the adoption and implementation of standards implies additional costs for the product involved. What are these costs and who bear them are the main objectives of the present study.

[2] http://www.ecolabelindex.com/ecolabels/

The study looks at the direct costs of certification (i.e. membership and annual fees, cost of audits, license fee etc.) and on how these are covered by supply chain partners (i.e. producers, exporters, manufactures and consumers) as well as by other contributors, such as NGO's. One of the main purposes is to see to which extent costs are met by the value chain and/or by external partners. The study attempts to assess and quantify the costs associated with the three major certification systems including UTZ Certified, Rainforest Alliance and Fair Trade. So far, what are the costs arising from certifications and who bear them, has been very little investigated. As impact studies do not have the goal to perform cost – benefit analyses, these costs are often not taken into account and remained mostly unknown. The study comprises a review of the available impact assessment studies on certification. Given the limited number of studies on cocoa certification (10) and the lack of comparable data on the costs, studies on other sectors (i.e. coffee) are also taken into account.

The study mainly relies on secondary data collected from various sources including published materials from standard organizations (e.g. annual reports, premiums, fees, production and sales, etc.) as well as on information gleaned from consultations with standard organizations, auditors, and experts in the sector. Figures on market trends and developments in the cocoa sector are based on published material from few sources including the International Cocoa Organization (ICCO), the Tropical Commodity Coalition (TCC) and World Cocoa Foundation (WCF).

The study is structured in the following chapters:

- "Market overview", where I provide an overview of the cocoa market and of the industry including global production, consumption and price trends, as well as recent developments in the market of certified cocoa;
- "Cocoa certification", this section explores differences and similarities between the standards (i.e. *code of conducts*), and compares the three schemes among each other. The chapter comprises a review of studies on the impact of certification in cocoa.
- "Methodology and research questions", shows how certification costs are assessed and evaluated along the cocoa supply chain as well as the attribution of costs to key agents along the chain.
- "Cost of certification", provide estimates of the costs and potential benefits associated with the adoption of standards. The section attempts to identify which are the key-determinants of the costs and benefits associated with the selected schemes and provides a comparison of the schemes.

2 The cocoa sector

Cocoa represents a vital cash crop for producing and exporting countries in the south as well as a key import commodity for processing, manufacturing and consuming countries (World Cocoa Foundation 2012). Cocoa, the main ingredient of chocolate and related food products, is an important agricultural commodity traded worldwide, with a total export value of US$ 8.4 billion in 2012. However this is only a small fraction of the global value of the chocolate market, estimated at 83 billion USD in 2010 and forecasted to grow to 98.3 billion by 2016[3] (Potts et al. 2014).

According to *Euromonitor,* the value of the global chocolate confectionery retail market rose from US$ 52 billion in 2002 to US$ 102 billion in 2011, representing an increase of nearly eight per cent *per annum* (ICCO 2012b). The EU confectionary industry employs over 250,000 people and produces 10.4 million tons of chocolate products, worth nearly 69 billion euros. In November 2011, global sales of chocolate confectionery crossed US$ 100 billion for the first time, with consumer demand for chocolate expected to further grow and likely outpacing supply (WCF 2012a).

The cocoa market is characterized by a few large international companies that control more than half of the world's market share of cocoa. One of the key market features is the dominance of large downstream processors such as Cargill, ADM Cocoa, Barry Callebaut and Blommer Chocolate in the trading, grinding and manufacturing activities. These companies alone control about 55% of global processing and trading of cocoa beans[4].

Major chocolate manufactures including Mars, Mondelez – Cadbury, and Nestlé, source 40 % of the world's global supply through these grinders. In 2012 the value of their net sales amounted to 45 billions USD dollars. Each year Candy Industry publishes an annual list of the top 100 global confectionary companies, ranking them on the basis of net estimated sales. The table below is an extract of the world's top ten global confectionery companies that manufactures some forms of chocolate.

Table 1 Net confectionery sales value in 2012

Company	Net sales 2012 (US$ millions)
Mars Inc. (USA)	16,800
Mondelez International (USA)	15,480
Barcel SA, Bimbo (Mexico)	14,095*

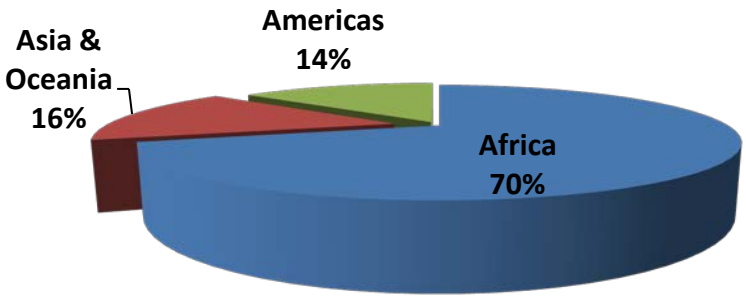
3

4 http://agritrade.cta.int/Agriculture/Commodities/Cocoa/Executive-Brief-Update-2012-Cocoa-sector

Nestlé SA (Switzerland)	12,808
Meiji Co Ltd (Japan)	12,428*
Hershey Food Corp (USA)	6,460
Ferrero Group (Italy)	5,627
Chocoladenfabriken Lindt & Sprungli AG (Switzerland)	2,791
August Storck KG (Germany)	2,272
Yildiz Holding (Turkey)	2,200
*Includes production of non – confectionery items ICCO 2013, The chocolate Industry: http://www.icco.org/about-cocoa/chocolate-industry.html	

West Africa is the world largest supplier of cocoa, contributing to about 70% of global production. America's production accounts for 14% and that of Asia is almost 16% of global production. Côte d'Ivoire and Ghana are the world's largest cocoa producers accounting for about 35% and 22% of world production respectively. Indonesia is the third largest cocoa producers, accounting for 12,5% (500.000 tons) of global production.

Table 2 Top cocoa producers and market share 2012



Source: ICCO Annual Report, 2010/11.

Between the cocoa seasons 2009/10 and 2010/11 world production has risen considerably from almost 3.6 million MT to a record level of over 4.3 million MT (Table 3). This extraordinary increase has been mainly caused by the excellent weather conditions as well as by favorable market prices, that have both contributed to the largest cocoa output ever recorded (ICCO 2012a).

Table 3 World production of cocoa by country 2008-2012 (thousand tons)

	2008/09	Market share	2009/10	Market share	2010/11	Market share	2011/12	Market share
Africa	**2.516**	70%	**2.486**	68,4%	**3.226**	74.9%	**2.801**	70.2%
Cote	1.223		1.242		1.511		1.400	

d'Ivoire								
Ghana	662		632		1.025		870	
Nigeria	250		235		240		230	
Cameroon	224		209		229		220	
Others	157		168		221		81	
America	**478**	13.3%	**516**	14.2%	**559**	13.0%	**563**	14%
Brazil	157		161		200		185	
Ecuador	135		150		161		170	
Others	186		205		199		208	
Asia & Oceania	**598**	16.6%	**633**	17.4%	**524**	12.2%	**623**	15.6%
Indonesia	490		550		440		500	
Papua New G.	59		39		47		-	
Others	48		44		37		105	
World	**3.593**	**100%**	**3.635**	**100%**	**4.390**	**100%**	**3.987**	**100%**
Source: (ICCO 2012 & WCF 2012)								

Europe dominates world demand with 1.5 million tons of processed cocoa beans, accounting for 39% of world market share in 2011/12. The Netherlands is the world's top grinder and importer with 490.000 tons of processed beans, followed by Germany (421.000) and the U.S (400.000). In 2009, the value of its cocoa imports (including beans, powder and cake) amounted to over 2 billion USD dollars (WCF 2012a). World grindings volumes are used as a measure of global demand for cocoa beans over the medium and long – term, since manufacturers usually process cocoa beans according to the market demand for cocoa products i.e. cocoa paste/liquor, cocoa butter, cocoa cake and powder (ICCO 2012a).

Table 4 World grindings of cocoa beans (thousand tons)

	2009/10	2010/11	2011/12
Europe	**1,492**	**1,595**	**1,554**
Germany	361	439	421
Netherlands	500	525	490
Others	431	631	643
Share of tot	41,2%	41,7%	39,1%
Americas	**801**	**839**	**865**
Brazil	223	236	243
United States	380	390	400
Others	198	213	222
Share of Total	22,1%	22%	21,8%
Asia & Oceania	**689**	**770**	**897**
Indonesia	120	170	270
Malaysia	298	305	312
Others	271	295	315

Share of Total	19%	20,1%	22,6%
Africa	**642**	**618**	**657**
Côte d'Ivoire	390	340	380
Ghana	200	220	222
Others	52	58	55
Share of total	17,7%	16,2%	16,5%
World Total	**3,624**	**3,822**	**3,973**
Origin Grindings	1,423	1,472	1,621
Source: Cocoa Market Update 2012, World cocoa Foundation (WCF)			

Grindings operations at origin have increased as a result of greater investments by large companies (i.e. ADM, Barry Callebaut) in up-stream activities including internal marketing, shipping and cocoa processing capacity at origin (ICCO 2012b). In Indonesia, the country's grinding capacity has more than doubled from 120,000 tons in 2010 to 270,000 in 2012. These companies dominate the domestic market of Ivory Coast, accounting form more than 70% of the volume, and are expanding their processing operations in key producing countries in West Africa and Asia (TCC 2009a).

Processed cocoa can be imported into the EU tax – free when it originates from least developed countries (EPA) such as Ghana, Côte d'Ivoire and Cameroon. However, the EU charges an import tariff on processed cocoa from Indonesia, Malaysia, Nigeria, Brazil and Ecuador (ranging from 2,8 % to 9,6 % depending on the specific product such as butter, powder or paste). The import tariff protect the cocoa processing industry in the E.U. as well the EPA – countries, while discouraging non – EPA countries from investing in grinding facilities to add local value to their cocoa exports (TCC 2009b).

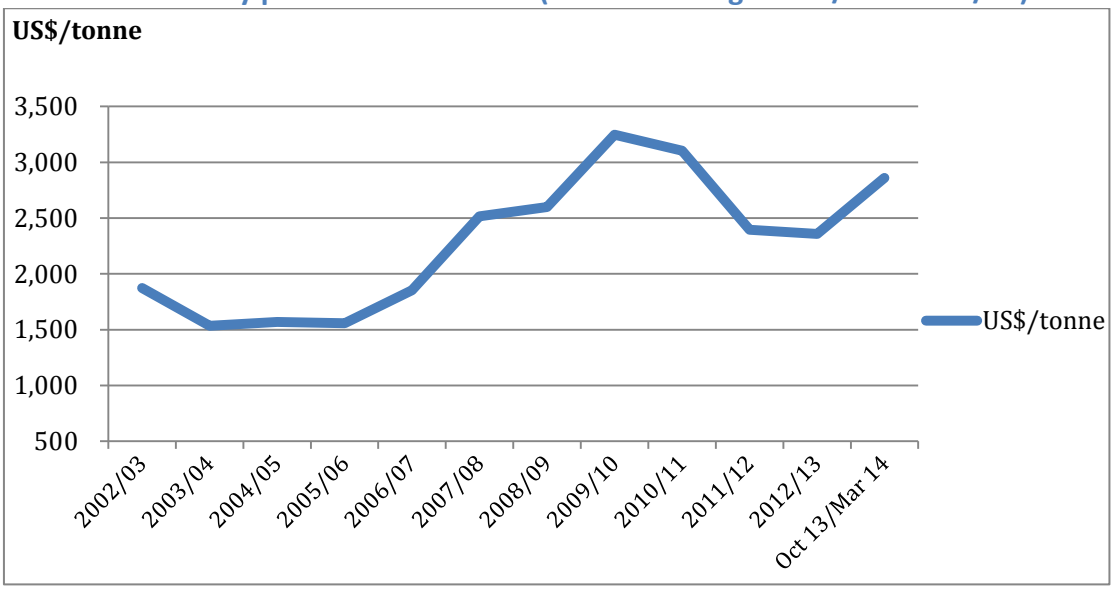
ICCO suggest that between 2002 and 2010 global consumption of chocolate confectionary products increased by 10 % (from slightly more than 5 up to 5.5 million tons) reflecting an average annual growth rates of 1.2 %. The youthful populations of the BRIC countries (Brazil, the Russian Federation, India and China), are a major driving force behind the growth in chocolate demand and consumption (ICCO 2012b). For example Brazil, historically a major export country, now it consumes as much cocoa as it produces (in 2010 it produced 200.000 tons while estimated domestic consumption in the same year was approximately 178.000 tons) (WCF 2012a).

2.1 The cocoa price

The cocoa market price has historically been highly volatile and prone to price speculation. Although chocolate companies are able to protect themselves against

price fluctuations, farmers lack of such protection and their income is strongly linked to trends in international prices (TCC 2012; Dorin 2003). Between 2002 and 2010, yearly averages of international cocoa prices ranged between US$ 1,534 in 2003/04 and US$ 3,246 per ton in 2009/10. In the last years, the cocoa price has, overall, followed a downward trend, reflecting imbalances between supply and demand. The price has declined from US$ 3,105 per ton in 2010/11, down to US$ 2,359 in 2012/13. This price level is, however, still above the average price enjoyed during the 1990s and most of 2000s.

Chart 1 ICCO daily price of cocoa beans (Annual Average 2002/03 – 2012/13)

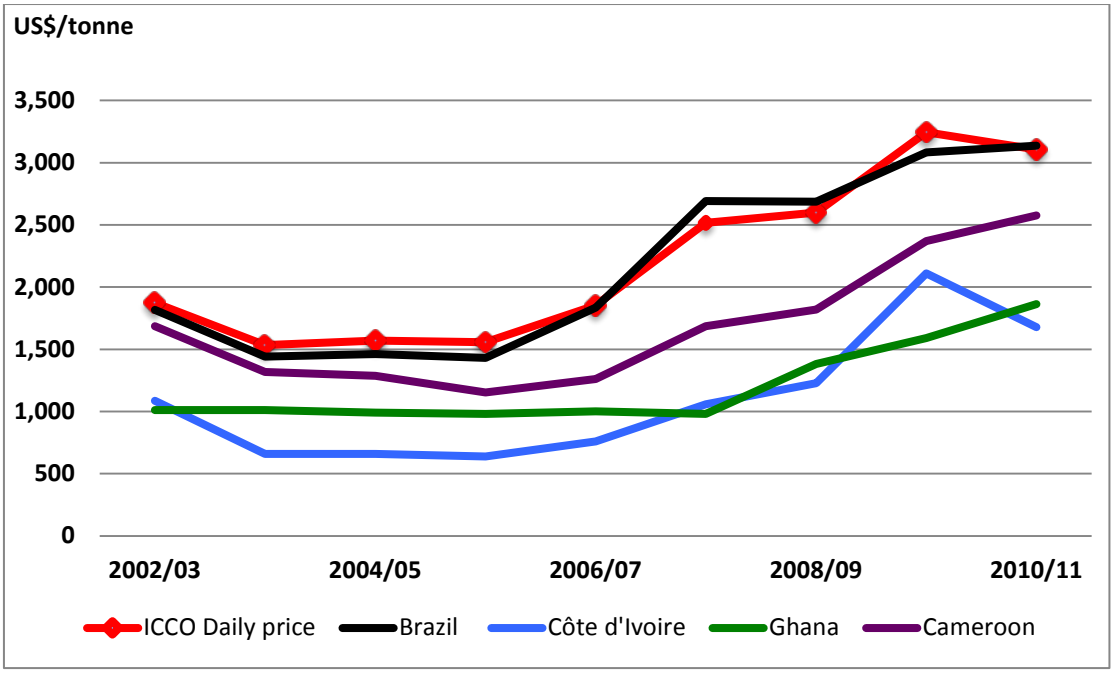


Source: ICCO, March 2014.

Although world market prices were 26% higher in 2010/11 (at US$ 3,105) compared to 2002/03 (US$ 1,873), real farm gate prices in several key-producing countries did not mirror this upward trend. Chart 2 shows the trend in the international price of cocoa as compared to prices received by producers in key exporting countries including Ghana, Côte d'Ivoire, Cameroon, Ecuador and Brazil.

Chart 2 ICCO daily price and producer prices in key-producing countries 2002/03 – 2010/11[5].

[5] Market prices refer to yearly averages of international cocoa prices (ICCO daily price).



Source: ICCO 2012 "The world cocoa economy: past and present".

Trends in international prices are affected by various factors such as changes in supply and demand, the stock/grinding ratio[6] (a low ratio pushes price up and vice versa), and price speculation, to name a few. Price increases may be due to lower stocks-to-grindings ratio, delayed transport to ports, increase in demand, extreme weather conditions and/or political instability in producing countries. By contrast, price decreases are usually associated with favourable weather conditions, higher stocks-to-grindings ratio, subsidized distribution of fertilizers and pesticides to farmers, and/or lower demand (WCF 2012a). For example, in 2000 good weather conditions contributed to plentiful supplies and high global stocks, which caused a dramatic fall in the market price down to US$ 919 per ton, the lowest price in 30 years. By contrast, low supplies exacerbated by a ban on exports of cocoa from Côte d'Ivoire pushed cocoa prices up to a 32-year high of US$ 3,775 a tonne in March 2011[7]. The data contained in the table shows that the recovery in the international price of cocoa between 2006/07 and 2009/10 seems to be positively correlated with, overall increases in producer farm gate prices.

Table 5 Producer prices in West Africa 2005/06 – 2010/11

	Brazil	Ecuador	Côte d'Ivoire	Ghana	Cameroon	ICCO daily price (US$/tons)

[6] The stock-to-grinding ratio is a proxy for global supply and demand of cocoa.
[7] Fair Trade, 2011. *Fair Trade and Cocoa: commodity briefing*, pg.5.

Year	Producer prices expressed as percentage of ICCO daily price (US dollars)					
2002/03	1.817 (97%)	1.554 (83%)	1.086 (58%)	1.011 (54%)	1.686 (90%)	**1.873**
2003/04	1.442 (94%)	1.150 (75%)	660 (43%)	1.012 (66%)	1.319 (86%)	**1.534**
2004/05	1.461 (93%)	1.162 (74%)	660 (42%)	990 (63%)	1.288 (82%)	**1.571**
2005/06	1.432 (92%)	1.386 (89%)	638 (41%)	981 (63%)	1.152 (74%)	**1.557**
2006/07	1.835 (99%)	1.631 (88%)	760 (41%)	1.001 (54%)	1.261 (68%)	**1.854**
2007/08	2.692 (107%)	2.063 (82%)	1.057 (42%)	981 (39%)	1.686 (67%)	**2.516**
2008/09	2.687 (105%)	2.287 (88%)	1.228 (48%)	1.381 (54%)	1.819 (70%)	**2.599**
2009/10	3.083 (95%)	2.889 (89%)	2.110 (65%)	1.590 (49%)	2.369 (73%)	**3.246**
2010/11	3.136 (101%)	2.981 (96%)	1.677 (54%)	1.863 (60%)	2.577 (83%)	**3.105**
	Source: ICCO 2012 *"The World Cocoa Economy: past and present"* table 4.					

Differences among countries in the share of international prices captured by farmers depends on different variables including the efficiency of the internal market system, the quality of the beans, level of domestic taxation as well as the cost of transportation to consuming countries (ICCO 2012b). As we can see, countries in Latin America overall receive a much higher share of the international cocoa price compared to West – African countries.

Between 2002/03 and 2005/06 international cocoa prices have dropped from US$ 1,873 to US$ 1,557 per ton, and farm – gate prices have followed a similar downward trend. Typically, declining world market price has an adverse effect on cocoa production, as farmers cut expenses on inputs and farming to lower production cost. Consequently production tends to decrease. Conversely, between 2006/07 and 2009/2010, the recovery in world prices and the subsequent increases in real farm gate prices had a positive impact on cocoa production and on the use of

fertilizers. Higher market prices coupled with favorable weather conditions, have contributed to the historic output level of 4.3 million tons in the cocoa season 2010/11. The positive causality between higher cocoa prices and increased cocoa output may indicate that trend in cocoa production are mainly determined by the financial capability of cocoa farmers to invest in yield and productivity improvements (ICCO 2012b). Such relationship suggests that trend and fluctuations of international cocoa prices together with other factors (e.g. weather conditions, presence of pests or diseases) all affect farmers' production capacity and thus potential output.

2.2 Cocoa growers

Cocoa is mainly cultivated in from small farms with 2 to 5 hectares of land. There are approximately 5.5 million smallholders involved in the production of cocoa, which contributes for about 90% of the world supply of cocoa (WCF 2012a). Other 40 to 50 millions rural workers directly rely on cocoa for their livelihoods (WCF 2012b). In Côte d'Ivoire and Ghana, there are around 800,000 and 700,000 small – cocoa producers respectively, that cultivate cocoa and directly depend on this crop (Oxfam 2008). In these countries cocoa is not only the main cash-crop export, but also the backbone of the economy. Farmers grow cocoa trees in tropical climate, within 15 – 20 degrees around the equator. Cocoa is a sensitive shade-loving crop and farmers must protect trees from the wind and sun as well as prevent pests and diseases (e.g. The Black Pod in most regions, especially in Africa, the Cocoa Pod Borer in South – East Asia and Witches' Broom in the Americas). Most cocoa trees reach maturity and begin to yield pods at the fifth year. Each pod yields 20 to 50 beans, depending on the variety, and a tree produces on average 50 pods. The tree has an economic life span of about 40 years and reaches its peak production between 8 and 12 years (Dorin 2003). The growing season in the tropics is continuous but most countries have two peak production seasons per year (World Cocoa Foundation 2012).

There are two main ways of cultivating cocoa: in agroforestry system (within existing forests or in intercropping modalities) or intensified systems (with low or no shade). Although the former production method is the most widely used, the expansion of intensified low shade production systems, has been associated with high level of deforestation. It is estimated that between 1990 and 2005 the total forest area in Ghana decreased from 74,000 to 55,000 Km^2, reflecting an average deforestation rate of 2 % annually (Afari-Sefa et al. 2010). In 15 years, over 25% of the country's natural forest went lost because of deforestation. However, this is only partly due to

cocoa cultivation, forest conversion and logging are among the other key factors associated with deforestation.

According to a recent study, in Côte d'Ivoire, there are two main problems that affect economic feasibility of smallholders (< 5 hectares): the low productivity of farms, and the low quality of cocoa beans. Cocoa yields in Ivory Coast are the lowest in the world, oscillating between 200 – 500 kg per hectare per season and poorly compare with 1 – 2 tons per hectare in Indonesia. Experts agree that this is about 50% less than the potential productivity per hectare with proper fertilization, irrigation and correct plant husbandry. With respect to quality, crop diseases and ageing trees, combined with loss of soil fertility and farm practices (i.e. weeding, pruning, fertilizing etc.), are the main factors that affect quality (FLA 2012).

ICCO estimates that due to low market prices prevailing during the past decade, the average income of West African farmers has been far below the poverty line of 2 US$ per capita per day. In Ghana, the daily mean total income from cocoa per household is estimated at US$ 2.30 out of a mean total household income (including cocoa and all other sources) of US$ 3.41[8]. On a per capita basis, the mean daily income from cocoa is estimated at US$ 0.42 out of a mean total household income of US$ 0,63 per day per farmer (Barrientos et al. 2008). Overall, the surveyed households are found to earn less than one dollar per day, suggesting high level of poverty. Other estimates suggest that farmers receive on average US$ 379 in Ghana and US$ 297 per hectare per year, in Côte d'Ivoire (costs already deducted) (Matissek et al. 2012). According to a survey of 3,000 cocoa farmer households, in Ghana the average annual income is only US$ 321 per year (World Bank 2013). By contrast, in West Sulawesi (Indonesia), average farmer income is estimated at US$ 850 per hectare per year (Veco 2011).

Low income, provide small incentive for cocoa growers to invest in farm inputs, rejuvenate trees and increase productivity. In Ghana and Côte d'Ivoire more and more cocoa farmers are shifting to the cultivation of rubber and palm oil, as income from these crops are more stable and maintenance after first investment is easier (FLA 2012; Gerrie 2010). In Indonesia, the world's third largest cocoa producer, farmers were found to cut down cocoa trees to leave space for palm oil plantations that brings better returns. While cocoa farmers earn on average 8 million rupiah (US$ 712) a year, by cultivating palm oil they could earn 15 million (US$ 1,335) (Pardomuan & Taylor 2012).

[8] The income estimate refers to a sample of 197 households (with a mean household size of 6.5 members) from six districts in Ghana. Across all the surveyed districts, cocoa farming account for 66% of total household income. Income from growing other crops together with off – farm activities account for about 25%, while wage labour and remittances only account for 6% of total household income.

In most cocoa producing countries, farmers obtain on average 350 – 400 kilograms of beans per hectare (Barrientos et al. 2008). According to the World Bank, in West Africa annual averages of cocoa yields have remained low, particularly in Ghana. Over the last 30 years the country's average annual cocoa yield was only 330 kg/ha compared to 580 kg/ha in Côte d'Ivoire, and to 770 kg/ha in Indonesia. Low productivity often translates into low household income. Nevertheless experts in the cocoa sector agree that with the adoption of improved agricultural practices (i.e. weeding, pruning, fertilizing and replanting of old cocoa trees), farmers' productivity could potentially increase from the current average of 400 Kg up to 600 Kg per hectare. The WCF suggests that with the adoption of good agricultural practices, farmers could increase production by 20 to 30 per cent per hectare. Experts suggests that with investment ranging between 150 and 410 USD dollars, farmers' earnings could increase up to US$ 727/ha in Côte d'Ivoire and US$ 929/ha in Ghana.

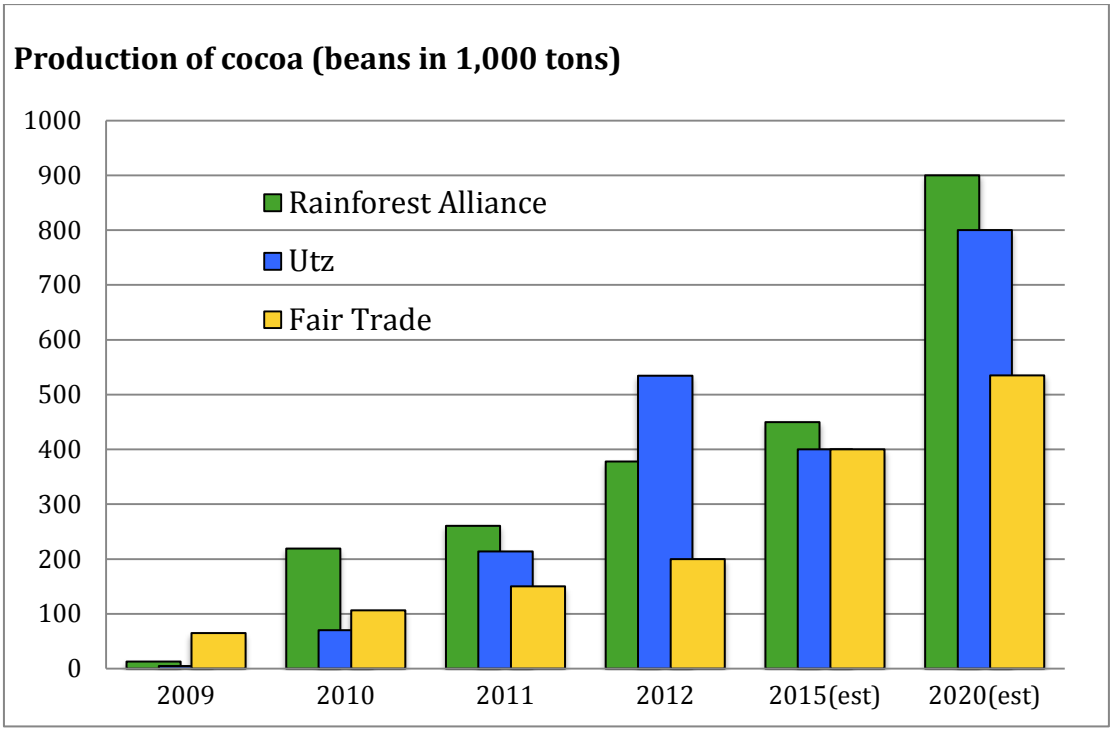
The main reasons behind the low productivity levels common to West African countries include: smallness of farms (90% of production comes from small farmers with 2 to 5 hectares of land), ageing producers (in Côte d'Ivoire 80% of producers are over 55 years old), limited access credit, inadequate farm practices (i.e. weeding, replanting, post-harvest processing etc.), and the high incidence of pests and diseases (Dorin 2003). An estimated 35% of cocoa trees are found to be older than 35 years (KPMG 2012), while 30 to 40 per cent of production is lost every year due to pests and diseases (WCF 2012b; ICCO 2012b). For example, average yields in Côte d'Ivoire are estimated to be only 40% of potential output (KPMG 2013b). Overall, aged and diseases cocoa trees combined with bad farm practices seem to be the major obstacle to achieving sustainable cocoa production and enabling long – term productivity growth.

2.3 The market of sustainable cocoa

Data from the ICCO suggest that total production of cocoa beans increased from 3.6 million tonnes in 2009 up to 4.3 million MT in 2010. Over the same years, production of certified cocoa grew from approximately 84,000 up to 345.000 tonnes, meaning that between 2009 and 2010 the market share of certified cocoa has doubled from around 2 to 8 per cent (TCC 2009a; TCC 2012). However, the real amount of available certified cocoa is difficult to estimate because it is inflated by double or even triple certification. Standard organizations suggest that in 2009 an estimated 30% of both UTZ and Rainforest Alliance cocoa and 15% of Fair Trade production has been double – certified (TCC 2009a). For example, in 2012 an estimated 44 % of UTZ – cocoa was double – certified either as Rainforest Alliance or Fair Trade (Potts et al. 2014). When a farmer supplies a given volume of certified cocoa, it has to be

ensured that this volume it's not accredited 1:1 to all the three standard schemes with the consequent overestimation of production volumes (Matissek et al. 2012). As a result, there is confusion regarding the precise amount of available certified cocoa. The chart below shows the trends in the production of certified cocoa between 2009-2012 including the growth projection per each certification schemes. As we can notice, production of certified cocoa has reach significant level and it is forecasted to grow during the next years.

Chart 3 Estimated production of certified cocoa 2009 – 2012.



Source: *TCC Cocoa barometer 2009 and 2010; UTZ Certified Annual report 2012.*

Based on figures provided by standard bodies, Table 6 shows that between 2009 and 2012 certified cocoa production has, overall, increased for each of the selected schemes. In 2012, the most representative schemes in terms of their certification market share (i.e. total cocoa – compliant production) are UTZ Certified (48%), Rainforest Alliance (34%) and Fair Trade (18%).

Table 6 Estimated production of certified cocoa UTZ, RA, FLO 2009 - 12

Volumes of certified cocoa (MT)	2009	2010	2011	2012	Market share of certified cocoa
UTZ	5,000	70,000	214,000	535,000	13,4%
FAIR TRADE	65,000	106,000	138,000	200,000	5%

RFA[9]	168,114	219,337	260.702	377.757	9,5%
TOTAL PRODUCTION	238,114	395,337	612,702	1.112,754	28%
TOTAL (adjusted for multiple certification)[10]	176,430	276,736	428,892	779,000	19,6%

Source: TCC Cocoa Barometer 2012; FLO figures are derived from Matissek et al. (2012)

However, the actual sales offer a more correct measure to study trends and developments in the certified cocoa market (Matissek et al. 2012). Although sales of compliant cocoa did not grew as rapidly (compliant-cocoa sales accounted for about 40% of total compliant production in 2012), they actually reached 7% of total production, and 10% of global exports (Potts et al. 2014). The main driver behind the growth in the sector (particularly between 2011 – 2012) is the commitment towards 100% sustainable cocoa by large chocolate manufactures including Mars, Ferrero and Hershey's[11]. However, only a small proportion of the total cocoa produced is actually sold as certified (for instance, in 2012 only 40% of total production of compliant cocoa has been sold as such), with the remainder 60% being sold to the conventional market. Recently available estimates suggest that only one-third of total production of compliant-cocoa, is actually sold as certified, while the remaining 67% finds other channels (Potts et al. 2014).

Table 7 Sales of certified cocoa UTZ

Sales of cocoa (MT)	2009	2010	2011	2012	Growth Rate 2011/12 %	Sold as certified in 2012
UTZ	5,000	17,109	42,704	118,641	175%	22%
RFA[12]	87,683	114,884	129,864	139,856	7,7%	37%

[9] Source: M.Willems, Rainforest Alliance, personal communication, October 8, 2013.

[10] Figures are adjusted for multiple certifications. In 2009 a 15% of FLO and 30% of UTZ and Rainforest Alliance production has been double – certified (TCC 2009). While for the other years it is assumed a constant 30% overlap in line with the available data. Organic production is not taken into account because data were not available for all the selected years.

[11] UTZ Annual Report, 2012.

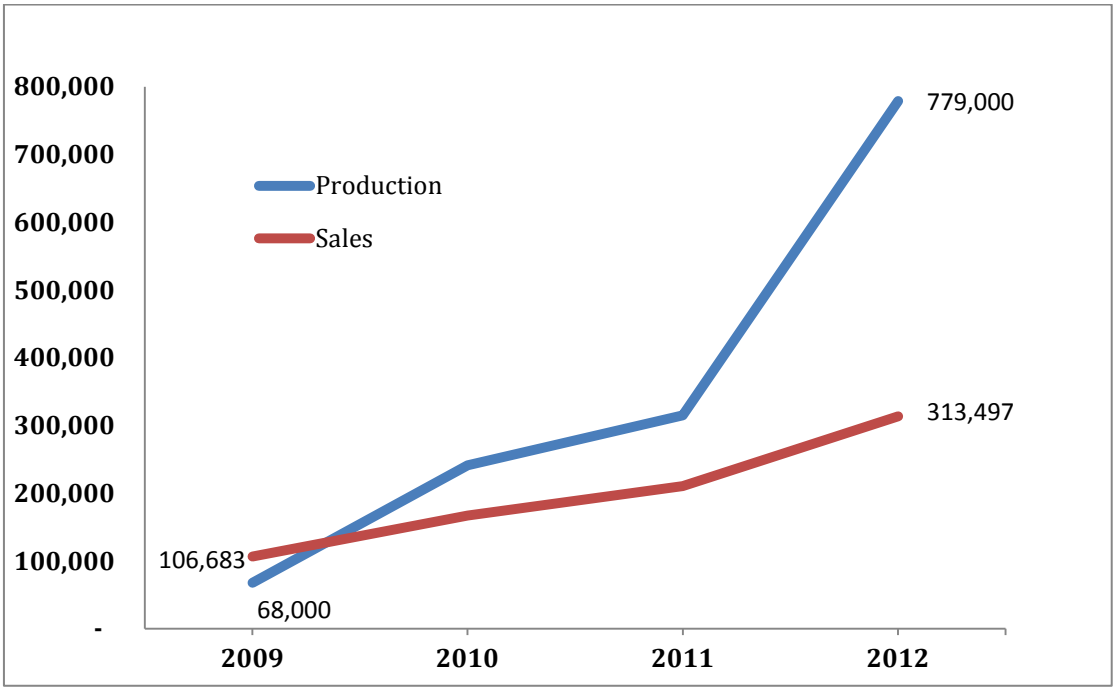
[12] Source: M.Willems, Rainforest Alliance, personal communication, October 8, 2013.

FLO	14,000	35,000	38,000	55,000	7,3%	37%
TOTAL	106,683	166,993	210,568	313,497	48,8%	40,2%

Source: FLO Annual Report 2013; UTZ AR 2013; M. Willems, Rainforest Alliance, 2013.

This percentage that is not marketed as certified is commonly referred as leakage to the conventional market. Leakage can occur for different reasons including: low demand of certified cocoa, inferior quality beans that do not meet buyer's standards, or the farmer is not able or incentivised to sell their produce as certified. In other cases farmers may have immediate cash-needs and sells the produce to the first buyer available (KPMG 2012). The chart below shows the trends in the supply and sales of certified cocoa between 2009 and 2012. As we can see, during the selected period the gap between production and sales of certified cocoa has increasingly widened.

Chart 4 Production and sales of compliant cocoa 2009 – 2012



Source: FLO Annual report 2011-12; Matissek et al. (2012); UTZ Annual Report 2013; M. Willems, Rainforest Alliance, personal communication, October 8, 2013.

Concerns over low uptake of certified cocoa by buyers have been raised during the evaluation of the UTZ Cocoa Improvement Program in West Africa. (KPMG 2013b) used the uptake ratio (defined as the volumes of cocoa confirmed by buyers for

which a fee is paid to the scheme divided by the total volumes of certified cocoa) as a key indicator for the risk of producers not being able to sell their beans as certified[13]. They found that uptake levels of UTZ certified cocoa was only 46%, and suggest that this is too low for producers to benefit from certification.

There are evidences that many farmers are actually not able to sell their produce as certified, due to bad quality. If the quality of cocoa becomes *de facto* an additional prerequisite for paying a premium, then the farmers' benefits do not depends on production processes but rather on the product's quality. This suggests that compliance with sustainable standards do not automatically ensure the payment of a premium, which appear to be closely linked to quality. Hence, it appears that certification is not about the practices, but it is rather about the external properties of the end product, or, in other words, "product certification".

2.3.1 Public commitments in the cocoa sector

Chocolate companies are currently bringing cocoa certification from the niche into the mainstream market. Public concerns rose by media and NGO's over child labour exploitation, poor working condition among cocoa growers, and environmental issues poses a serious threat to brand reputation and supply security for chocolate companies (TCC 2012). Increasingly, companies are trying to respond to various issues in their supply chains by incorporating certification into their sourcing, trading, and marketing policies (FLA 2012).

In 2008, Cadbury, was the first leading company in the sector to start sourcing certified cocoa for their dairy milk Chocolate (TCC 2012). Since this year, major chocolate manufacturers and processors, committed to upscale purchases of certified cocoa:

- In 2009, Mars committed to certify all its cocoa procurement by 2020. The company intends to buy a minimum of 100,000 tons of certified cocoa annually from both Rainforest Alliance and UTZ Certified supplies. This would translate in 200,000 tons of certified cocoa annually. In 2012 the company bought nearly 90,000 tons of cocoa that is more than 20% of its total cocoa procurement[14].
- Unilever intends to source certified cocoa for its "Magnum ice cream" by 2015 and to shift to 100% sustainable FT or RA cocoa by 2020.

[13] Uptake ratio = $\left(\frac{Volumes\ of\ certified\ cocoa\ confirmed\ by\ buyers}{volumes\ of\ certified\ cocoa\ produced} \right)$

[14] Mars Cocoa Supply Chain: http://www.mars.com/global/about-mars/mars-pia/our-supply-chain/cocoa.aspx

- Mondelez International now sources 100% RA-cocoa for its *Cote d'Or* and *Maribu* tablets in Europe and in some specialty brands in North America.

However as a recent Oxfam study suggests, companies tend to be rather secretive about their agricultural supply chain, making claims of "sustainability" and "social responsibility" difficult to verify (Oxfam 2013).

In addition a number of multi-stakeholders initiatives (MSI's) were launched in order to establish sustainability in the cocoa supply chain. Examples include the International Cocoa Initiative (ICI), the World Cocoa Foundation (WCF), the Sustainable Trade Initiative (IDH), and the Roundtable for Sustainable Cocoa Economy set up by the International Cocoa Organization (ICCO). Most of their projects are in the form of private – public partnerships that unify key stakeholders in the sector including farmers, chocolate traders and manufactures (i.e. Hershey's, Mars, ADM and Barry Callebaut), NGOs, and governments (i.e. German Ministry for Economic Cooperation and Development BMZ). On going projects include the ICCO Cocoa Productivity and Quality Improvement (CPQI), the African Cocoa Initiative (WCF – ACI), the Cocoa Livelihoods Program (WCF – CLP). These are all examples of projects intended to boost yields, raise farmers' income, and strengthen local service capacity by improving market efficiency, quality, and farmer's competitiveness[15].
Supply concerns and demand pressures are the key drivers of a growing number of sustainability initiatives launched by large cocoa users. Below is a (non-exhaustive) list of current sustainability initiatives in cocoa.

[15] Overview of the WCF Projects available at:
http://worldcocoafoundation.org/category/program-region/africa/

Sustainability Initiatives 2012–13:

- In 2012, Mondelez International committed to invest US$ 400 million over the next ten years to ensure sustainable cocoa sourcing
- In 2011/12 Barry Callebaut invested CFH5 million (of a pledged CFH40 million) on its "Cocoa Horizons Initiative" to promote sustainable cocoa sourcing.
- The cocoa sector in Ghana is on the way to achieve cocoa production certification standards by 2015, as stipulated by the World Cocoa Foundation.
- Barry Callebaut, Cargill and Mars financed an initiative aimed at distributing free of charge 20,000 tonnes of a special cocoa fertiliser designed with soil and climate conditions in Côte d'Ivoire.
- In Côte d'Ivoire, the Conseil Interprofessionnel du Cacao et du Café (CICC) launched its "New Generation Programme" to provide training and investment support to young cocoa farmers.
- The World Cocoa Foundation (WCF), the United States Agency of International Development (USAID) and the Dutch Sustainable Trade Initiative (IDH) made commitments to invest US$ 14 million in their "Africa Cocoa Initiative", aiming at boosting cocoa yields West Africa.

Source: Agritrade, Executive Brief: Cocoa, December 2013.
http://agritrade.cta.int/Agriculture/Commodities/Cocoa/Executive-Brief-Update-2013-Cocoa-sector

3 Methodology

Systems such as Rainforest Alliance, Fair Trade and UTZ Certified are the fastest growing certification schemes operating in the cocoa sectors. All these schemes focus on sustainable cocoa production, and although the costs arising from certification vary depending on a number of factors, the cocoa certification process and its costs are, overall, similar and comparable.

Theoretically, costs can be broken down into three main categories that are common to all the schemes selected for the study:

1) **Start – up costs:** these are the costs needed to organize producers into cooperatives and provide training on the specific schemes' requirements.
2) **Direct cost of certification:** this category refers to the fees charged by standard organizations (initial/annual), including the cost of audit.
3) **Cost of compliance:** this category refers to the costs incurred by different actors including producers (i.e. storage sheds, protective equipment etc.) and

companies (i.e. chain of custody fees and cost of products' segregation in order to maintain products traceability).

There are two main reasons to study the costs of certification and their attribution to key stakeholders in the cocoa supply chain. First, because so far the costs associated with certification and their distribution among key actors have been very little explored in the academic research, thus making difficult to determine their long – term financial viability for farmers and for other key – actors such as exporters. As impact studies do not have the goal to perform cost – benefit analyses, certification costs (i.e. audit, fees, training, and other certification expenses) are usually not taken into account and thus have mostly remained unknown. Secondly, given the growing demand by major chocolate manufacturers, it actually offers an interesting market to study.

The study is based on secondary data and information collected from various sources including published material from certification schemes (e.g. annual reports, prices, premiums, fees, production and sales of certified cocoa etc.) as well as on qualitative information gleaned in consultations with standard organizations, certification bodies and other key stakeholders in the sector. Figures on certified market trends are based on published material from the International Cocoa Organization (ICCO), the Tropical Commodity Coalition (TCC) and World Cocoa Foundation (WCF).

3.1 Research objective

The study attempt to quantify, assess and compare the costs associated with three certification systems (UTZ, RA and FLO), investigate their financial viability and provide an evaluation of cost – effectiveness of the schemes. In this respect, one of the main research objectives is to see to which extent the cost of certifications are covered by the value chain (i.e. producers, buyers, exporters, manufactures, and consumers) or by third – party funders (i.e. companies, NGO's, or other donors), as well as to identify key – determinants of the costs and benefits of current certification systems.

From the research objective, the following research questions are formulated:

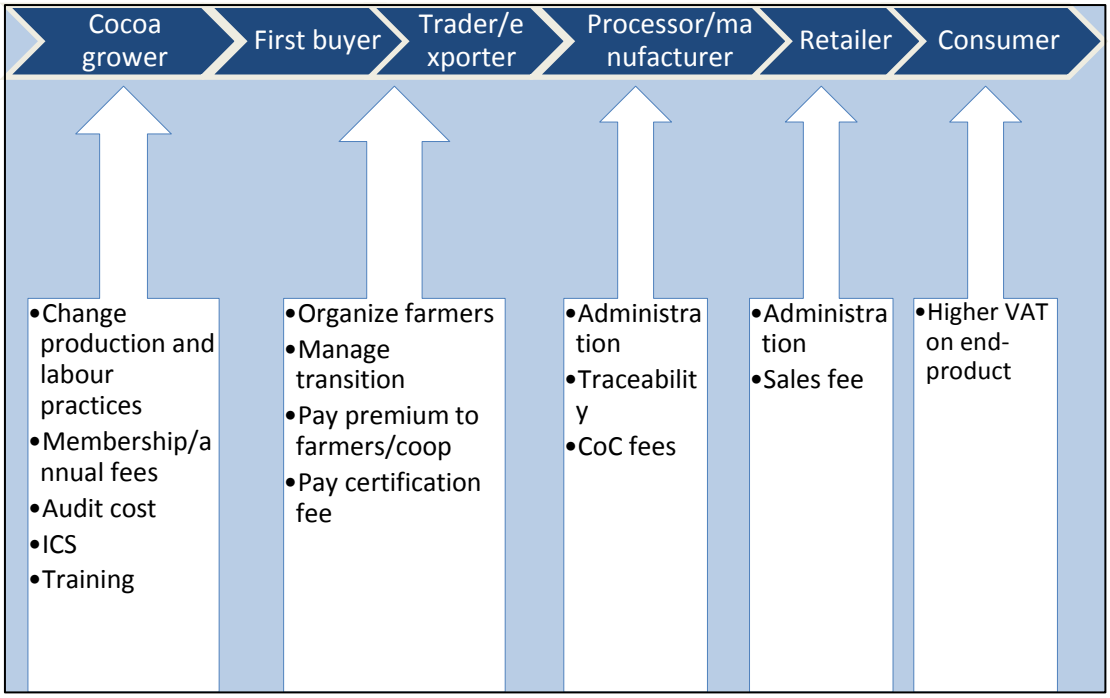
1. What are the direct costs of certification of the three schemes and who bears these costs?
2. What are the other types of costs (i.e. compliance with standards requirements, chain of custody) and who bears these costs?
3. What are the key-determinants of the cost and benefits of certification for producers?

The first two questions are partly answered through a detailed system analysis based on published materials from certification system (fees, annual reports, standard codes etc.) combined with interviews with relevant stakeholders such as standard organizations, certification bodies, NGO's and expert in the cocoa sector. The information obtained through interviews is then complemented with data collected through a literature review of the costs of certification. Although disclosure of information around the cost of certification is very limited, the analysis allows evaluating how schemes regulate their costs and identify who bear these costs. To this purpose a framework for costs assessment is elaborated to study the attribution of costs to different partners in the cocoa value chain. In order to quantify, assess and evaluate the costs of compliance at the farm level and answer the third research question, the study relies on a cost – benefit analysis based on three producer groups that have been certified under Fair Trade, UTZ and Rainforest Alliance certifications. These figures are then compared with the costs of Rainforest Alliance certification as incurred by four cocoa cooperatives in Côte d'Ivoire. This allows establishing whether the costs of certification vary with the (farm) size and/or number of producers, or whether they are determined by other factors, such as the farm productivity. Given that the analysis is based on aggregate data (at the cooperative level), costs and benefits are evaluated from a macro – economic perspective that does not allow exploring costs and benefits in depth. However it enables to estimates costs and benefits (per units and/or per farmers) and compares them across the schemes.

3.2 Framework for cost assessment

The figure below provides an overview of the certification processes including the attribution of costs to different agents in the chain. This framework relies both on information collected through literature review and data provided by standard and certification bodies through questionnaires.

Chart 5 Simplified cocoa supply chain and certification costs



Source: reproduced from KPMG (2012) Study on the costs, advantages and disadvantages of cocoa certification, pg. 18.

Distribution of costs of certification along the cocoa value chain:

❖ **Cocoa grower:**

- Generally, farmers/coops incur the costs needed to change production and labour practices as to comply with the scheme's standards. These include the extra labour time as well as specific investments in storage sheds, waste – separation system, protective equipment, shade trees, etc. Basic compliance requirements represent a significant cost for small farmers.

- The **audit** constitutes one the main recurring costs of certification and is usually performed on an annual basis (or more frequently in case that major non – conformities are found). Usually the certificate holder pays for the audits. There are two models of certificate ownership, which impact the effectiveness of certification for smallholders (KPMG 2013a):

  a. The farmer himself or the producer group/cooperative holds the certificate. With this model the farmer has more bargaining power and flexibility since he can choose to whom to sell their certified produce[16].

[16]Input from Rainforest Alliance suggests that the certificate is issued to farmer group/cooperative, not to third party. Buyers may facilitate the certification process, for example, by paying for the group administrator and by organizing farmers for certification.

b. The first buyer like a trader – led group or the exporter holds the certificate. With this model, farmers who want to sell their certified produce are dependent on a specific buyer/exporter.

Even though some groups are independent and pay audit costs on their own, in most of the cases it is the local buyer (or a cooperative of farmers) that pays for the costs of audit[17]. Costs of audits vary depending on a number of factors such as: the size of the farms as well the number of producers/workers to be audited, the travel distance to the sites (i.e. location, type of roads etc.) and the level of pre – existing compliance with standards (IIED & NRI, 2008). Auditors suggest that these costs largely depend on the operator's performance. For example, if major non – conformities are found, the audit, evaluation, follow up of corrective measures and certification takes more time, resulting in higher costs. Third – party verification audits are mainly performed at the farmer, buyer and exporter level.

- **Training** requirements differ among the schemes but it usually covers aspects including Good Agricultural Practices, worker's safety, environmental safeguard, agrochemicals handling, etc. Generally the training is designed, organized, and funded by the scheme's personnel. However, there are two main approaches to training: some schemes (i.e. Rainforest Alliance) directly deliver training to farmer groups and bear the costs; while other schemes (i.e. UTZ and Fair Trade) devolve the provision of training to its partners (i.e. NGO's, buyer and extension agencies) without direct involvement of the certifier[18]. In the case of Fair Trade, the training is provided by local Liaison Officers, free of charge. However, with Fair Trade, costs of training division is 60:40, whereby the organization picks up 60% while the remainder 40% accrue to cooperatives[19]. The training is provided continuously each year[20].

- **Fair trade** is the only scheme that charges producer cooperatives with a fixed membership, annual, and product – based certification fees (fixed US$ 247). In many cases the cooperative receive financial help from FLO – Cert for paying their certification and audit fees and to facilitate the coops in their certification process. For example, 1st grade small farmers' organizations that lack the financial means to get certified, may receive grants up to 75% of

[17] Based on information provided by RA – SAN auditor in West – Africa, and IMO Control.
[18] Personal communication with J. Rijkenberg UTZ certified, June 2013.
[19] KPMG (2012) Study on the costs, advantages and disadvantages of cocoa certification pg. 53.
[20] Personal communication with B. Meindertsma, (Max Havelaar), March 2014.

their fees. FT-buyers and NGO's often provide financial support to the cooperative. Conversely, RA and UTZ do not levy fees at producer/coop level, although they both charge volume – based fees to first buyers. UTZ charge also an annual membership fee for supply chain operators. Although UTZ and RA charge fees to traders and processors, it is possible that producer may still face a "cost" through reduced prices for their produce[21]. Certification fees are discussed in detail at the trader/exporter under the Chain of Custody costs section.

- **Costs of internal control system** (ICS) personnel and group forming: these administrative costs incur at the cooperative level to keep administration (on i.e. volume of production, agrochemical usage, salaries and premium paid), to conduct internal audits, monitor the quality of production, and store certified products according with the requirements. These costs are borne by producer himself, although project implementers (i.e. NGO's, development organization etc.) often provide technical and financial support to develop an ICS for producers.

Section 5.2 offers an estimate of the costs incurred at the farmer/cooperative level, for each of the three certification schemes.

❖ **First buyer:**

First buyers vary in size and complexity depending on supply chain structures within a specific country. Buyers can be local individual agent, buying station, official cocoa board (like COCOBOD in Ghana), exporter or a large trader (like ADM and Cargill). The first buyer refers to the licensed company that buys cocoa beans directly from the group/certificate holder. Local buyers perform the first quality check on cocoa beans (i.e. moisture, quality and size) after which they make an offer to the farmer. Prices are very much related to the quality of the beans. Some buyers may provide farmers with training and materials such as fertilizers. They may play an important role in the post – harvest process (i.e. collecting, fermenting and drying the beans) by ensuring quality and organizing farmers for certification. However, because cocoa from different suppliers is mixed together, it is very difficult to ensure traceability. Given that certification is usually issued to groups of farmers/cooperatives (not to

[21] Potts, J. & Opitz, M. (2007). Closing the Gaps in GAPS : A Preliminary Appraisal of the Measures and Costs Associated with Adopting Commonly Recognized " Good Agricultural Practices " in Three Coffee Growing Regions. pg. 72.

individual farms), it is practically impossible to track cocoa all the way back to its source.

- Given that the organization of farmers is a prerequisite for being certified, buyer as well as NGOs incur in the costs needed to organize farmers in groups or cooperatives and prepare them for certification[22].
- Within the certification scheme and at the local levels, the first buyer pays the *premium* to the group of farmer/cooperative. Premium prices are mainly determined by the quality of the beans. If cocoa beans do not meet buyer's requirements, the premium may not be paid. However, when premium is paid, the buyer recovers this cost from downstream companies, primarily from the exporter.

❖ **Exporter:**

Exporters buy the beans from local buyers and prepare them for international shipping and processing. An exporter could be a local marketing company, a global commodity trader, a cocoa processor or a government. Usually, exporters establish close relationships with both local buyers and farmers from which they buy. Some exporters may buy cocoa beans directly from farmers and provide services similar to those of local buyers. Exporters may also provide incentives for quality improvements by giving clear price signal and by supporting farmer – training programs and certification. When farmers are well linked to exporters, it is easier for them to find a market for their crops. Before cocoa is shipped, a third – party auditor (i.e. a private company or a government agency) undertakes a second quality check.

- Exporter/trader incur the following costs:

  a. Pay the **premium** to farmer/coop [23]: although the first-buyer is responsible to pass part of the premium to farmer/coop, it is the exporter or the manufacturer that are responsible for bearing this cost. Standard organizations estimates that approximately 50% (of UTZ and RA) and 75% (Fair Trade) premium is paid to farmers[24]. Other sources suggest that 60% of the premium is passed to farmers/coops, two-thirds of which is for the

[22] For a group with 375 farmers, costs of group forming are estimated at roughly US$ 3,500 (or US$ 9,3 per farmer) (KPMG 2012).
[23] In Ghana and Côte d'Ivoire average premium is estimated to vary between US$ 140 and US$ 200 per tonne, respectively.
[24] KPMG, (2013*). Improving smallholder livelihoods: Effectiveness of certification in coffee, cocoa and cotton* (pg. 19).

farmers and one-third for the coops[25]. Then the pre-financing party (i.e. exporter/manufacturer) often retain the remainder 40% to recover its initial investments (i.e. audit, training, ICS costs). When the exporter holds the certificate, usually a local exporter is responsible for passing on the premium to the group members[26]. There are cases where a trader is involved but an implementing partner is the certificate holder. In this case, the trader pays the premium to the implementing partner, which then passes on to its suppliers. Given that the premium is usually negotiated between the first buyer and certificate holder (e.g. from a local buyer to a local exporter, both domestic companies) the value is not always the same as the premium charged to international buyers.

b. **Chain of custody costs**: this cost can vary per scheme and can accrue to different parties in the chain. The CoC costs include certification fees charged to companies for handling certified cocoa, chain of custody audits, and the costs of compliance i.e. keeping administration to ensure traceability. Both SAN – RA and UTZ schemes charge a volume – based fee of US$ 15/tons and US$ 14/tons respectively. The invoice is sent to the first buyer, which pass (part of) these costs to its customers. UTZ charge an annual membership fee for supply chain operators (ranging between US$ 370 for small operator below 100 ton; US$ 2,740 for normal operator and US$ 5,485 for large operator with more than 50,000 tons). Fair Trade charges a fixed fee to traders that lie between US$ 16,3 for a small supply chain operator (handling 100 tons) and US$ 0,089 per ton for a larger operator (trading 50,000 tons)[27].

❖ **Processor/manufacturer:**

Processors transform the beans into cocoa liquor, butter, chocolate powder and, increasingly, couverture[28] (Dorin 2003). Processing mainly occurs in consuming countries. The reason is that it is easier and more efficient to store the cocoa beans and maintain their quality before they are processed. The processed cocoa

[25] KPMG, (2011). *Sustainable Cocoa Fund Study: Cost/benefit analysis of cocoa certification in West-Africa*

[26] Personal communication with J. Rijkenberg UTZ certified.

[27] KPMG, (2012). *Study on the costs, advantages and disadvantages of cocoa certification* pg. 55.

[28] High – quality chocolate that contains extra cocoa butter (between 32 and 39 per cent). In order to be labelled as such, cocoa must contain not less than 35% total dry cocoa solids. http://en.wikipedia.org/wiki/Couverture_chocolate

is then sold to the chocolate manufacturer who mixes with other ingredients, primarily sugar and milk. The end product is then packaged and sent to the distributor/retailer.

- Manufacturer pays premium to pre-financing party such as first-buyer, exporter, and NGO. A share of the premium is usually passed on to the farmer/coop (60%), while the remainder (40%) is often seen as the cost for implementing certification (i.e. audit, training and ICS costs)[29].
- Processor and manufacturer incur the costs needed to keep certified cocoa separated from bulk cocoa, and bear the costs needed to guarantee product traceability (i.e. administration costs). For a well-organized company that already work with segregated production lines costs are negligible (and merely administrative). Conversely, if a company need to invest in separated production lines, costs can be considerable.
- RA – SAN, Fair Trade and UTZ have all implemented Chain of Custody certification whereby chocolate processors and manufactures are required to pay volume – based (RA-SAN) and/or membership fees (UTZ) in order to handle compliant cocoa.

❖ **Retailers**

- Unlike the other schemes, FT charges retailers with a licensing fee of 2% of wholesale prices, for using its logo. (KPMG (2012) suggest that these fees are in the range of US$ 5 – 58,5 per ton of beans[30]. The organization indicates that 8% of license fees are re – invested in producing countries[31].

❖ **Consumers:**

- Although production of compliant cocoa has reached significant level, sales have remained low, resulting in oversupply (typically only 20 to 37 per cent of compliant cocoa is sold as such). This means that, on one hand, companies have abundant opportunities to up – scale purchases of certified cocoa, on the other hand, prices of compliant cocoa may decline due to oversupply. If

[29] Personal communication with J. Rijkenberg (UTZ certified).

[30] KPMG (2012) "Study on the costs, advantages and disadvantages of cocoa certification pg 55.

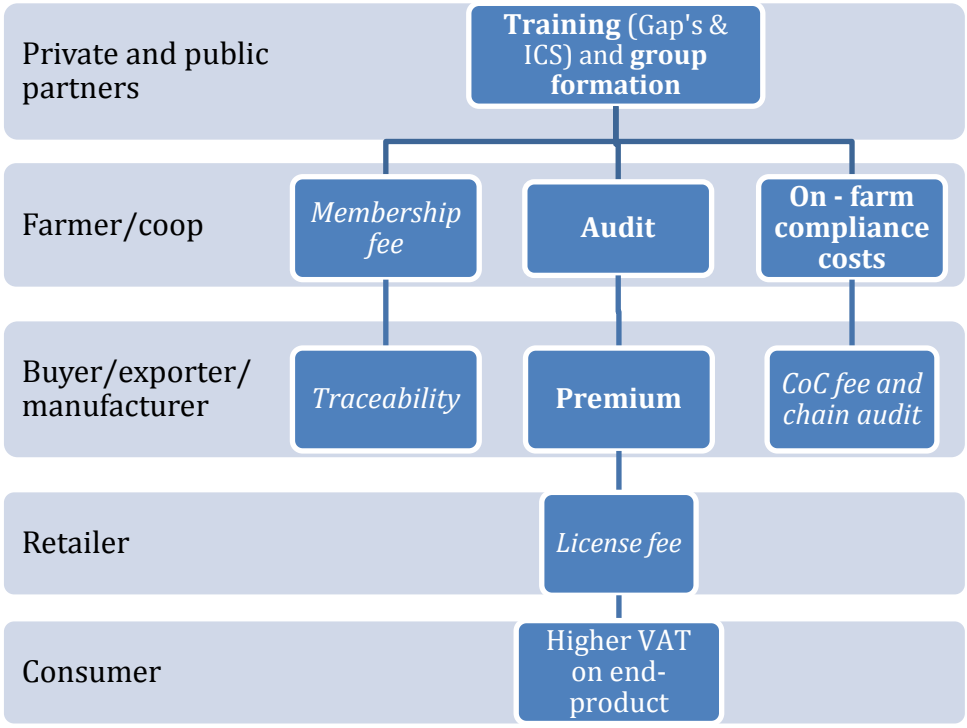
[31] http://www.fairtrade.org.uk/includes/documents/cm_docs/2009/l/licence_fee_doc_jul08final.pdf

prices go down, buyers may be less incentivized to adopt and support cocoa certification, and thus to pay a premium on compliant cocoa.

- Standard organization suggests that ultimately the premium is charged to consumers in form of higher VAT. This could also imply lower prices paid to producers.

The flow chart below summarizes the costs distribution among key players in the cocoa supply chain.

Chart 6 Costs distribution along the cocoa supply chain.



4 Cocoa certification

Certification serves to ensure sustainable production of cocoa and to guarantee that the product comply with a set of social, economic and environmental standards. It provides a market tool to meet consumer preferences. Standards are usually defined in collaboration with key stakeholders in the cocoa supply chain (i.e. producers, industry experts, manufactures and NGO's) and have independent third – party mechanism to ensure compliance with the standards. ISEAL Alliance[32] defines a "standard" as a set of criteria defining good social and environmental practices in an industry or product.

In theory, adoption of standards should contribute to better production practices, empower producers and drive long-term sustainability improvements in the cocoa

[32] ISEAL is the global membership association for sustainability standards.

supply chain. The supply chain refers to all the steps (and agents) that take possession of a product, from production to the final consumption. More precisely, "the term chain refers to the group of agents that contribute directly to the production, transformation, and delivery of a product to the final market" (Tallec & Bockel 2005). Chocolate manufactures increasingly use standards as a management tool to guarantee product traceability at each steps of the supply chain. Standards are instruments for monitoring and communicating the sustainability of products based on the production and processing methods applied along the supply chain (Giovannucci & Potts 2008). In this way they help consumers to find the right thing to buy, filtering out sustainable products from unsustainable ones (ISEAL 2012).

Systems such as *UTZ Certified, Rainforest Alliance* (RA), *Fair Trade* (FLO), and *Organic* are the most mature certification initiatives that set standards for sustainable cocoa production. They are often referred as *voluntary standards* to underline their "non – obligatory" nature and to distinguish them from *mandatory standards* established by governments. However, as *voluntary standards* are becoming *de facto* a requirement to access important export markets, the difference between them is becoming increasingly unclear (Ellis & Keane 2008).

Although their approaches differ in some important respect, the standards are mainly formulated to address small – farmer production constraints. These systems pursue a range of different objectives, from providing better deal and prices to producers (i.e. Fair Trade), to protect environmental biodiversity (i.e. Rainforest Alliance), to encourage the adoption of good agricultural practices and enhanced farm management techniques (i.e. Global Gap), or to combine quality with a responsible production process and support producers with market information (i.e. UTZ Certified) (Ellis & Keane 2008). A main difference between the schemes can be found in the economic criteria as well as in the strategies used to achieve sustainable production of cocoa. For example, while UTZ and RA seek to boost farmers' yields as a way to strengthen farmers (and increase farmers' income), Fair Trade focuses on more just trading relationship and strongly emphasizes economic aspects like minimum prices and premium.

Certified cocoa is differentiated from conventional cocoa on the basis of a certificate that ensures that the product comply with a set of specific criteria. In relation to Rainforest Alliance certification (Afari-Sefa et al. 2010) note how there may be no actual difference in the "*quality characteristics of certified cocoa and that of bulk cocoa. The difference may not even lie in the social and environmental production process, but it rather lies in the certification of those characteristics*". For example, the author suggests that in Ghana, over 50% of cocoa producers used no agrochemicals and were actually organic producers.

4.1 System analysis

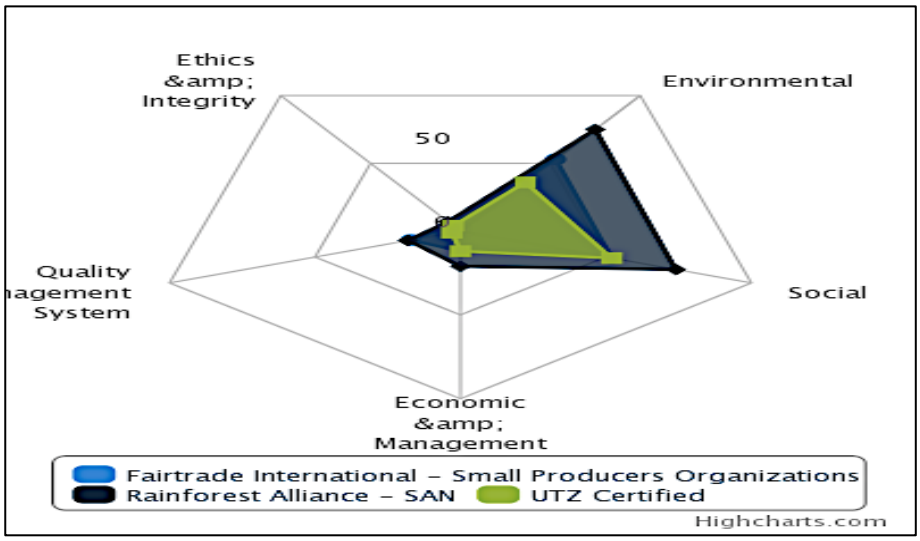
In order to highlight key similarities and differences between UTZ, Fair Trade and Rainforest Alliance, this section provides a comparative assessment of the code of conduct of each of the standards broken down per hotspot areas (i.e. environmental, social, economic & management, quality management system, ethics & integrity) as well as per degree of obligation (the number of requirements that need to be met "immediately" or within a given timeframe i.e. 1 or 5 years). The degree of obligation refers to the objectives that must be met in order to obtain the full compliance with the scheme's standards.

All the schemes have similar procedures in place to respond to minor and major non – conformities with the standards, referred as "*corrective actions or measures*". In case that non – conformities are found, the group must implement a corrective plan to adapt its practices to the requirements, within a given time. The implementation of the plan is followed up by an audit. If the recommended actions are not undertaken, then the certification may be suspended for a given period or withdrawn (in specific cases of non – compliance with Fair Trade *core* and RA – SAN *critical* criteria, certification can be cancelled)[33]. It is important to note that during the first year the farmer/coop do not need to comply with all the requirements but only with the *mandatory points* (UTZ), *critical criteria* (RA) or the *core* requirements (FLO). Chart 3 provides a comparative assessment of the number of requirements per each scheme broken down per hotspots areas, based on information from the *Standardsmap* database[34]. This tool enables to quickly identify, assess and generate comparisons of standards' requirements. Several requirements related to the protection of the environment (i.e. integrated crop and pest management IPM-ICM, soil and water conservation, and agrochemical usage) are in common.

Chart 7 Hotspots areas for each standard

[33] Standardsmap analysis http://www.standardsmap.org

[34] Standardsmap is an online platform that provides information on over 130 standards, code of conduct, and audits protocols addressing sustainability hotspots in global supply chain http://www.intracen.org/itc/market-info-tools/voluntary-standards/standardsmap/



Source: http://www.standardsmap.org, accessed on February 2014 [35]

Rainforest Alliance focuses on the environmental dimension and appears to have the highest number of requirements (182) for each hotspot areas. By contrast, UTZ appear to have the lowest number of requirements (102) and Fair Trade fall in the middle (122). While both Rainforest Alliance and Fair Trade appear to have a higher entry level, in terms of number of requirements, UTZ has a lower entry level. This can be regarded as a positive aspect, since it may facilitate the access of small – scale farmers. Overall, schemes appear to score relatively well on both the environmental (i.e. soil and forests conservation, waste, water and energy management, agrochemicals usage etc.) as well as on the social dimension (i.e. human rights, local communities, worker's conditions, safety and social protection, land title and use rights etc.). By contrast they all lack of sound economic requirements (i.e. use of price premium, criteria for setting – up contracts with traders, access to markets/buyers, and market transparency such as information on prices). In addition, schemes lack of a clear policy on product's quality (i.e. harvesting and post harvesting practices), safety, and management.

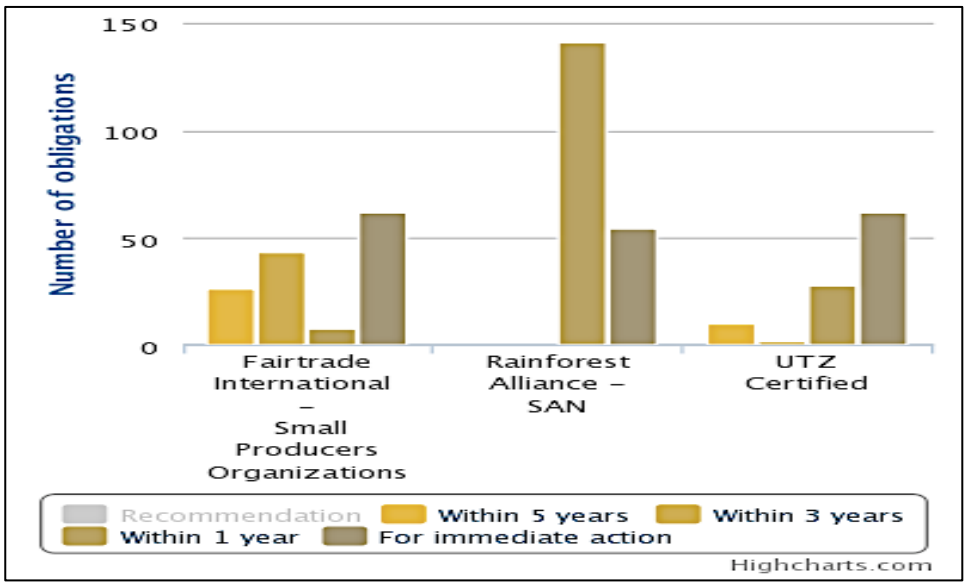
Given that, many requirements overlap across the schemes there is a clear need for the cocoa industry to harmonize the standards and develop a common "code of conduct" that cut across all the three standards. Findings from an ISEAL survey including 80 business representatives, 20 government and NGO's respondents, suggests that one of the main limitations of certifications is the complexity and overlap in the overall standards landscape (mentioned by 46% of respondents) as well as the cost in using a single standard system (mentioned by 47% of respondents) (ISEAL 2010). To tackle this issue, standard bodies have recently

[35] *http://www.standardsmap.org/compare.aspx?standards=71,62,66&shortlist=71,62,66&product=Cocoa&origin=Africa&market=Europe&cbi=78:78:756*

launched the Certification Capacity Enhancement (CCE) project in cooperation with companies and development organizations. In order to harmonize the schemes requirements and ensuring better access to certification at lower costs, the CCE developed a common training manual for sustainable cocoa production and a guide for developing an internal control system (ICS).

It is interesting to note that the timeframe required by producers to meet the standards and obtain full compliance varies per schemes. For example, with Rainforest Alliance producers need to comply with the standards within a limited timeframe of maximum one year. Most of the RA – SAN requirements must be met either from the start, here referred as "immediate actions" (52), or within the 1st year (141). Conversely, with Fair Trade and UTZ Certified producers have up to 6 and 5 years respectively to adapt to all the requirements and obtain full compliance with the standards.

Chart 8 Degree of obligation



Source: http://www.standardsmap.org, accessed on February 2014.

The difference in the timeframe required by the schemes for full compliance, suggest that the implementation costs varies per schemes.

The table below provide an overview and comparison of the certification mechanisms (i.e. audits, fees structure, costs, etc.) per each of the scheme.

Aspect	Fair Trade	SAN – RA	UTZ
Establishment	1988	1992	Coffee (2002), cocoa (2009)
Scheme's objectives	Focuses on **poverty reduction** and sustainable development. Improving the position of small farmers through the strengthening of cooperatives or producer organizations.	To **protect biodiversity** in an area as large as possible, reduce the ecological footprint of producers and integrate their operations into the environment (both in social and ecological terms).	UTZ has the following goals: 1) The **professionalization** of farmers and facilitating access to knowledge on professional agriculture 2) Increase the credibility of producers through the integration of the ILO conventions and the Global Good Agricultural Practices (GlobalGap) in the standard.
Target Group	Smallholders, professional farms, and workers (only organized farmers)	Smallholders, professional farms and workers (only organized farmers)	Smallholders, professional farms and workers
Premium[36]	Fixed premium of US$ 200/tonne (since 2011)	No fixed premium. Values ranges from US$ 150 in Ghana to US$ 200 in Côte d'Ivoire.	No fixed premium. Values ranges from US$ 152 in Ghana to US$ 140 in Côte d'Ivoire. In 2012, the estimated global average premium for cocoa was US$ 153[37].
Audit and/or certification mechanism	Audit is done by FLO – Cert who grant the certification. Annual audits, surprise audits. Audit fees are fixed to US$ 480 + travel costs.	Audit is done by SAN – Cert who grant the certification. Annual audit of each certificate holder.	Multiple certification bodies all ISO65 accredited. Annual audit of each certificate holder.
Certification cycle	Four – years cycle	Three – years cycle	One – year cycle
Traceability	**Mass – balance for cocoa**; Segregation for most other crops.	Mass – balance, segregation, and identity preservation.	Mass – balance, segregation, and identity preservation
Percentage of certified content in final products	100%	The minimum is 30%. However companies are encouraged to use 100% of certified content.	60% in 2013 95% in 2014
Logo on downstream	Yes	Yes	Yes

[36] KPMG 2012. "Study on the costs, advantages and disadvantages of cocoa certification".
[37] UTZ Certified Impact Report 2014

product			
Fee structure	License fee paid by logo users. Membership fee. Certification fee.	Volume – based fee (15 US$/MT)	Membership fee (340 for small operator below 100 MT and 5,437 for operator with more than 50,000 MT). Volume – based fee (13/MT)
Donor funding	Yes	Yes	Yes
Payments	Audit costs paid by producers. Premium and minimum price paid to certification holder.	Audit costs paid by producers. Premium paid to certificate holder is not guaranteed.	Premium paid to certificate holder is not guaranteed.
Source: KPMG (2013) "*Improving smallholder livelihoods: effectiveness of certification in coffee, cocoa and cotton"&* KPMG (2012) "Study on the cost, advantages and disadvantages of cocoa certification.			

4.2 Literature study on the cost and benefits (CB) of certification

Typically, to identify the outcomes of certification on farmers, studies have mainly relied on impact evaluation methods. Impact evaluations seek to establish whether an intervention such as a project or a policy changes the outcomes (i.e. *health*, *education* or *income*, etc.) in the beneficiary group (e.g. *certified-farm*) as opposed to a control group that did not benefit from the intervention (e.g. *non-certified farm*). The impact is defined as the *positive or negative long-term effects resulting from the implementation of standards, either directly or indirectly, intended or unintended*[38]*.* One of the central issues is to establish what would have happened to the beneficiary in absence of intervention, and thus to identify a credible counterfactual. Because this counterfactual cannot be observed, a *control* and *treatment* group must be used as a proxy of this hypothetical situation (Newman et al. 2002). A general problem associated with impact assessment is that they often do not correct for differences in farm – households characteristics. Issues of selection bias (e.g. farmers that self – select into a certification program because of specific characteristics or attitudes) and other factors unrelated to certification (e.g. market price increases, favourable weather conditions etc.) may all affect the observed outcomes and are likely to generate misleading results. A common way to construct

[38] ISEAL 2010. *Assessing the impacts of Social and Environmental Standards Systems"* v1.0 pg. 5.
http://www.isealalliance.org/sites/default/files/P041_ISEAL_Impacts_Codev1.0.pdf

a sample group and avoid selection bias problem is the propensity score matching (PSM). The method has been often used to carry impact evaluation of certification programs (see Zuniga-Arias & Saenz-Segura (2008); Ruben et al. (2009), Fort & Ruben (2008). Its basic idea is to match noncertified farmers with similar, if not identical, observable characteristics (i.e. farm size, income, education etc.) with certified farmers, and compare outcomes in the two groups. The outcomes for this matched control group are then used as the counterfactual outcome. The propensity score estimates the probability that a unit (i.e. farmer) is selected to participate into a program, based on observable characteristics (Newman et al. 2002), and it is usually calculated using a probit or logit regressions. PSM ensure that group characteristics are similar so that both groups have the same probability to participate in a (certification) program. The method eventually allows to attribute differences in outcomes to the involvement in certification (Ruben 2008). For example, in a study that aims to assess the impact of certification on soil erosion, certified growers would be matched with noncertified growers of similar size, education and soil erosion rates. However, a main concern of PSM is that it only accounts for observable characteristics, while it does not control for unobservable factors that may affect both the participation in a program (i.e. management skill) and the final outcomes (Blackman & Rivera 2010).

Blackman & Rivera (2010) noted that many impact studies on certification relied on problematic counterfactual outcomes that have likely produced biased results. Their extensive literature review shows that only 14 out of 37 carefully selected studies (of which 18 on coffee, 9 on timber, 5 on bananas, 3 on tourism, 1 on fish, and 1 on a set of agricultural products) used methods that were likely to produce credible results. Among these fourteen, only 6 reported of environmental (1 study) and socioeconomic benefits (5 studies) linked to certification. By contrast, 23 studies lacked of credible counterfactual outcomes. The authors concluded that empirical evidence that certification brings significant benefits is yet very limited.

In a similar way, Blackmore et al. (2012) suggest that many impact studies on certification relies on small samples (i.e. one country and limited number of farmers), mainly look at the costs and benefits for certified entities, without taking into account of counterfactual evidences (i.e. the impact on farmers that did not participated in the certification). On top of that, most impact assessments are limited by the years in which there are carried out, and thus mainly measure short-term outcomes rather than social and environmental impacts. Furthermore, most research is on Fair Trade and Organic, rather than on other standards such as Rainforest Alliance. Altogether, these limitations make difficult to derive generalizable conclusions on their actual impacts on producers.

A number of initiatives have been recently developed to assess the impact of certification more structurally. Examples include the ISEAL's "Impact code"[39], the World Cocoa Foundation's Cocoa Measurement and Progress (CocoaMAP) [40], the IISD and UNCTAD Sustainable Commodity Initiatives, and the Committee on Sustainability Assessment (COSA)[41] (KPMG 2012). Although their methods are still on a pilot-phase, some have already been successfully tested.

The COSA team have developed a framework to measure the impact of standards on the social, economic and environmental dimensions. Their methodology allowed testing the performance of six major initiatives (i.e. Rainforest Alliance, Fair Trade, UTZ Certified, 4C, Organic and Starbucks C.A.F.E practices) in five different countries (Kenya, Peru, Costa Rica, Honduras and Nicaragua) on 51 coffee farms with different sizes (ranging between 2 – 124 hectares). The COSA methodology includes farm visits over a three-year period so as to better measure impacts on farms over time. They found that generally certified farms are better off than conventional ones and that 60% of producers found it profitable. Although the production costs associated with most certified farms were higher than conventional production methods, they nevertheless showed higher net income. However the gap between certified and conventional farms in terms of net income can be narrow (Giovannucci & Potts 2008). On the environmental dimension they found little evidences that certification had a significant effect on key indicators such as biodiversity and shade coverage. In particular, they note how, at early implementation stages, transition costs to sustainable farming practices, overall, exceed returns (Giovannucci & Potts 2008; Potts & Opitz 2007).

The COSA team have recently published results from 17,800 farm surveys conducted over 4 years in 12 key coffee and cocoa producing countries from three continents (i.e. Latin and Central America, South East Asia, and Africa). This is the first large-scale and longitudinal study on cocoa and coffee certification ever published. By using an integrated set of indicators of producer livelihoods combined with demographic and farm specific characteristics, they found that, on average, certified producers display greater yields, higher net income (for example, in Côte d'Ivoire, certified cocoa producers earned US$ 290 more in net income compared to conventional producers), received more hours of training and implemented more water and soil conservation practices, as compared to conventional ones. Using the

[39] ISEAL 2010. *Assessing the impacts of Social and Environmental Standards Systems"* v1.0 pg. 5.
http://www.isealalliance.org/sites/default/files/P041_ISEAL_Impacts_Codev1.0.pdf
[40] WCF measuring success http://worldcocoafoundation.org/measuring-success/, 10-04-2014.
[41] The COSA's methods http://thecosa.org/how-we-work/our-methods/, 10-04-2014.

Progress out of poverty index (PPI)[42] as an estimator of poverty, they found that in Colombia, targeted cocoa producers, overall, had an higher likelihood of living below the poverty line, and that greater net income was associated with reduced likelihood of poverty, particularly among certified producers (COSA 2013). The positive income effect has been partly associated with a more efficient use of farm inputs that lower the costs of production. When looking at producer price information, they found that certified farmers had limited knowledge about the prices offered at different levels (i.e. regional and international) and by different buyers (i.e. local buyer, exporter). The lack of price information is particularly evident at the exporter level (only 1 to 3 per cent of producers knew the price) and at the international level (i.e. in both Indonesia and Papua New Guinea producers did not had any information regarding international market prices). This suggests that certification do not seem to foster market transparency and improve producers' bargaining power (COSA 2013).

On the cost side, they found that one of the largest costs for smallholder cocoa and coffee producers relates to the cost of (unpaid) labour. Such cost constrains the household's ability to use time productively to invest in other crops, participate in off – farm activities or to get extra training or education. Overall, less organized producers appear to use more unpaid family labour (in Guatemala family labour account to 31% of total labour costs) as compared to more organized producers, who mostly rely on hired labour (COSA 2013). Preliminary findings from a pilot survey on 158 cocoa farmers (control: 82, target: 76), shows that, as result of certification, 89% of them experienced a significant increase in time spent on training, whereas around 30% reported spending an increased amount of labour on their farm (both their own family labour and hired labour) (Hafid et al. 2013).

Rainforest Alliance recently commissioned the COSA team to conduct research on cocoa farms in Côte d'Ivoire. In 2009, and again in 2012, researchers surveyed RA-farms and carefully selected non-certified control farms, representing a total of 452 farm visits. They found that yields of certified farms were 70 per cent higher (576 kg/ha), than those of non-certified farms (334 kg/ha) and that higher productivity was not associated with higher costs. The higher productivity originated from better management, training provision (certified farmers received, on average, 21 hours of

[42] Is a country – specific poverty measurement tool that serves to estimate the likelihood (i.e. expressed in percentage) that a household, is living below or above the poverty line (i.e. households with less than $1.25/day PPP). The PPI comprises a set of 10 questions about household's characteristics and asset ownership that are easy to answer and verify. The answers are then scored to calculate the percentage of households living below or above the poverty line. The PPI can be used to identify whether the project has targeted the poor, http://www.progressoutofpoverty.org/about-ppi.

training compared to 3.6 of non-certified) and improved farming techniques. As a result, certified farms displayed significantly higher net income (US$ 922/ha) compared to non-certified farms (US$ 542/ha). The higher farmer revenue per hectare was closely linked to increased yields rather than to prices, which were similar across the two groups. The study concluded that the major driver of economic benefit had been the improved productivity of certified farms (Paschall & Seville 2012). On the environmental side, the study found that 67% of certified farms had replanted new cocoa trees, compared with only 26 % of control farms. Additionally, 80% of certified farms implemented at least one water protection measure to prevent water contamination (compared to 17% of non – certified) and 43% implemented soil conservation practices (compared to 5% of control farms). As a result of these soil – and water – conservation measures, certified farmers displayed lower rates of soil erosion compared to their counterpart. Such conclusions relied on standardized indicators, matched control group for comparisons and longitudinal assessment based on two points in time (2009 and 2012). However, the researchers noticed that the gap between target and control group (in terms of yields and income) has progressively narrowed down between 2009 and 2012. This may have been due either to the civil war, which affected both groups differently, or alternatively, by spillover effects that improved the performances of non-certified producers over time. However, because farmers were surveyed only after entering into the certification process, the costs incurred before certification were not captured, thus limiting the ability to effectively quantify the net impact on farmers.

Afari-Sefa et al. (2010) estimated the costs and benefits of producing Rainforest Alliance certified cocoa (high – input medium shade of 70 trees per hectare) and compare it with those of traditional smallholders systems (i.e. low inputs medium shade) and intensified cocoa production system (i.e. high – input, full sun) promoted by Ghanaian authorities. The total costs associated with the RA – SAN production system were estimated at US$ 252 per hectare, of which US$ 165 is the cost of labour and US$ 87 is the costs of inputs. The author found that when farm-gate prices equal 70% of FOB prices only the intensified system is profitable. By contrast, when fertilizer is subsidized, increasing the percentage of the producer price to 85 per cent of FOB increases the profitability of the RA-SAN system. He suggests that such a shift of price policy would have a major impact on rural poverty reduction.

Potts & Opitz (2007) provide estimates of the compliance costs associated with the adoption of good agricultural practices incurred by different coffee cooperatives in Ghana, El Salvador and Brazil. Their estimates shows that total annual costs of compliance with sustainable standards varies between US$ 8 in El Salvador, US$ 9 in

Brazil and US$ 37,5 per quintal of coffee, in Uganda[43]. Most of the expenses required for compliance are constant across smallholders (e.g. waste management and chemical storage facilities) and therefore they tend to be lower for larger (and more productive) farms than for smaller ones (i.e. Uganda). Capital investments required for compliance, were estimated at US$ 415 in Brazil, US$ 372 in El Salvador, and US$ 258 per farm in Uganda. These costs accounted for about 65 and 70 per cent of total first year expenses. These are fixed costs that do not vary with production levels but mainly arise at each individual farm, irrespective of the size. Compliance with standards requires setting aside part of the land (i.e. that close to waterways or that devoted to "shade trees") as to comply with schemes' requirements. In other words, by establishing "buffer zones" between production and ecological valuable areas, farmers "loose" a portion of their (otherwise) cultivable land. These alternative uses of land imply a cost for farmers. For example, in Brazil, farms were found to have the highest costs (of US$ 216/ha), by contrast, farms in Uganda did not face any cost because of its natural shade production systems that did not required the establishment of "shade trees". They suggests that more productive farms (i.e. full sun) face higher costs of compliance compared to those with natural shade production systems (Potts & Opitz 2007). The author concluded that the need for up – front investments required to attain compliance, constitute a significant barrier to smallholder producers, with little or no savings.

Blackmore et al. (2012) suggest that most of the costs of compliance are borne by producers themselves, and for producer who are not well organized, the costs of certification as well as the transaction costs to link them to markets can be prohibitive. Because of these issues, certification has been mainly adopted by larger, wealthier, and more organized farmers. He argues that certification appear to be rather "exclusionary", in that farmers who do not comply with standards are, mostly, excluded. Key factors that are likely to exclude smallholder farmers from certification include the need to be organized in groups, the degree of basic education and professionalization of farmers (KPMG 2013a). Consumer International (2005) found that certification simply allows producers to differentiate themselves from poor performers, but has limited impact on the latter one. Although compliance can bring significant benefits the viability for farmers is highly context specific and depends on a number of factors such as the level of producer organization; the access to external support from buyers, and their ability to sell produce as certified. Access to access to certification is found as a major barrier to

[43] The estimates are based on a sample of 120 farms, of which 24 in El Salvador, 74 in Uganda and 22 in Brazil. Farms are assumed to yield 150 kg/ha of coffee in Uganda, 690 kg/ha in El Salvador and 1,200 kg/ha in Brazil. Farm sizes vary from 0,625 ha in Uganda, 1,75 ha in El Salvador and 10 ha in Brazil. The costs calculation does not take into account for certification costs as well as for management costs associated with the Internal Control System.

the inclusion and participation of smallholder farmers, particularly for those located in more remote rural areas.

The project "*Market-oriented promotion of sustainable certified cocoa Production in Côte d'Ivoire"*, was designed as a private – public partnership between Kraft Foods, the cocoa trader Armajaro, the US Agency for International Development (USAID) and the German ministry for Cooperation and Development (BMZ). The project aimed at improving the livelihoods of cocoa farmers in Côte d'Ivoire through the production of RA-SAN cocoa, while creating a sustainable supply chain for Kraft Foods. The project was one of the first to bring certification into mainstream cocoa production. At the start of the project a baseline survey was undertaken, and subsequently two impact assessment studies were performed (one in 2008 and another one in 2009) to evaluate the outcomes. Within three years over 5,600 farmers were trained in good agricultural practices, which in turn delivered 6,000 tons of sustainable cocoa. As a result of improved farming, better crop management and plant husbandry, production of target farmers increased up to 761 kg/ha compared to 509 kg/ha of those using conventional methods. In addition, the majority farmers delivered better quality beans (more than half of the cocoa delivered was of first grade quality). Overall farmers experienced higher prices, enhanced market access, and higher income. However, in 2007, the premium for certified cocoa generated an additional US$ 260,000 (or US$ 46 each) and most farmers acknowledged that greater efforts and costs were involved than before (Krain et al. 2011). On top of that, the relatively short – time span of the project and its emphasis on production improvements were identified as the major project's limitations, which yet make it difficult to generalize such findings. For example, it could be that benefits were driven by other factors (i.e. technical support and investments from partners) other than certification.

The KPMG study on the *costs, advantages and disadvantages of cocoa certification commissioned by the International Cocoa Organization* is among the few independent evaluations available on the impact of certification in cocoa. Their costs-benefits analysis on cocoa producers in Ghana and Côte d'Ivoire shows that farmers' benefits from certification are typically higher than the costs. Aggregated average net benefits from certification amount to US$ 625 per ton while net cost were found to be US$ 400 per ton (costs and benefits were calculated over a 6 – year's period assuming an average farm size of 2.5 ha with a potential productivity of 500 kg/ha)[44]. While farm inputs and labour were found to be the main cost factor

[44] KPMG base – case model for cost benefit – analysis assume a premium of US$ 195/MT paid to the coop. Leakage to the conventional market is assumed to be in the order of 30%; yield increase due to fertilizer are assumed to be 89%.

amounting to US$ 377 per ton. However, even when productivity improvement and input costs are left out from the calculation, farmer still realize a net benefit of US$ 65 per ton. They claim that as a result of certification farmer benefits from higher cocoa prices, partly from higher quality cocoa beans or as a consequence of premium or minimum prices. Given that the overall benefits associated with the adoption of certification outstrip costs, they suggest the existence of a business case for cocoa certification (KPMG 2012). However the magnitude of benefits vary depending on the farm size and the country. They found that farms with larger plot of cocoa trees (2,5 hectare) benefit more compared to smaller plot (1 hectare or less). This difference could be explained by the fact that some farmers may be more organized than other and thus may faces lower costs compared to smaller ones. Although a business case might exist for about 50% of farms in Ghana, a smaller average farm size substantially deteriorates the viability of the business case. To this respect, Nelson & Pound (2009) suggest that larger producer organizations (like Kuapa Kokoo in Ghana) are found to have lower administrative, processing and export costs and greater bargaining power, compared to smaller ones.

4.3 Results

Overall, the body of literature shows that certified farms display higher productivity and higher net income as compared to conventional farms. More efficient farm inputs, improved farming techniques and training provision (as well as technical assistance) are the key drivers of higher productivity. As a consequence, certified farms usually display higher net income compared to conventional ones. In general, higher farm productivity implies a lower cost of certification and enables farmers to benefit from price premiums. However, the extent to which productivity improvements affect cost of certification has not been investigated yet.

Some studies shows that certification has a positive impact on the environment (i.e. increased plant biodiversity, reduced soil erosion and implementation of soil and water conservation practices) while others did not reported of any environmental benefits linked to certification. This may be partly due to the fact that measuring the outcomes of certification on these types of indicators is challenging, as environmental and social impacts are indirect and long – term in nature. However, given the lack of longitudinal studies, the impact of certification on such indicators has mainly remained unclear.

From a micro-level perspective and over the short-term, certification appears to have positive - but highly variable and context specific - impacts on farmers. By contrast, from a macro-level point of view and over the long-term, impacts are more modest and unclear.

Although certification is though to improve market transparency, COSA (2014) found that certified farmers actually have limited knowledge about prices, suggesting that certification do not enhance market information and producers' bargaining power.

Most of the studies acknowledge that, although there are some benefits linked to certification, greater efforts and costs are often needed to attain compliance with the standards. Particularly, at early implementation stages, these costs/efforts tend to exceed actual returns. The need of up – front investments required for the transition to sustainable practices present a significant barrier to the participation of small-scale farmers with little or no savings. The limited capacities and resources (i.e. capital, savings, information etc.) of smallholder farmers constrain their opportunities to participate in certification schemes. Similarly, KPMG (2013a); Blackmore et al. (2012); Consumer International (2005) suggest that, without external support, the high costs of certification can lead to the exclusion of smallholder farmers. This implies that certification may actually favour more organized and advanced farmers rather than less developed farmers who are not part of a producer group.

(Potts 2007) argues that the stabilizing effect of certification schemes that do not guarantee minimum prices (i.e. UTZ Certified and Rainforest Alliance) is likely to decrease as certified products become increasingly mainstream. (ITC 2011b) suggest that the increased supply of certified products might lead to increased competition between suppliers in finding buyers. This increases the risk that certification become "commoditized" (i.e. certified products becomes cheap and undistinguishable from conventional ones) and consequently premium diminishes, or even vanishes.

Lastly, there are evidences that when the supply of certified product is higher than demand, or when beans do not meet quality standards, farmers may find it difficult to find buyers and market their produce as certified. Available estimates suggest that a high percentage of total compliant cocoa production (ranging between 60 to 67 per cent) is eventually not sold as such. Few authors (i.e. Nelson & Galvez 2000, Krain et al 2011 Gibbon et al. 2009, KPMG 2012), raised the issue and suggested that if farmers are forced to sell part of their produce to the conventional market, benefits from price premium may become negligible, or even disappear. This translates in lost of income for producers who have invested money, time and efforts to attain (and maintain) compliance with the standards.

5 Costs of certification

Although standard bodies and industry experts agree that certification against a standard bring financial benefit to cocoa farmers, researchers are more sceptic about the effectiveness of certification in improving the livelihoods of poor and marginalized small – scale farmers. A key challenge of certification is that its impact is variable and unclear, particularly the costs and benefits of compliance for smallholders (Giovannucci & Potts 2008). Yet, there is a large majority of farmers that cannot benefit from certification since they lack the financial and technical resources required to comply with the standards. There are growing concerns among farmers about the burden imposed by certification in terms of direct and compliance costs. Indeed the adoption of standards, imply additional costs, not only for producers but also for local buyers and exporters.

In absence of external funding, the costs of certification must be borne by the sector and within this, they are typically distributed among different agents in the chain. However, some of these costs are beyond the reach for farmers and financial support from private and public funders (i.e. industry and NGO's) is often required. Given that certification heavily relies on external funding, it does not appear to be a self-sufficient system. Several studies (Consumer International 2005; Sexsmith & Potts 2009; Borot de Battisti et al. 2009) deal with the role of donors in bearing costs of certification. There is evidence that exporters, industry players, or NGO's can pay for the certificate and thus absorb some of the costs and risks associated with certification. Although this may contribute to the attractiveness and expansion of the schemes, it substantially distorts the assessment of the profitability at the producer level. This may imply that the benefits associated with the schemes' profitability or market access becomes less clear and not directly applicable to the farmers involved (ITC 2011b). As a consequence, the overall net impact of certification may become less visible for producers. A commonly raised concern in the literature about certification is that because of the costs are too high for small-farmers it has been mainly adopted by large and well – organized producers (Consumer International 2005). Blackmore et al. (2012) noted that certification is financially more viable for production systems characterized by scale, homogeneity, capital, and access to credit, rather than for small-scale farmers. Some production areas have better infrastructures, are better located and thus have better access to market information compared to more isolated areas. Additionally, only those farmers that are well linked to export markets are able to benefit from certification.
At the farm level, smallholders often find problematic and costly to comply with complex standards that are often formulated and designed by NGO's, companies and standard organization, with rather a top – down approach. Although certification is thought to facilitate access to high – value export markets, it can also act as a barrier to trade and market access that might lead to the exclusion of small – scale producers from export markets (Borot de Battisti et al. 2009). Compliance with

standards requires know – how, risk management strategies, equipment and substantial investment that smaller producer often lack (UNEP 2013).

In addition to training and material investments, certification requires the implementation of an internal control system (ICS) to demonstrate compliance. The ICS is a farmer's management tool that serves to ensure the integrity of production practices, traceability and buying of certified products. The ICS is usually developed and managed by the group administrator. ICS is also used to monitor and improve the quality of production and follow the development of a producer group (Toose et al. 2013). Typically, the costs of running an ICS as well as those of training delivery are too high for small – farmers, and therefore financial as well as technical support from external organizations is required. Although there is some evidence of co – investment by intermediaries (e.g. exporters/buyers) in meeting the costs of certification and standards, once this are removed, farmers may not longer be able to bear the recurring costs of certification, such as the audit cost. Indeed certification is an on-going process that has both start up cost and recurring annual costs for the maintenance of the certificate.

Schemes have different requirements and different ways of regulating the costs. Theoretically, key certification costs can be broken down as following:

1. **Starting up costs:** these are the fixed costs associated with initial investments from support partners (certifiers, NGOs, traders and farmers/coops) required for organizing producer in groups/coops and providing training on the specific scheme. In addition, producer organizations are usually required to implement an Internal Control System (ICS), as a prerequisite for becoming certified.

2. **Direct certification costs**: these are variable costs associated with certification fees, inspections and audits of a specific scheme (Potts et al. 2010). These costs include the initial and annual audits, the membership and annual fees (charged to producers/coop as well as to buyers/traders) as well as the licensing fee for logo use. Schemes charge either membership fees based on the number of members in a producer groups (e.g. Fair Trade), volume – based fees (SAN – RA) or both (UTZ Certified). By contrast, the costs of audits depend on a wider number of factors including: the size of the company as well as the number of producers to be audited, the travel distance to the farm, the number of certification bodies available in the producer's area and the speed with which an auditor works (Potts et al. 2010). Inputs from certification bodies suggest that audit costs are highly variable and difficult to estimates.

3. **Compliance costs**: this category refers to the fixed costs made by participants (e.g. farmers and companies) in changing their practices so as to comply with the

certification requirements and to maintain certification process over time. Compliance with standards requires both one-time (i.e. planting shade trees) and recurring investments (i.e. record keeping, organization of inspections, protective cloths for chemical uses). In addition, certification requires that a portion of land – for example that besides waterways – is left unfarmed, while others must be devoted to "shade trees". This implies that a portion of land cannot be cultivated and used for productive purposes. Although these alternative uses of land are expected to provide long – run positive externalities and environmental services, farmers face a cost in foregoing production in such portion of land.

5.1 Direct costs of certification

Certified products are traced through the supply chain by monitoring and tracking "Chain of Custody" (CoC) system. The Chain of Custody (CoC) refers to all the steps in the value chain that take possession of the product, including manufactures, exporters, traders and importers. A credible chain of custody should in theory ensure that "sustainability claims" made on products are effective and truthful. In order to check compliance with standard requirements, companies are monitored through regular chain audits. Typically, audit looks at input/output volumes, conversion rates, and management system as well as at environmental and social issues (i.e. life cycle assessment or social audits in manufacturers' facilities) (ISEAL Alliance).

The table below offer an overview of the different segregation models per schemes, including the *minimum* percentage of certified content required in final products.

Table 8 Segregation methods

Segregation models for cocoa (% of *certified content required in final products)*	
Fair Trade[45]	Both physical and time mass – balance is allowed. From 2014, only time mass – balance is allowed. FLO requires 100% of certified content for the use of their label.
UTZ Certified[46]	

[45] FLO – Cert (2013) Trade Certification Fees, available at: http://www.flo-cert.net/flo-cert/fileadmin/user_upload/certification/cost/en/20120120/TC_FeeSys_ED_82a_en.pdf

	Both full product segregation and mass – balance. Currently, the minimum certified cocoa content required by UTZ is 60%, and this percentage will increase over time up to 90% in 2014.
Rainforest Alliance[47]	Full product segregation and identity preservation. Allow mass – balance only upon written request to RA. Products need to have at least 30% of certified cocoa to carry the logo. However the organization encourages companies to scale up this percentage over time to achieve 100% of ingredients from RA – certified sources.

Source: FLO (2013) Trade Certification Fees; UTZ Certified (2012) Chain of Custody; RA – SAN (2012) Use of Seal Guidance.

Companies buying and selling certified cocoa must pay chain of custody fees (CoC) depending on the volumes traded. Additionally all supply chain partners owning and or processing products must have an audit carried out and pay audit fees. Below is a description of the main segregation models used by the selected schemes.

1) *Mass – balance approach:* certified and non-certified products can be mixed but the exact volume of certified material entering and leaving the operation unit must be controlled at any step in the chain. Mass balance results in in product claims such as "*contains x % of certified ingredients.* Both Fair Trade and UTZ Certified uses this approach.

2) *Product segregation* & *Identity preservation*: certified and non – certified product cannot be mixed, and the product is tracked at each stages of the supply chain ensuring that final product came from certified sources (ISEAL 2012). With these options products are traced from the farm to the processing factory to ensure that products came from certified sites[48]. The RA Chain of Custody policy establishes that if a production site only produces and handle certified cocoa without buying extra cocoa from non-certified farms, then the "CoC" certification is not required[49]. RA

[46] UTZ Certified (2012) Chain of Custody, available at: http://www.utzcertified-trainingcenter.com/home/images/stories/library_files/EN+UTZ+Chain+of+Custody+Cocoa+v3.1.pdf

[47] RA – SAN (2012) Use of Seal Guidance, available at: http://www.imaflora.org/downloads/biblioteca/Rainforest_Alliance_Certified_Sustainable_Agriculture_Use_of_Seal_Guidelines_April2012.pdf

[48] RA Seal Guidelines option 1c, p8.

[49] www.rainforest-alliance.org - FAQ

mostly works with the full segregation option to ensure that 100% of core ingredient is sourced from certified farms and that final product contains at least 30 % of certified content.

Standard organizations suggest that at early implementation stages, the costs involved in product segregation can be high. If the parties already work with segregated production lines, no costs are involved, if they have to make investment in separated production lines, costs can be considerable[50]. For instance, with the mass balance system costs are lower compared to the full segregation & identity preservation model, since the product does not have to be kept separated along the chain.

5.1.1 Fair Trade

One of the pillars of the Fair Trade scheme is to promote income security to smallholders by guaranteeing minimum prices and by offering better trading conditions to producers. Fair Trade is the only initiative that guarantees a minimum and stable price (i.e. in cocoa price is US$ 2000/ton, or the market price if it's higher) and a fixed Fair Trade premium of US$ 200/tons for investments in community, business and environmental projects [51]. When the market price is higher than US$ 2000/ton, than the Fair trade price is the market price plus the FT premium. The scheme offers an extra premium of US$ 300 for organic cocoa beans.

The minimum price is meant to cover all the costs of sustainable production including the costs of the audits. Both the minimum price and the premium are paid to cooperatives and Fair Trade farmers collectively decide how premium should be used. The organization suggests that many cooperatives spend part of the Fair Trade premium on training about productivity and quality improvement, and that they are entirely free to decide how much to spend on this [52]. The premium has been mainly used for investments in crop rejuvenation and better facilities for crop collection, storage, transport, or processing. Unlike the other certification schemes, FLO auditors must check premium distribution between farmer and cooperative.

The organization suggests that in 2010/11 Fair Trade cocoa producer organizations (representing nearly 142,000 small – scale farmers) received more than € 7.6 million

[50] Information provided through questionnaire with Rainforest Alliance.
[51] Fair Trade and Cocoa: commodity briefing (2011). Available at: http://www.fairtrade.org.uk/includes/documents/cm_docs/2011/C/Cocoa%20Briefing%20FINAL%208Sept11.pdf
[52] Personal communication with B. Meindertsma, (Max Havelaar), March 2014.

from the premium, of which 51% has been used to strengthen cooperatives' business or organizational development.

FLO – Cert has set up a Producer Certification Fund whereby, 1st grade cooperatives that lack the financial means to get certified, may receive grants up to 75% of their fee[53]. In theory, the system should ensure more stable long – term contracts between fair trade buyers and producers.

Table 9 Cost of Fair Trade certification

Costs (number of farmers in a coop)	(US$)
Application fee	720
Product fee	247
Initial Fees (less than 50; more than 1000 producers)	1,937 – 4,700
Annual Fee (less than 50; more than 1000)	1,585 – 3,749[54]
Audit	474 /per day + travel costs
Premium	200/MT

Small producers grouped into cooperatives and submitting their application for FLO certification, pay an entry fee of US$ 720, and an additional fee of US$ 246 for each extra product. Producer applying for Fair Trade certification pay initial and annual fees that vary according to:

- The organization type (e.g. 1st, 2nd and 3rd grade)
- Number of members or member organizations.
- Number and type of products to be sold as Fair Trade.
- Number of processing facilities and the number of workers per processing installation.

If the producer group has a processing facility (e.g. cleaning and packaging, etc.), a fee ranging from US$ 284 and 839 is made for each machine depending on the number of workers per facility.

Table 10 Initial and annual fees for a 1st grade producer organization

[53] http://www.fairtrade.net/producer-certification-fund.html

[54] Values in Euros converted to US dollars using an exchange rate 1 € = 1,35 US$

Initial basic fee for 1st grade producer organization		Annual basic fees for 1st grade producer organization	Processing facility fee		
Number of members	Fees (US$)	Fees (US$)	Number of workers	Initial	Annual
< 50	1,937	1,585	< 10	284	121
50 – 100	2,763	2,110	10 – 100	555	329
101 – 250	3,048	2,422	> 101	839	487
251 – 500	3,319	2,666			
501 – 1000	4,145	3,262			
> 1000	4,700	3,749			
Source: FLO – Cert (2013). Fee System Small Producer Organization. Available at: http://www.flo-cert.net/flo-cert/35.html					

Although the cost of audit varies considerably by size and travel required to and from the site, FLO-Cert carries out the audits yearly at a daily rate of US$ 474. For an organization of less than 50 workers, the audit takes about 3.5 days while for an organization of more than 1,000 workers, it take approximately 9.5 days (BTC 2010). In order to the determine the size of the audit group Fair Trade use the ISO 62 square root approach, which is based on a simple formula $x = \sqrt{y}$ (i.e. For a group of y = 100 producers, a sample of x = 10 members is audited).

The organization suggests that for a producer organization of 500 members, running a processing facility with 50 workers, total certification costs including annual and initial fees as well as the costs of audit, amount to approximately US$ 9,150 (US$ 18,3 per farmers). The organization suggests that many producer groups receive direct assistance in paying certification fees either from commercial partners including buyers and importers, or from NGOs. Unlike the other schemes, Fair Trade charges retailers with a license fee of 2% of wholesale prices, for the use of its logo. This represents a remarkable cost for Fair trade buyers, as the case of the Green & Black's chocolate company show.

Box 1 Green & Black's and Fair Trade cocoa

Green & Black's, sources cocoa from the *Toledo Cacao Growers' Association* (TCGA), an association of small-scale cocoa farmers in Belize. The company did not certify all its cocoa as Fair Trade because of the costs associated with the Fair Trade licencing fee. They said that costs for logo use amount to 500,000 £UK over a period of 12 years. The company source cocoa from the Toledo Cacao Growers' Association (TCGA), an association of poor small-scale cocoa farmers in Belize. They noted that audit costs for producers including inspection visits by FT officials; food and travel expenses are disproportionately high. Audit costs amount to 5% (US$ 3,500) of the cooperative annual cocoa sales ($70,000). Because of these expenses the company has said to rather invest the money directly in its suppliers rather than paying the 2% licencing fees to the Fair Trade foundation. However they are lobbying the Fair Trade foundation to drop the charge completely

Source: Purvis, (2008). *"How a £ 1.50 Chocolate Bar saved a Mayan Community from Destruction",* Observer Food Monthly.

Consumer International (2005) and Ellis & Keane (2008) suggest that costs of Fair Trade certification are considerably lower for producers compared to the other schemes because of its emphasis on pricing rather than on production practices as is the case for UTZ and RA. Although costs of Fair Trade appear to be lower for producers, they can be significant for buyers as it involves the development of alternative trading relationships with suppliers (e.g. long – term contracts with suppliers). The main costs of Fair Trade certification arise from its requirements such as the insurance of minimum prices and price premiums, the provision of credit and access to a pre – financing system, as well as the capacity building of producers. For example, for a coffee cooperative of 7,000 producers, certification cost were reported to be around US$ 15,000 for FLO – Organic, and US$ 8,000 in the case of Rainforest Alliance (BTC 2010).

Fair Trade buyers need to invest time and resources in terms of training and engagement with small producers cooperatives for developing their supply chain. Evidence suggests that these costs tend to fall mainly on downstream companies rather than on producers. Although this can be regarded as a positive aspect of the system, some companies may be unwilling to go for Fair Trade when other and less onerous options are available. For example Ellis & Keane (2008) report of a company that did not choose the Fair Trade certification due to the very high resource and bureaucratic costs involved, and instead it opted for RA certification.

Although Fair Trade products were originally traded and sold only via Alternative Trade Organizations (ATO's), this restriction was then abolished to increase market shares, allowing all sorts of traders and retailers to buy and sell Fair Trade products. This "mainstreaming" of Fair Trade products has been criticized for replicating conventional commodity chains in which at exception of a premium there is no substantial difference in the structures (actors, activities, regulations and policies)

and production networks of conventional trade and that advanced by sustainability standards (ITC 2011; Barrientos & Smith 2007).

5.1.2 Rainforest Alliance

Costs associated with Rainforest Alliance certification can be high for producers compared to other schemes (e.g. Fair Trade) because of its stringent environmental requirements, particularly those related to the protection and restoration of natural ecosystems and forests. Compliance with SAN standards requires the establishment of vegetative buffer zones (e.g. trees, buffer zones) between production areas and ecological valuable areas as well as between crops and human activity areas. Farms located in natural forest must implement an agro – forestry system that require the establishment of 70 shade trees per hectare distributed over a minimum of 12 native species per hectare. Another significant cost for producer is the need to buy protective equipment to work safely with agrochemicals and pesticides[55].

Some of the growing practices of the SAN code do not generate immediate returns through yield improvements. For instance, government trials found declines in yields in the range of 20 up to 50 per cent at shade level required by SAN standards, compared to full sun systems (Paschall & Seville 2012). For both producers and companies, compliance with the SAN practices may require considerable investments and efforts. The table below provide an overview of the main costs associated with the RA – SAN certification.

Table 11 Costs of Rainforest Alliance certification[56]

Cost indicator	(US$)
Volume fee	$ 15/MT (first buyer/exporter)[57]
Audit per annum (1000 producer)	7,5 – 8,5 per farmer[58] 12 per farm[59]
Compliance costs	Small farms: 362
	Large Farms: 7,253
Chain of custody audits	2,000–3,400 (one site audit) [60]
Premium	150 – 200 (Ghana & Côte d'Ivoire)

[55] Correspondence with RA personnel

[56]

[57] Interview with representative from Rainforest Alliance.

[58] Audit costs in Ghana and Côte d'Ivoire based on KPMG 2012.

[59] The value refers to the average cost of audit in Ghana and Côte d'Ivoire. Information provided by Rainforest Alliance auditor (Mohammed Armani).

[60] Interview with representative from Rainforest Alliance.

Unlike Fair Trade, Rainforest Alliance does not charge an entry or an annual fee to producers, but it charges a volume-based fee of US$ 15/MT to first buyers. Rainforest Alliance do not guarantee a fixed premium to farmer/cooperative but it offer a negotiable price premium ranging from approximately US$ 150 in Ghana and US$ 200 in Côte d'Ivoire. The third – part audit is done annually by SAN – Cert, and the market largely determines the price.

Input from auditor suggests that costs of RA – certification can be decomposed in the following items:

- **Direct Auditing cost:** this includes cost of RA staff and other consultant's time for preparing, travelling, visiting farms, consulting with stakeholders, writing audit reports and reviewing audit reports. This cost also includes cost of transportation (both international and ground transportation if required), cost of accommodation and meal.

- **Program management cost:** These are indirect cost related to the management of the SAN program within the region. It covers items such as office overheads, cost of communication and other contingency expenses.

Direct auditing costs depends on a number of factors such as the size of the farm (number of hectares) or number of sites within the group. For annual audits, the costs are largely determined by the performance of the operator (i.e. farm or group) in the previous audit (i.e. less sites is selected for next audit for farms that performed well in the previous audit), as well as by the travel time to and from the site/farm. Although some few groups are independent and pay audit cost on their own, the majority of groups have funders who bear the SAN certification cost. The RA – SAN organization indicates that cost of audit in West Africa ranged between US$ 0,50 to 3,61 US dollars per hectare and that the time spent on auditing fieldwork has significantly decreased from approximately 230 days in 2011, to 30 days in 2013 (Mensah 2013). This has contributed to improve the audit timeliness while reducing the cost of monitoring farms.

According to Ellis & Keane (2008), the costs of compliance with RA environmental standards can be disproportionally high for producers – ranging between US$ 500 for small farms up to US$ 10,000 for larger farms – and low for companies (i.e. buyers, importers and retailers). Two companies using this scheme reported costs on a range of US$ 10,000 to US$ 50,000 to cover consultancy, seedlings, planting, management and the opportunity cost of land use.

5.1.3 UTZ Certified

All the companies that want to buy and sell UTZ certified cocoa need to register as a member of the UTZ Certified Cocoa Program and pay a both a fixed annual membership fee as well as a volume – based fee. The organization charge a volume-based fee of US$ 13/MT to first buyers only, and a discount ranging between 5 to 30 per cent applies for large first buyers (from 10,000 up to 100,000 MT). Costs of audits associated with UTZ certified are estimated to be in the range of US$ 500 for small groups and US$ 4,500 for larger groups (BTC 2010). The table below offers an overview of the main costs of UTZ certification.

Table 12 Costs of UTZ certification[61]

Cost items (number of farmers in a coop)	**(US$)**
Volume fee	13,5/MT
Annual membership	$ 341 (< 100 MT) Small member
	$ 2,730 Normal member
	$ 5,460 (> 50,000) Large member
Audit per annum (300 – 500 producer)	4,300 – 6,500[62]
Premium[63]	140 – 152
Cost of compliance	100/MT

Like RA, UTZ certified does not guarantee a fixed premium to producers. The market largely determines the value of the premium. For the year 2012, the estimated average weighted premium was US$ 153 per metric ton (UTZ AR 2012). In some cases the costs of meeting UTZ requirements were found to be higher than the prices received by producers. In Vietnam, in two coffee cooperatives the costs of meeting UTZ requirements were found to be US$ 40 per tons while higher prices received by producers increased only by US$ 10 – US$ 20 per tons. In this case the price offered by UTZ Certified was not enough to offset the increased costs (Consumer International 2005). Monitoring, technical assistance and control are thought to be the largest scheme's expenses (Blackmore et al. 2012).

The costs of audit represent a major burden for small – scale farmers. Information provided by IMO Control (UTZ auditing body) suggests that single smallholder producers would not be able to pay for the high costs of inspections and audits. Therefore only big plantations or sizeable smallholder groups and processors/exporters are able to cope with such cost. They nevertheless noticed how in some cases, export companies take over these costs for the producers and hold the certification rights[64]. Although this may increase the producer dependency

[61] Source: UTZ Certified 2013 Membership types and fees.

[62] Audit cost in Ghana and Côte d'Ivoire based on KPMG 2012.

[63] Premium paid in Ghana and Côte d'Ivoire based on KPMG 2012.

[64] This information was kindly provided by IMO Control through a questionnaire.

from one exporter, it may also contribute to improve access to credit, knowledge, facility upgrading and quality improvement (ITC 2011a).

5.2 Cost estimates and comparison per schemes

The following table has been extracted from a study on three cocoa producer associations that have been certified according to three certification schemes available for cocoa: Rainforest Alliance, UTZ Certified and Fair Trade. The study is among the few that provides data on the actual cost items related to these certification schemes. The main purpose of the study is to identify, quantify and assess the actual cost and benefit associated with the three schemes and provide estimates of the costs that a cocoa farmer or group would incur in order to secure a certificate (Owusu 2011).

The three producer groups selected for the study were the following:

1) Kuapa Kokoo Ltd, a Fair Trade cocoa farmers organization operating in Ghana since 1993. Today it represents approximately 65,000 farmers organized in 1,300 villages – level cooperative societies. In 2008/09 the cooperative sold 9,500 MT of cocoa to Fair Trade buyers, at a premium of 150 $/MT.

2) The Ahafoano North and South UTZ-certified cocoa farmer association (AHANSUCOFA) in Ghana. The association has 352 producers of which 273 have been certified by UTZ. In 2008/09, 232 tonnes of cocoa were produced and sold at a premium of US$ 150. Cost and benefit are estimated assuming that in 2010/11 yield would go up to 327 tonnes. The West African Fair Fruits (WAFF) supported the farmer group and covered most of the costs needed for the certification.

3) For Rainforest Alliance certification, the data relies on a study about a cocoa farmer group operating in Côte d'Ivoire. The group has 300 farmers that produced 600 tons of certified cocoa and received a premium of US$ 200 per ton. The Agro – Eco Louis Bolt institute provided the data on the cost items and offered direct financial support to cover the costs of RA certification.

The table below offer an estimate of the annual costs and benefits associated with each of the certification schemes.

Table 13 Cost estimates of UTZ Certified, Rainforest Alliance and Fair Trade

Premium estimates (US$)	UTZ Certified	Rainforest Alliance	Fair Trade
Number of farmers	273	300	64.915

Production (tons)	327	600	9.500
Yield per farmer (tons)	1,2	2	0,15
Average premium/tons	150	200	150
Total Premium ($)	**49.050**	**120.000**	**1.425.000**
CERTIFICATION COSTS PER SCHEMES[65] ($)			
Office accommodation & Equipment	3.099	1.330	43.356,6
Documentation	1.050	-	83.916,1
Salaries for Staff (ICS)	21.130	4.740	229.783
Training	1.835	22.040	69.930
Transportation	283,2	3.000	95.455
Internal Inspections	979	2.740	979
Certification audit	3.800	10.000	30.837
Investments	-	18.915	-
Total cost	**32.176**	**62.765**	**554.256**
Total cost per tons $	**98,4**	**104,6**	**58,3**
Cost per Farmer	117,9	209,2	8,5
Benefit per annum ($)	16.874	57.235	870.744
Benefit per ton annum ($)	**51,6**	**95,4**	**91,7**
Benefit per farmer per annum ($)	**61,8**	**190,8**	**13,4**
Source: Owusu, E.O. 2011. *Report on feasibility study on cost/benefit of certification (FT, RA, Utz)* pg. 14-15.			

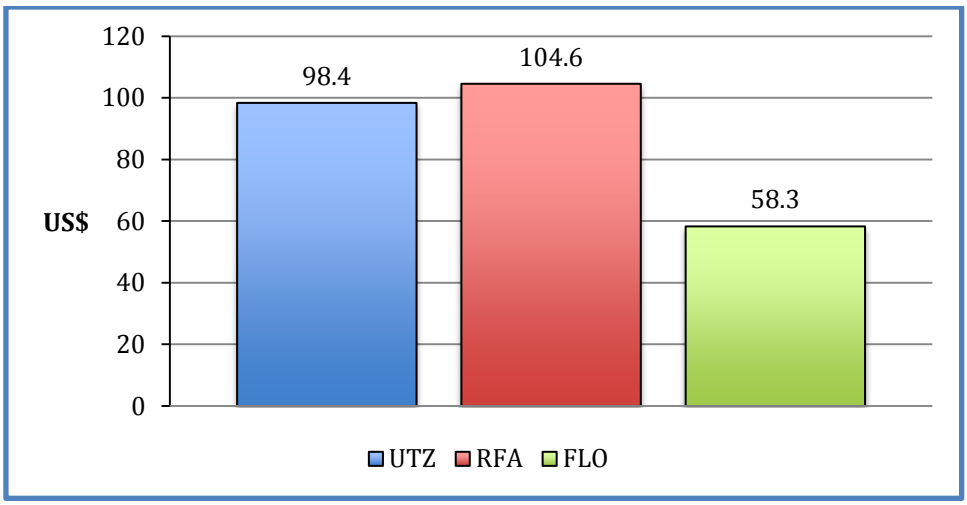
On the basis of these data (Owusu 2011) estimates the costs of certification for each of the scheme. It should be noted that the number of farmers in the groups varies. While UTZ and RFA groups have similar number of producers (273 and 300 respectively), the Fair Trade cooperative is much bigger (64,915). A quick look at the total costs shows that these differ greatly between the schemes. For example total costs of the RA – group ($ 62.795) are twofold than those of UTZ – HANSUCOFA producer group ($ 31.175). The difference in these totals can be partly explained by the fact that the RA certification requires sizeable one-off investments (i.e. on vehicles, computers, health kits, storage sheds) while the other schemes do not show specific standard – related investments.

Although we don't know how the cost of certification is actually related to the number of farmers assisted, it is realistic to assume that due to economy of scale the

[65] Costs for UTZ and Rainforest are those for first – year certification.

cost of certification could be optimized in presence of a larger number of farmers (as is the case for the FT – cooperative). Additionally, some producers may have larger (or smaller) farm-size and therefore the costs they incur may differ from farmer to farmer. Given the difference between groups as well as in the farm – size, it is reasonable to look at the average cost per ton of certified cocoa produced. Chart 4 provides a comparison of the average certification cost per ton of certified cocoa for each of the schemes.

Chart 9 Cost per ton for UTZ, RFA and Fair Trade (US dollars)



According to the estimates, Fair Trade appear to have the lower cost per ton (US$ 58,3) followed by UTZ (US$ 98,4), while Rainforest Alliance is the most costly scheme (US$ 104,6). As mentioned above, the lower cost per ton and, particularly, per farmer (US$ 8,5) associated with Fair Trade may be explained either by the larger number of farmers assisted, or/and by the fact that the group has been operational for many years, so that initial investment costs (i.e. on training and farming equipment etc.) are not included. Conversely, the UTZ group has been formed only in 2009, and some of the costs maybe one-off investments. Whereas, in subsequent years, the cost level is, typically, lower. Conversely, costs of UTZ and RA are more similar and comparable, ranging between US$ 118 and US$ 209 per farmer, respectively. The table below shows the cost items expressed as percentage of total certification costs. Although the costs vary significantly among the schemes, the salaries for (ICS) staffs and training represent the largest expenses.

Table 14 Overview of costs per schemes (% of total certification cost)

Cost items	UTZ	RFA	FLO
Salaries for staffs (ICS)	66%	8%	41%
Training	6%	35%	13%
Certification inspections	12%	16%	6%

Investments	0%	30%	0%
Total	84%	89%	60%

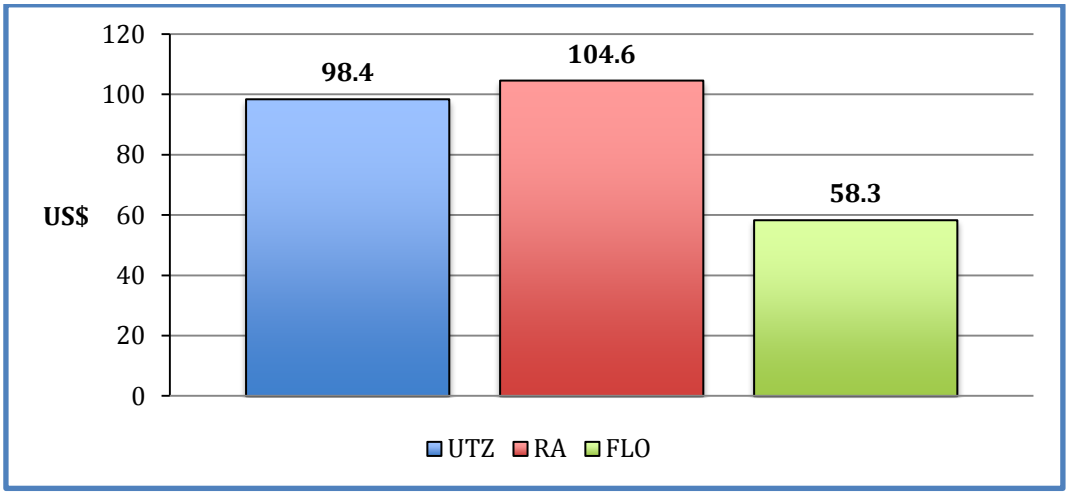
For UTZ and Fair Trade, the salaries for (ICS) staffs represent the main cost item, accounting for about 66% and 41% respectively. Conversely, for Rainforest Alliance cost of (ICS) staffs is significantly lower, accounting for only 8% of the total certification cost. This may be explained by the fact that RA – staffs were employed for 6 months and most of the costs were per diem and honorarium (Owusu 2011).

For RA-certification the main cost is the training, which account for about 35% of total certification cost. Training costs depends on a number of factors such as: outreach of intervention, business mindedness of training, context (i.e. for more organized farmers training tend to be cheaper), and the availability of local trainers/ agronomist[66]. In addition, during the first year, training intensity and other costs tend to be higher compared to subsequent years. Altogether, these factors contribute to understand differences in the cost of training delivery. Interestingly, investments form a large part of costs for RA-certification, accounting for 30% of total certification costs.

In terms of net benefit per ton, RA seems to offer the highest benefit (US$ 95,4) while UTZ offer the least benefit (US$ 51,6) with FLO falling in the middle (US$ 91,7). If we look at the benefit per farmer, RA offers the highest profit (US$ 190,8) with FLO offering the least profit (US$ 13,4) while UTZ lie in the middle (US$ 61,8). The difference has to do with fact that on average RA farms are relatively larger (5 hectare) compared to those of UTZ and FLO (1 hectare). Differences in farm – size translates into higher productivity of RA – farmers (2 tons) compared to those of UTZ (1.2 tons) and FLO (0,150 kg) farmers. The chart below shows the average benefit per ton of certified cocoa for each of the scheme.

[66] Information provided by consultation with ICCO Cooperation.

Chart 10 Estimated benefit per ton for each certification schemes



However, assuming that the average premium is the same for each scheme (US$ 150/ton) then the benefits for RA fall to US$ 45,4/ton and become similar to those of UTZ. It should be noted that both RA and UTZ do not guarantee a fixed premium[67], which may vary depending on the market situation.

With respect to the AHANSUCOFA UTZ – certified farmer group, it should be noted that the estimation relies on the assumption that production would increase by 41%, from 232 tons in 2008/09 up to 327 tons in 2010/11[68]. If cost and benefit are calculated based on actual production in 2008/09, and assuming a constant premium of 150/ton, the average cost becomes US$ 139/ton while the relative benefit fall to US$ 11/ton. This suggests that if yields remain low, benefits from certification may become negligible. For example, with a production of 200 tons as occurred in 2010, the average costs per ton (US$ 161) exceed the relative benefits from the premium (US$ 150), resulting in a net loss of US$ 11.

On the basis of these data it is possible to calculate the producer break-even point (BEP) per each of the schemes, which indicates the point of balance between making either a profit or a loss (P&L) [69]. At this point the cost per ton of certified cocoa equal the premium received.

Break even point	UTZ	RFA	FLO

[67] Recent estimates indicate that UTZ average premium ranges from US$ 152,4 in Ghana to US$ 140 in Côte d'Ivoire. RFA average premium ranges from US$ 150 in Ghana to US$ 200 in Côte d'Ivoire[67].

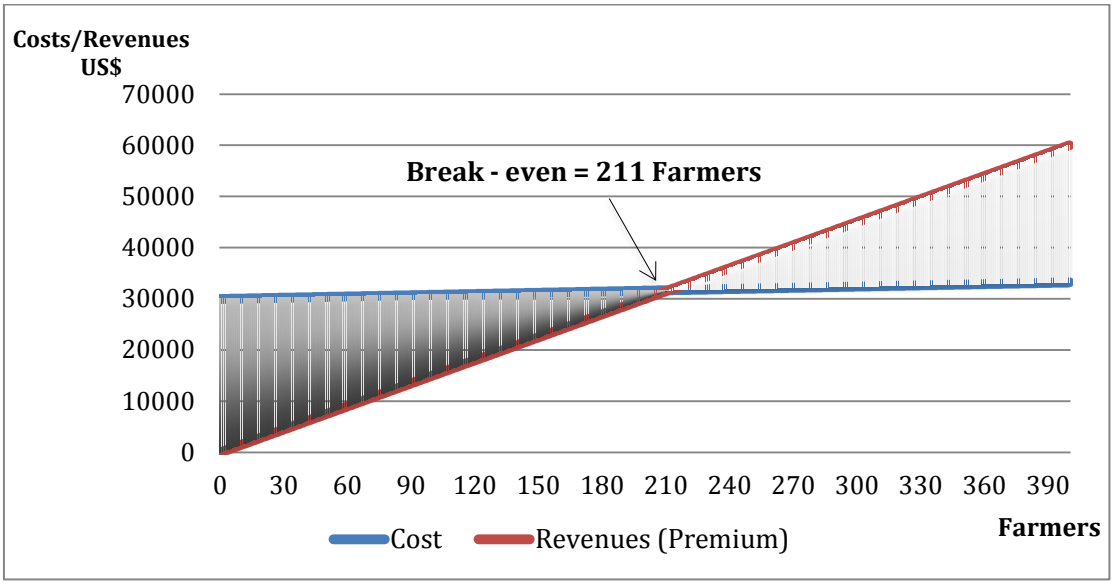
[68] KMPG 2013 p.p. 28 suggests that in 2010 the AHANSUCOFA group produced only 200 tons. In the subsequent year, due to bad weather condition, yields further dropped to 127 tons. Farmers mentioned that premium received was 2,5 GHS per bag (64 kg). Hence the premium received by producers was merely US$ 16 per ton (currency rate 27/1/2014).

[69] Producer BEP = $\frac{Cost\ per\ farmer}{Premium}$

(BEP)			
Average production (Kg)	0,786	1,046	56,9

Combining the total costs of UTZ (US$ 32.175) and those of Fair Trade (US$ 554.256) groups, allow to relate the costs of certification to the number of producers in a cooperative, and thus derive the producer break even (the point refer to the number of farmers needed to cover the costs).

Chart 11 Farmer break – even point[70]



The data used to derive the lines are aggregated at the cooperative level and do not allow to capture the actual relationship between costs and number of farmers. Given this limitation, the costs per farmer may differ within the groups, resulting in a very a different relationship than the one presented here. However, what the chart tells us is that a relatively sizeable group (of about 211 producers) is needed in order to cover the certification expenses. This suggests that smallholders that are not part of a group/coop are likely to be excluded from certification. For a purpose of comparison, the following table summarize the costs Rainforest Alliance certification as incurred by four cocoa producer cooperatives in Côte d'Ivoire[71].

[70] The break – even calculation relies only on two data points (costs of UTZ and Fair Trade). The cost line is based on the equation: $\boldsymbol{C = F + N * a}$. Where **C** = cost, **F** = fixed costs, **N** = number of producer; **a** = factor. The revenue line is derived assuming that each farmer produces 1 ton of cocoa and receive US$ 150 per ton. The equation is: $\boldsymbol{Y = 150\, y * N}$; where **y** = average yield, **N** = number of producers.

[71] The data are based on interviews with cocoa cooperatives in Côte d'Ivoire. Enrique Uribe Leitz provided the data. Although a breakdown of the certification costs (i.e.

Table 15 Cost estimates of Rainforest Alliance (and UTZ) certification in Côte d'Ivoire

Premium/costs estimates RA-SAN	COOPAGA	ECAF-HS	CAMI	CJAD
Number of producer	1.439	1.618	838	225
Production	1.648	1.064	1.200	124
Yield per farmer	1,1	0,658	1,4	0,551
Average premium/tonne	150	150	150	150
Total premium	**247.200**	**159.600**	**180.000**	**18.600**
Total cost US$	**31.263**	**62.526**	**29.079**	**27.839**
Cost/tons	19	59	24	225
Cost/farmer	22	39	35	124
Net Benefit	**215.937**	**97.074**	**150.921**	**-9.239**
Benefit/farmer	150	60	180	**-41**
Benefit/Tons	131	91	126	**-75**
Benefit/farmer (50% leakage)	64	11	73	**- 82**
Benefit/ton (50% leakage)	112	33	102	- 299
Values in euros converted into US dollars using the current exchange rate 1€ = 1,36 USD				

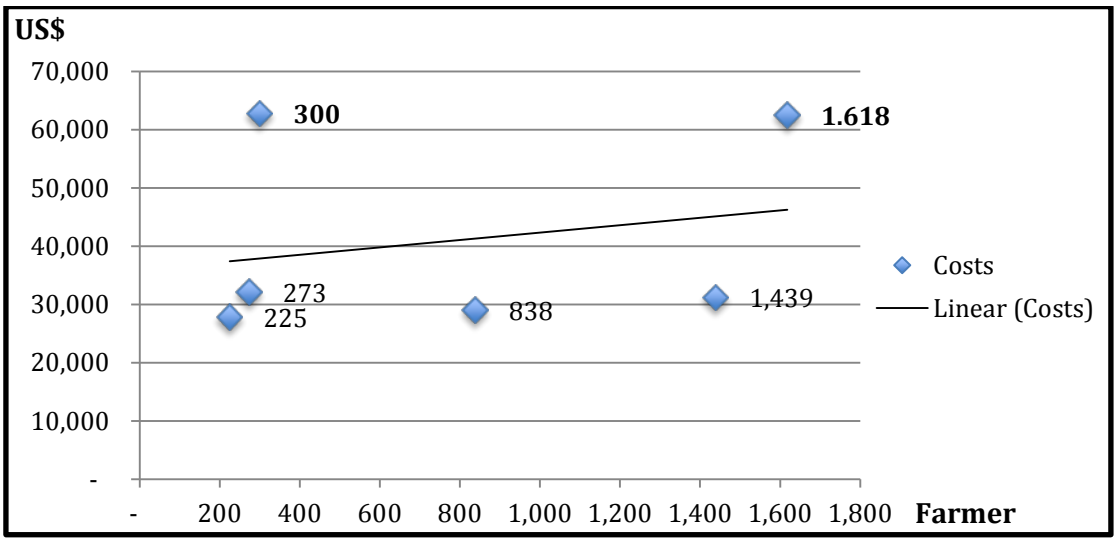
Except the CJAD cooperative, overall the benefits from premium outweigh the costs. However, the estimates rely on the assumption that all production is sold as certified. Conversely, many farmers were not able to sell their cocoa beans as certified due to bad quality. Assuming 50% of production eventually not being sold as certified, the benefits drop significantly (as shown in the last two rows of the table). In addition, two cooperatives (COOPAGA and CJAD) were double – certified by both UTZ and RA, meaning that they have to handle (and pay) double certification fees. However, costs for UTZ certification were, unfortunately, not available. A quick scan at the costs suggests that these vary greatly among the selected groups. Costs differ also between groups with similar number of farmers (see COOPAGA and ECAF – HS), suggesting that these are very much dependent on the output level rather than on the number of farmers.

The scatter plot below captures the relationship between the cost of certification and the number of farmer assisted based. As we can see, the costs vary greatly and

audits, training, ICS staffs, etc.) was not available, costs in the calculation include audit and training, which represent the biggest certification expenses.

do not appear to be related to the number of producers. Althougqh both COOPAGA and ECAF-HS have similar number of producers (1.439 and 1.618 respectively) costs at ECAF-HS are double that of COOPAGA.

Chart 12 Costs and number of farmers[72]



These findings are consistent with the fact that some of the costs, such as those for the audits, which represent the largest certification expenses, are found to vary greatly. To this respect, a review of Rainforest Alliance certification and annual audits in 2013 (in Côte d'Ivoire and Ghana) suggest that, on average, an amount of US$ 12 (variance = $ 55.6; standard dev. = $ 7.5) is spent per farm on certification. These are SAN – group with average membership of 665.3 farmers (variance = 1,016,748; std. = 1008.3).

It is important to notice that the income improvement in this calculation is merely based on the premium received and do not take into account other important factors such as productivity, quality and efficiency improvements, that may differ among the three scheme and that may affect the overall benefits. In addition, benefits are calculated assuming all production being sold as certified, which is not always the case. On top of this, the premium is not entirely passed on to producers. Usually 60% of the premium is passed on to farmer/coop, while the remainder 40% is seen as the cost for implementing certification (i.e. audit, ICS). If this is the case, a farmer/coop may receive only US$ 90 (out of a premium of $150/ton). Hence, a more accurate calculation of costs-benefits should take into account of the actual premium distribution. Given these limitations, the costs estimates presented here must be considered tentative at the best.

[72] The chart relates the certification costs as incurred in six producer cooperatives (5 RA groups and 1 UTZ group) to their respective number of members. The Fair Trade coop was not included because this concern a very large group that has been operational for many years and therefore it is considered as an outlier.

5.2.1 Who bear the costs of certification?

The West African Fair Fruits WAFF (UTZ) and the Agro – Eco (Rainforest Alliance) covered all the cost of ICS staffs and provided all the necessary training to farmers on the schemes. These included the salaries of schemes' staffs, transportation (both international and ground transportation if required), of the (ICS) personnel, accommodation and meal. In addition, both the implementing partners (NGOs) covered the costs for the training delivery on the scheme's standards.

From a cost perspective, the high dependency of farmer groups from private and public founders in terms of capital as well as know – how, raises issues over the long – term sustainability of certification. Some authors noticed how the schemes' reliance on external funding may threaten the long-term viability of the certification model (Potts et al. 2010). The savings from the premium could be used to support the group expenses in the future, but it remains critical to see whether it will be enough to cover these costs without external support. All the schemes seem to depend to a certain extent from funding from public or private donors either for their operations or to facilitate the certification process. KPMG (2011) suggest that the estimated grant – funding required for certification is approximately US$ 50/ton for the first three years[73]. Without such external funding, it is very difficult for farmers to join a scheme.

It appears that the viability of certification for farmers and their groups mainly relies on financial investments and support from third parties, suggesting that the system is not self-sufficient. If the parties involved are not willing to make such investments, it is difficult for farmers to successfully adopt certification.

5.3 Results

From the costs benefit analysis we can draw the following conclusions:

- At farm/coop level, costs and benefits of certification are largely determined by the farmer's ability to increase production. In general it is assumed that, as a result of training and adoption of good agricultural practices, certification enables farmers to improve productivity over time (KPMG 2012; Afari-Sefa et al. 2010). However, as the case of both the AHANSUCOFA-UTZ group and CJAD-RA

[73] KPMG (2011). *Sustainable cocoa fund study: Cost benefit analysis of cocoa certification in West – Africa.*

group shows, if yields remain low, benefits from certification may become negligible, or even disappear. If this occurs, the ability of farmers to benefit from certification is very limited. It appears to be clear that a relatively high level of production is needed in order to offset the costs of certification. Therefore, the assumption whereby yield improvement goes together with certification cannot be generalized.

- Larger and well-functioning cooperatives i.e. *Kuapa Kokoo* appear to face a significantly lower cost of certification (US$ 8,5/farmer) compared to smaller ones. This might be due to economies of scale, by the fact that fixed costs can be distributed over a greater number of producers, and as a result of being well linked to the market. This raises questions over the viability of certification for smallholder farmers operating within small producer groups. However, costs vary even among cooperatives with similar amount of producers (see COOPAGA and ECAF-HS), suggesting that productivity is the key driver of both costs and benefits.

- Benefits from certification seem to largely depend from the farmers' ability to sell their cocoa as certified. Today an estimated 60 to 67 per cent of total compliant-cocoa production is eventually not sold as certified due either to lack of demand (or lack of buyers), multi – certification or other issues (i.e. low quality of cocoa beans). As a consequence farmers may not receive a premium after having invested, money, time, and efforts in the certification process. For example, in 2008 the *Kuapa Kokoo* cooperative produced 35,000 tons of cocoa, but only 9,500 tons were actually sold as Fair Trade cocoa (27% of total production)[74]. Although the cooperative has been operational for more than 20 years, the percentage of FT – cocoa sales is yet very low. High level of leakage to the conventional market put an additional burden on certified farmers and their organizations.

- From a cost perspective, another important implication is that a relatively sizeable group (of roughly 211 farmers) is needed in order to cover the costs (see chart 9). Farmers who cannot or do not want to join a producer group are mostly excluded from certification, either because they do not fulfil the conditions imposed by the schemes, or because they are too small to reach the minimum production needed to receive a premium. There is evidence that farmers currently involved in certification are the so-called "low-hanging fruits", or those that can be certified more easily at lower costs. However, estimates on the

[74] http://www.fairtrade.org.uk/producers/cacao/kuapa_kokoo_union.aspx

degree of organization of farmers suggest that only 10% of smallholders in cocoa are part of a producer group. Therefore, the organization in farmer groups remains one of the key challenges for both the inclusion of marginal smallholders, as well as for up-scaling certification in cocoa (KPMG 2013a).

- It appears that today farmers are being increasingly pushed to be certified by developing partners, NGO's and by companies without a clear understanding of the advantages and disadvantages linked to certification. Farmers should be well informed beforehand, as to avoid useless efforts and costs. The credibility and integrity of the system mainly depends on weather farmers are left free to choose to join or not join a scheme. However, given the current commitments from cocoa users, if certification will become the new standard to access export markets, farmers will remain with no options other than seeking for certification.

- Certification of cocoa appears to be highly dependent on subsidies from third-parties (mainly from NGOs, first-buyers, and exporters) and often requires additional funding from manufacturers. In absence of such external funding, farmers cannot be certified. From an economic perspective, the system is not self-sufficient, thus raising the question on how certification will be sustained in the future. For example, if donor's policies change in the future, and less funding is available, will farmer/coop be able to bear the costs? Without funding, certification will still be a viable option for smallholders?

- The up-front investments from third – parties (i.e. on training, audit and ICS) are currently recovered by retaining part of the premium once certified cocoa is sold to manufactures. However, at present there is limited information on how the premium is distributed between farmer, cooperative and exporter. Hence, improving the transparency on the payment and distribution of premiums it is critical to maximize the impact of certification.

- Lastly, what emerges from the study is that, although certification costs are partly covered by NGO's and/or by industry partners, it seems that they mostly incur at the domestic level (i.e. at the cooperative, buyer and exporter level) rather than being absorbed by downstream companies and by the consumers. It seems that companies increasingly use certification mainly for traceability, and marketing purposes (i.e. to improve brand reputation), rather than as an instrument to improve the livelihoods of cocoa farmers and thus to promote poverty alleviation in cocoa producing regions.

6 Conclusion

So far, information on the costs associated with certification is very limited and difficult to be found. Most of the existing impact assessment studies related to certification do not have the goal to perform cost – benefit analysis and therefore only look at the production costs without taking into account important cost items such as training, audits and other certification expenses. Few respondents consulted during this research have been able or willing to share information on the actual costs arising from certification. Although, in general, respondents knew about the main expenses required for certification (i.e. audit, training, compliance costs), they were mostly unable to provide estimates. This may be due to confidentiality reasons or competitive issues between the schemes, however it does not show the transparency that these systems attempt to promote. The lack of transparency on the costs, as well as on premium distribution between farmers, cooperatives and exporters/manufacturers, represent the main shortcomings of current certification systems.

In the following tables, I provide an overview of the costs of certification per each of the scheme broken down per cost type (i.e. compliance, fees and audit) and when possible, broken down between onetime (i.e. storage sheds, shade trees) and recurring costs (i.e. certification audit and fees). The last table summarize the attribution of costs to different parties in the supply chain.

Table 16 Costs estimates per schemes

Costs items ($)	**Sub-costs**	**UTZ**	**RA**	**FLO**
Compliance costs	Investments[75]	$11/farmer	$67,5/farmer	$ 0,66/farmer
	ICS[76]	$82/farmer	$34/farmer	$5/farmer
	Costs of alternative land uses[77]	$25 – 216/ha	$25 – 216/ha	$25 – 216/ha

[75] **One-time investments**: waste and chemical storage facilities, shade trees, safety signage and other investment in equipment such as vehicles and computers. **Recurrent investments**: protective clothing, and instruments for integrated pest management. Investments for both UTZ and FLO are only those for equipment and documentation.

[76] Costs of ICS include: salaries of ICS staff, transportation, and internal inspections.

[77] Based on Potts & Opiz (2007). Certification requires that a portion of land – for instance that close to waterways – is left unfarmed, while others must be devoted to "shade trees". This means that a part of the land cannot be used for productive purposes, implying an additional cost for farmers.

Training[78]		$7/farmer $65-83/farmer (Ghana-CDI)	$ 73,5/farmer $ 30-75/farmer (Ghana - CDI)	$ 1/farmer $ 30/farmer (Ghana & CDI)
Direct costs (fees & audit)	Cooperative (500 producers)	-	-	Initial: $9/farmer Annual: $6/farmer
	First Buyer	14/ton	15/ton	5-58/ton
	Manufacturer Trader	370 – 5.485	4.000	1.638 - 3.000
	Audit[79]	**$ 22**/farmer per year	**$ 25–33**/farmer per year	**$ 10**/farmer per year

Table 17 Initial and recurrent costs of certification

Costs	Description	Initial	Recurrent
Compliance costs (Investments)	These are fixed costs, which do not vary with production level or, by size.	Fixed investments in storage facilities, shade trees.	Protective clothing for chemical use, IPM/ICM instruments
Fees	Standard charge volume based fees (RA and UTZ) as well as membership (UTZ, FLO) and annual fees (FLO). These fees varies either by volume (UTZ, RA) or by number of farmers, type of organization, number and type of products, and number of processing facilities (FLO)	**UTZ** membership fee: $ 340 – 5.437 **FLO** application fee: $ 720 **FLO** Product-based fee: $247 **FLO** initial fees: < 50 = 1.937 >1000 = 4.700	Volume-based fees: **UTZ** 14/ton **RA** 15/ton **FLO** Annual fees: < 50 = $ 1.585 > 1000 = $ 3.749

[78] KPMG (2012) estimates that average costs of training for FLO, RA, UTZ is $60/farmer.
[79] Annual costs of audit in Ghana and Côte d'Ivoire per 300 producers, KPMG (2012), pg. 54.

Audit	Audit varies depending on: 1.Size and distance to the farm 2. Number of producers/workers 3. Level of pre-existing compliance. 4. Availability of local auditors. 5. Time required to inspect farms	Costs of audits arise on an annual basis and are therefore considered as on-going costs.	**Annual costs of audits per 300 producers:** **RA:** **$25** - **$33** per farmer **UTZ:** **$14 - $22** per farmer **FLO:** **$10** per farmer
Group forming	For a group with 375 farmers, costs of group forming are estimated at roughly US$ 3,500 or US$ 9,3 per farmer. KPMG (2012)		
Training	Training costs depends on a number of factors: (1) outreach of intervention (2) business mindedness of training (3) context (i.e. for more organized farmers training tend to be cheaper) (4) the availability of local trainers/ agronomist[80].	During the first year, training intensity and other costs tend to be higher compared to subsequent years.	

Table 18 Attribution of certification costs along the cocoa supply chain:

Consumers	Pay higher VAT for certified cocoa. Given that most of the costs are subsidized by third – parties as well as by the industry, consumer pay only a little more for certified cocoa as compared to conventional.

[80] Information provided by consultation with ICCO Cooperation.

Retailers	Pay license fees (0,22% - 2,5%) to schemes on total value of cocoa sales (only FLO)
Manufacturer/trader	Pays premium to pre – financing party
Pre-financing parties: First-Buyer/NGO/Exporter	Bear the costs of Training; Organize farmers in groups; Pay membership and volume-based fees to schemes. Pay the audit costs.
	A share of the premium (50%) is passed to farmer/coop, while the remainder (50%) is retained to recover the initial costs such as audit
Cooperative	ICS costs, fees (only FLO)
Farmer	Compliance costs (i.e. shade trees, storage facilities, protective clothing for chemical use, equipment such as computers and vehicles, and record keeping); setting aside a portion of land (close to waterways) and the cost of (unpaid) labour.

Value distribution of chocolate:

Most of the money from cocoa trade is made after the beans are processed, meaning from the manufacture of chocolate. In 1996 – 2005, cocoa growers in Côte d'Ivoire and Ghana received, on average, only 5,7% and 6,4% of the final U.K. milk chocolate retail price, respectively. This is compared with 18% (Côte d'Ivoire) and 22% (Ghana) between 1976 – 85, suggesting a sharp drop in the value captured by producers. In 2004, the cocoa producer is seen as obtaining only 4% of the final U.K. chocolate retail price. By contrast, processors and retailers were found to absorb the largest share of 40% and 28%, respectively (Gilbert 2007). Dorin (2003) suggests that in 2001, producers in Côte d'Ivoire received only 6% of the final value of a dark chocolate tablet sold in France. By contrast, the share captured by manufacturers and retailers in the same year was estimated to be 70,4%.

In 2013, the annual average of the ICCO daily price was US$ 2,439 per tonne. I use this reference price to estimate to what extent the cost of certification contributes to the margin between consumer and producer prices. The estimated costs vary between a maximum of US$ 225/ton (CJAD-coop) to a minimum US$ 24/ton (CAMI-coop). The weighted average cost of certification for the selected cooperatives is US$ 55,3 per tonne[81]. This cost account for about 2,3% of current cocoa price (U$ 2,439/ton). If we add the volume-based fee of 15$/ton, the cost of certification become US$ 70,3/ton, which is about 3% of current market price. This suggest that the implementation and maintenance of a given certification system, entail a

[81] This refers to the weighted average cost per tonne of certified cocoa for the seven cooperatives.

substantial and additional cost. Although third parties subsidize most of the costs, the system imposes an additional burden on farmers/coops as well as on domestic companies, primarily on local buyer and/or exporters.

Finally, do these costs justify the benefits that the system attempts to promote? At present, the lack of evidence on the actual benefits of certification on producers, as well as the lack of transparency on its costs makes difficult to derive generalizable conclusions. However, given that the costs of certification are found to be a major obstacle to the viability (and sustainability) of the certification system, the answer mainly rely on whether standard organizations and other key-partners will be able to operate in a more cost-effective manner.

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Appendix I: List of interviewees

Name of Contact	**Organization**
Ruth Nyagah	AfriCert
Boye Okit	Barry Callebaut
Sjoerd Panhuysen	HIVOS
André Vording	ICCO Cooperation
Hans Perk	ICCO Cooperation
Michael Sigal	ICCO International Cocoa Organization
Ute Eisenlohr	IMO Control
Yuca Waarts	LEI Wageningen UR
Willem Albert Toose	Louis Bolk Institute
Han Hoogvliet	Max Havelaar (Fair Trade)
Meindertsma Bente	Max Havelaar (Fair Trade)
Mechielsen Frank	Oxfam Novib

Rudolf Scheffer	Oxfam Novib
Martine Willem	Rainforest Alliance
Mercedes Tallo	Rainforest Alliance
Mohammed Armani	Rainforest Alliance
Emmanuel Oduro Owuso	Sea – Freight Pineapple exporters of Ghana (SPEG)
Beatrice Moulianitaki	Solidaridad
Jonas Mva Mva	Sustainable Trade initiative IDH
Sarah Davis	TechnoServe
Johanna Rijkemberg	UTZ Certified

Appendix II: Questionnaires

1. Questionnaire to Certification Bodies CB's and auditors

Respondents:

Ute Eisenlohr, IMO Control (CH)
Mohammed Armani (Rainforest Alliance)
Ruth Nyagah (AfriCert)

1. Which is the average audit fee for cocoa farms in West Africa?
    a. Typically, who pay for audits?
    b. How often do you perform the audit in these countries?
    c. Are cocoa producers/cooperatives or other agents able to cope with the cost of audit?
    d. On average, how long does it take to audit a typical cocoa farm (in West Africa)?
    e. I know that the price of audit vary depending from the distance to the site as well as on the farm size. Could you mention other factors that influence such costs?
2. Do you also perform chain of custody audits?
    a. If yes, which is the average fee for Chain of Custody audits?
    b. At which step of the supply chain the audit is performed (i.e. buyers, traders, exporters, importers, processors, manufactures)?
3. What are the costs of training delivery?

4. Which are the other expenses that IMO needs to bear?
    a. Does IMO's income fully rely on the services that it offers or is it subsidized through external funding?
    b. If yes, do you get funding from standard organizations or other entities?
5. To conclude, do the audit system imply other type of costs that I may forgot to mention here?

2. Questionnaire to standard organizations (RA, FLO, UTZ)

Respondents:

Martine Willems (Rainforest Alliance)
Meindertsma Bente (Max Havelaar)
Johanna Rijkemberg (UTZ Certified)

1) Which type of fees does cocoa producers needs to pays to become certified i.e. application, membership, and annual fees?
    1a. On average, how much do producers pay to become certified?
    1b. Are certification costs borne entirely by producers or also by other players such as standard organizations, buyers etc.?
    1c. In other words, who cover the expenses for the certificate?
2) Which are the typical costs involved in the chain of custody (CoC) for cocoa?
    2a. Which are the average fees that a buyer, trader and processor need to pay for handling certified cocoa?
    2b. Typically, which actors bear the CoC costs?
    2c. How much does a chain audit cost and which actors are audited?
    2d. Does the scheme charge retailers or other agents for using its logo?
3) How much do cocoa farmers pay for audits (on average and possibly in West Africa)?
    3a. Are the costs of audits covered entirely by producers?
4) What type of segregation model is used for cocoa?
    4a. Which are the costs involved in this segregation model?

4b. How much does it cost for standard – users (i.e. producers, buyers, etc.) to keep certified cocoa separated from conventional?

5) What are the costs of training delivery?

6) Which other compliance costs are involved in the cocoa value chain?