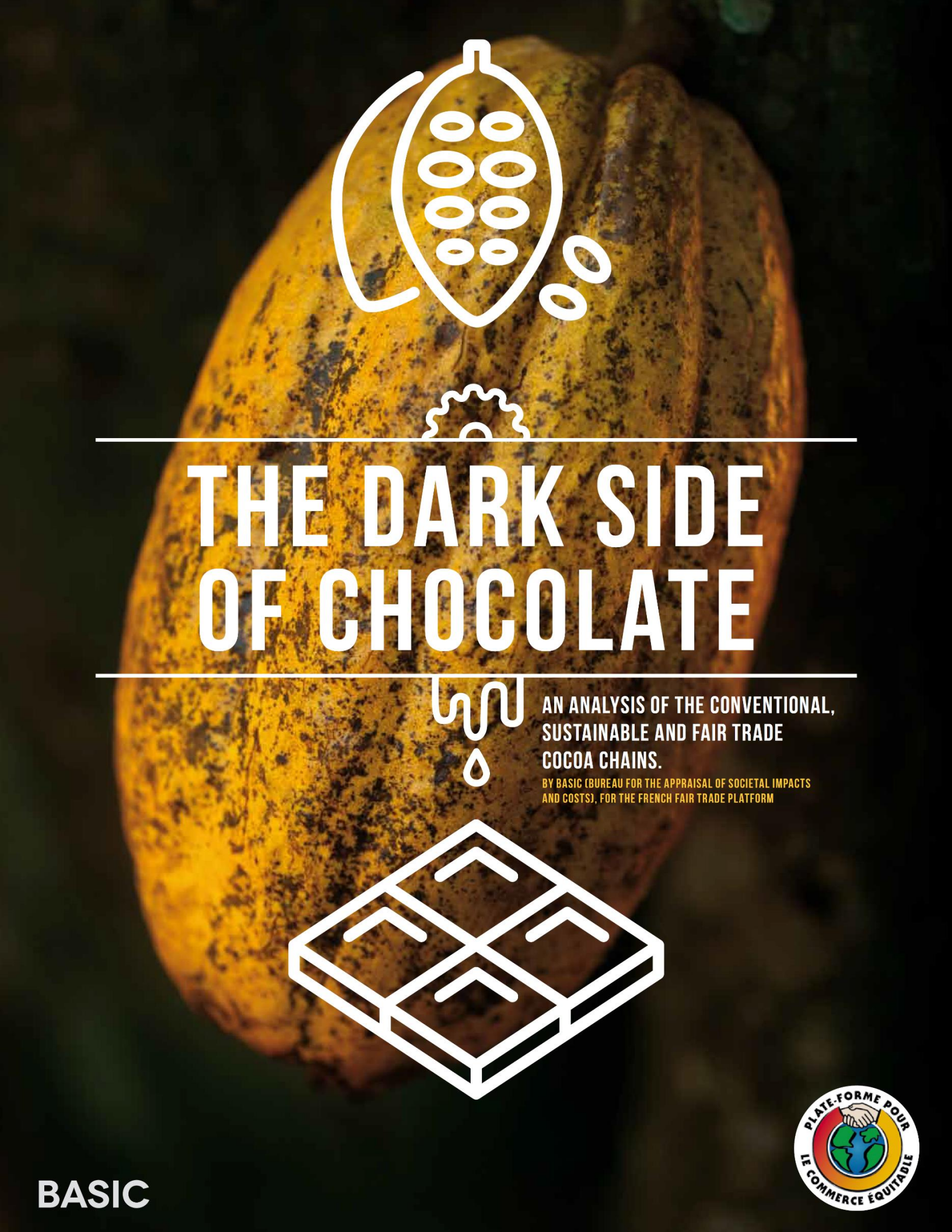

THE DARK SIDE OF CHOCOLATE

AN ANALYSIS OF THE CONVENTIONAL, SUSTAINABLE AND FAIR TRADE COCOA CHAINS.

BY BASIC (BUREAU FOR THE APPRAISAL OF SOCIETAL IMPACTS AND COSTS), FOR THE FRENCH FAIR TRADE PLATFORM

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PLATE-FORME POUR LE COMMERCE ÉQUITABLE

Introduction

Worldwide chocolate consumption has been constantly increasing over the last decades. In recent years, this trend tends to accelerate as a consequence of the strong growth in demand for chocolate products in many countries, particularly the emerging economies[1]. Some describes it as a "boom" of international cocoa demand: in 2013, 4 million tons of chocolate have been sold all over the world, an increase of 32% over ten years.

Chocolate consumption grows overall twice as fast as cocoa production: on average 1.5% per year for the latter against 3% per year for demand over the last decade. This has resulted in high volatility of cocoa prices in global markets and strong pressure on producers' prices because of the concentration of power of cocoa traders, grinders, chocolate manufacturers and retailers.

In producing countries, the sustainability of the cocoa chain seems increasingly threatened, in particular due to the low and unstable income of the 5.5 million small cocoa growers who produce more than 90% of worldwide cocoa beans and directly rely on this production for their survival. Any minor land loss or yield decrease can push them under the poverty line, which illustrates the unsustainability of their situation. This is even more pronounced in West Africa where two thirds of worldwide cocoa beans are produced.

In this context, fair trade actors have developed alternative chains over the last 25 years to enable cocoa producers to live off the fruit of their work and collectively invest in local development. They contributed to the emergence of conscious and responsible consumers who are willing to reduce the social and environmental impacts of the products they buy. The continuous market growth for fair trade chocolate products, notably in France, is an example of this growing awareness and commitment of consumers.

To address consumers' growing concerns about the social and environmental issues related to cocoa production, sustainable standards schemes have also recently emerged. They seek to reconcile production's social and environmental sustainability, stability of supply and price affordability.

The resulting multiplication of labels is detrimental to the transparency for consumers who most often lack the necessary time and information to make informed decisions. This is exacerbated by the competition between standards and labels induced by international chocolate traders and manufacturers. The competition is even tougher in the current economic crisis which increases the pressure on prices.

To objectify the differences between conventional, sustainable and fair trade value chains, a useful and innovative approach has been used to study the hidden costs created by the different models of cocoa chains and compare them with prices to consumer.

Based on this, the study aims to investigate and evaluate:

- **The costs shifted on society** by the conventional cocoa value chains (because of pollutions, resources depletion, underpayment and unsustainable living conditions of producers, etc.);
- **The difference in effects and impacts** that sustainable and fair trade value chains generate, in particular on small producers, employment, local economies, environment etc.

In this context, the *Plate Forme pour le Commerce Equitable* and its partners have decided to commission a study that:

- Identifies the main impacts and societal costs (i.e. social, environmental, economical) created along the cocoa value chain;
- Analyses and quantifies the differences in impacts and societal costs generated by different modes of production and consumption, comparing conventional, sustainable and fair trade cocoa chains.

[1] ICCO, The World Cocoa Economy, 2014

Abbreviations

ADM	Archer Daniels Midland
Caistab	Cocoa Stabilisation Fund (*Caisse de stabilisation et de soutien des prix des produits agricoles* in French) created in 1960 and créée en 1960 and dismantled in 1999
CCN51	"Colección castro naranjal 51", hybride from forastero and trinitario cocoa varieties
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention
CTOC	United Nations Convention against Transnational Organised Crime
FAO	Food and Agricultural Organisation
FCFA	West African CFA, currency of eight independent states in West Africa
FLO	Fairtrade International
IMF	International Monetary Funds
FOB	Free on board
GVC	*Groupements à vocation coopérative*
ICCO	International Cocoa Organisation
INEI	National Institute of Statistics in Peru
INSEE	National Institute of Statistics and Economics Studies in France
Mns	Million
Bn	Billion
ILO	International Labour Organisation
NGO	Non-Governmental Organisation
GDP	Gross Domestic Production
RA	Rainforest Alliance
REDD+	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
RSCE	Roundtable for a Sustainable Cocoa Economy
UEMOA	West African Economic and Monetary Union
UN Comtrade	Statistics data base of international trade of the United Nations
UNCTAD	United Nations Conference for Trade and Development
UNFCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars
UTZ Certified	Utz Kapeh

Glossary

Criollo, Forastero and Trinitario

The three main cocoa varieties cultivated worldwide are Criollo, Forastero and Trinitario:

- The Criollo variety is native to Central America, famous for its fine cocoa taste but highly vulnerable to climate hazards and diseases. Today, the Criollo cocoa variety represents only 1% of world production.
- Originally from the Amazon basin, the Forastero cocoa variety is known for its robustness and productivity. Although considered bitter and less fine than the Criollo, the Forastero variety represents over 80% of current world production.
- The Trinitario is a hybrid cocoa variety obtained by breeding Criollo and Forastero. It is classified as a fine and aromatic cocoa variety together with the Criollo, and represents a little less than 20% of world production.

Chocolate and chocolate products

Chocolate is the product obtained from cocoa products and sugars which contains not less than 35% total dry cocoa solids, including not less than 18% cocoa butter and not less than 14% dry non-fat cocoa solids.
Chocolate products are products which contain the same ingredients, but in lower proportions.
(cf. directive 2000/36/CE of the European Parliament and of the Council)

(Global) value chains

(Global) value chains refer to:

- The set of economic activities ranging from the production of raw materials up to the end consumption of final product(s) and their end of life treatment,
- The set of economic actors vertically related that performs these activities.

Commoditisation

Commoditisation is the process by which a product is characterized by:

- Product homogeneity: the property must be presented homogeneously without specific lots and no identifiable unit;
- Product standardization of the mode of production: the units must be interchangeable;
- Free market exchange;
- Supply to the market guaranteed by the absence of constraints from governments or private organizations;
- Unpredictability of supply and demand;
- Possibility of storage as a necessary condition for the existence of futures exchange.

(based on the US Commodity Futures Trading Commission)

Impact (economic, social environmental)

All lasting or significant changes...
... positive and negative, direct and indirect, foreseeable and unforeseeable, intentional and unintentional ...
... on ecosystems and the environment, individuals and communities, and on the economic world ...
... occurring at local, regional and global levels...
... which are caused by one or more actions, activities, policies, products or services ...
... beyond what would have happened all else being equal.

Societal costs

All direct and indirect, present and future, expenses and losses suffered by third persons, the general public and the society in general as a result of the social, sanitary and environmental impacts of the models of production and consumption.
(cf. K. W. Kapp, 1963).

Basket of essential goods

Resources needed for an individual to get healthy and sufficient food, ensuring its participation in social activities and enjoy a decent standard of living (education, health, housing, clothing, transportation, savings) which respects its basic rights and is usually encouraged or approved in the societies to which he/she belongs.
(cf. Peter Townsend, 1979)

Essential Services

Essential public network utilities are vital services or basic services indispensable for a dignified and decent lifestyle.
They include, notably:

- Access to sufficient and healthy food enabling human activities;
- Education
- Protection of public health;
- Living in decent accommodation;
- Collective drinking water and sanitation services;
- Collective cleanliness and waste disposal services;
- Energy distribution services;
- Daily public transport services;
- Information and telecommunication services

(cf. Charter of essential services, 2007)

Fair Trade

Fair Trade is a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the South. Fair Trade organisations have a clear commitment to Fair Trade as the principal core of their mission. They, backed by consumers, are engaged actively in supporting producers, awareness raising and in campaigning for changes in the rules and practice of conventional international trade.
(Definition issued by FINE, the coordination of international fair trade networks: Fairtrade International, World Fair Trade Organisation and European Fair Trade Association)

'Fair Trade' certification

Formal assessment (attested in writing by issuing a certificate) given by a third party that a product, service or system meets the fair trade requirements (see definition above). In France, fair trade certifications comply with the Charter of Principles issued by the French Fair Trade Platform.

'Sustainable' certification

Formal assessment (attested in writing by issuing a certificate) given by a third party that a product, service or system meets the environmental requirements of improved agricultural practices, banned hazardous chemical inputs, biodiversity protection and respect of the fundamental conventions of the International Labour Organization.

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Methodology

This report is a meta-analysis. It consolidates existing knowledge from different fields to fulfil the objectives detailed in the introduction. It does not claim completeness nor detailed accuracy of calculations, but aims to provide an overview of the cocoa value chain, and conservative estimates of the extent of its impacts.
We are aware of the limitations associated with the consolidation of socio-economic, environmental, health and sociologic studies based on sometimes very different approaches. We strive to cross-check their results and make their methods as transparent as possible in order to enable the reader to form his own opinion.

The primary objective of the study is to analyse and investigate the links between:

- On the one hand, the structure of the conventional, sustainable and fair trade cocoa value chains,
- On the other, the social and environmental impacts they generate in the countries of production, and the related societal costs.

The starting point of our analysis is the definition of the scope and the mapping of the cocoa value chains to be investigated, from the production of raw materials to the end consumption of final products. Given the great diversity of situations between countries, the scope of the study has been restricted:

- Downstream, to the French market for chocolate products, with a focus on the chocolate bar segment
- Upstream, to the Ivory Coast – the world's number one cocoa exporter - and Peru – historic exporter of organic and fair trade cocoa - which were selected because of their representativeness for the French market, particularly the segment of conventional, sustainable and fair trade chocolate bars[2].

In order to study the cocoa value chains, their impacts and societal costs, we have collected and analysed more than 400 papers and reports published by academic researchers, national and international institutions, civil society organisations, business actors and journalists (see details in the summary table below).

Type of document	Cocoa global value chain	Impacts (Ivory Coast, Peru)	Societal Costs (Ivory Coast, Peru)
Academic papers	**~20** (University of Copenhagen, Cirad, CERDI, Oxford University, UPPSALA, UM, ENSAN, etc.)	**~35** (Cirad, Wageningen, UC Davis, NRI, Tulane University, PSE, JAPS, CIAT, CED, La Molina, etc.)	**~35** (Cirad, UC Davis, Tulane University, University of Toulouse, Univ Catolica, ESAN, CERDI, La Molina)
Institutional reports	**~30** (FAO, UNCTAD, World Bank, BCEAO, Agritrade, ICCO, Ministries in Ivory Coast and Peru, etc.)	**~50** (PNUE, USDA, United Nations, IIAP, IITA, UNICEF, OIT, OCDE, etc.)	**~120** (FMI, World Bank, BCEAO, Ministries in Ivory Coast and Peru, Ghana, Cameroun, PNUD, OIT, UNICEF, USAID, US Bureau of Labour, etc.)
NGO reports	**~5** (Oxfam, SOS Faim…)	**~45** (Oxfam, AVSF, FLO, IISD, SOS Faim, etc.)	**~20** (Tropical Commodity Coalition, etc.)
Business reports	**~10** (Xerfi, Swisscontact, Syndicat du chocolat, KPMG, etc.)	**~25** (Technoserve, UTZ, IFC, etc.)	
Newspapers' articles	**~15** (LSA, Confectionery News, Jeune Afrique, etc.)	**~30** (Confectionery News, Wall Street Journal, The Guardian, etc.)	
Books	**3** (The True History of Chocolate, The Economics of Chocolate)	**1** (The Economics of Chocolate)	

Figure 1. Main sources consolidated in this study on cocoa value chains, their impacts and societal costs.
Source: BASIC

[2] Ghana the Dominican Republic although initially selected were not retained in the end, the former because of the persistence of its public control system which makes it a very specific case, the latter because conventional cocoa is almost non-existing, most of its production being certified organic.

The analysis of these documents has been complemented with:

- The collection and processing of statistical data from national and international public databases (UN Comtrade, World Bank, INSEE, INEI, etc.);
- Interviews with a dozen experts and key players in the cocoa and chocolate industry (producers, processors, manufacturers, researchers, civil society)

We first analysed consumer markets and the evolution of demand, and in parallel the socio-economic context in producer countries and the evolution of supply.
Secondly, we investigated the other stages in the chain, the organizational and governance structures of cocoa value chains, as well as the main institutional settings.

Based on this global value chain analysis, we studied the related impacts on the cocoa farmers in Côte d'Ivoire and Peru, their communities and the environment.

We have paid specific attention to understanding each territory's context (historical, social and political), analysing documented facts (qualitative and quantitative) and comparing different cases (groups, communities, regions, etc.). On this basis, we have developed impact pathways mapping in order to identify cause and effect chains, and the existence of 'impact loops' that correspond to situations where some effects feed on one another, and eventually give rise to vicious or virtuous circles (also called 'cumulative causation', negative or positive).

To evaluate the magnitude of these impacts and assess the sustainability of the conventional cocoa value chain, we have estimated the societal costs, that is to say "all direct and indirect, present and future, expenses and losses suffered by third persons, the general public and the society in general as a result of the social, sanitary and environmental impacts of the models of production and consumption, and which could have been avoided. "
To evaluate these costs, we have identified and consolidated real expenditures for prevention, mitigation, repair and adaptation to the impacts of conventional cocoa, which are supported by third parties and the community as a whole (especially the government) in Côte d'Ivoire and Peru (see diagram below).

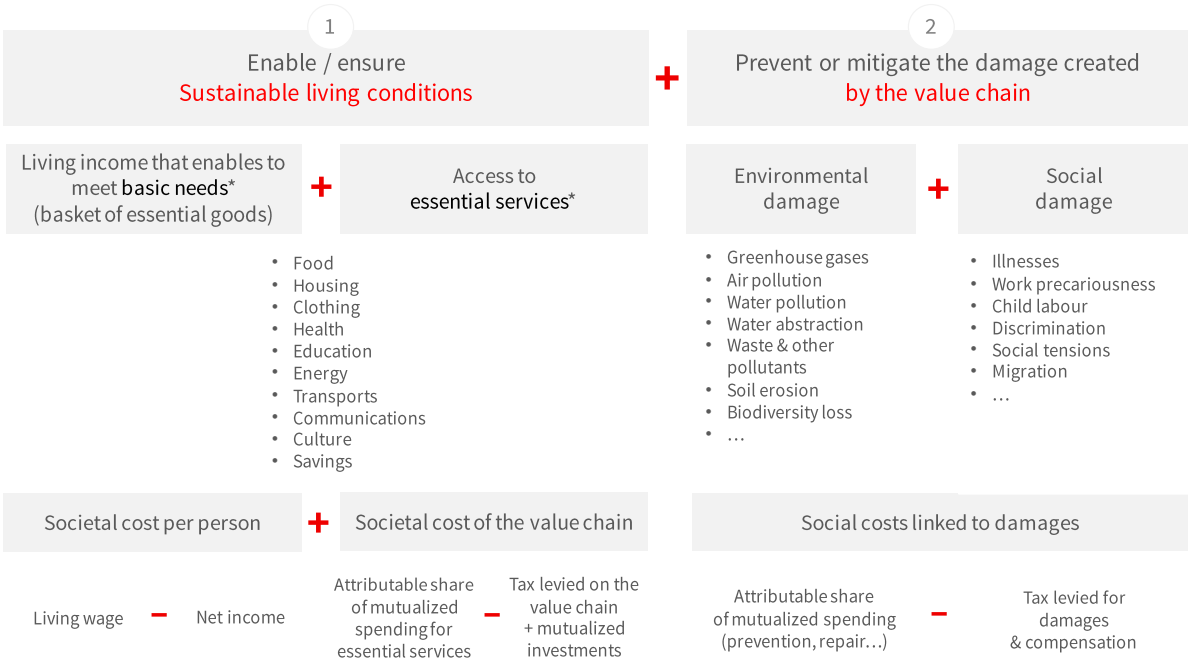


Figure 2. Summary diagram of societal costs calculation framework.
Source: BASIC

The societal costs which have been consolidated in this study of cocoa value chains correspond to actual expenditure:

- To enable producers and workers to meet the basic needs of their families (food, education, health, housing, savings)
- To contribute to investments in essential services necessary to meet the needs of producers, their families and their communities
- To reduce or prevent the social and environmental impacts related to cocoa production (deforestation, pollution, child labour, etc.)

These costs are evaluated with reference to collective international norms which are set to avoid exceeding critical thresholds in social and environmental fields, including:

- The UN Bill of Human Rights (in particular articles 1, 23 et 25),
- The conventions of the International Labour Organisation (in particular n°29, 87, 98, 100, 105, 111, 138, 182),
- The norms of the World Health Organisation,
- The Declaration of the United Nations Conference on the Human Environment (especially principles 1, 3 and 5),
- Other international conventions (UNPCC, CITES, CTOC…).

The main calculation methodologies and sources used for this evaluation are listed in the table below:

Impact	Evaluation approach	Sources Ivory Coast	Sources Peru
Low income of producers	Estimation of average annual income earned by cocoa producing families and comparison with the level of income they need to meet their basic needs	• Average annual income and number of people per family: Ruf - CIRAD (2009); Schweisguth - University of California (2014) • Absolute poverty line per individual: extrapolated from studies of national institutes of Statistics in Ghana (GLSS 6, 2013) and Cameroon (ECAM 4, 2015)	• Average annual income and number of people per family: MINAG (2012) ; SwissContact (2013) ; ENSAN (2015) • Absolute poverty line per individual: studies of national institutes of Statistics in Peru (INEI, 2013)
Essential services	Estimation of the financial contribution of the cocoa sector to public expenditure needed to build infrastructure for essential services in cocoa communities.	• Public spending for essential services in Ivory Coast: Pro-poor expenditure 2009-15 consolidated by the IMF in its latest country report (Rapport No. 15/147) • Estimate of unmet basic needs and extrapolation of associated expenses: INS, Inquiry on the living standards of households in Côte d'Ivoire (ENV, 2015) • Number of cocoa producers: Ruf - CIRAD (2009); Schweisguth - University of California (2014)	• Public spending for essential services in Peru: public expenditure of the Peruvian government consolidated by the World Bank (BOOST Peru 2014) • Estimate of unmet basic needs and extrapolation of associated expenses: INEI, Estudio Pobreza (2013) • Number of cocoa producers: MINAG (2014) et Centrum (2016)
Child Labour	Estimated expenditures of actions and programs fighting against child labour, and costs related to its long term health and economic impacts	• Expenditures in Ivory Coast to fight against child labour: US Bureau of Labour (2015) • Estimated social costs generated by child labour (health costs and underpayment of individuals): OIT-IPEC (2004) • Estimated number of children in worst forms of child labour in the cocoa sector: Tulane University, 2015	• Expenditures in Peru to fight against child labour: US Bureau of Labour (2015) • Estimated social costs generated by child labour (health costs and underpayment of individuals): OIT-IPEC (2004) • Estimated number of children in worst forms of child labour in the cocoa sector: OIT-IPEC, 2009

Deforestation	Estimated expenditures of actions and programs fighting against deforestation, and investments needed to curb the phenomenon in the long term	• Expenditures in Ivory Coast to fight against deforestation: Programme National d'Investissement Agricole (PNIA, 2014) et Programme Quantité, Qualité et Croissance (P2QC, 2014) • Estimated investment needed to curb deforestation within 20 years in Ivory Coast: REDD+ (Cost-Benefit study, 2013) • Estimated share of deforestation due to cocoa: European Forest Institute, 2013	• Expenditures in Peru to fight against deforestation in the cocoa sector: Althelia Programme (2014)
Pollution related to (chemical) inputs	Estimated expenditures of actions and programs fighting against water pollution related to fertilizers and pesticides use	• Expenditures in Ivory Coast to fight against water pollution: Pro-poor expenditure 2009-15 consolidated by the IMF in its latest country report (Rapport No. 15/147) • Estimated uses of inputs and pesticides in the cultivation of cocoa in Ivory Coast: Ruf - CIRAD (2009); Schweisguth - University of California (2014) et FAO (2016)	Undocumented

Figure 3. Approaches and sources of information used for the estimation of societal costs.
Source: BASIC

Based on the estimation of the societal costs of conventional cocoa, we conducted the same evaluation for fair trade and sustainable cocoa value chains, so as to objectify their contributions to reduce, or even halt, the main social and environmental impacts generated by conventional cocoa cultivation.

Finally, we also conducted an identification of the societal costs along the rest of the chain. The available studies suggest that legal frameworks in Europe (minimum wages, tax system, social and environmental norms and standards, etc.) significantly limit most of the social and environmental impacts in the stages of processing and manufacturing of chocolate products. For the distribution stage, it proved too difficult to determine the share of responsibility attributable to chocolate products in this wide sector, although some impacts are documented. In the end, only one factor - carbon emissions - seems to generate impacts and significant societal costs downstream (its impact is already reflected at the level of cocoa production through our evaluation of the impacts of deforestation and chemical inputs).
According to available studies[3], these emissions are estimated to be 1.60 kg CO2-equivalent per kg of a dark chocolate bar. The associated societal costs range from 1 to 3 cent euros depending on the reference used for the social cost of carbon [4].
As a result, the societal costs related to climate change impacts downstream the cocoa chains appear to be marginal in comparison with those generated upstream at the production level (see the relevant sections of this report for more details)[5]. It was thus not analysed in detail as part of this study which focuses on the impacts in Ivory Coast and Peru.

The societal costs assessed in this study are an indicator of the (un)sustainability of cocoa value chains, a 'zero societal costs' society being close to the ideal scenario promoted by the supporters of a circular economy. The societal costs should be considered vis-à-vis the value created by the industry. Adding these two figures would not make sense as impacts do not disappear mechanically with a higher price or value of products.

[3] A. Ntiamoah and G. Afrane, Environmental impacts of cocoa production and processing in Ghana: life cycle assessment approach, Journal of Cleaner Production, 2008
S. Büsser and N. Jungbluth, LCA of Chocolate Packed in Aluminium Foil Based Packaging. ESU-services Ltd. Uster, Switzerland, 2009
[4] N. Stern, *Stern Review on The Economics of Climate Change (pre-publication edition)*, H.M. Treasury, Cambridge University Press, 2006; IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change
[5] For example, the societal costs reach 15 cents for a dark chocolate bar with cocoa coming from Ivory Coast (see our evaluation in the relevant section of the report)

1. The cocoa history

1.1 First productions and consumptions of cocoa

1.1.1 First uses of cocoa and its import in Europe

Probably discovered by the pre-Olmec 3000 years ago, the cocoa tree requires very specific climate conditions[6]. Its fruit, the pod, contains between 30 to 40 beans surrounded by a white pulp. Historians suppose that this sugary white pulp was the first reason why the first humans started to harvest the cocoa trees' fruits.

If the discovery of processing from bean to chocolate is still mysterious, it is commonly admitted that Olmec were the first consumers, followed by the Mayas that gave it the name of "xocoatl" before the Aztecs started to use it[7]. These two civilisations left behind them testimonies of the very important role played by chocolate, consumed as a bitter cold beverage and mixed with various spices almost exclusively reserved to the elites during important events, religious for instance.

When the Spanish settlers arrived in Central America, the beverage is described as undrinkable. With the marriages and cohabitation between Spanish settlers and Aztec women, a Creole culture is created, inspired by the habits and customs from the two civilisations[8]. The chocolate is introduced progressively in the colonial cuisine and adapted to European taste: still consumed in liquid form, the chocolate is drunk at room temperature rather than cold and mixed with cinnamon and anise.

Legend says that Hernan Cortés introduced chocolate to Charles Quint's court and in 1585, the first boast coming from Veracruz arrives at Seville's port with cocoa beans on board[9]. During the 17th century, the Spanish royal court, closely followed by French and Italian elites, starts to consume hot chocolate.

1.1.2 Production's development in Latin America

Demand rapidly arises after the arrival of chocolate in Europe. But soon bad treatments and diseases imported by the settlers decimate the Mesoamerican populations and only 10% of them survived at the end of the 18th century. The settlers must find a solution in order to satisfy the growing appetites in Europe: it is the beginning of the cocoa plantations in South America.

The settlers only know the cocoa variety *criollo* from Central America before their conquest of the High Amazonia during which the Spanish settlers discover wild plants of *forastero*[10]. Rapidly, they realise the advantage of this *forastero* variety, more resistant and productive, and more profitable to produce with the arrival of the first African slaves. The chocolate made from *forastero* is nevertheless less tasty and cane sugar needs to be added to it. Sugar then becomes an important ingredient in the making of chocolate, and still is today.

Venezuela, a producing country of *criollo* "Caracas" well-known and in a quasi-monopole situation in the early 19th century, does not resist the surge of *forastero* on the colonial market, produced on Ecuadorian plantations and large Brazilian fazendas. Ecuador then becomes the leading cocoa producing country in 1830 and will remain in the lead until the end of the 19th century.

1.2 Gradual popularisation of chocolate consumption and its impacts on the production

1.2.1 Growth of the consumption: chocolate in solid forms appears and industrialization arises

The first recipes (cream, sorbet, cake) with chocolate basis are invented by the Italians in the early 18th century while the French aristocratic elites still consume it hot and liquid in finely crafted pot (*chocolatière* in French). During the same period,

[6] S. D. Coe & M. D. Coe, *The True History of Chocolate,* 3rd edition, Thames & Hudson, 2013
[7] S. D. Coe & M. D. Coe, *The True History…* op. cit.
[8] S. D. Coe & M. D. Coe, *The True History…* op. cit.
[9] S. D. Coe & M. D. Coe, *The True History…* op. cit.
[10] S. D. Coe & M. D. Coe, *The True History…* op. cit.

chocolate houses developed throughout England where the nobility, the bourgeoisie and the arising middle class share for the very first time a cultural and political joint life.

In the early 19th century, the first "chocolate factories" manage to industrialise the roasting and grinding process and succeed in increasing sharply the volumes and productivity of the cocoa (François-Louis Cailler and Philippe Suchard in Switzerland, Jean-Antoine Menier en France) [11]. But the true turning point in the chocolate history takes place in the Netherlands when Casparus Van Houten in 1828 discovers the process of hydraulic pressure that can separate the cocoa butter from the powder. This invention opens the way towards a massive production of chocolate affordable by the many.

The Fry family uses this invention several years later and markets in 1847 in England the first chocolate bars made from cocoa powder mixed with sugar and melted cocoa butter, closely followed by the chocolate candies of their great rival, the Cadbury family. The Menier family also markets in 1849 their first chocolate bars wrapped into their famous yellow paper which became the symbol of their brand[12].

During the 19th century, innovations revolutionizing the chocolate industry take place, bearing the names of their inventors still known worldwide today[13]. For instance, Henri Nestlé discovers in 1867 the producing process for milk powder to use in the making of milk chocolate. In 1879, Rudolph Lindt invents the conche that significantly helps to improve the quality of solid chocolate.

Chocolate production is at first dominated by France and French brands: in the United Kingdom, Cadbury does not hesitate to give French-like names to its products to attract consumers. The 20th century is a turning point when Swiss and then British and American manufacturers take the lead, creating emblematic products that are still on our supermarkets' shelves today and amongst the best retailers' sales: first milk bar from Nestlé are launched in 1875, Toblerone in 1905 by Tobler, Dairy Milk by Cadbury in 1905, Milky Way and Mars by Mars in 1923 and 1932, Kit Kat and Smarties by Rowntree in 1935 and 1937[14] …

1.2.2 Massification of the production and popularization of the consumption

The world market is widely dominated by South American producing countries in the late 19th century. Portuguese settlers then decide to bring plants of *forastero* cocoa on the Sao Tomé Island where the cocoa plantations soon cover more than 90% of the territory. But in 1909, the British chocolate manufacturers Fry, Cadbury and Rowntree decide to stop their imports from the island where plantations still use slaves[15]. They choose Ghana as their new supply country.

In the early 20th century, the colonial and commercial powers leave the independent countries of Latin American and move to African colonies as the new producing region for cocoa. Western Africa, led by farmers and local land owners in Ghana and then Ivory Coast and Nigeria, becomes the world leading producing region. It still is the first producing region today with 70% of the world cocoa supply being produced on its land.

To meet the expanding demand, driven by the big chocolate and confectionery industrial brands (Lindt & Sprüngli, Nestlé, Cadbury…), the production becomes massive: from 140 000 tons yearly produced in 1830[16], the production rises to 250 000 tons per year in the early 20th century and exceeds 500 000 tons in 1920, amounting for 2,5 million in the 1980s[17].

[11] N. Harwish, *Histoire du chocolat*, 2008
[12] Departmental Archives of Seine and Marne region, « Les Menier et la chocolaterie de Noisiel », 2008
[13] Often from the pharmacy sector as chocolate was a medicine commonly used in Europe during the 17th century.
[14] N. Harwish, *Histoire…,* op. cit.
[15] D. Cadbury, *Chocolate Wars: The 150-Year Rivalry Between the World's Greatest Chocolate Makers,* 2011
[16] N. Harwish, *Histoire…* op. cit.
[17] LMC International Ltd., *The World Cocoa Market Outlook*, 2000

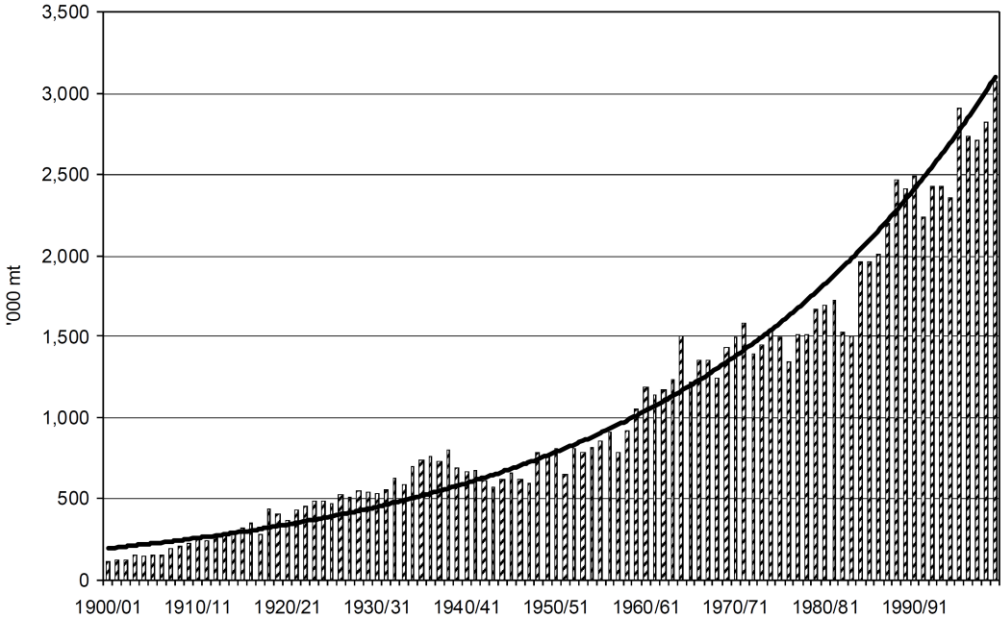


Figure 4. Evolution of the world cocoa production in the 20th century.
Source: LMC International Ltd., The World Cocoa Outlook, 2010.

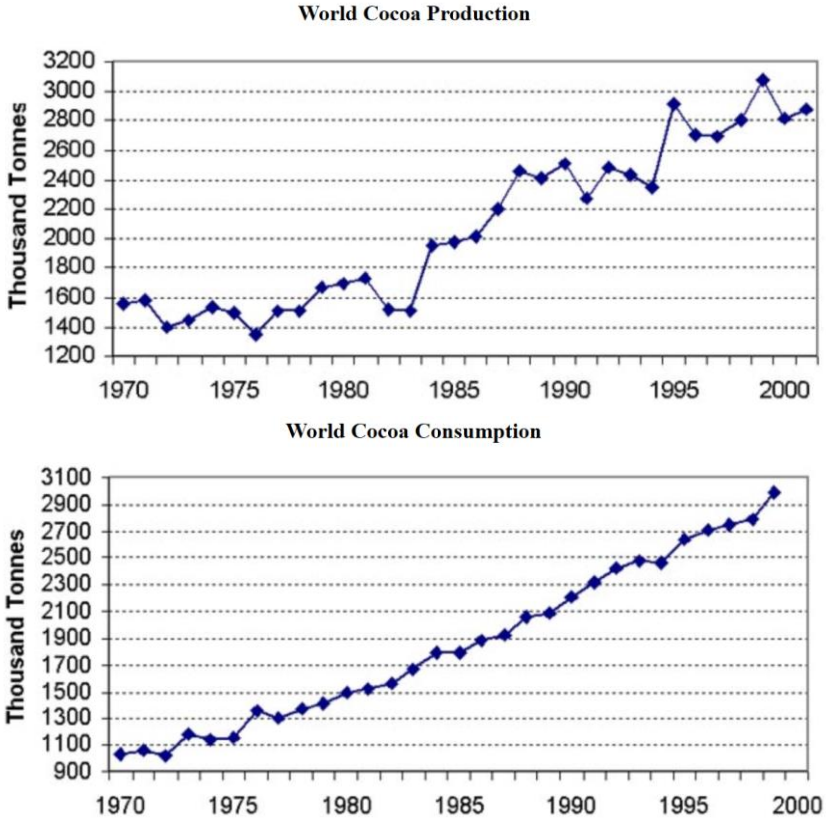


Figure 5. Evolution of world cocoa production and consumption since 1970.
Source: FAO, Agricultural Commodities, Economic and Social Development Department, 2002

In 2013, four million tonnes of cocoa were sold in the world, an increase of more than 32% over ten years. During the same period, chocolate consumption also continuously grew with the rate of 3% on average every year whereas the production only increased by 1,5%. The gap widens and industrials compete one another to secure supply for the grinding and manufacturing factories.

1.3 New markets arising and traditional markets mutating

Consumption trends on European and North-American markets reflect the demand's diversification regarding tastes and the awareness on health issues while Asian markets are highly in demand of standardized chocolate products and attracted by brands' names.

1.3.1 The traditional European and North-American markets

Historically, chocolate consumption has first expanded in temperate climate countries, more favourable to the consumption of chocolate in solid forms, and with high incomes[18].

In recent years, these traditional consumption markets in Europe and North America had a tendency to stagnate and even decline due to the economic recession[19], except the United States where chocolate consumption rose by 9% between 2009 and 2013[20].

Nevertheless, yearly consumption in these countries is still high: around 12kg of chocolate are consumed by a German or a Swiss each year, 8 kg by a British[21]. The French consumption is lower and continuously decreases, with 6,69 kg per person consumed in 2014[22].

These markets are qualified as "mature" and can be characterized by these three distinctive features[23]:

- A high demand for sugary chocolate products in which chocolate is only one ingredient amongst others;
- A significant demand but still in minority for better quality chocolate at an affordable price;
- A niche market for high quality chocolate.

This segmentation of the chocolate consumption in Europe and North America led to the increasing importance of branding and marketing for chocolate manufacturers. The brand is amongst the most important criterion for the consumers' choice. Moreover, the health issue became an additional characteristic of the personalization of the final product: in 2011, 10% of the products marketed in Europe were vegetarian, 7% without additive and 7% organic[24].

1.3.2 New markets in Asian developing countries

The emergence of middle class, the rise of global incomes' level and the tastes' standardization galvanise the Asian consumption markets: sales increased by 75% in China and by 80% in India between 2009 and 2013[25].

These two markets are amongst the most invested ones by chocolate brands. In India, the consumption market is extremely concentrated with Mondelez International holding alone 62% market share[26]. In China, more than 60% of the chocolate market is dominated by three big brands' names: Mars is in the lead with 39% of market shares in 2014, followed by Ferrero and

[18] S. Barrientos, « Beyond Fair Trade: Why are Mainstream Chocolate Companies Pursuing Social and Economic Sustainability in Cocoa Sourcing? », Institute for Development Policy and Management, Manchester University
[19] KPMG, *The chocolate of tomorrow,* June 2012
[20] S. Barrientos, « Beyond Fair Trade…», op. cit.
[21] Central Bank of West African Countries, *Étude monographique sur la filière cacao dans l'UEMOA,* June 2014
[22] Syndicat du chocolat, *Communiqué de presse,* October 2015
[23] S. Barrientos, « Beyond Fair Trade…», op. cit.
[24] KPMG, *The chocolate…* op. cit.
[25] Le dessous des cartes, « Le cacao, en voie de disparition », September 2015
[26] O. Nieburg, « Mondelez struggles to keep pace with the global chocolate market in Q1 », *Confectionery News,* 30 April 2015

Hershey that respectively own 12%[27]. Despite these impressive numbers, the consumption market's growth in China was lower than expected by the chocolate brands because the consumer price of chocolate remains too high for the many and did not turn into a mass consumption product yet[28].

1.4 The French chocolate market

With the United Kingdom, Switzerland and the Netherlands, France is one of the oldest countries with a tradition of consumption and manufacturing of chocolate in Europe. France still holds an important place on the international market in the cocoa grinding and chocolate manufacturing sectors. The consumption however has been continuously decreasing over the years, leading to a fierce competition between large national retailers and a price decline of chocolate products.

1.4.1 Cultural history of chocolate in France

The consumption of chocolate in France, as a hot sugary beverage, was common amongst the aristocracy under the reign of Louis XIV. At the end of the 18th century, consuming chocolate is still a symbol of the aristocracy, the monarchy and the clergy: the intellectuals then prefer to drink coffee.

In 1814, Jules Pares builds the first chocolate factory in France, at the origins of the current company Cémoi. The chocolate industry starts to expand and in 1848, Victor-Auguste Poulain opens his chocolate and confectionery factory that markets for the first time in 1904 its famous orange box of cocoa powder. In 1849, Jean-Antoine-Brutus Menier markets in France the first chocolate bar with the brands' colours. In 1889, this bar represents half of the chocolate sales in France and the Menier factory is elected the biggest chocolate factory in the world in 1893 during the universal exhibition[29]. France then loses little by little its leadership in the chocolate industry at the end of the 19th century.

During the 20th century, the chocolate industry in France grows along the same line as the industry in other European and North American countries. One important moment is the acquisition of Menier in 1975 by Rowntree-Mackintosh, bought in 1988 by Nestlé. More recently, the French Cacao Barry and the Belgian Callebaut merged in 1996 to create the world leading cocoa grinder and chocolate manufacturer, Barry Callebaut[30]. Between the 1970s and the 1990s, most of the traditional chocolatiers have been bought by foreign groups. One exception is Cémoi (who bought the historical factory of Jules Pares in 1962) and the medium-sized manufacturers (Valrhona, Weiss…) that are now integrated in the French group Bongrain. Besides these major factories and companies, a strong artisan tradition from the 19th century remains in France. It still represents 20% of the chocolate sales (the most important share amongst consumer countries) on the high-end quality chocolate sector[31].

1.4.2 Current situation on the French market

1.4.2.1 French consumption market

Like other European consumption markets, the French market is mature with a tendency to stagnate or even decrease. The competition amongst the actors is very fierce to keep their market shares and the promotional offers struggle to stimulate the sales[32].

The competition amongst the major retailers, where 80% of the chocolate are sold, have fostered the decline of the chocolate price since 2013 (diminution by 1,6% on average between 2013 and 2014). The chocolate manufacturers are caught in the

[27] D. Yu, « China's chocolate brands face image crisis amid international onslaught, says analyst », *Confectionery News,* 12 January 2016
[28] D. Yu, « China's chocolate brands…», op. cit.
[29] Departmental Archives of Seine and Marne region, Les Menier… op. cit.
[30] M.P. Squicciarini & J. Swinnen, *The Economics of Chocolate*, Oxford University Press, 2016
[31] N. Harwish, *Histoire*… op. cit.
[32] Xerfi, *La fabrication de chocolat*, 2016

middle, constrained on one side by the major retailers to sell at the lowest possible price, and on the other forced to squish their margins due to the continuous rise of cocoa bean price since 2012[33].

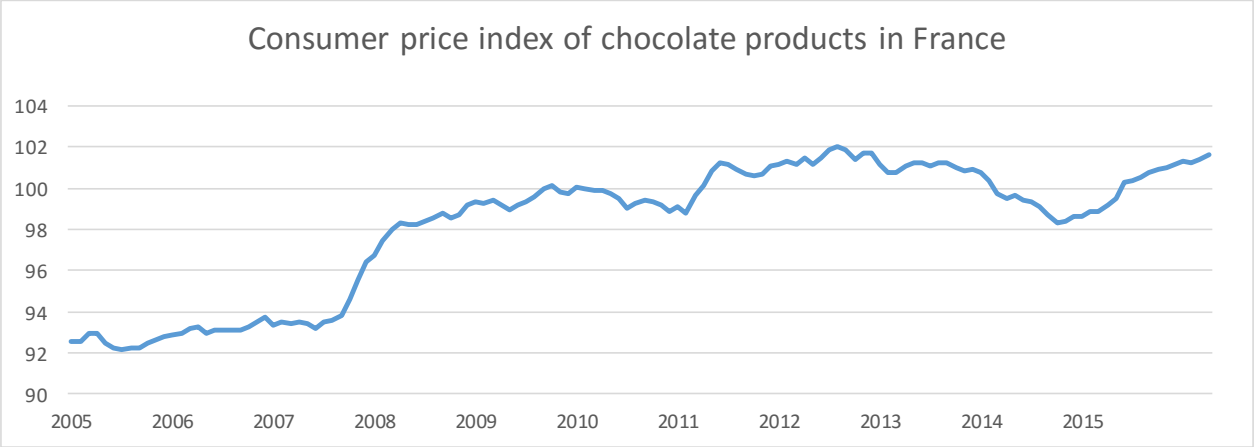


Figure 6. Evolution of the consumption price index of chocolate products in France since 2005.
Source: BASIC, based on data from the INSEE

The French market is characterized by a preference for products richer in cocoa, unlike the consumption markets of the United Kingdom and the United States[34]. With more than 32% of the sales volumes, the chocolate bar is the number one chocolate product sold in France whereas it only amounts to 5% on average in Europe[35].

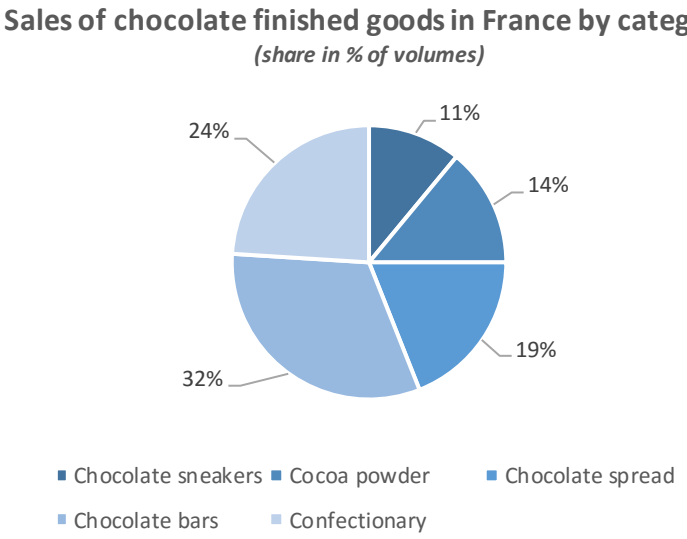


Figure 7. Sales of chocolate finished goods in France by category.
Source: BASIC, based on data from the Syndicate of Chocolate from 2013 used in Xerfi, La fabrication de chocolat, 2016

This taste for products richer in cocoa can also be seen in the share of dark chocolate bars' sales that account for 50% of the whole bars' sales in France[36].

[33] Xerfi, *La fabrication…* op. cit.
[34] B. Dorin, « From Ivorian Cocoa Bean to French Dark Chocolate Tablet. Price Transmission, Value Sharing and North/South Competition Policy », in H. Qaqaya et G. Lipimile, *The effects of anti-competitive business practices on developing countries and their development prospects,* UNCTAD, 2008
[35] Field research from CCAF 2013 in Syndicat du chocolat, *Communiqué de presse,* October 2015
[36] LSA Commerce & Consommation, « Avec 6,6 kg de chocolat par an, les français sont de petits consommateurs ! », 29 October 2014

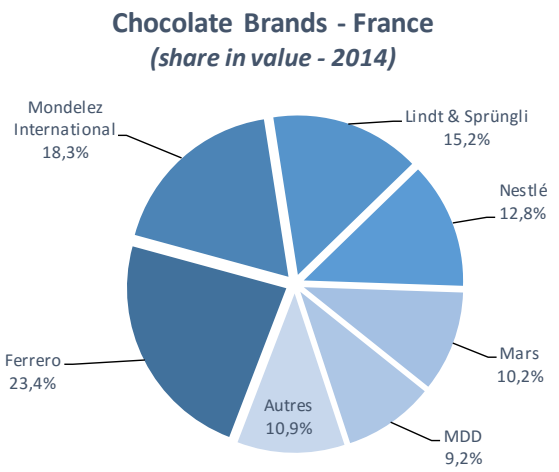


Figure 8. Chocolate products' sales in France by brands.
Source: BASIC, based on data from Xerfi, La fabrication de chocolat, 2016

Regarding the brands, the French market is very concentrated (as for most other consumption countries): Ferrero holds the first place with 23,4% of retail mass market sales, followed by Mondelez International, Lindt & Sprüngli and Nestlé. The 5 biggest brands represent 80% of the sales in supermarkets in France (see graphics above).

Despite the market drying up, France still is an important market for the biggest brands: it is the second market in Europe for Mars (after the United Kingdom), and the 3rd market worldwide for Nestlé (behind United States and China) as for Lindt & Sprüngli (that realizes in France 10% of its global revenue).

1.4.2.2 Chocolate manufacturing and cocoa grinding: highly concentrated industries

Chocolate manufacturing in France is as much concentrated as the consumption market: the 5 major manufacturers located in France account for 81% of global national production, Barry Callebaut being the uncontested leader with 23,8% of national chocolate manufacturing market (in volume).

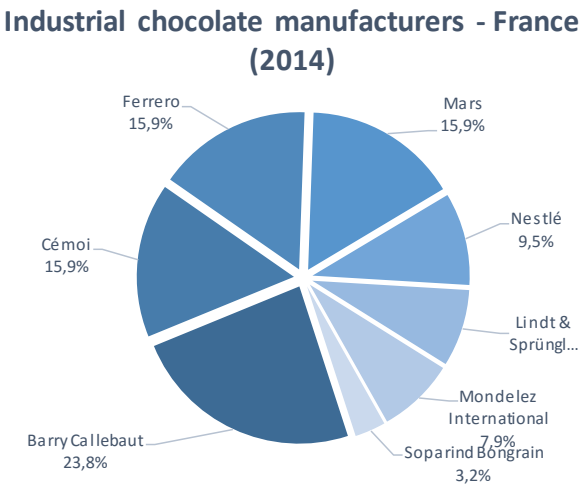


Figure 9. Market share of the main manufacturing of industrial chocolate in France (in % of total production volumes).
Source: BASIC, based on data from Xerfi, La fabrication de chocolat, 2016

In value, this concentration is even more important: the first five companies in the sector amount for 87% of the revenues, a figure that increased by 3,9% since 2008 (see below)[37].

	2008	2013
5 first companies	*83%*	*86,9%*
10 first companies	*91,6%*	*92%*
15 first companies	*95,6%*	*94,1%*
20 first companies	*96,4%*	*95,1%*

Figure 10. Concentration of the chocolate manufacturing activities in France (in % of revenues).
Source: BASIC, based on data from Xerfi, La fabrication de chocolat, 2016

France is an important country for the actors of the cocoa grinding and chocolate manufacturing sectors: all major industrials have factories in France which is the second chocolate and confectionery producer in the European Union with almost 15% of the production in value[38].

For instance, the consumption market's leader, Ferrero, produces a third of its world production of Nutella spread in its factory based in Villers-Ecalles (76), its biggest plant worldwide, and Mondelez International has 16 out of its 200 factories in France[39].

In addition to the chocolate manufacturers, cocoa grinders also invested a lot in the industrial chocolate sector in France: Barry Callebaut grinds more than 150 000 tonnes annually and Cargill recently invested more than 7 million euros in the production of high end industrial chocolate, including organic[40].

Almost two thirds of the production made in France is then exported, first towards other EU countries (87%)[41].

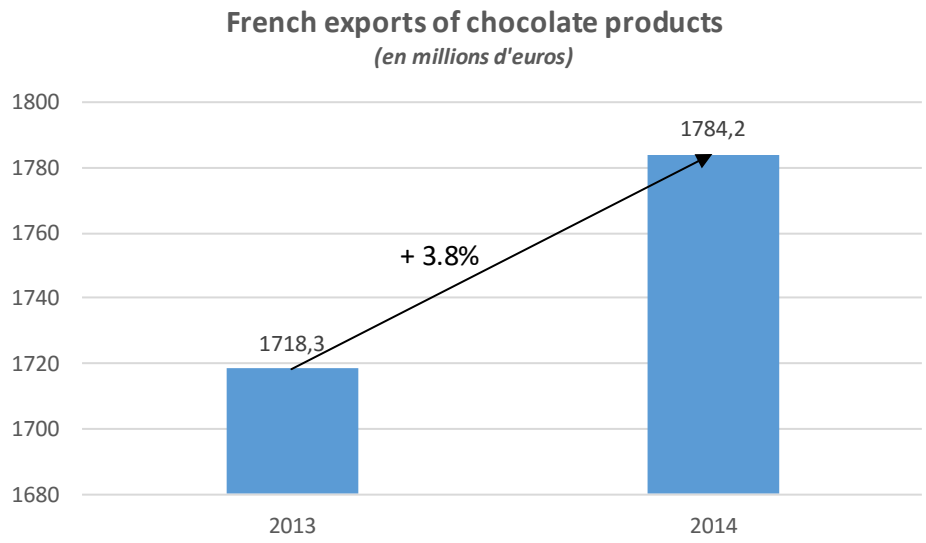


*Figure 11. Evolution of the French chocolate exports (*chocolate, candies, spreads, cocoa paste, cocoa butter, cocoa oil, cocoa powder and food preparations – including exchanges within companies and international transfers).*
Source: BASIC, based on data from the French customs used in Xerfi, La fabrication de chocolat, 2016

[37] Xerfi, *La fabrication…* op. cit.
[38] Xerfi, *La fabrication…* op. cit.
[39] Xerfi, *La fabrication…* op. cit.
[40] Xerfi, *La fabrication…* op. cit.
[41] Syndicat du chocolat, *Communiqué…* op. cit.

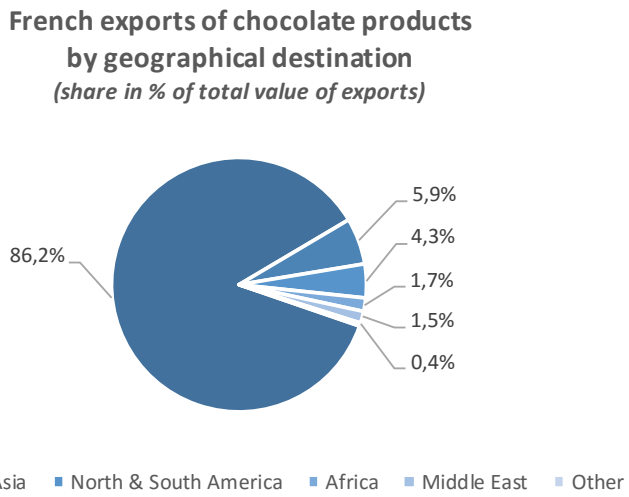
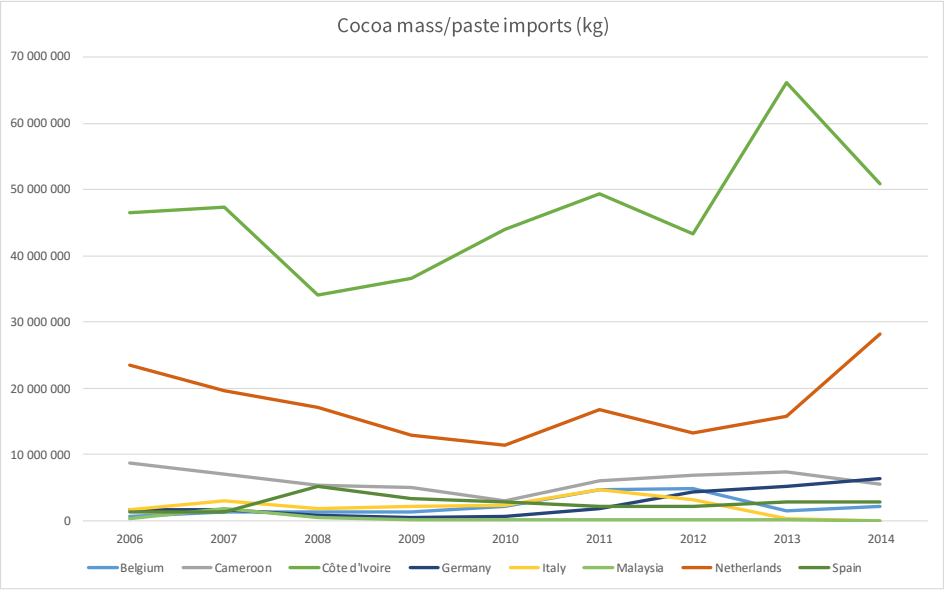


Figure 12. French exports of chocolate categorized by destination.
Source: BASIC, based on data from the French customs used in Xerfi, La fabrication de chocolat, 2016

The very high concentration within the cocoa grinding and chocolate manufacturing sectors should not hide the fact that regarding employments, 3/4 of the factories settled in France employ less than 10 people. This myriad of small companies is a specificity of the French chocolate industry[42] even if they are supplied by the large grinders who produce industrial chocolate and often only realise the last stage of manufacturing and personalization of chocolate.

The dynamism of the industrial chocolate sector in France is reflected in growth rates: the number of factories increased by 15% and the number of employees by 5% between 2008 and 2013[43].

However, the imports' figures also show a tendency to offshore grinding activities in producing countries: the imports of semi-processed products sharply increased over the recent years (especially originating from Ivory Coast and Ghana)[44].



[42] Xerfi, *La fabrication…* op. cit.
[43] Xerfi, *La fabrication…* op. cit.
[44] Xerfi, *La fabrication…* op. cit.

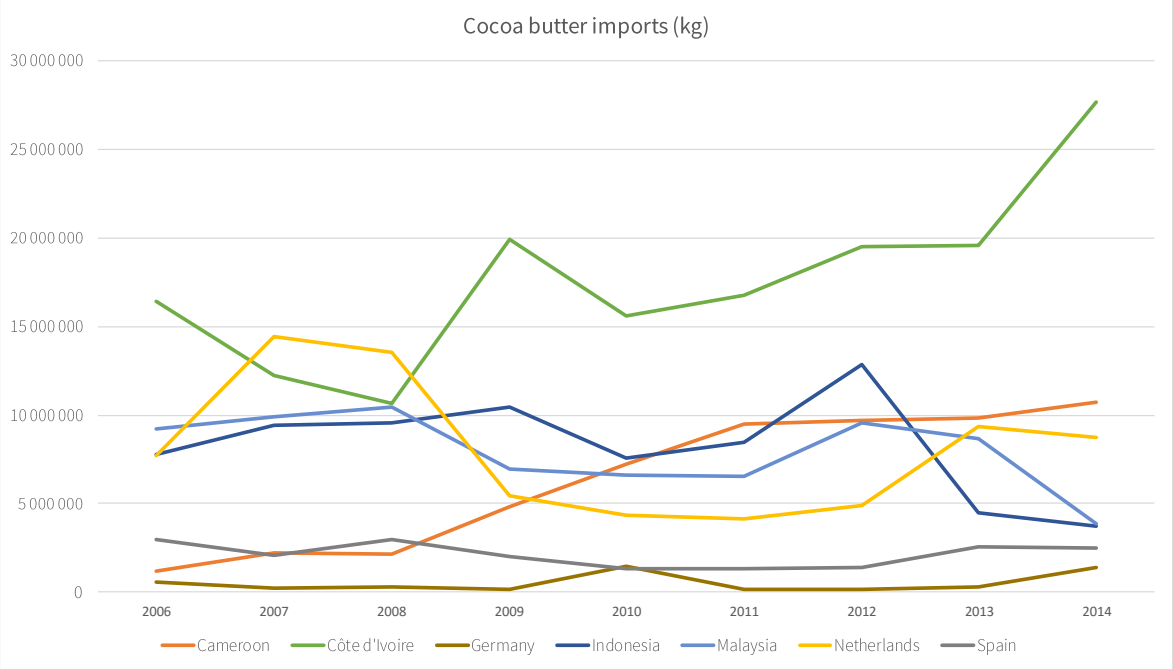


Figure 13. French imports of semi-transformed chocolate products (cocoa mass/paste and butter). Source: BASIC, based on data from Comtrade (2006-2014)

The cocoa beans' imports mainly come from West African countries, in a larger proportion than for the world cocoa trade.

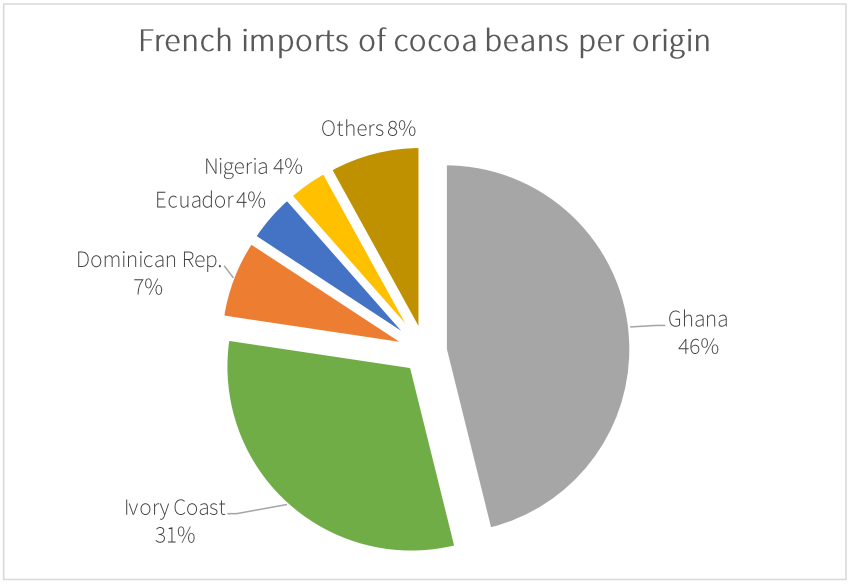


Figure 14. French imports of cocoa beans categorised by exporting countries. Source: BASIC, based on Comtrade data (2014)

The share of beans imported from Ivory Coast and Ghana is greater than in other European countries, amounting to 77% of the imported volumes in 2014 (see previous graphic). Since 2000, a significant change can be seen in the supply origins to the benefice of Ghana and at the expense of Ivory Coast (see below).

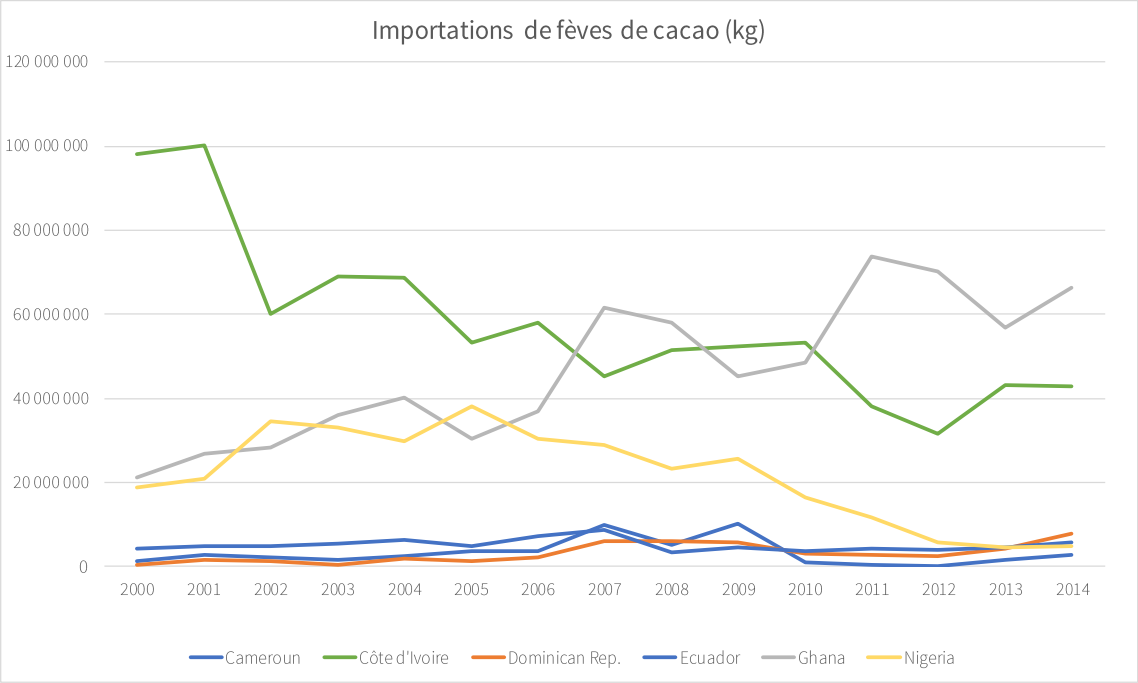


Figure 15. Evolution of French cocoa beans imports.
Source: BASIC, based on data from Comtrade (2000-2014)

2. Evolutions of the cocoa-chocolate chain

2.1 From cocoa bean to chocolate

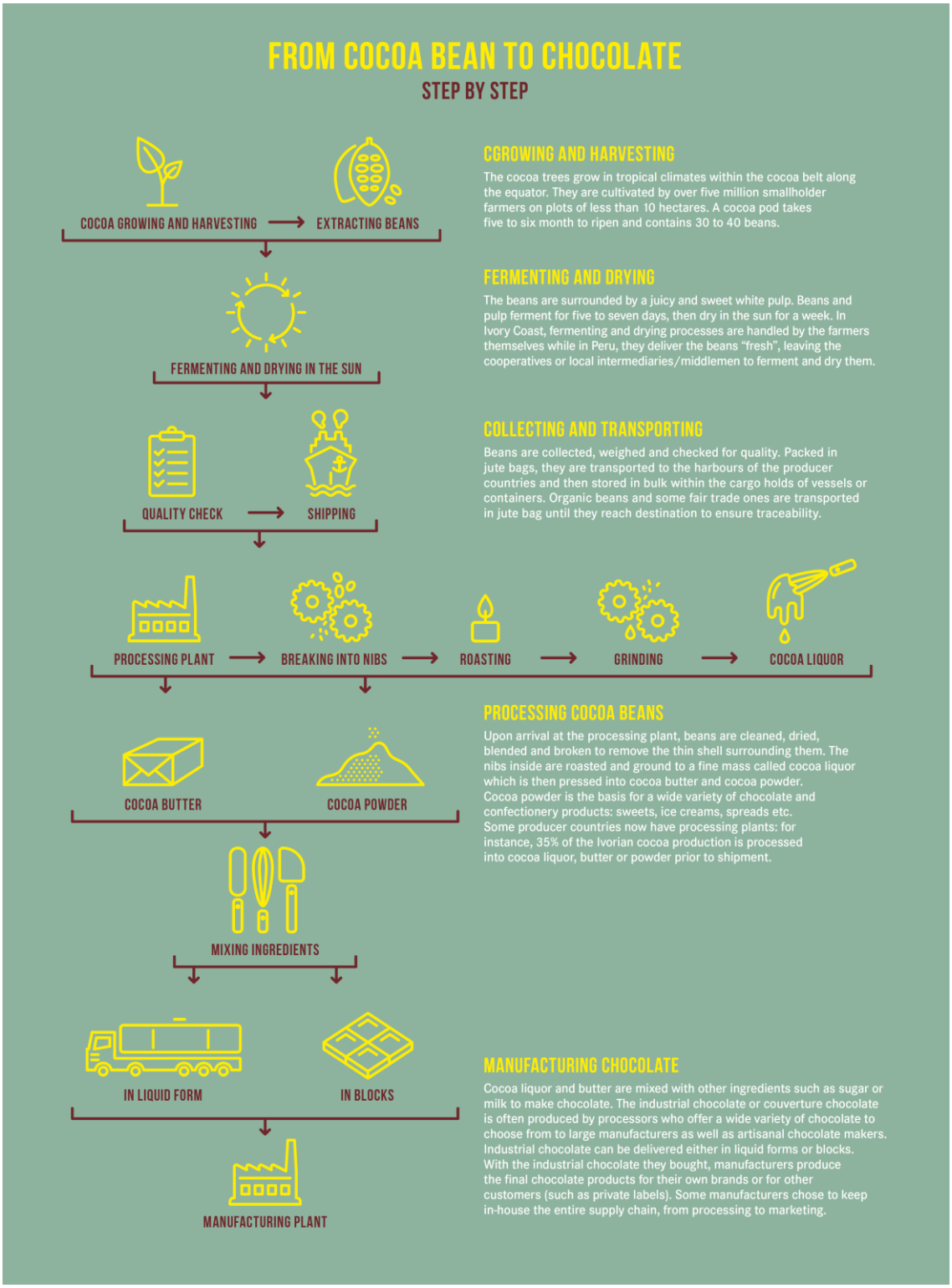


Figure 16. Production, cocoa transformation and chocolate manufacturing stages.
Source: BASIC

2.2 Structuration and mutation of the cocoa-chocolate conventional chain

The structuration of the cocoa-chocolate chain is a "bipolar value chain", which means it is governed by both grinders and manufacturers. It is the result of a slow merger and acquisition process that happened throughout the 20th century. The two concentration phenomena which led to this bipolarisation were made possible by the constant growth of consumption of chocolate, the commoditisation and the liberalisation of the international cocoa bean market.

2.2.1 Standardisation and commoditisation of the cocoa bean

Since the beginning of the 20th century, and until the 1980s, the cocoa-chocolate chain is primarily structured as shown below:

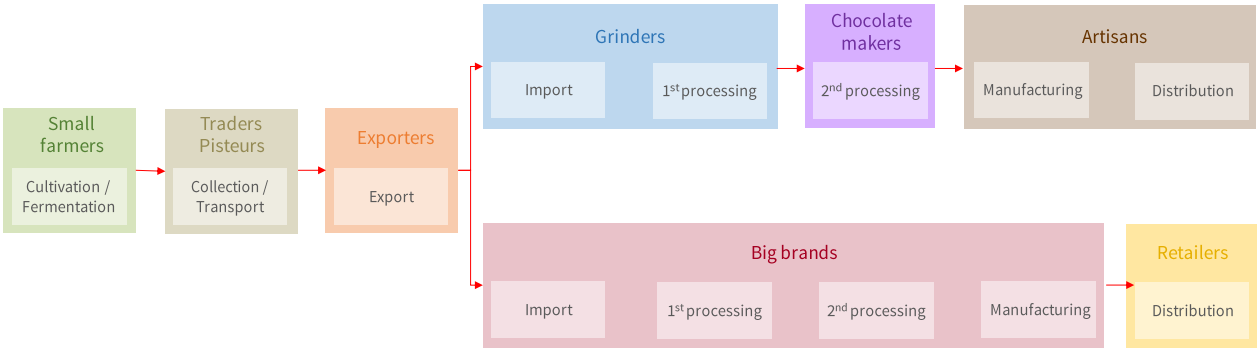


Figure 17. Global structure of the cocoa value chain 1900s-1980s
Source: BASIC

The cocoa chain is typical of colonial raw materials, historically produced by a great number of farmers in tropical countries, and whose purpose is to be processed and consumed in the former colonial powers.

Most of the global cocoa production comes from family-sized farms, whose number is estimated at above 5 million. These farms are generally small in surface, between 2 and 10 hectares[45]. Bigger cocoa plantations, historically set in South America (Ecuador, Brazil…) and recently in Asia (Malaysia, Indonesia) are in minority and are progressively losing importance, representing less than 10% of world production[46]. The main factor explaining the lack of success of larger plantations is the impossibility of mechanizing the production due to very dense tree plantations, as well as the large need for manpower to maintain agricultural yields[47]. No matter which producing country, most producer sell their cocoa beans to intermediates (brokers, negotiators…) who bring it to exporters to be transported to Europe and the United States.

Upon arrival, they were two main pathways for processing and marketing until the 1980s:

- On the first hand, the major brands (Cadbury, Suchard, Nestlié, Lindt & Sprüngli…), who organize operations from bean grinding until the production of chocolate and final products, their packaging and retailing into mass distribution channels which were increasingly dominated by supermarkets throughout the 20th century.
- On the second hand, traditional manufacturing channels (mainly in France, Belgium, Switzerland and to a lesser extent, the United States), in which beans are first processed by independent grinders before being integrated into chocolate products by industrial chocolate manufacturers, who then sell to chocolatiers which, in turn, make and sell refined and personalised chocolates.

[45] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.
[46] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.
[47] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.

The big brands were the first to concentrate throughout the 20th century. The two main chocolate brands of the 19th century: Cadbury and Fry & Sons merged as early as 1919. On the mainland, the biggest Swiss chocolate-maker of the early 20th century, Peter-Cailler Kohler, was taken over by the Nestle company[48].

Fluctuations of supply and demand on the physical market are incentives for the major brands and the main exporters and brokers to create chocolate futures markets, to mitigate risks. The first cocoa exchange market was set-up in New York in 1925, in the wake of a boom and krach of cocoa prices, followed by the London cocoa exchange, in 1928[49].

In order to function, these exchange markets pushed for a standardisation of the cocoa bean, via the establishment of a series of norms which facilitate its purchase and resale on an international scale. The first standards defined a very narrow number of criteria, such as the country of origin. Methods of production or local specificities are not integrated in the norms: what matters in setting standards is to guarantee a supply of cocoa beans of constant quality and quantity, no matter the specifics or cocoa variety[50].

Setting standards allowed the industry to bring to a minimum transaction costs[51] and make beans *interchangeable*. As a result, the cocoa bean became a uniform commodity, whose international market value is, still today, defined on the futures markets on which it is traded.

As a corollary effect, speculation becomes possible on the cocoa market, with its inevitable – and lingering - volatility of international prices. To limit speculation, after ten years of negotiations, a first International Cocoa Agreement between producer and consumer countries is signed in 1972, under the patronage of the United Nations. It allowed quotas to producer countries, established buffer stocks to smooth out price variations and gave birth to the International Cocoa Organisation (ICCO) to carry out the negotiated clauses. Faced with the failure of ICCO in the early 1980s, the agreement was suspended as of 1988[52].

At the end of the 1980s, this failed attempt at regulating the international cocoa market came alongside a wave of dismantlement of cocoa stabilization funds in the main producing countries. This impetus was given by the International Monetary Fund's and the World Bank's liberalization doctrines. Only Ghana managed to maintain its cocoa stabilization board, through the quasi-monopoly of export, and granting licenses to private brokers[53].

This period triggered an increased volatility of cocoa bean prices which remains until today, making it a commodity just like many others[54].

[48] C. Araujo Bonjean & J. F. Brun, « Concentration and Price Transmission in the Cocoa-Chocolate Chain », in M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.
[49] Centre du Commerce International, *Cacao : Guide des pratiques commerciales*, 2001
[50] B. Daviron & I. Vagneron, « From Commoditisation to De-commoditisation… and Back Again: Discussing the Role of Sustainability Standards for Agricultural Products », *Development Policy Reviews,* 2011
[51] C. Shapiro & H. R. Varian, « The art of standards wars », *California Management Review,* 1999
[52] N. Harwish, *Histoire…* op. cit.
[53] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.
[54] For example, in 2010 the London-based investment fund Armajaro bought futures contracts worth 650-million-pound sterling, representing 7% of total world's cocoa production, which created a strong pressure on the stock exchange prices. The average monthly price of cocoa beans reached a record level in February 2011 with 3 471 US dollars per tonne, an increase of 118% compared to the average annual price of cocoa during the previous year.

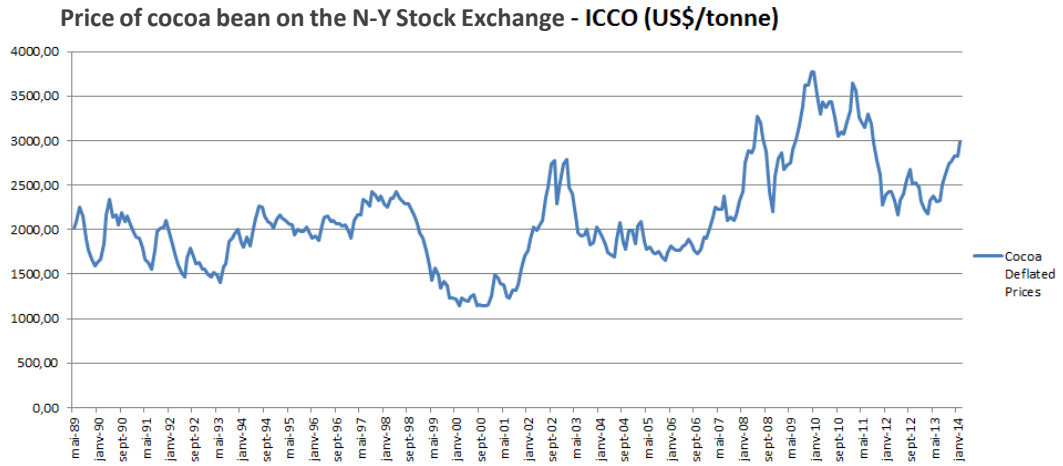


Figure 18. Price of the cocoa bean on the New York Stock Exchange.
Source: BASIC, based on data from ICCO (1989-2014)

2.2.2 *Emergence and strengthening of manufacturers of cocoa beans as key actors*

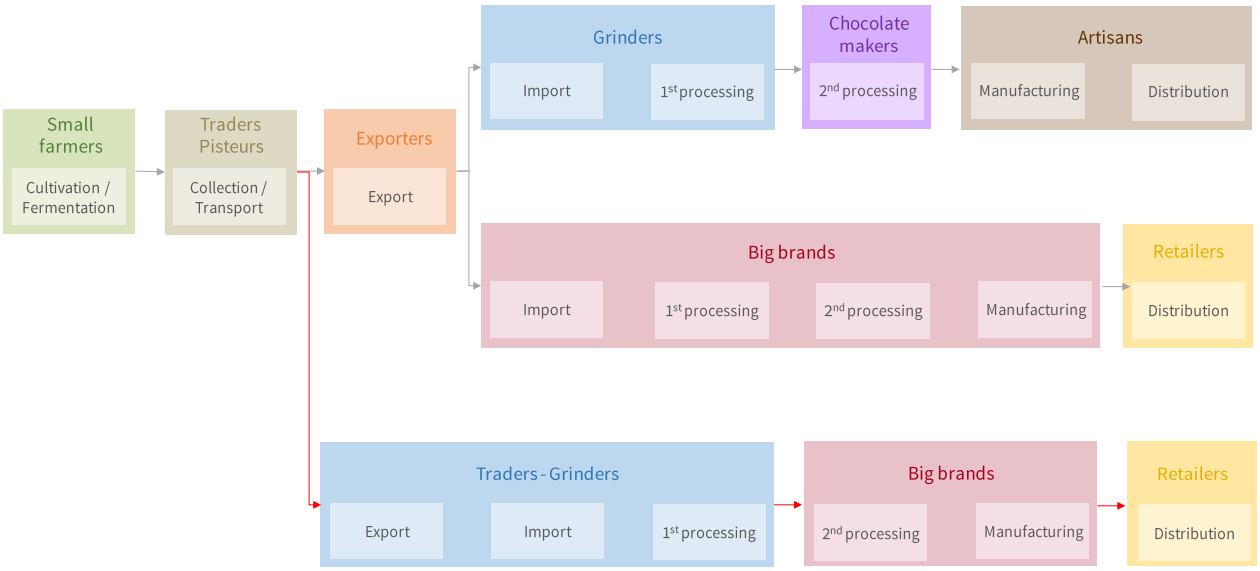


Figure 19. Global structure of the cocoa value chain since the entry of Cargill and ADM in the sector (1987-1997).
Source: BASIC

Commoditisation was the turning point, from which the cocoa bean entered the global market of raw materials. Two largely dominant actors decided to invest in cocoa in the early 1990s: Cargill, which entered the market in 1987, and Archers Daniels Midland (ADM), who did so in 1997[55].

The successive entries of Cargill and ADM in the cocoa-chocolate chain transformed the mid-chain equilibrium which was, until then, split between – on one side, a multitude of bean brokers, and – on the other, an already restricted number of chocolate-makers who had internalized the processing.

[55] M.P. Squicciarini & J. Swinnen, *The Economics...* op. cit.

Cargill and ADM invested not only in trading, but also in bean-grinding factories, encouraged by the major brands who were keen to externalize this unprofitable segment of their value chain (cf. above diagram)[56].

Coming from other commodities markets, Cargill and ADM progressively introduced new, more advanced technologies in the cocoa industry. Their economies of scale and their investments in research and development in other commodities allowed them to automate factories, which could work all year round[57]. Bulk transport, inspired by logistics of wheat is now applied to cocoa beans, and led to industry-management of increasing cocoa bean volumes[58]. The business model developed by Cargill and ADM is based on low output margins but massive output volumes which all come together through economies of scale.

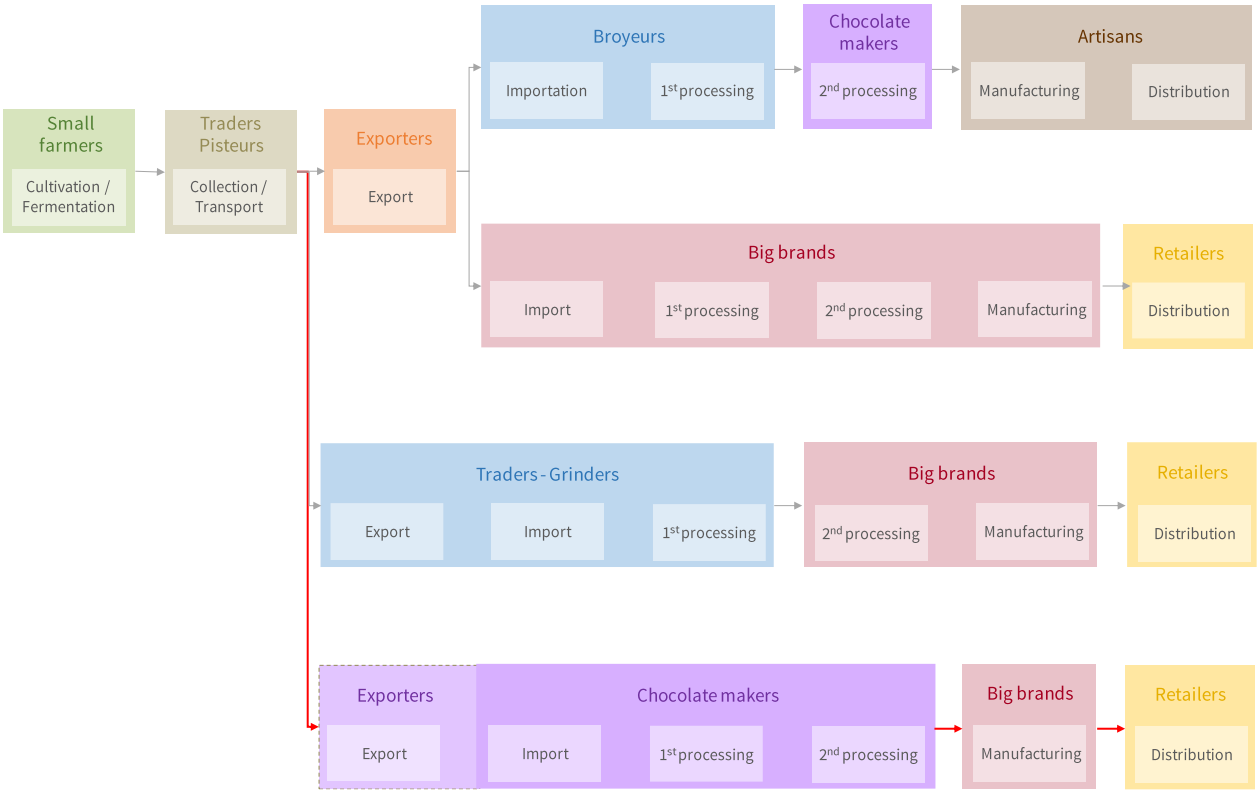


Figure 20. Global structure of the cocoa value chain since the creation of Barry Callebaut (1996-2005). Source: BASIC

To face such fierce competitors, two historical cocoa-bean processors, Cacao Barry and Callebaut merged in 1996[59] to become Barry Callebaut. In 2014, Barry Callebaut became the leader in the processing of cocoa beans, with over 25% of the market[60]. The three main actors: ADM, Barry Callebaut and Cargill make up for 60% of global cocoa bean processing[61].

These successive evolutions have side-lined the minor industry players. The number of pure brokers is decreasing in an inversely relation to the increasing volumes of trade and processing. These have reached such massive volumes that only the

[56] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.
[57] N. Fold, « Lead Firms and Competition in 'Bi-Polar' Commodity Chains: Grinders and Branders in the Global Cocoa-chocolate Industry », *Journal of Agrarian Change*, vol. 2 n°2, April 2002
[58] N. Fold, « Lead Firms and Competition…» op. cit.
[59] C. Araujo Bonjean & J. F. Brun, « Concentration and Price… » op. cit.
[60] Result from the acquisition of cocoa grinding activities of Petra Foods and its factories in South East Asia (Indonesia, Malaysia and Thailand).
[61] C. Araujo Bonjean & J. F. Brun, « Concentration and Price… » op. cit.

most capable and steady processors can take the risk to buy commodities on this scale[62]. One of the only international brokers still in the race is Amtrada Holding.

In the same way, warehouses are progressively disappearing. By introducing bulk transport, associated with *flat strorage*[63], instead of bags, transporters have made warehousing redundant. Labour costs have been divided by 5, as a 16 tonnes bulk carrier can be emptied in 24 hours, whereas the same volume in bags took 60 workers a week[64].

ADM, Barry Callebaut and Cargill haven't stopped at upheaving the upstream chain. Keeping with the logic of optimization, their European factories are getting increasingly close to chocolate manufacturers[65]. This geographical proximity allows them to supply chocolate-makers with liquid-based cocoa butter and cocoa paste[66], eliminating the intermediate stage of melting for chocolate-makers.

Barry Callebaut also supplies most smaller chocolate-makers and chocolatiers with what is called "industrial chocolate", or coverture chocolate (of which they possess over 1000 references). These industrial chocolates can be supplied in different forms, depending on their ultimate use. Barry Callebaut is, as of now, leader in this market, which represents almost 50% of its annual sales.

> *« From coverture chocolate, we are going to be able to deliver liquid chocolate straight from 25t tanker truck to another tanker truck. We can also produce small pellets, which can be melted with bags of 15, 20, 25… for use by chocolatiers or small manufacturers. We can also make blocks […], chocolate decorations, and chocolate shavings. In the end, it's the same raw material: chocolate, simply processed through different formats. Then there's always going to be someone to put chocolate into cereal, chocolate bars or candy… »*
>
> *Sustainable Development Manager in a cocoa grinding company*

The 1990s are also marked by an intense debate between European countries on the regulation applying to chocolate-based products sold to consumers.
On the one side continental European countries (France, Belgium, Holland, Germany) who have a strict definition which requires using cocoa butter and a minimum percentage of 35% of cocoa to be awarded designation as "chocolate".
On the other side, Northern European countries (the United Kingdom, Ireland, Denmark) and Central European countries, which have a much less demanding definition of what chocolate should and could be.
This resulted in a conflict to define the terms of what can be sold to consumers as "chocolate", and its free-movement in the European Union, with great consequence on world market (especially if substitutes to cocoa butter, such as palm oil, are authorized). A first compromise was finally found through the 1997 directive (5% of substitutes are authorized and a maximum rate of 20% milk in chocolate products) which was progressively enforced throughout the 2000s. Despite this, the debate is not fully settled, and endures beyond the 1997 agreement[67].

[62] N. Fold, « Lead Firms and Competition…» op. cit.
[63] Storage techniques in large piles of 10 to 12 meters.
[64] N. Fold, « Lead Firms and Competition…» op. cit.
[65] C. Araujo Bonjean & J. F. Brun, « Concentration and Price… » op. cit.
[66] C. L. Gilbert, « Value chain analysis and market power in commodity processing with application to the cocoa and coffee sectors », in FAO, *Commodity Market Review 2007-2008,* 2008
[67] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.

2.2.3 *Concentration of chocolate manufacturers and prominence of big brands in the consumption market*

Since the turn of 2000, the concentration movement between major brands continued: Kraft Foods - an agribusiness giant founded in 1909 in Chicago which had acquired Jacob Suchard in the 1990s - bought in 2009 the Cadbury group, the 3rd largest chocolate manufacturer. The new entity was renamed Mondelēz international in 2012[68].

Upstream, Barry Callebaut purchased the Petra Foods cocoa grinding operations in 2013, which increased its capacity by 60%. In response, there were growing rumours in late 2013 about Cargill's takeover of ADM's cocoa operations (which would have given birth to the largest cocoa grinder in the world), but negotiations eventually failed at the end of 2014[69].

As a result of this movement of mergers and acquisitions, two sourcing strategies are developed by chocolate manufacturers (see diagram below).

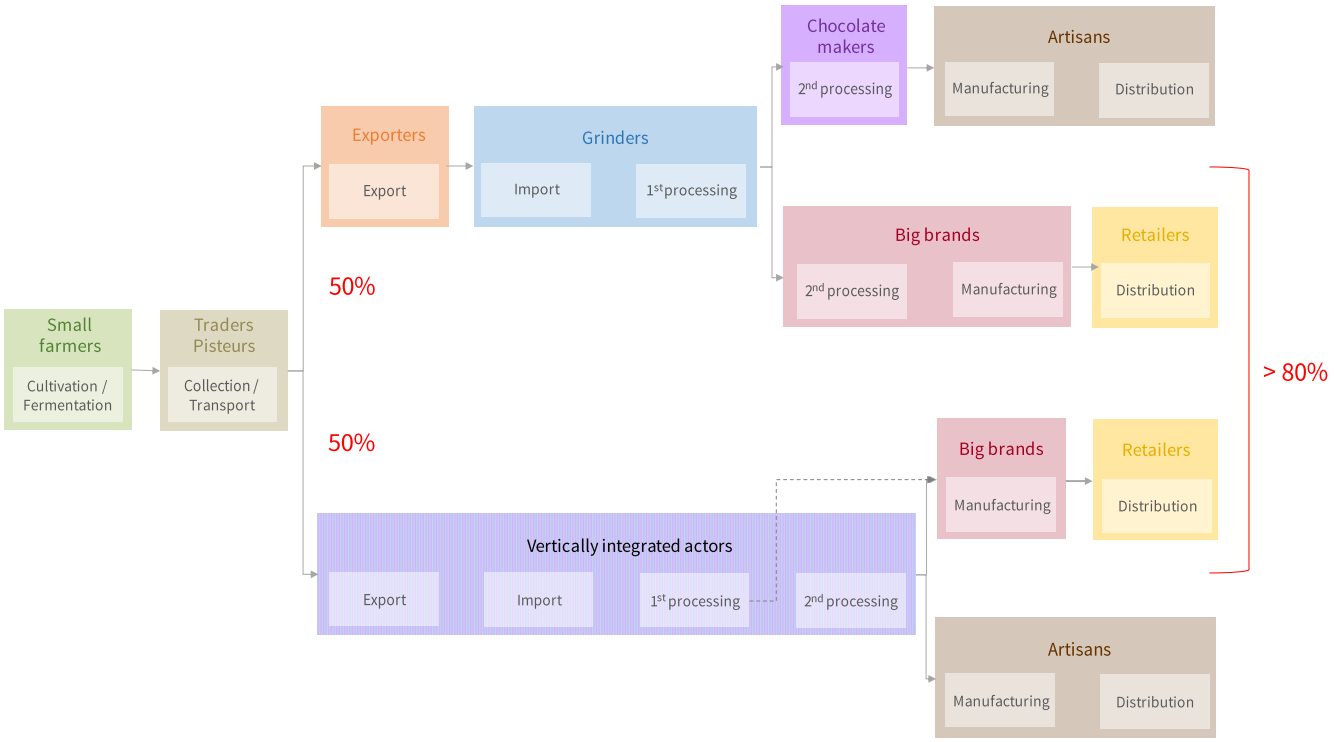


Figure 21. Current global structure of the cocoa value chain
Source: BASIC

The first strategy of chocolate brands is to disinvest completely from cocoa processing, and to refocus on products' research, development and advertising in order to be as reactive as possible to market innovations. Roughly 50% of world chocolate volumes are manufactured in such settings[70]. Nestlé and Kraft illustrate this first option. They are able to disengage partly from cocoa processing because chocolate manufacturing is not at the heart of their business model. Since their product range is very broad, their potential dependence on outsourced processors is somehow limited. And to further limit this dependence, manufacturers like Nestlé are careful not to depend on a single supplier, maintaining orders with smaller processors compared to Barry Callebaut and Cargill[71].

[68] M.P. Squicciarini & J. Swinnen, *The Economics...* op. cit.
[69] M.P. Squicciarini & J. Swinnen, *The Economics...* op. cit.
[70] N. Fold, « Lead Firms and Competition...» op. cit.
[71] N. Fold, « Lead Firms and Competition...» op. cit.

The second strategy developed by chocolate manufacturers is to maintain sufficient internal cocoa processing activities in order not to be dependent on external processors only. Almost half of world chocolate production is made under this setting. This is for example the strategy adopted by Ferrero and Lindt & Sprüngli.
In contrast with groups such as Nestlé, Ferrero and Lindt & Sprüngli are chocolate brands, thus having a strong interest in maintaining their production secrets and remaining the least dependent possible of upstream suppliers[72]. As a result, Ferrero as well as Lindt & Sprüngli have continued to invest in their cocoa grinding capacity throughout the 2000s.

Internationally, the result is a high business concentration in the different chocolate markets (see chart below):

- The consumer market for finished chocolate products,
- The market of industrial chocolate manufacturing,
- Finally, the cocoa grinding market

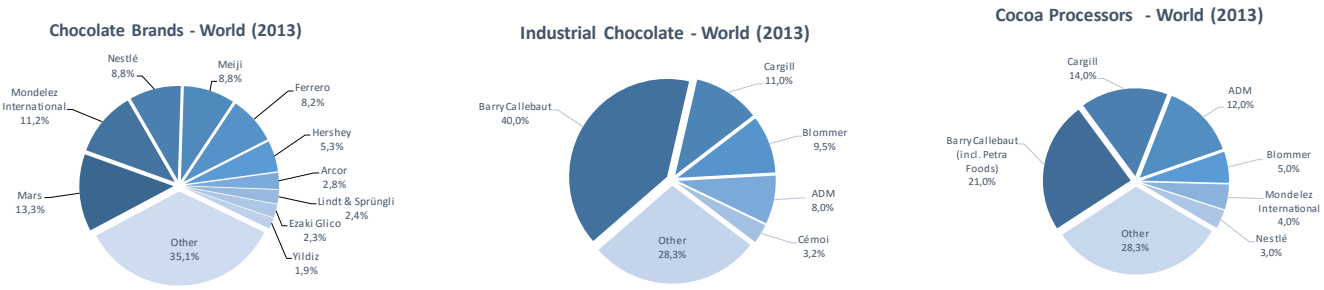


Figure 22. Respective market shares of major chocolate brands, chocolate manufacturers and cocoa grinders. Source: BASIC, based on information published by Barry Callebaut and Candy Industry (2014)

The structuring of the cocoa-chocolate value chain is more complex than it seems at first glance. If the public is more familiar with a large number of chocolate brand names, it is a highly concentrated and competitive market. Upstream, the names of the largest manufacturers of industrial chocolate and processors of cocoa beans are less known; they operate in an even more concentrated market, which can be explained historically by the technological innovations that have expelled smaller players from the market as volumes grew exponentially.

> *« Investing in chocolate is difficult: small-scale equipment does not exist, everything is designed for large operations [...] This has worsened the concentration trend: small processors closed in the 1970s in France and since then, manufacturers grew bigger and bigger. Today, Buhler, the main producer of chocolate processing equipment only sells for the mass market. »*
>
> *Representative of a fair trade chocolate brand*

This trend can also be explained by the nature of the cocoa processing sector, which sells a narrow range of products (mainly butter, paste and powder) which contrasts with the extreme diversity of products offered by chocolate brands to the final consumer market.

The cocoa-chocolate value chain can thus be described as "bi-polar"[73] because it is governed by both chocolate manufacturers and cocoa grinders. This structure can however be set to change. If actors now seem too big to be bought (although the case of Cadbury in 2010 proves otherwise), the structure of the chain can evolve as a result of further changes in consumer markets.

[72] N. Fold, « Lead Firms and Competition…» op. cit.
[73] N. Fold, « Lead Firms and Competition…» op. cit. ; M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.

For example, Asian markets mainly consume chocolate products and source cocoa powder, which favours players like Barry Callebaut, potentially opening new markets for its products.

2.2.4 Desynchronization between upstream & downstream activities reflecting the decline of the cocoa share in final products

One of the main consequences of this bi-polar structure of the cocoa-chocolate value chain is the desynchronization between upstream and downstream actors, which results in:

- Downward repercussions for producers in times of falling prices,
- Smaller and delayed upward transmission for producers in periods of price increase[74].

This desynchronization is best illustrated in the graph below which shows the de-correlation between prices of chocolate bars in France, the world price of cocoa beans and farm-gate cocoa prices in Ivory Coast.

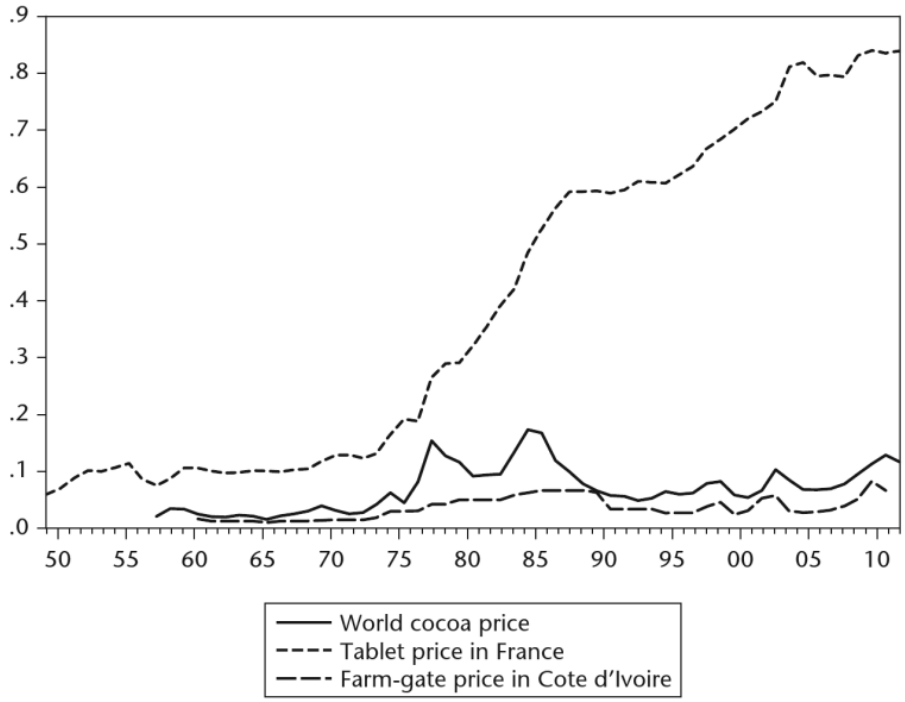


Figure 23. World cocoa price, "field price" and bars' sales price (in euro)
Source: C. Araujo-Bonjean et J. F. Brun, "Concentration and Price Transmission in the Cocoa-Chocolate Chain", The Economics of Chocolate, 2016.

This disarticulation between upstream and downstream is the result of the fragmentation of cocoa growers in a free market environment and a value chain which is dominated by an oligopoly of processors and manufacturers[75].

This phenomenon is amplified by the reduction of the cocoa content in final chocolate products. As seen previously, the chocolate consumer market is fragmented into a multitude of products in which cocoa is most often a minor ingredient, as a result of the competition between manufacturers. This wide range of consumer products has a cost, that of research and development, advertising etc. activities which now sit at the heart of the business model of large brands such as Nestlé or Mondelēz international. This has enabled these brands to increase their share of the final price of products, which reaches 30% to 50% depending on the category of products. As processing costs are considered incompressible because of the huge

[74] C. Araujo Bonjean et J. F. Brun, « Concentration and Price… » op. cit.
[75] Manchester University October 2011

economies of scale achieved by industrial chocolate manufacturers and cocoa grinders, the remaining share of value for producers is slim and decreasing.

Several studies estimate that the share of value earned by producers in a milk chocolate bar is 4%[76], all other ingredients accounting for 6% of the final price. The share captured by processors and manufacturers is 51%, on top of which 6.5% goes for advertising, 4.5% for shipping and logistics, and 28% for the distributor[77]. According to Oxfam the share accruing to cocoa growers varies from 3.5 to 6.5%[78].

2.3 Emergence of fair trade and sustainable cocoa value chains

2.3.1 Main impacts induced by conventional cocoa value chains

The Round Table for a Sustainable Cocoa Economy (RSCE) recognizes that: "Contrary to what was expected, the liberalization of the cocoa industry in the 1990s has not led to increased competition between the buyers of producers. Small cocoa farmers are at the root of a global value chain oriented in favour of buyers, in which power is highly concentrated among a few multinational companies[79].

The major problems of the cocoa value chain are economic unsustainability and lack of profitability for producers. Actual prices paid to producers are unstable and marked by a downward trend. In many West African countries, the standard of living of cocoa farming families commonly plunges below the poverty line, illustrating the economic non-viability of the sector. Because they live in marginalized rural areas, many farmers do not have access to basic infrastructure such as roads, electricity, drinking water, medical services, education and other essential services.

Due to poverty and lack of educational facilities, the children in cocoa producer families often find themselves working on the family farm. This is sometimes accompanied by the worst forms of child labour as defined by ILO Conventions[80].
In 2002, a study on Human rights in Côte d'Ivoire cited by the US State Department estimated that between 5000 and 10 000 children have been forcibly recruited to work full time or part time in cocoa plantations[81]. The study also found that nearly 109,000 children (70% of children working on family farms) were subject to unsafe working conditions, stating that this was one of the worst forms of child labour.

The Harkin-Engel Protocol initiated in 2001, commonly known as the Cocoa Protocol, aimed at eliminating the worst forms of child labour in the West African cocoa sector. The central part of the protocol required chocolate companies to implement an independent and credible monitoring system in plantations and to work with certified suppliers in order to eradicate child labour. The initial deadline, July 2005, was not met nor extended.

In July 2008, the renegotiation of the protocol has led to new commitments.

The latest independent reports on the protocol openly question the relevance of the certification approach implemented by the cocoa industry. The International Labour Rights Forum (ILRF) which has closely followed the protocol's implementation clearly shows that the certification systems developed by the industry cannot assure consumers that they can eliminate child labour in supply chains, a result which is recognized by the industry itself[82].

[76] C. L. Gilbert, « Value chain analysis… » op. cit. ; S. Barrientos, « Beyond Fair Trade…» op. cit.
[77] S. Barrientos, « Beyond Fair Trade…» op. cit.
[78] J. Cappelle (IPIS), « Towards a Sustainable Cocoa Chain: Power and possibilities within the cocoa and chocolate sector », Oxfam, 2009
[79] RSCE, Report of the 2nd Roundtable for a Sustainable Cocoa Economy (RSCE2), 2010
[80] Child Labour Cocoa Coordinating Group, *Annual Report*, 2012
[81] E. J. Schrage & A. P. Ewing, « The Cocoa Industry and Child Labour », *Journal of Corporate Citizenship,* 2005
[82] International Labour Rights Forum (IRLF), *Report on the Harkin-Engel Cocoa Protocol*, 2009 ; Child Labour Cocoa Coordinating Group, *Annual Report*, 2012

Over the past two decades, big cocoa processors and chocolate manufacturers have faced an increasing number of lawsuits accusing them not to fight against child labour in the cocoa plantations which supplied them. Since 2005, Nestlé, Cargill and ADM are sued by three Malian former child slaves, accusing them of helping or even encourage child trafficking to Ivorian cocoa plantations. More recently, Nestlé, Mars and Hershey were all three sued in a class action lawsuit alleging child labour in their supply chains, in particular regarding specific hazardous tasks such as handling machetes and chemical inputs[83].

> *« Consumers are now aware of certification labels on their chocolate bars. They hope these certifications meet their requirements and address their concerns about the living and working conditions of producers. »*
>
> *Head of sustainable development in a leading world cocoa processor*

The lawsuits denouncing the complacency of the large chocolate industry players regarding forced child labour were supplemented by charges regarding deforestation and water pollution due to heavy use of chemical inputs. The media coverage of these cases has led to changes in public opinion, increasingly sensitive to issues of human rights and respect for the environment.

Indeed, the growth of the world cocoa production is mainly achieved through the expansion of cultivated areas at the expense of the rainforest, because this is one of the only ways for producers to enjoy significant returns with less labour in the first years. This underlying trend creates a major threat to the sustainability of the cocoa sector in the mid-term. For example, there is less than 20% remaining of the original forest resource in Ivory Coast[84], the world's number one cocoa producing country which used most of this resource to develop cash crops, the first of which being cocoa. This global phenomenon of deforestation related to cocoa is aggravated by its impacts on the climate, which in turn negatively affects the production yields[85].

[83] O. Nieburg, « Mars, Nestlé and Hershey face fresh cocoa child labor class action lawsuits », Confectionery News, 30 septembre 2015

[84] Koné M., Y. L. Kouadio, D. F. R. Neuba, D. F. Malan & L. Coulibaly, « Évolution de la couverture forestière de la Côte d'Ivoire des années 1960 au début du 21ème siècle », *International Journal of Innovation and Applied Studies,* August 2014, vol. 7 n°2

[85] M.P. Squicciarini & J. Swinnen, *The Economics…* op. cit.

2.3.2 *Emergence of fair trade cocoa*

In the 1960s, the first movements questioning conventional food chain models and promoting alternatives started to appear. Among them the Fair Trade and Organic movements emerged in opposition to the conventional globalized food chains[86].

Facts & figures on organic cocoa

In 2013, 220 000 hectares of cocoa plantations were cultivated under organic farming, amounting to 2.3% of the total area of cocoa cultivation (9.9 million hectares worldwide). Latin America produces 90% of world organic cocoa; the top three producing countries are Dominican Republic (118 500 ha), Peru (21 000 ha) and Mexico (19 000 ha).

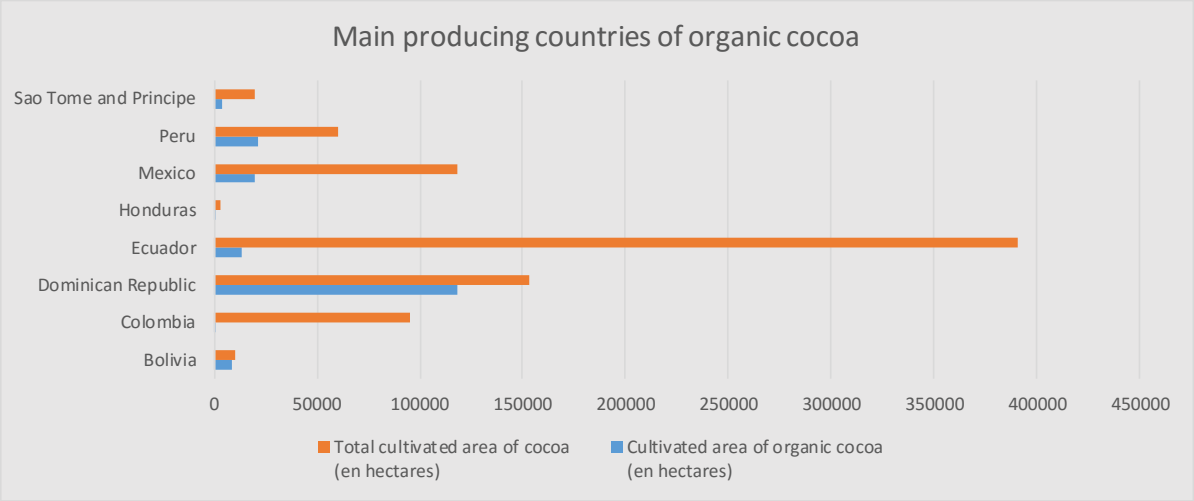


Figure 24. Cultivated area of organic cocoa in main producing countries.
Source: BASIC, based on FIBL & IFOAM, The World of Organic Agriculture. Statistics and Emerging Trends 2015, 2016

Fair Trade is based on commitments of business actors in agricultural chains which aim at enabling small farmers and workers to make a dignified living out of their work, and invest collectively in the long run. In doing so, Fair Trade has met the growing ethical expectations of consumers.

More specifically, its founding principles are:

- Through their democratic grass-root organisations, small farmers and workers acquire greater management skills and negotiation capability; they can assert their rights, get a better position in the chain, interact with other stakeholders and become recognised actors. They can also develop longer term strategies to secure sustainable livelihood for their communities and greater protection of the environment.
- A Fair Trade Minimum Price is set, acting as a safety net for producers; it offers an effective protection against price volatility. Based on detailed calculations of the costs of sustainable production, it has a stabilising effect, and sometimes a boosting effect, on small farmers' income. Combined with longer-term contracts and prefinancing, it enables small farmers to plan ahead.
- A Fair Trade Premium money is set, which is collectively decided by small farmers and workers, enabling them to develop income-generating activities (on the farm and off farm) and enhance their ability to save; this improves their standard of living and reduces their vulnerability to poverty. When invested into productivity, quality, collective infrastructure or additional certification, the Fair Trade Premium enables small farmers to achieve better prices on the market and to reduce their production costs, hence increasing their disposable income.

[86] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.

- Through awareness-raising and campaigning, the Fair Trade movement stimulates the ethical expectations of consumers, encouraging them to look for the origin of the products they purchase and to care for the social and environmental conditions under which they were produced. Its objective is to create a strong consumer demand for transparency in agricultural chains.

Since the beginning, the fair trade movement promotes a stronger connection between consumers and producers, promoting the work of the farmers and their products, differentiating them from the rest of the global standardized production[87].

At global level, Euromonitor International estimates that the sales of fair trade confectionery and chocolate products exceeded 300 million US dollars in 2009[88]. As the volumes of cocoa beans sold under fair trade conditions have tripled since then, consumer sales most likely did the same between 2009 and 2015. The United Kingdom alone accounts for almost 50% of the global fair trade chocolate market[89].

This increase in fair trade cocoa sales can be mostly explained by the certification of mass consumption chocolate products, for example:

- In 2009 and 2010, on the UK market, the 'Cadbury Dairy Milk' bar was entirely converted to Fairtrade certification followed by the Kit Kat bar[90] ;
- In 2012, Maltesers Mars candy were labelled Fairtrade on the UK market[91] ;
- In 2014, Mars committed to sourcing cocoa from Fairtrade certified cocoa farms for all of its Mars Bars on the United Kingdom and Ireland markets[92].

The chart below shows the volumes of Fairtrade certified cocoa production and cocoa sales in main producing countries:

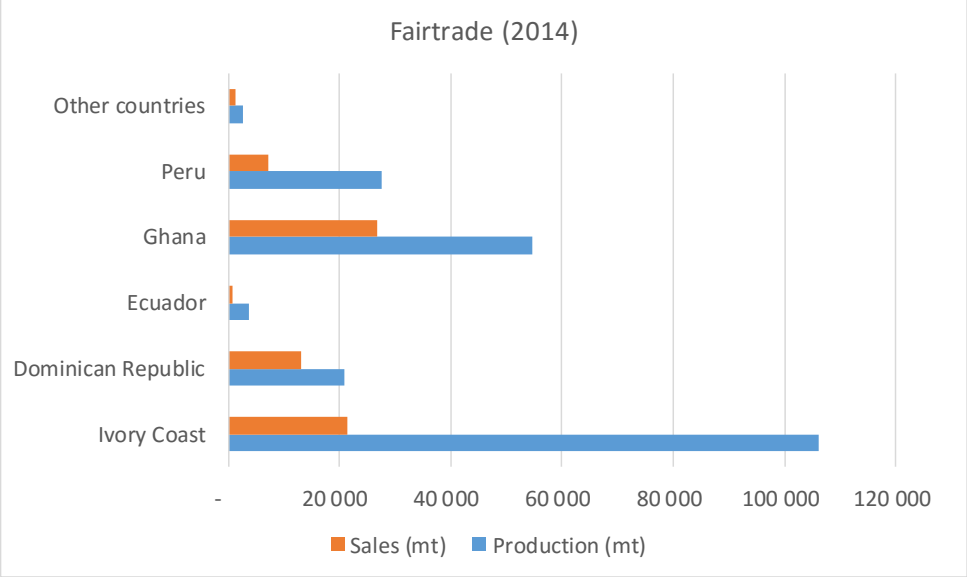


Figure 25. Volumes of Fairtrade certified cocoa production and sales in main producing countries in 2014. Source: BASIC, based on Fairtrade International, Monitoring the Scope and Benefits of Fairtrade, 2015.

In France, the market for fair trade chocolate bars (the main segment of fair trade chocolate products in the country) can be estimated at roughly 25 million euros in 2015, representing about 1% of the total French chocolate bars market.

[87] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.
[88] Agritrade, « Secteur du cacao », *Note de synthèse,* juillet 2011
[89] Agritrade, « Secteur… », op. cit.
[90] Fairtrade International, *Annual Report 2009-2010*, 2010
[91] Fairtrade Foundation, *Annual Impact Report 2013-2014*, 2014
[92] Fairtrade International, *Annual Report 2014-2015*, 2015

It is singled out by the high proportion of organic products, which represent 90% of all fair trade chocolate bars (whereas globally, only 15% of the cocoa sold under fair trade conditions is also certified organic).

2.3.3 Sustainable certifications supported by the industry

In reaction to the raising awareness of consumers on the negative impacts of agriculture, agri-food companies have developed internal standards to improve their business practices but also those of their suppliers. In the UK, Tesco has introduced its *Nature's Choice* standards with environmental, social and health requirements that their suppliers of fresh products have to meet. In the chocolate sector, Nestlé developed its *Corporate Business Principles* in 1998 while Kraft published its *Code of Conduct* in 2003[93].

More recently, other initiatives led by major companies have emerged in the cocoa sector: Mondelēz international launched its *Cocoa Life Sustainability Program*, Barry Callebaut initiated *Cocoa Horizons*, Nestlé launched the *Nestlé Cocoa Plan,* etc. These programs are primarily focused on improving cocoa production, in a context of widespread fear for mid-term supply[94]. Financing new cocoa plants or training producers on improved agricultural practices, as Nestlé and Cargill do in the Ivory Coast, aim at increasing the productivity and profitability of cocoa plantations. The underlying argument is that these increases will allow producers to earn a better living by producing more cocoa volumes.

> *« The fear of the industry is the shortage of cocoa. The processors have a tendency to move down the chain in order to better control the sourcing, to be as close as possible to producers and cooperatives in order to ensure their supply of cocoa [...] That said, getting closer to production implies not only taking care of buying and selling, but also addressing critical issues in cocoa cultivation such as child labour. »*
>
> *Head of sustainable development in a leading world cocoa processor*

In addition to these initiatives conducted by major companies in the cocoa sector, several sustainable certifications led by NGOs such as UTZ and Rainforest Alliance developed throughout the 1990s, and now compete directly with fair trade certifications like Fairtrade International[95]. These sustainable certifications are of great interest for companies: by adopting such third-party systems for their products, companies are gaining legitimacy in the eyes of their customers while outsourcing risks and investing in new remunerative niche markets[96]. The use of multiple certifications, sustainable as well as fair trade, not only allows companies to generate consensus on their commitment to help improve the social, economic and environmental conditions of their supply, but also enable them to have access to several suppliers potentially interchangeable[97].

Sustainable certifications help find answers to two major issues of the cocoa industry: rebuilding an image of respectability among consumers while continuing to provide mass volumes without interruption. A key recent illustration is Mars' commitment to 100% sustainable cocoa supply in 2020, in particular through their partnership with Rainforest Alliance.

[93] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.
[94] C. Mouzon, « Commerce équitable : améliorer la qualité et s'orienter vers le bio », *Alternatives économiques* n°335, mai 2014
[95] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.
[96] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.
[97] B. Daviron et I. Vagneron, « From Commoditisation to De-commoditisation… » op. cit.

The charts below show the volumes of cocoa production and cocoa sales from sustainable certifications Rainforest Alliance and UTZ Certified:

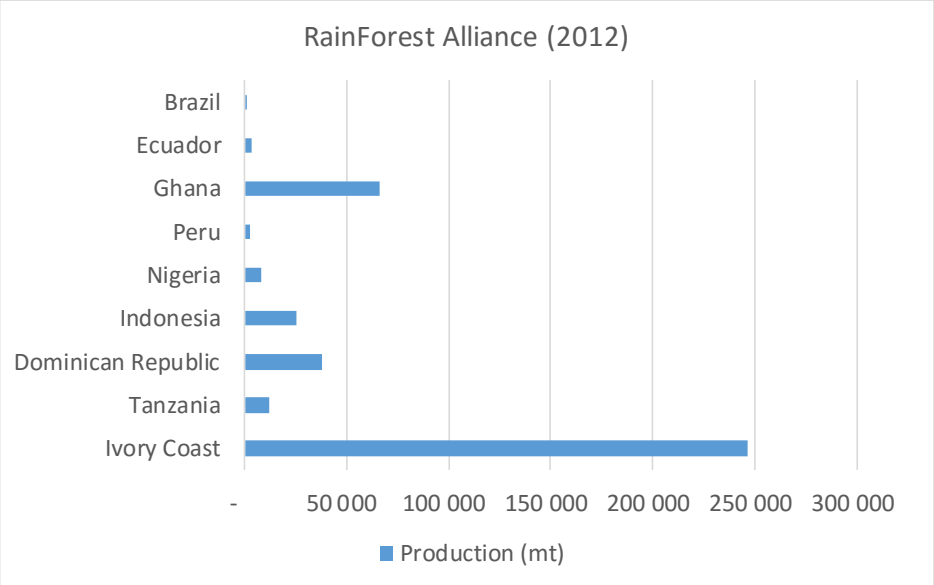


Figure 26. Volumes of Rainforest Alliance cocoa production and sales in main producing countries in 2014. Source: BASIC, based on J. Potts et al., The State of Sustainability Initiatives Review 2014, IISD et IIED, 2014

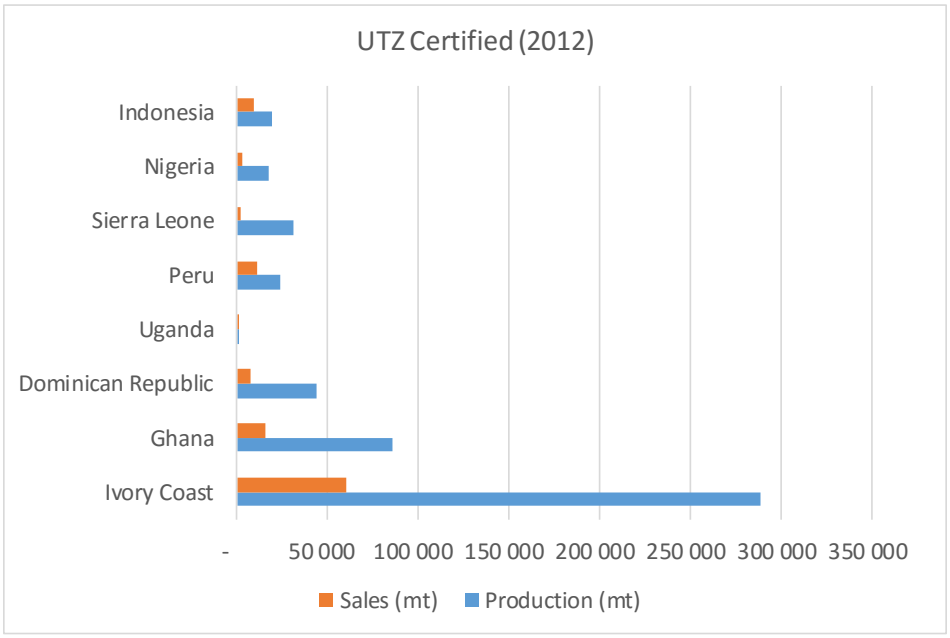


Figure 27. Volumes of UTZ certified cocoa production and sales in main producing countries in 2014. Source: BASIC, based on J. Potts et al., The State of Sustainability Initiatives Review 2014, IISD et IIED, 2014

In France, the market for certified chocolate bars - UTZ Certified and RainForest Alliance - can be estimated at roughly 20 million euros in 2015, slightly less than the fair trade market.

3. Ivory Coast, the leading cocoa producer worldwide

3.1 The history of cocoa in Ivory Coast

The specialisation of Ivory Coast in export crops, especially in coffee and cocoa, is the result of successive political and economic decisions taken by the colonial regime and the governments after the independence.

Cocoa arrived in the South-Eastern region of Ivory Coast at the end of the 19th century, supposedly brought by small Ivorian farmers from Ghana where it was introduced by workers from Sao Tome cocoa farms. The colonial metropole encouraged the production of coffee and cocoa in this border region in order to curb the British presence. But the cocoa production struggled to take off against the market leading Ghanaian colony under British empire yoke[98]. France ambitioned to catch up with its British rival and decided to bring workforce from Upper Volta, develop the road network and favour the development of small farms.

Following the independence in 1960, the Houphouët-Boigny's regime structured the Ivorian economy around export agriculture, especially coffee and cocoa[99]. The structuration shaped the economic and social context[100], in which the Ivoirians and the Burkinabe migrants are encouraged to conquer the forest and develop agricultural pioneer fronts[101]. It then initiated a wide internal movement of colonisation towards the South Western forest land.

To support this development, a Cocoa Stabilisation Fund (also known as "Caistab") was created with a purpose to guarantee a set minimum price to cocoa producers for the entire harvest and leave the internal and external commercialisation to private intermediaries (*pisteurs* and negotiators)[102].

In the early 1970s, Ivory Coast produced more than 300 000 tonnes of cocoa every year while in the meantime the Ghanaian economy was crashing due to political troubles and the fall of cocoa price[103]. In 1978, Ivory Coast became the first cocoa producer in the world[104] with more than 500 000 tons exported each year[105].

But the situation deteriorated during the 1980s. Lacking a diversified economy, Ivory Coast was extremely dependent to the liberalising world cocoa market[106]. Competition with new exporting countries was fierce, and intensified, especially with Indonesia. The Ivorian State then set as a public policy to pay twice the world cocoa price to the Ivorian producers[107] but the situation became untenable when the world cocoa price started to decline in 1985[108]. The Ivorian State tried to suspend external debt repayments and freeze the exports but it was not sufficient. Finally, in 1989, the government was forced to reduce nearly by half the price payed to producers, from 400 FCFA per kg to 250 FCFA per kg[109]. The economic recession led to political conflicts which undermined the political and economic system of Ivory Coast and gave rise to a period of profound political and social troubles[110].

[98] In 1919, Ivory Coast struggles to produce 10 000 tons of cocoa while Ghana produces almost 150 000 tons.
[99] B. Losch, « Coup de cacao en Côte d'Ivoire. Économie politique d'une crise structurelle », *Critique internationale* 2000/4 n°9
[100] B. Losch, « La Côte d'Ivoire en quête d'un nouveau projet national », *Politique africaine,* 2000/2 n°78
[101] M. A. Tano, « Crise cacaoyère et stratégies des producteurs de la sous-préfecture de Meadji au sud-ouest ivoirien », *Économies et finances,* Université Toulouse le Mirail – Toulouse II, 2012
[102] N. Harwish, *Histoire…*, op. cit.
[103] B. Losch, « La Côte d'Ivoire…», op. cit.
[104] Agritrade, « Les réformes du secteur du cacao de la Côte d'Ivoire 2011-2012 », *Rapport à la une,* décembre 2012
[105] M.P. Squicciarini & J. Swinnen, *The Economics…*, op. cit.
[106] B. Losch, « La Côte d'Ivoire…», op. cit.
[107] Moreover, the Cocoa Stabilisation Fund, created in 1962, does not achieve to fulfil its mandate to stabilise the international prices and fail to mitigate their sharp fall. The « Caistab » fails again when the prices of cocoa and coffee fall in the late 1980s (B. Losch, « La Côte d'Ivoire…», op. cit.).
[108] D. Cogneau et R. Jedwab, « Commodity Price Shocks and Childs Outcomes: The 1990 Cocoa Crisis in Côte d'Ivoire », *Economic Development and Cultural Change,* Université de Chicago, 2012
[109] D. Cogneau et R. Jedwab, « Commodity Price Shocks…», op. cit.
[110] B. Losch, « La Côte d'Ivoire… », op. cit.

The international funding partners and organisations intervened and imposed economic and final consolidation policies[111]. Liberalising the Ivorian agricultural sector, especially the cocoa sector, raised as a solution to foster transparency and efficiency within the marketing system and ensure better resources allocation[112]. The underlying idea was that liberalisation would enable the development of the rural regions where the poorest populations are located[113] as it removed the price ceiling to producer and enabled a potential price increase.

After the liquidation of the "Caistab" in 1999, the first two liberalised harvests took place in a very troubled political context[114], that continued throughout the 2000s, while at the same time world cocoa price endlessly declined.

3.2 Description and analysis of cocoa conventional chains, their impacts and their costs for the Ivorian society

3.2.1 A state-regulated cocoa sector

With liberalisation, the quality control of cocoa beans became the responsibility of the private firms and the international reputation of the Ivorian cocoa fell rapidly[115]. Known until then as a bean of regular quality but standardised[116], the Ivorian bean was not valued anymore: trackers (*pisteur* in French) were encouraged to optimise their collect and to start buying beans that have not been properly fermented and dried[117]. There was no more quality control at the level of the village[118] and quantity clearly prevailed on quality.

The situation became more and more difficult for the cocoa producers who feel the full brunt of the price fall of the Ivorian cocoa bean and the growing uncertainties of the world market fluctuations. Most of the producers finally sunk into poverty and vulnerability while Ivory Coast endured endless political crisis. Lacking alternatives, producers expanded their cocoa production to cope with poverty by deforesting[119].

Once peace was brought back to the country, Ouattara's government initiated in 2011 a reform of the cocoa sector. A central part of the reform is the implementation of a new State-regulated quality control system in response to the 2000s crisis. Following the "Quantity, quality, growth" programme set up in 2009, the reform[120] is based on the semi-liberalised Ghanaian model:

- A quality control system regulated by the State,
- A guaranteed minimum price to producers equivalent to 60% of the FOB price, set by the State before the harvest season,
- A maximum tax level equivalent to 22% of the FOB price,
- An institution in charge of promoting the Ivorian cocoa, the Coffee-Cocoa Council (*Conseil Café-Cacao* in French).

It was essential for the government to rebuild a cocoa sector that attracts foreign capital[121] as a third of the cocoa sold worldwide is produced in Ivory Coast and cocoa represents a third of the Ivorian exports, 22% of the country's GDP and 16,3% of its tax revenues[122].

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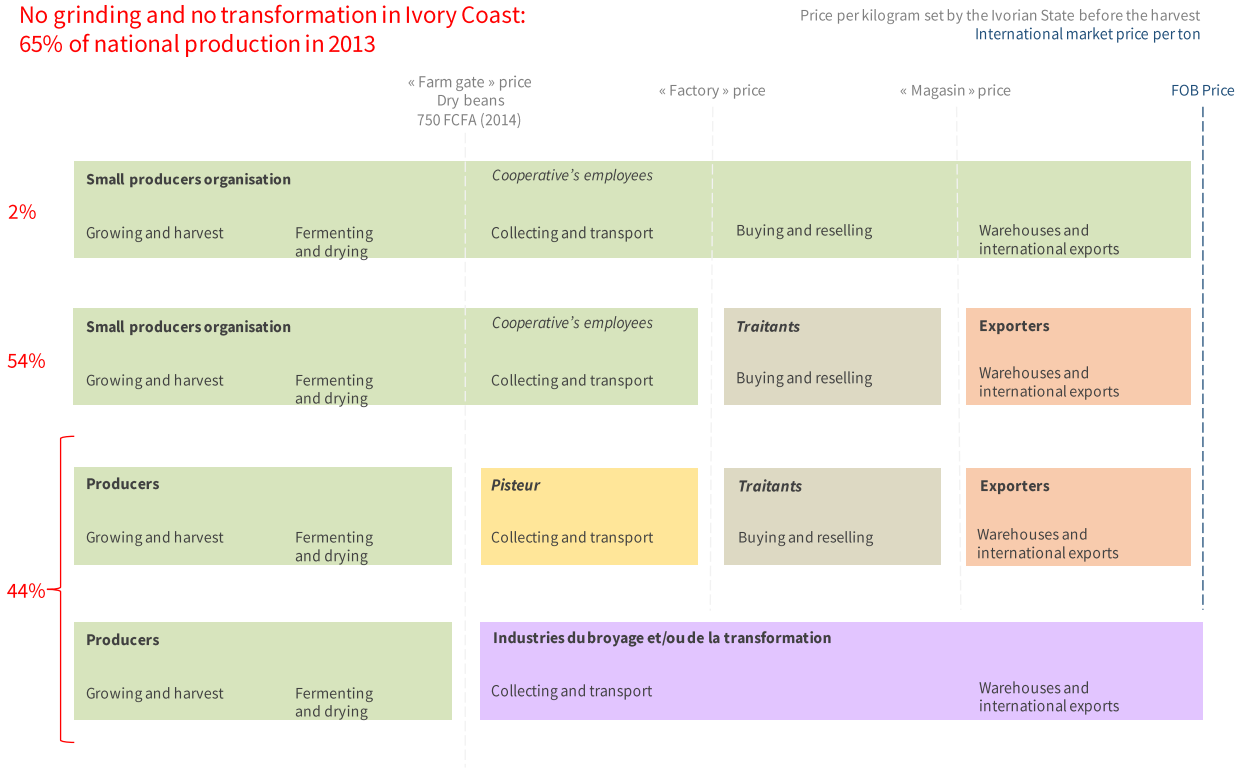
[111] B. Losch, « La Côte d'Ivoire… », op. cit.
[112] C. Araujo-Bonjean et G. Chambas, « Impact du mode d'organisation des filières agro-alimentaires sur la pauvreté : la filière cacao en Côte d'Ivoire », *Études et documents,* septembre 2001
[113] C. Araujo-Bonjean et G. Chambas, « Impact du mode d'organisation… », op. cit.
[114] Leading to the coup d'État of Christmas 1999. President Bédié is dismissed and replaced by General Gueï. The second liberalised harvest takes place during the legislative and presidential elections in 2000 and Laurent Gbagbo is elected (B. Losch, « La Côte d'Ivoire… », op. cit.).
[115] B. Losch, « La Côte d'Ivoire… », op. cit.
[116] B. Losch, « La Côte d'Ivoire… », op. cit.
[117] N. Fold et M. Nylandsted Larsen, « Globalization and Restructuring of African Commodity Flows », Nordiska Afrikainstitutet, UPPSALA 2008
[118] B. Losch, « La Côte d'Ivoire… », op. cit.
[119] F. Ruf et J.L. Agkpo, « Étude sur les revenus et les investissements des producteurs de café et de cacao en Côte d'Ivoire », mai 2008
[120] Banque Centrale des États de l'Afrique de l'Ouest (BCEAO), « Étude monographique sur la filière cacao dans l'UEMOA », juin 2014
[121] Syndicat du chocolat, *Communiqué de presse,* octobre 2015
[122] Banque Centrale des États de l'Afrique de l'Ouest (BCEAO), « Étude monographique… », op. cit.

Since its implementation, the reform seems to have borne its fruits: the price paid to producers nearly doubled in 4 years, rising from 657 FCFA / kg for the 2011/12 harvest to 1000 FCFA / kg for the 2014/15 harvest. In 2013, 14 buyers were prosecuted for not having respected the guaranteed minimum price to producers[123]. Quality also improved and now almost 80% of the Ivorian beans is graded Level 1 (*Grade 1* in French)[124].

However, the impact of the producer price is to be relativized. In 1989, the producers were paid about 1,2 USD per cocoa kg[125], about 2000 current FCFA[126]. In 1989, the producers then earned a price for cocoa beans twice as big as what producers earn today.

3.2.1 Organisation of the Ivorian cocoa chain

Up until now, the Ivorian cocoa-chocolate sector is organised as follows, with few differences between the beans export channels and processing before exports:



[123] Agritrade, « Cocoa sector », *Informed Analysis, Expert Opinions,* octobre 2013
[124] Interview with a cooperative manager, 12/08/2015
[125] C. Araujo-Bonjean and J. F. Brun, « Concentration and Price Transmission… », op. cit.
[126] Based on data from the World Bank with consumption price index in Ivory Coast: 42 in 1989 and 109,5 in 2014.

Figure 28. Organisation models of the cocoa chain in Ivory Coast.
Source: BASIC

3.2.1.1 Thousands of not organised producers

The cocoa farms are almost exclusively family farms, grown by small producers and their families[127] who own between 5 and 10 hectares. Since 1960, the chocolate industry favoured in Ivory Coast some agricultural practices, in particular the specialisation of farms in cocoa grown without shade[128]. Highly specialised, these small farms depend a lot on cocoa incomes even though producers always grow some subsistence crops (plantain banana, yam) or own a small shop in order to supplement the family income[129].

> *« Agroforestry slowly emerges but up until now, specialisation was the norm in cocoa growing. Not a strict monoculture as there are always mango trees, avocado trees, grapefruits… spread across the plantation. But always without any shade. »*
>
> *Researcher in Ivory Coast*

This specialisation is even more problematic as the yields of cocoa farms in Ivory Coast are among the lowest in the world: on average, the annual yield is 400 kg/ha[130].

[127] 10 persons on average in an Ivorian household
[128] P. Jagoret, O. Deheuvels et P. Bastide, « S'inspirer de l'agroforesterie », *Perspective,* mai 2014 n°27
[129] Interview with a cooperative manager, 12/08/2015
[130] A. A. Assiri, G. R. Yory, O. Deheuvels, B. I. Kebe, Z. J. Keli, A. Adiko et A. Assa, « Les caractéristiques agronomiques des verges de cacaoyer (*Theobroma cacao L.)* en Côte d'Ivoire », *Journal of Animal & Plant Sciences,* 20009, vol. 2 issue 1 ; J. P. Colin et F. Ruf, « Une économie de plantation en devenir. L'essor des contrats de planter-partager comme innovation institutionnelle dans les rapports entre les autochtones et étrangers en Côte d'Ivoire », *Revue Tiers Monde,* 2011/3 n°207

Most of these producers ferment and dry the cocoa beans before they are sold and delivered to their cooperative or sold to the *pisteurs.* Today, estimates show that cocoa in Ivory Coast is cultivated on 4 to 8 million hectares by roughly 800 000[131] cocoa farms and almost 8 million people throughout the country who depend on cocoa for their living.

The owners of agricultural farms are mostly men who traditionally do the agricultural work. However, women also contribute a lot to the work in the cocoa plantations along their other activities, in particular seedling raising and post-harvest works. The principal discrimination factor against women in the Ivorian cocoa sector is their limited access to cooperatives, as it is difficult for them to join as a member and even more, to become an elected representative[132].

3.2.1.2 A cooperative movement quite unclear

Almost 56% of the cocoa production in Ivory Coast is channelled through cooperatives. However, few of them have the accreditation to export[133] and their competences are limited to centralise purchasing and reselling to exporters or local grinding factories. No cooperative has developed until now grinding capacities in Ivory Coast.

Most of the cooperatives work on a 'stock and sale' basis, a system set in place during the peak of the harvest. To work properly, the system needs producers trusting sufficiently their cooperative to hand it over their cocoa beans and wait for the cooperative to have sufficient funds to pay them for the beans they harvested and sold.

The oldest cooperatives[134] currently compete with a new type of organisations[135] known as "*coopérative de pisteur*" (tracker's cooperative) or "*coopérative de traitant*" (intermediary's cooperative). These *pisteur* or *traitant* take advantage of the vagueness and flexibility of the Ivorian legislation concerning the cooperatives' creation to turn producers whom they work with into "fictive members of cooperatives", in order to receive the potential premium from the certifications' bodies[136]. Even though the nature of this relationship between cooperatives and producers cannot be qualified as contract farming, producers have less latitude in comparison with producers organised autonomously.

This evolution results in a weaker and more uncertain cooperative movement in Ivory Coast[137]. The big corruption scandals of the *Groupements à Vocation Coopérative* (community-based producer groups)[138] that took place in the 1980s have already undermined profoundly the trust of Ivorian producers in cooperative organisations. Today, there is a huge challenge to rebuild that trust in order to solidify the basis of the cooperative movement[139].

This challenge is even more significant as only large scale cooperatives seem to be financially viable (those selling more than 50 000 tons of cocoa sold each year) due to the small financial share they receive within the chain (88 CFA Francs per kg of cocoa bean as per the Ivorian legislation)[140]. A large number of cooperatives are thus obliged to grow fast to get profitable, in contradiction with the need for transparency and strengthening of members' participation.

3.2.1.3 Pisteurs and traitants: organised intermediaries within the chain

Beans are bought by the *pisteurs,* people who have a great local knowledge and know exactly where to go and when to buy cocoa beans. Since the Ouattara reform in 2011, the *pisteurs* are obliged to pay at least the minimum price set by the State (for the 2015/16 harvest, the guaranteed price is 1000 FCFA per kg), an obligation that seems in general properly followed[141].

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[131] Aidenvironment, NewForesight, IIED et IFC, « Cocoa in Côte d'Ivoire », 2015
[132] Oxfam Canada, « Gender inequality in cocoa farming in Ivory Coast », *Behind the Brands*, 2013
[133] Interview with a cooperative manager, 12/08/2015
[134] The oldest cooperatives were created in the late 1990s. The law regarding Ivoriane cooperative is from the 23rd of December 1997.
[135] Estimates show that 30 to 50% of cocoa producers are members of cooperatives (1400 in total) that sold 54% of the whole Ivorian production for the 2012-13 harvest (Aidenvironment, NewForesight, IIED et IFC, « Cocoa in Côte d'Ivoire », 2015).
[136] F. Ruf, Y. N'Dao et S. Lemeilleur, « Certification du cacao, stratégie à hauts risques », Inter-réseaux Développement rural, 2013
[137] F. Ruf, Y. N'Dao et S. Lemeilleur, « Certification du cacao… », op. cit.
[138] Implemented in 1977 at villages' scale.
[139] Interview with a cooperative manager, 12/08/2015
[140] Interview with a cooperative manager, 12/08/2015
[141] Interviews with a researcher from CIRAD, 12/21/2015 and 02/12/2016.

These *pisteurs* work for *traitants* who prefinance them before they leave to collect the cocoa beans.

Unstructured since liberalisation, the *traitants* and their networks of *pisteurs* have modernized their work since the late 2000s. As mentioned earlier, the Ivorian cocoa sector's destructuring in the 2000's worried very much the cocoa exporters and grinders, especially regarding quality and the regularity of supply. In order to mitigate this destructuring, the large grinders, such as Cargill and ADM, have tried to organise the *traitants* and their networks of *pisteurs*. Their main lever for action is the rapid funding of the *pisteurs* so they can pay in cash the cocoa producers upon delivery, even if this means to attract producers out of the cooperatives. This competition from the *pisteurs* weakens significantly the cooperatives which most often cannot pay upon delivery.

3.2.1.4 The cocoa traders

During the cocoa harvest of 2013, 65% of the national production was directly exported as beans. The major import countries were the Netherlands, Germany, Belgium and France. Few companies are exclusively specialised in exporting cocoa beans. The sector faces tough competition from the grinders that now manage their own negotiating activities: for instance, the Amtrada Holding BV group decided recently to withdraw from cocoa in Ivory Coast and sold its branch CIPEXI SA to the Swiss trader, Origins[142].

3.2.1.5 The importance of cocoa grinders

Apart from the 65% exported as beans, 35% of the national cocoa production goes through grinding factories based in Ivory Coast.

As described earlier, the growing influence of grinders upon the international cocoa value chain is also true in the Ivorian cocoa sector. The Ivorian cocoa market's is in the hands of a few transnationals and the concentration has been intensifying since the liberalisation: at the beginning of the 21st century, only 5 international industrials hold 90% of the cocoa grinding capacity in Ivory Coast[143] (see graphics below).

This concentration movement within the grinding sector in Ivory Coast was facilitated by the will of the Ivorian government to move up the value chain and to re-localize grinding in the country. The government's ambition is that 50% of the national production is grinded in Ivory Coast within a few years (against 35% today[144]).

In 2014, Barry Callebaut is in the lead with a grinding capacity amounting to nearly 200,000 tons, representing a bit less than 30% of the Ivorian grinding cocoa capacity. Cargill is in second position with 120,000 tons, around 18% of the market, while ADM and Olam's grinding capacities respectively amount to 86,000 and 70,000 tons of cocoa, 12,8% and 10,4% market share each[145]. Following the buying of ADM's cocoa grinding capacities during the autumn of 2015[146], Olam doubled its grinding capacity in Ivory Coast. Today, 65% of the Ivorian grinding capacity in Ivory Coast is controlled by only three companies (see graphics below).

[142] February 2016
[143] N. Fold et M. Nylandsted Larsen, « Globalization… », op. cit.
[144] Central Brank of Westeran African Countries (BCEAO), « Étude monographique… », op. cit.
[145] E. George, « The impact of reform on Côte d'Ivoire's cocoa grinding sector », *Ecobank,* présentation à Amsterdam le 12 juin 2014 à l'occasion de la *World Cocoa Conference*
[146] Jeune Afrique, « Olam finalise l'acquisition des activités cacao d'ADM », 19 octobre 2015

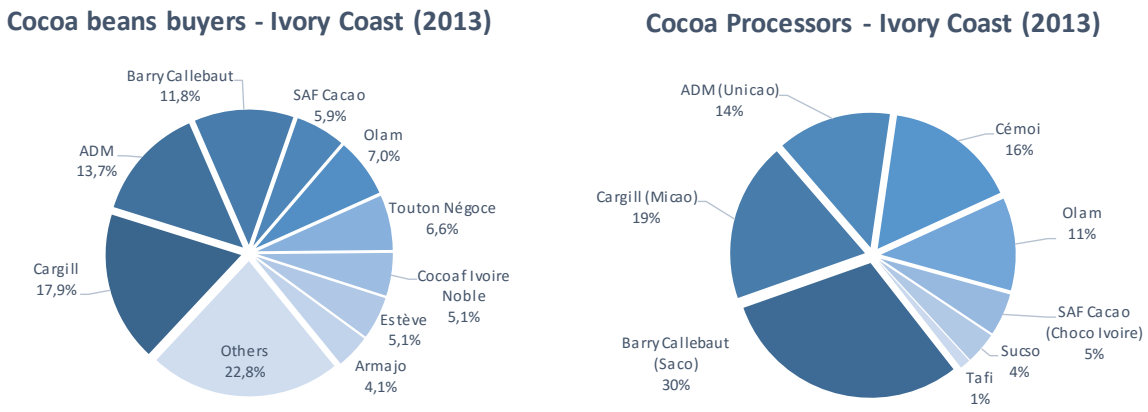

Figure 29. Major buyers and grinders of cocoa beans in Ivory Coast.
Source: BASIC, based on data from Ecobank and Jeune Afrique (2014)

3.2.1.6 No chocolate manufacturing plants in Ivory Coast except for Cémoi

Up until now, no major chocolate brand has invested in chocolate manufacturing in Ivory Coast. The African consumption markets are not perceived as interesting enough as there is no traditional consumption of chocolate, not even within the cocoa producing communities.

Cémoi is the only chocolate brand that opened a chocolate manufacturing plant in Ivory Coast, in Abidjan, producing cocoa powder and spreads (but not chocolate) to be sold on West African consumption markets[147]. With the opening of this new factory, Cémoi achieved in 2014 a grinding and manufacturing capacity of 100 000 tons a year amounting to 15% of the country's total capacity[148].

Cémoi is an exception in Ivory Coast not only for the opening of the very first chocolate manufacturing plant in the country, but also for the development of grinding factories that ferment and dry the cocoa beans instead of the farmers who thus receive a price for "green beans" (*fèves vertes* in French), calculated from the guaranteed minimum price to producer for dried cocoa beans[149].

[147] Jeune Afrique, « Côte d'Ivoire : le chocolatier Cémoi inaugure son usine d'Abidjan », 18 mai 2015
[148] E. George, « The impact of… », op. cit.
[149] Like for dried cocoa beans, the minimum price for green cocoa beans is set by the State before harvest's season: a green cocoa beans' kilogram is sold 600 FCFA against 1000 FCFA for a kilogram of dried cocoa beans (Interview with a cooperative manager, 12/08/2015)

3.2.2 Impacts and societal costs of conventional chains

Before State regulation

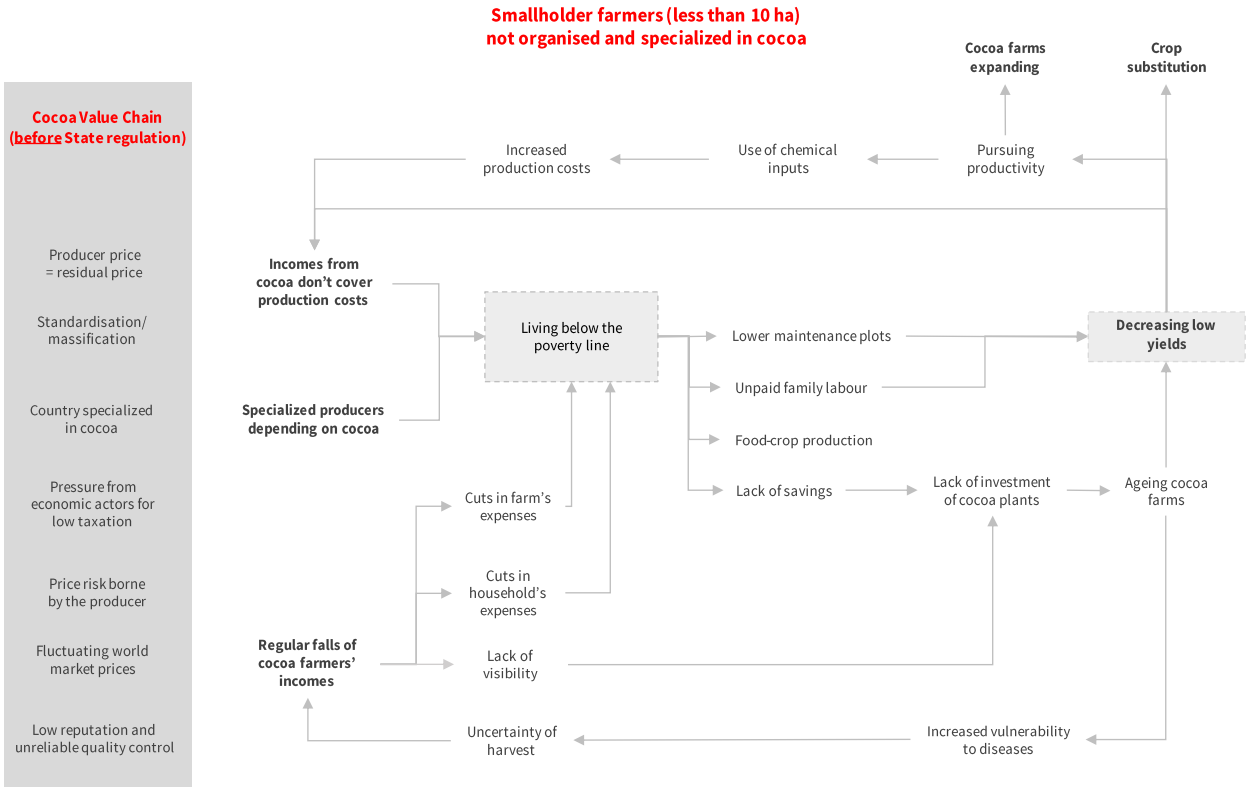

Figure 30. Impact pathways and loops in the conventional cocoa chain in Ivory Coast before State regulation. Source: BASIC

Up until 2011, the producers suffered from the continuous pressure on cocoa prices coming from the international companies located in the country. Without any guarantee on prices, the producers were completely vulnerable to price volatility, a precarious situation amplified by their dependence and high specialisation in cocoa.

After the regulation

The new Ivorian government decided to regulate again its cocoa sector and reintroduce a minimum price protecting cocoa producers. The Ouattara reform had important positive effects on the beans' quality - with roughly 80% of the beans now graded Level 1 - and on cocoa producers' incomes. Moreover, the guaranteed minimum price to producers increased from 657 FCFA / kg to 1000 FCFA / kg within 4 years.

As the world market prices have been quite high in recent years, the Ivorian government has been able to set a minimum price to producers at such level. For example, the ton of cocoa reached 3000 USD per tonne since January 2015 on London and New York stock exchange, which correspond to 1,750-1,800 FCFA per kg. The gap between the guaranteed minimum price paid to producer and the world cocoa price is big enough for the State to collect taxes on the cocoa chain (with a maximum of 22% as per the commitment of the Ivorian government) and for the industrials to maintain their profit margins. This guaranteed minimum price is so far compatible with the current market conditions. However, nobody knows what would be the consequences of a new structural decline of the world cocoa prices on the Ivorian regulation system.

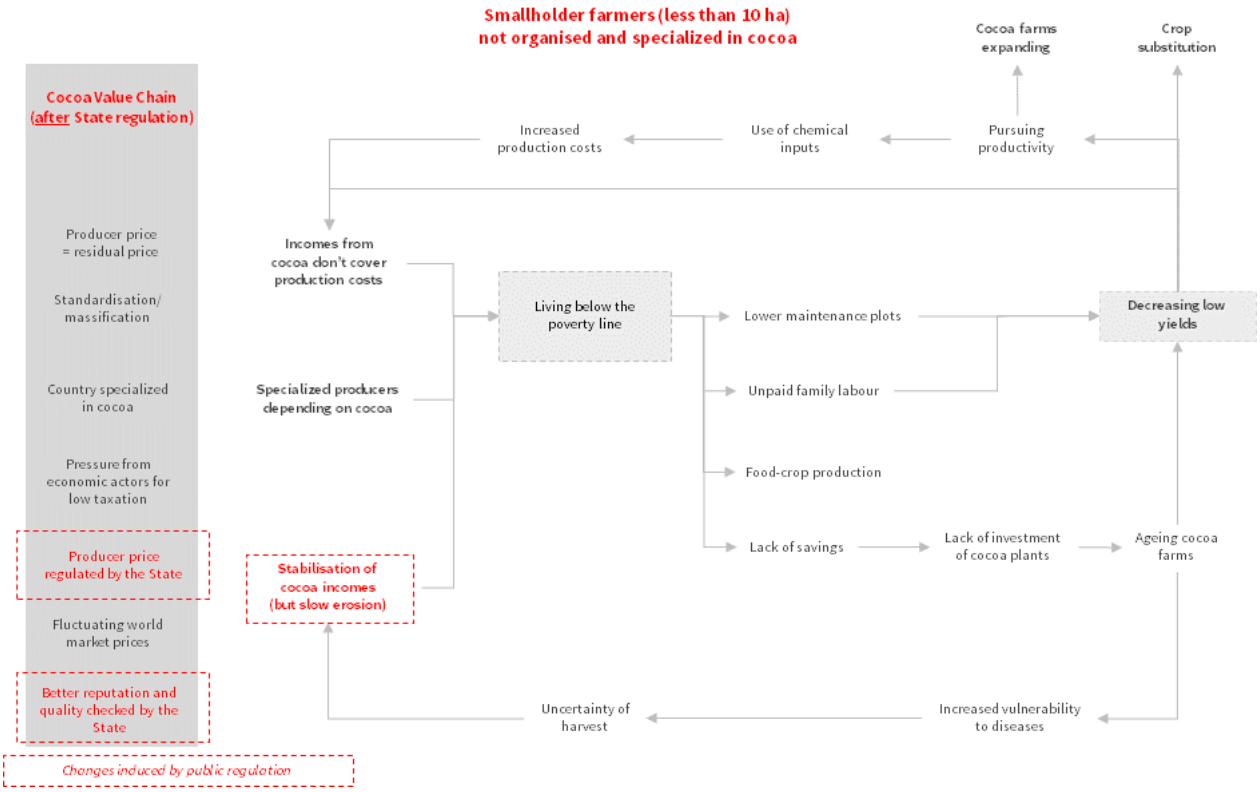

Figure 31. Impact pathways and loops in the conventional cocoa chain in Ivory Coast before State regulation in 2011. Source: BASIC

Moreover, the 1000 FCFA per kg received in 2015 by cocoa farmers is not sufficient for them to cover their costs of production and the basic needs of their families (see section on societal costs at the end of the chapter). The structural imbalance of the cocoa value chain and the non-remunerative cocoa price are amplified by the producers' dependence on cocoa for their income, and the quasi-monoculture in their farms.

The inherent imbalance within the Ivorian cocoa chain has not been resorbed yet. In 2014, Barry Callebaut, Cargill, Cémoi and Olam (including ADM) have channelled half of the national Ivorian production and 90% of cocoa beans' grinding in the country. Four transnationals thus dominate the final stage of the cocoa chain in Ivory Coast while the first stage is fragmented among 800,000 farms.

As a result, the cocoa producers live structurally below the poverty line, a precarious condition that leads to a vicious circle with negative economic, social and environmental consequences for the producers and their families. All these impacts question the viability of the Ivorian cocoa value chain.

3.2.2.1 The lack of saving capacity

The lack of saving capacity, due to the low incomes, inhibits investment in the cocoa farms[150]. Yet, in order to maintain profitability in a cocoa plantation, renewing plants is an indispensable investment: after 15 to 20 years, cocoa trees' yields naturally decline and the tree becomes more and more vulnerable to diseases[151]. This phenomenon is amplified by the

[150] Interview with a cooperative manager, 12/08/2015; A. Lipchitz et T. Pouch, « Les mutations des marchés mondiaux du café et du cacao », *Géoéconomie,* n°44 hiver 2007

[151] J. P. Colin & F. Ruf, « Une économie de plantation en devenir… », op. cit.

agricultural practices without shade that causes soil depletion. Finally, the epidemics in the cocoa plantations, for instance the swollen shoot epidemic in 2015[152], spread more easily.

This brings an inherent uncertainty to the harvest that adds instability to the low cocoa incomes. On the short term, cocoa producers do not have the financial capacity to invest in their plantations. On the medium-long term, the instability of cocoa incomes reinforces their choices not to invest in their farms.

In the end, the cocoa producers' children are not encouraged to take over the family cocoa farm. They choose either to swell the ranks of rural exodus or to cultivate other crops than cocoa. As a result, cashew has become one of the major cash crops within the former cocoa belt region in the South Eastern part of the country and palm oil trees took over the pioneer front in the West[153].

To attract younger generations to grow cocoa, Ivory Coast developed a new hybrid variety of cocoa called "Mercedes cocoa" (*cacao Mercedes* in French). This hybrid is called Mercedes cocoa because it produces cocoa pods and beans after 18 months only instead of 3 years for *forastero* cocoa, the most widespread cocoa variety in Ivory Coast[154]. It is now given for free to producers, in order to renew their plantations, by the Coffee-Cocoa Council and also by Nestlé. For example, the Nestlé Cocoa Plan aims at giving 12 million plants until 2020 (a million has already been given in 2014) in order to "contribute to the increase of cocoa farmers' incomes and to preserve the sustainability of the cocoa supply in Ivory Coast"[155].

3.2.2.2 The social impacts

The migration movements and the pressure on land

Several convergent factors allowed to maintain the cocoa farming in Ivory Coast despite the structural weakness of the guaranteed minimum price paid to producers. One of these factors is immigration.

Since the 1950s, migrants have come from the North of Ivory Coast and Mali to work in the cocoa plantations owned by the Agni population in the South-Eastern region of Ivory Coast. The Baoulé were the first to settle their plantations in the centre of the country during the 1960s and 1970s, then more to the West in the 1980s, encouraged by the government of Houphouët-Boigny, himself a Baoulé and a farmer before becoming president. The migrants from Burkina Faso and the North of Ivory Coast represented more than 50% of the workforce involved in the cocoa production in the 1980s[156].

The migrants' arrival generates a high pressure on land as there is neither cadastre nor rural lands management policies in Ivory Coast today[157]. This land deregulation, in the context of the poverty of the cocoa farmers, explains the illegal status of many cocoa farms, often planted on former forest lands, and the development of a 'grower-payer'[158] system (*système planteur-payeur* in French) which requires a much lower start-up capital: a number of variants of this system exist but the most common one is the *abusan* where part of the plantation is given to a worker who grow cocoa on this plot and pays the owner with a percentage of the beans sales produced (mostly a third of the sales revenues).

[152] A. Adélé, « Le Swollen Shoot consume à petit feu le cacao ivoirien », *Le Monde,* 29 avril 2015
[153] Interview with a cooperative manager, 12/08/2015
[154] J. Blas, « Ressources ivoiriennes en péril. Le cacao ne fait plus recette. », *Financial Times* dans *Courrier international*, 21 juillet 2010
[155] M. Frédéric Oura, representative of Research and Development Manager for Nestlé in Ivory Coast « Nestlé lance la distribution d'un million de plants de cacao aux producteurs de Côte d'Ivoire », 27 Juin 2014
[156] J. P. Colin & F. Ruf, « Une économie de plantation en devenir… », op. cit.
[157] A. Lipchitz & T. Pouch, « Les mutations… », op. cit.
[158] J. P. Colin & F. Ruf, « Une économie de plantation en devenir… », op. cit.

Child labour changes but still increases

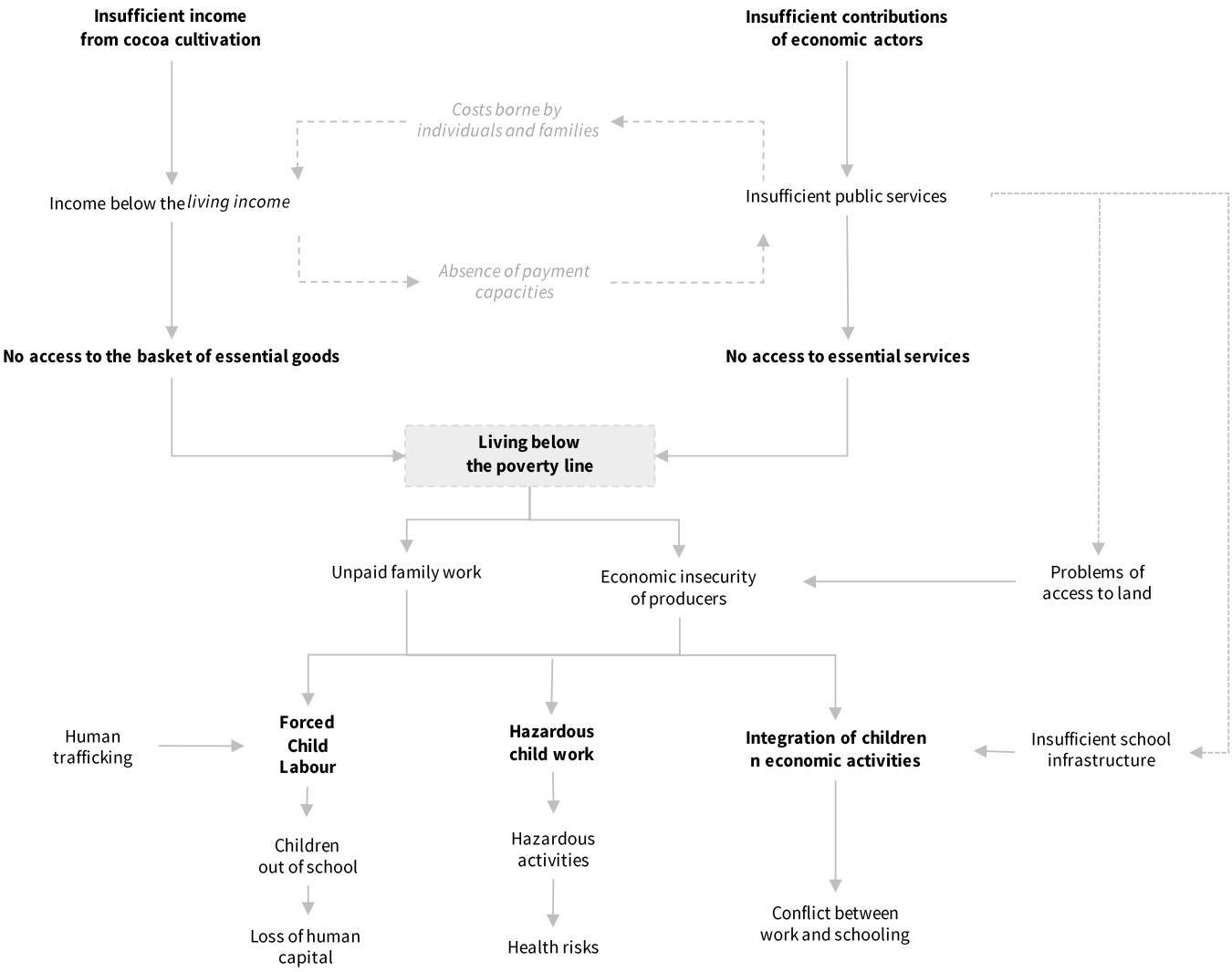

Figure 32. Impact pathways and loops on child labour issues in the Ivorian cocoa chain. Source: BASIC

In this context, poverty is the main cause, yet not the only one, of child labour. Three types of child labour are commonly described: the participation of children in economic activities, the hazardous work of children and the forced work of children[159]. Even if the minimum price paid to the producers and set by the State increased between 2011 and 2015 (from 657 FCFA / kg to 1000 FCFA / kg[160]), child labour also increased during the same period. Taking actions on incomes and poverty cannot be seen as the only solution to solve the child labour's problem.

It is considered that 1,3 million children work in cocoa production in 2013-2014, representing 35% of the 3,73 million children between 5 to 17 years of age living with their family in a cocoa production region[161]. In 2008-09, they were 820 000[162].

[159] D. Cogneau & R. Jedwab, « Commodity Price Shocks… », op. cit.
[160] Central Bank of West African Countries (BCEAO), « Étude monographique… », op. cit.
[161] *School of Public Health and Tropical Medicine,* « Survey Research on Child Labor in West African Cocoa Growing Areas 2013/14 », Université de Tulane, 30 juillet 2015
[162] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.

Faced with the incapacity to employ workforce and the necessity to provide for their basic needs, the producers rely on a free workforce: their families, and their children. If the use of child labour is not systematic, data show that more than 70% of the children in cocoa producing families participate in the works on the cocoa farm[163].

The participation of children in the economic tasks cannot be compared to child labour, especially its worst forms, as long as it is limited and does not prevent them from going to school. Data seem to indicate a steady increase in primary school enrolment for children also working on the cocoa plantations[164]. Where school infrastructures are non-existent, learning how to work on the plot is seen as the best possible alternative for the children[165].

The problem is to monitor the scope of the help provided by the children and its nature. Number of working hours per week is one of the distinctive feature of child labour. Based on this indicator, data show that child labour is still increasing: compared to 2008-2009, an additional 150,000 children between 5 and 17 years of age work more hours per week on the cocoa farms in 2013-2014[166]. Regarding hazardous works, such as using machetes or agro-chemicals, data show an increase of 39% during the same period[167].

Regarding the worst forms of child labour, forced labour and child slavery, the increase can partly be explained by the climate of violence, instability and total lack of control of human trafficking in the West African region during the 2010-11 conflict.

The recent increase of child labour seems to be related to a combination of factors such as structural poverty and economic insecurity of the cocoa producers, the lack of infrastructures, the social and political instability of the country. Child labour also has effects on their health on the long term, notably their physical development[168].

From a broader perspective, it is the human capital in Ivory Coast which is put at risk on the long term: school enrolment numbers, even if they improved regarding primary school, decrease sharply when children grow older. To this day, less than half of the boys aged between 15 to 17 working on the cocoa farms actually attend school[169].

[163] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.
[164] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.
[165] D. Cogneau & R. Jedwab, « Commodity Price Shocks… », op. cit.
[166] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.
[167] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.
[168] D. Cogneau & R. Jedwab, « Commodity Price Shocks… », op. cit.
[169] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.

Food insecurity, consequence of the plantations' specialisation in cocoa and the low incomes

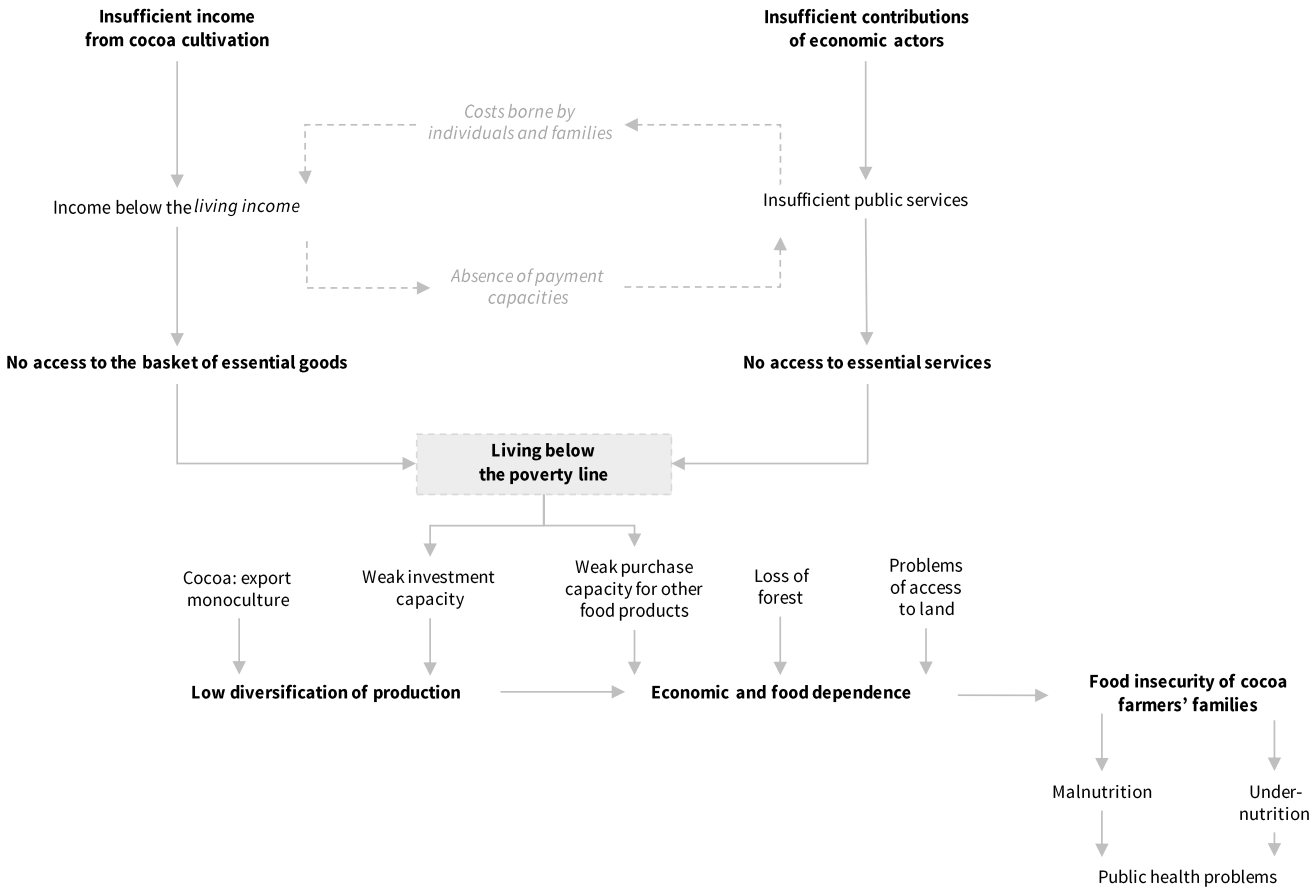

Figure 33. Impact pathways and loops on food insecurity issues in the Ivorian cocoa chain. Source: BASIC

Food insecurity is a key issue for cocoa producing families. As described earlier, the cocoa farms are often very specialised. During the first three years of cultivation, when the cocoa plants do not bear fruits yet, the small cocoa trees are protected by higher fruit trees grown to obtain a bit of income or to be consumed by the family directly. After these 3 first years, subsistence crops' production tends to diminish gradually over the years [170].

> *« Producers are specialised in cocoa as a cash crop sold on the market. Nevertheless, they cannot make a decent living out of cocoa cultivation […] Prices are too low. They cannot live exclusively with the cocoa incomes and go every day to the markets to buy rice or yams. So they always grow some subsistence crops. »*
>
> *Enrique Uribe Leitz, AgTraIn PhD Candidate at CIRAD*

Farmers invest most of their resources in cocoa, a crop that requires a lot of manual labour after several years when the forest rent wears out (see deforestation below). The nearly exclusive cocoa cultivation on farms with very few subsistence crops accentuate the food and economic dependence of cocoa producing families.

[170] F. Ruf, Y. N'Dao & S. Lemeilleur, « Certification du cacao… », op. cit.

The combination between unprofitable cocoa prices and instable subsistence crops generates food insecurity for the cocoa producing families. To this we can add high living costs, partly due to the indexation of the Franc CFA to the Euro, and the destruction of the forests which could serve as a provision for food.

3.2.2.3 *The environmental impacts*

Deforestation is closely linked to cocoa cultivation in Ivory Coast

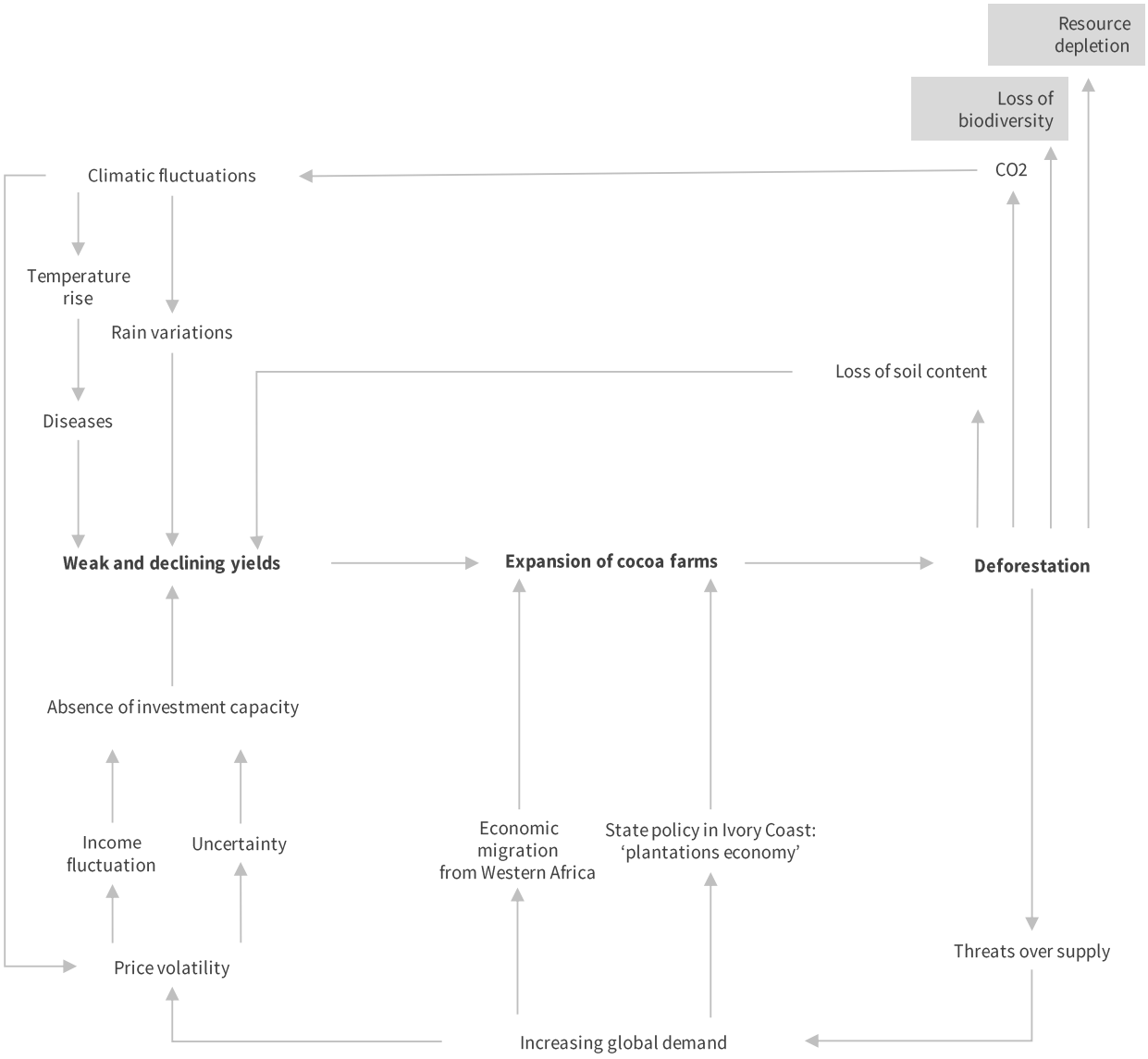

Figure 34. Impact pathways and loops on deforestation issues in the Ivorian cocoa chain. Source: BASIC

Cocoa in Ivory Coast is historically linked to a massive deforestation process. Clearing the forests in order to grow agricultural crops was encouraged by Houphouët-Boigny's regime with a clear goal in mind: economically optimise the luxuriant Ivorian forest. But the more a forest land is cleared, the less it is attractive. The migratory flows, always moving further West, developed endless cocoa pioneer fronts[171].

[171] M. Koné, Y. L. Kouadio, D. F. R. Neuba, D. F. Malan & L. Coulibaly, « Evolution de la couverture forestière de la Côte d'Ivoire des années 1960 au début du 21ème siècle », *International Journal of Innovation and Applied Studies,* august 2014, vol. 7 n°2

Additionally, the model promoted by the chocolate industry during the 1960s in cocoa producing countries can be defined as 'monoculture of selected varieties, vigorous, originated from hybrid seeds, on cleared forests' plots with no or very few shade trees and the intensive use of agrochemicals'[172].

The institutional and political context has from the start encouraged the producers to favour an extensive model that actively uses forest lands. In this context, there is an economic reason that explained – and still explains – deforestation. A recently deforested plot turned into a cocoa plantation benefits from a soil with high organic matter content which favours the growing of the cocoa tree under shade trees/plants (usually banana trees or yam for the first three years[173]). Once mature, the cocoa trees produce a lot, around 1,5 tonnes per hectare in the best years, with a low investment in workforce as the high organic matter content of the soil still has an important effect. But this effect tends to reduce over the years while the tree grows older. The cocoa plantation's returns slowly decrease while the cocoa trees require every year more workforce. This is unbearable for the farmers who cannot make a decent living out of the cocoa growing nor nourish their family. Instead of intensifying the work on the plantation, most of the farmers then decide to expand: they clear yet another forest plot in order to benefit once again, and for the 20 upcoming years, from a soil with a high organic matter content.

The logic underlying this extensive rather than intensive agricultural system can explain the massive deforestation documented in Ivory Coast, and the effects that can already be seen on the field.

> *« Ivory Coast is now almost completely deforested and some farmers are interested in learning more about agroforestry […] Up until now, very extensive models with low workforce were sufficient. Now, foresters come from all sides and cut every still-standing tree […] Keeping a tree on the cocoa plantation has become a real struggle. »*
>
> *Researcher in Ivory Coast*

The almost complete forest loss in several regions disrupts the local climatic conditions and accentuates phenomena of drought and rainfall variability[174] caused by climate change[175]. These phenomena also favour the spread of new diseases that threat the ageing plantations that are already less profitable.

The producers have reached an impasse: forest has almost completely disappeared in Ivory Coast and it is always more difficult to develop new cocoa plantations on former forest plots. What needs to be done is to rehabilitate former plantations that were abandoned, but it requires a very high workforce's investment from the start for very low yields during the first years[176].

[172] P. Jagoret, O. Deheuvels & P. Bastide, « S'inspirer… », op.
[173] J. P. Colin & F. Ruf, « Une économie de plantation en devenir… », op. cit. ; A. A. Assiri, G. R. Yory, O. Deheuvels, B. I. Kebe, Z. J. Keli, A. Adiko et A. Assa, « Les caractéristiques… », op. cit.
[174] T. Brou, « Variabilité climatique, déforestation et dynamique agrodémographique en Côte d'Ivoire », *Sécheresse,* 2010 ; F. Ruf, G. Schroth & K. Doffangui, « Climate change, cocoa migrations and deforestation in West Africa: what does the past tell us about the future? », *Sustainability Science,* vol. 10 n°1
[175] F. Ruf, G. Schroth & K. Doffangui, « Climate change… », op. cit.
[176] F. Ruf, « Déterminants sociaux et économiques de la replantation », *Oléagineux Corps gras Lipides,* 2000

The use of agrochemicals as a solution for low yields

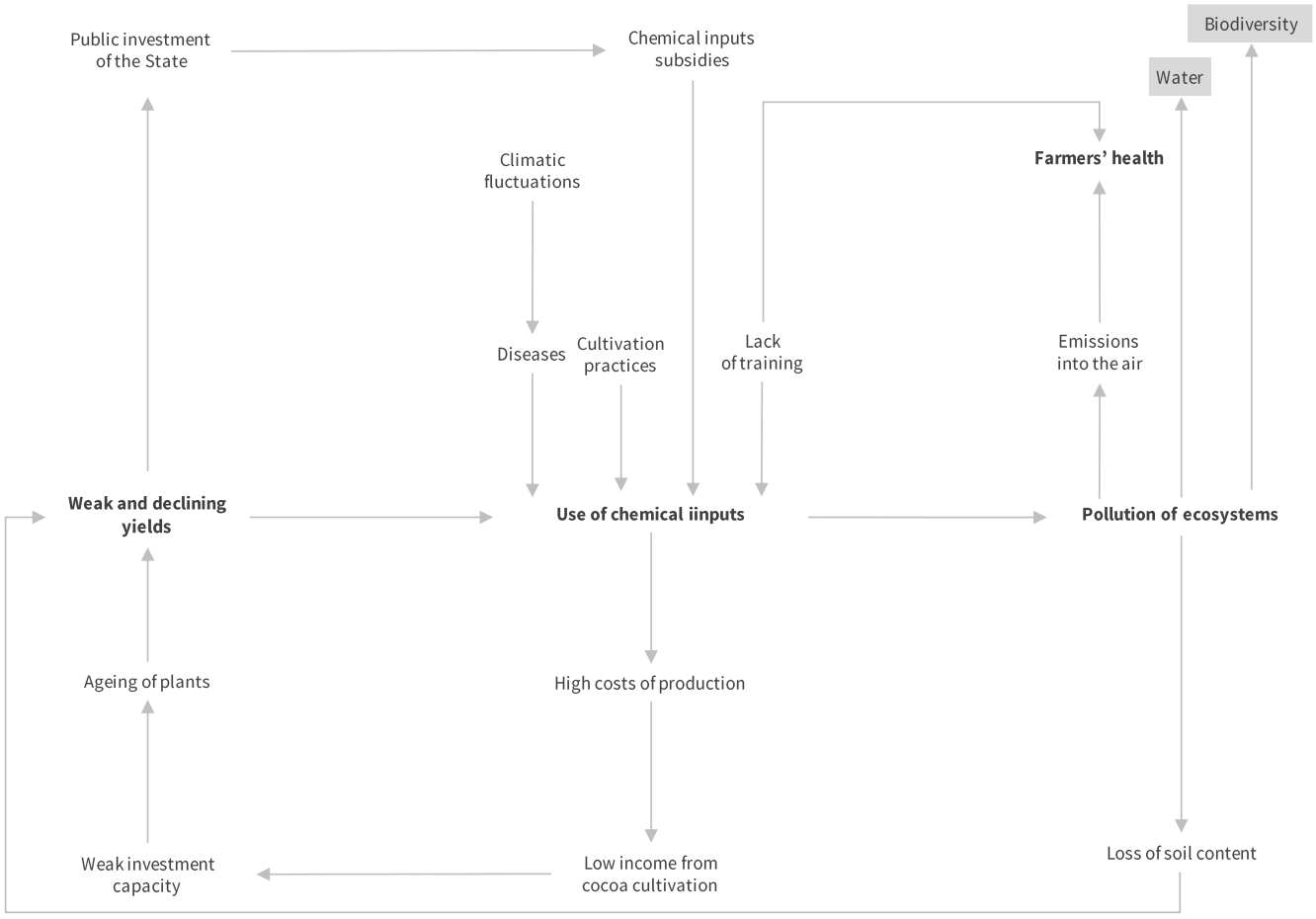

Figure 35. Impact pathways and loops on agrochemicals' use in the Ivorian cocoa chain.
Source: BASIC

As described earlier, the model promoted by the chocolate industry requires not only the specialisation of the producers and the expansion of cocoa plantations but also the intensive use of agrochemicals[177].

The agrochemicals are often financed by the cooperatives, the *traitants*, the grinders and subsidized by the Ivorian State. These prefinanced agrochemicals are given to producers in order to improve their yields, and the producers are then obliged to sell their entire harvest to those who financed their agrochemicals in the first place[178]. For the *traitants* and the industrials, it is a way to secure the volumes in very competitive environment.

This use of agrochemicals is also regular among producers, encouraged by the emergence of new diseases[179] caused partly by the temperatures' rise[180].

These agrochemicals are usually provided without any previous training on how to apply them. This lack of training can have important health consequences for the farmers[181]. Yet, there is no study to date analysing the impacts of agrochemicals on

[177] P. Jagoret, O. Deheuvels & P. Bastide, « S'inspirer… », op. cit.
[178] Interview with a cooperative manager, 12/08/2015
[179] Interview with a cooperative manager, 12/08/2015
[180] P. Läderach, A. Martinez-Valle, G. Schroth & N. Castro, « Predicting the future climatic suitability for cocoa farming of the world's leading producer countries, Ghana and Côte d'Ivoire », *Climatic Change,* 2013
[181] Interview with a cooperative manager, 12/08/2015

producers' health or ecosystems' pollution, even though Ivorian producers declare that the products do have an impact on their health as well as on soil depletion[182]. In addition, the data show the increase by more than 44% of the number of children manipulating agrochemicals while working on cocoa plantations in 2013-14.[183].

> *« The use of pesticides and fertilisers is common in a conventional cocoa farm […] Most of [the producers] have not yet been properly trained to neither ecosystems' preservation nor agrochemicals' use. »*
>
> *Fulbert Dago, Ivorian Network for Fair Trade - RICE*

3.3 The economic, social and environmental impacts of sustainable and fair trade certifications in Ivory Coast

3.3.1 Simultaneous development of sustainable and fair trade certifications in Ivory Coast

Scandals on child labour revealed in the media, pressures coming from pro-environment NGOs or consumers' awareness fostered the development of sustainable and fair trade certifications. Yet, the industrials importing their cocoa from Ivory Coast expect from this country ever-expanding supply of cocoa. In order to draw their interest, sustainable and fair trade certifications needed to be able to certify important volumes and this is the reason why "mass certifications" appeared in Ivory Coast during the 2000s[184].

Ivory Coast's share on the international market of certified cocoa has grown rapidly. In 2009, 23% of the cocoa certified by Rainforest Alliance and 78% certified by UTZ came from Ivory Coast. In 2010, 26% of Fairtrade cocoa came from Ivorian farms[185]. In total, estimates show that nearly 10% of Ivorian cocoa production is sold under these different certifications[186].

One of the distinctive feature of the Ivorian sector of cocoa is that sustainable and fair trade certifications are implemented at the same time by the same actors that dominate the cocoa chain. In addition, the cooperatives try seize the opportunity of sustainable and fair trade certifications and make profit of the collective organisation with not only one certifications but two or even three certifications, sustainable and fair trade. Multiple certifications are made easier as standards can sometimes be very similar (internal audit, traceability systems, producers' trainings[187], agricultural and environmental practices' criteria[188]) and is an interesting way for cooperatives to diversify the clients for their members' harvests[189].

Nevertheless, even though it may be interesting for cooperatives to diversify their sales' channels, multiple certifications are also encouraged by exporters and grinders. This phenomenon, at least in Ivory Coast, is specific to cocoa and did not happen in coffee.

> *« To me, certifications clearly helped to organise the supply chain. They structured the production and formalised it through contracts etc. Premiums have a very small additional value for the producers and will not prevent misconduct. In the end, the organisation of the production is the main impact that certifications had on the field. »*
>
> *Sustainable Development Manager in a cocoa grinding company*

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[182] Interview with a cooperative manager, 12/08/2015
[183] *School of Public Health and Tropical Medicine,* « Survey Research… », op. cit.
[184] F. Ruf, Y. N'Dao & S. Lemeilleur, « Certification… », op. cit.
[185] V. Ingram & al., « Impact of UTZ Certification of cocoa in Ivory Coast: Assessment framework and baseline », Wageningen University-CIRAD-ALP, 2014
[186] J. Potts, M. Lynch, A. Wilkings, G. Huppé, M. Cunningham, V. Voora, « The State of Sustainability Initiatives Review 2014 », IISD et IIED, 2014
[187] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[188] B. Daviron & I. Vagneron, « From Commoditisation… », op. cit.
[189] Interviews with a PhD Candidate to CIRAD, 02/22/2016 and 02/24/2016; interviews of CIRAD researcher, 12/21/2015 and 02/12/2016.

3.3.2 Limited impacts for sustainable and fair trade chains in Ivory Coast

Up until now, the studies available on certifications' impacts in Ivory Coast do not highlight significant differences between conventional and certified chains (sustainable and fair trade ones).

3.3.2.1 Few differences between certified and non-certified producers regarding cocoa yields and incomes

As explained before, the Ivorian producers cannot make a decent living out of their cocoa farms and definitely cannot cover their costs of production. Data do not show that the structural underpayment of cocoa producers has been resolved by sustainable and fair trade certifications.

Different qualitative studies commissioned over the past years by the sustainable certifications (especially UTZ and Rainforest Alliance) indicate a small increase in yields and improvement of living conditions[190], based on cocoa producers' interviews, but more recent reports have brought to perspective these conclusions.
This is the case of the field research conducted by a student of the University of California Davis which gathered data from 301 cocoa producers who are members of 35 different cooperatives in many regions of the country, from East to West (counties of Adzopé, Divo and Soubré). Amongst these producers, 76 of them sold their cocoa exclusively through the conventional chain (control group) and 225 were certified as Fairtrade, Rainforest Alliance or UTZ (125 with a single certification, 75 with two certifications and 25 with all three certifications)[191].
Data from field research show very few differences between yields and incomes amongst the producers for the 2013-2014 harvest (see table below).

	Conventional producers	**Certified producers**
Average plot size	5,69 ha	5,84 ha
Average yield	444,12 kg/ha	463,01 kg/ha
Average sale price	729,82 FCFA/kg	760,81 FCFA/kg
Yearly incomes from cocoa sales	1 424 243 FCFA	1 733 973 FCFA
Yearly global incomes *Revenu annuel total (including other activities)*	1 809 500 FCFA	1 923 996 FCFA

Figure 36. Incomes' estimates for conventional and certified (sustainable and fair trade) producers
Source: BASIC, based on data from M. A. Schweisguth, University of California Davis (2015)

Other studies corroborate the low impact of sustainable and fair trade certifications even if they showed that, on average, yields have increase by 10%[192] up to 30%[193] in comparison with conventional cocoa value chains. This result is low in comparison with other producing countries such as Peru. If yields do not significantly increase in cocoa plantations with sustainable and fair trade certifications, data show that yields increase much more when the producer holds multiple certifications[194]. This can lead us to think that once the producer is familiarised with the promoted good agricultural practices (GOP), yields tend to increase.

The limited yields' increase can be even more deceptive as certifications require an important investment in workforce[195]. As explained before, the cocoa tree requires a lot of work when it is more than 20 years old. Most of the cocoa trees in Ivory Coast

[190] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[191] M. A. Schweisguth, Evaluating the Effects of Certification on Smallholders' Net Incomes, with a Focus on Cacao Farmers in Cooperatives in Côte d'Ivoire, University of California Davis, Master Thesis, 2015
[192] F. Ruf, Y. N'Dao & S. Lemeilleur, « Certification… », op. cit.
[193] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[194] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[195] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality behind a sustainable certification process: Evidence from the Rainforest Alliance in the Ivorian cocoa sector », 2015.

are older and the producers then have to invest a lot of time and energy in their work for a very low increase in yields in the end. These low percentage increases also question the efficiency of the agricultural practices' promoted by the sustainable and fair trade standards and their appropriation by the producers. Imposed by the industrials of the chain, the GOP trainings would be more efficient if they were more interested in the alternatives developed by the producers themselves[196].

In the end, the difference between the cocoa incomes is roughly 20% on average[197] : if prices are a little higher for certified cocoa, there is little difference in yields between the two and the certified producers' expenses are slightly higher. If we take into account the annual global income of certified producers (sustainable and fair trade) which includes incomes from other activities, there is even less difference: 6% on average. In fact, data show that conventional producers tend to diversify more their sources of income whereas certified producers (sustainable and fair trade) need to dedicate more time to cocoa and specialise even more themselves[198].

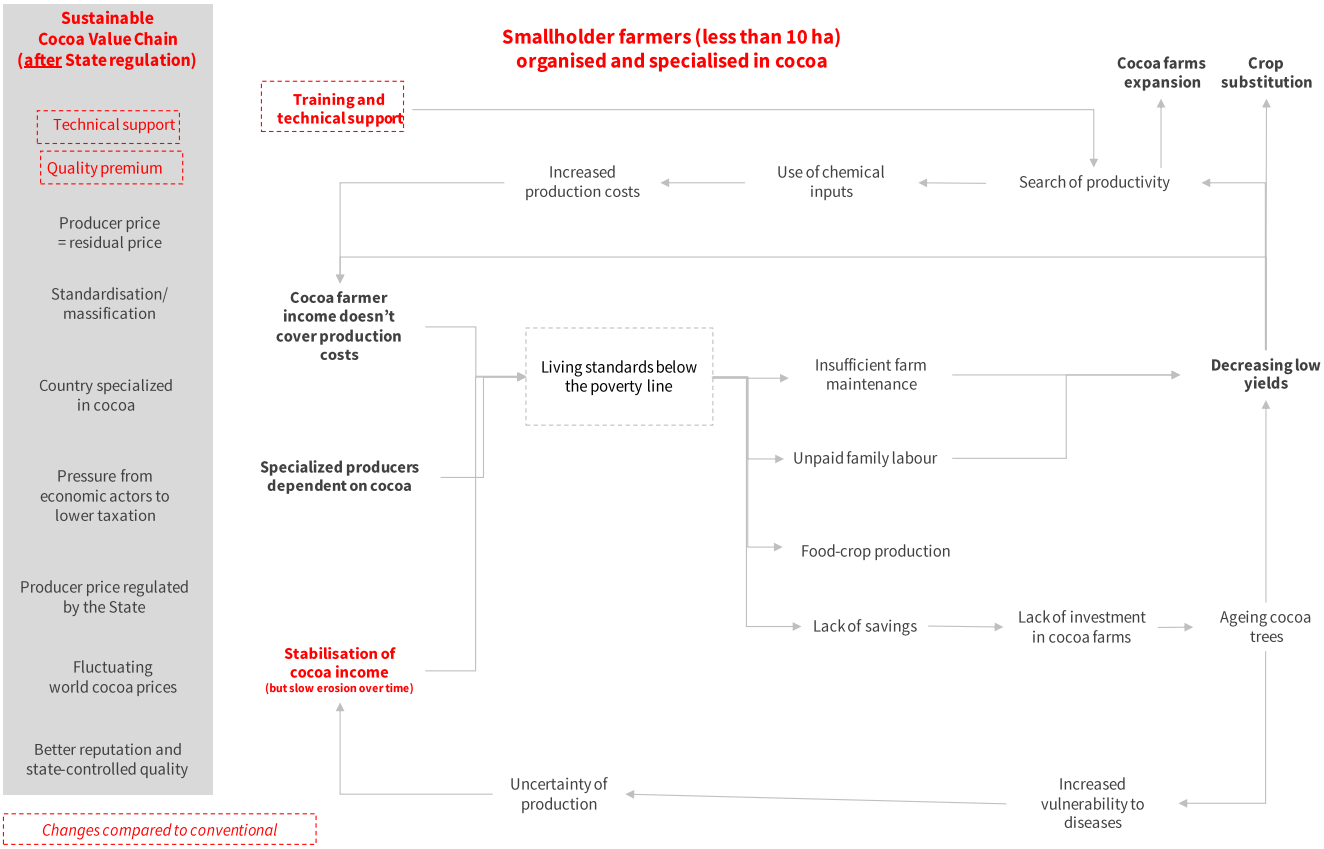


Figure 37. Impact pathways and loops generated by Ivorian sustainable cocoa chain.
Source: BASIC

3.3.2.2 *Social impacts are not mitigated by sustainable and fair trade certifications*

Concerning sustainable and fair trade certifications in Ivory Coast, there are few differences in terms of social impacts. For instance, a recent study from the Wageningen University concludes that working conditions on certified cocoa farms (sustainable and fair trade) are no more in compliance with the ILO norms than the working conditions on conventional cocoa plantations[199]. Similarly, the producers interviewed in this study did not report any improvement regarding health conditions

[196] F. Ruf, Y. N'Dao & S. Lemeilleur, « Certification… », op. cit.
[197] M. A. Schweisguth, *Evaluating the Effects…*, op. cit.
[198] M. A. Schweisguth, *Evaluating the Effects…*, op. cit.
[199] V. Ingram & al., « Impact of UTZ Certification… », op. cit.

after the implementation of the certifications[200]. Regarding child labour issue, the study reveals that on some certified cocoa farms, children sometimes work longer hours and realise more hazardous works[201].

3.3.2.3 Few changes regarding environmental impacts

Little impact on deforestation

As described before, deforestation is historically linked to the development of cocoa in Ivory Coast. During the 2000s, thousands of protected forest haven been cleared in order to plant new cocoa plots[202].

One main critic addressed to sustainable certification is that the cocoa plantations can be certified only a few years after the producers cleared the forest[203]. Moreover, the reintroduction of trees in the certified plantations is generally not sufficiently respected. Studies show that on average, there are two trees per hectare on a cocoa plantation, certified or not[204].

Regarding fair trade certifications, reports do not mention an impact on deforestation.

A better management of agrochemicals but no decrease in their use

Sustainable and fair trade certifications have very similar standards regarding the use agrochemicals. A list of prohibited agrochemicals is established, and beyond that list, the use of agrochemicals is authorized even if limited, and even promoted by producers' trainings. The producers thus estimate that they have an easier access to authorized pesticides thanks to sustainable and faire trade certifications[205].

> *« Producers are tired of all those trainings on good agricultural practices organised by the sustainable certifications. Trainings are time-consuming, a time that farmers would rather spend working on the cocoa plantation […] In the end, trainings on good agricultural practices are only a marketing argument for the certifications when they want to be attractive for industrials. »*
>
> *Enrique Uribe Leitz, AgTrain PhD Candidate at CIRAD*

The producers value, when they exist, the « agrochemicals teams » that were formed by the sustainable and fair trade certifications. These teams regroup employees from the cooperative trained for the use of agrochemicals and properly equipped in order to reduce risks' exposures[206]. The methods and doses are then better handled. Nevertheless, the yearly number of pesticides treatments is exactly the same in certified plantations and in non-certified ones (on average 2 treatments per year and per hectare[207]).

[200] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[201] V. Ingram & al., « Impact of UTZ Certification… », op. cit.
[202] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.
[203] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.
[204] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.
[205] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.; V. Ingram et al., « Impact of UTZ Certification… », op. cit.
[206] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality behind a sustainable certification process: Evidence from the Rainforest Alliance in the Ivorian cocoa sector », 2015 ; Interview with a cooperative manager, 12/08/2015
[207] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.

3.3.3 Positive impacts of the fair trade premium

Fair trade chains can make a difference in comparison with sustainable chains thanks to the premium granted to cooperatives. If this difference is yet not sufficient to initiate positive feedback loops, it can improve local situations.

3.3.3.1 The minimum price guaranteed by fair trade does not apply but the fair trade premium can make a difference for the producers

For the fair trade producers' organisations, the premium remains the main difference and attracting factor as the fair trade minimum price to producer is not functional in Ivory Coast (because the minimum guaranteed price set by the State is higher). In fact, the current world price of cocoa is close to 3000 USD per tonne while the Fairtrade minimum price is 2000 USD per tonne[208]. As the fair trade minimum price does not apply in this context, it is the fair trade premium that makes a clear difference for producers and cooperatives (fact that is confirmed by the field surveys)[209].

3.3.3.2 An additional income and funds to finance the agricultural tools needed by the producers

The fair trade premium currently amounts to 200 USD per tonne and is given to the cooperative. Around 43% of the premium is given directly to the producers[210]. Often distributed in the period in-between two harvests (*période de soudure* in French), this payment is valued has an additional income, welcomed by farmers even if modest[211].

The fair trade premium is also used by the cooperatives to finance the producers' trainings or properly equip the producers for their work in the cocoa plantation (machetes, boots, protection equipment for agrochemicals for instance)[212].

As for the sustainable certifications, they generally have an incentive bonus amounting to 100 FCFA / kg on average (0,16 euros USD per kg, or 160 USD per tonne). This premium is usually split by half between producers and their cooperative[213]. The extra 50 FCFA per kg for the producers are an additional income that is barely sufficient to cover their operational costs[214].

3.3.3.3 A source of investment in local and basic services and in cooperatives

Studies highlight the collective projects made possible with the help of the fair trade premium. Basic services in producers' communities were developed, in addition to - or instead of - Ivorian public services. These projects represent around 4% of the yearly fair trade premium which is used by cooperatives to reinforce education and health infrastructures, or implement social health insurance[215].

> *« The cooperative of which I am a member, Kavokiva, implemented a social health insurance. A lot of producers died of hernias. In 2008-2009 years, a lot of producers were operated and survived. We registered a lot of medical appointments, medical prescriptions. The health centre was also closer to them. But before that, people did not have such an easy access to healthcare. And when they are not able to travel, they get resigned. »*
>
> *Fulbert Dago, Ivorian Network for Fair Trade - RICE*

[208] Fairtrade International & Fairtrade Africa, *Fairtrade Cocoa in West Africa*, 2014
[209] V. Ingram et al., « Impact of UTZ Certification… », op. cit.
[210] Fairtrade International & Fairtrade Africa, *Fairtrade Cocoa…,* op. cit.
[211] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit. ; Fairtrade International et Fairtrade Africa, *Fairtrade Cocoa…,* op. cit.
[212] Almost 16% (Fairtrade International et Fairtrade Africa, *Fairtrade Cocoa…,* op. cit.)
[213] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit..; M. A. Schweisguth, *Evaluating the Effects…,* op. cit.
[214] S. Lemeilleur, Y. N'Dao & F. Ruf, « The productivist rationality… », op. cit.
[215] Fairtrade International & Fairtrade Africa, *Fairtrade Cocoa…,* op. cit.

In addition, 32% of the fair trade premium is used to develop and reinforce the cooperative structure[216]. Almost half of this sum is invested in the cooperatives that struggle to be profitable, in order to finance: warehouses, cocoa beans' transport, internal management capacities, support for producers…

3.4 Societal Costs of conventional, sustainable and fair trade value chains in Ivory Coast

In order to evaluate the magnitude of impacts of the conventional cocoa value chain in Ivory Coast, we have conducted a conservative estimate of the costs borne by the Ivorian society because of the negative consequences of the cocoa value chain on producers, their communities and ecosystems.

These so-called 'societal' costs are an indicator of the (un)sustainability of the cocoa sector which can be used to identify the models worth developing, and those that should be avoided, in a long-term goal of social and ecological transition (a 'zero societal costs' society being close to the ideal scenario promoted by the supporters of a circular economy).
Based on this first evaluation, we conducted a similar estimation of societal costs for fair trade and sustainable cocoa value chains in order to investigate and objectify their contributions to reduce the negative impacts of conventional cocoa chains.

3.4.1.1 Societal costs of the conventional cocoa chain

We evaluated the costs borne by the Ivorian society based on the documented impacts of conventional cocoa production detailed in the previous sections.

The results of this evaluation of the societal costs of conventional cocoa in Côte d'Ivoire are presented in the chart below:

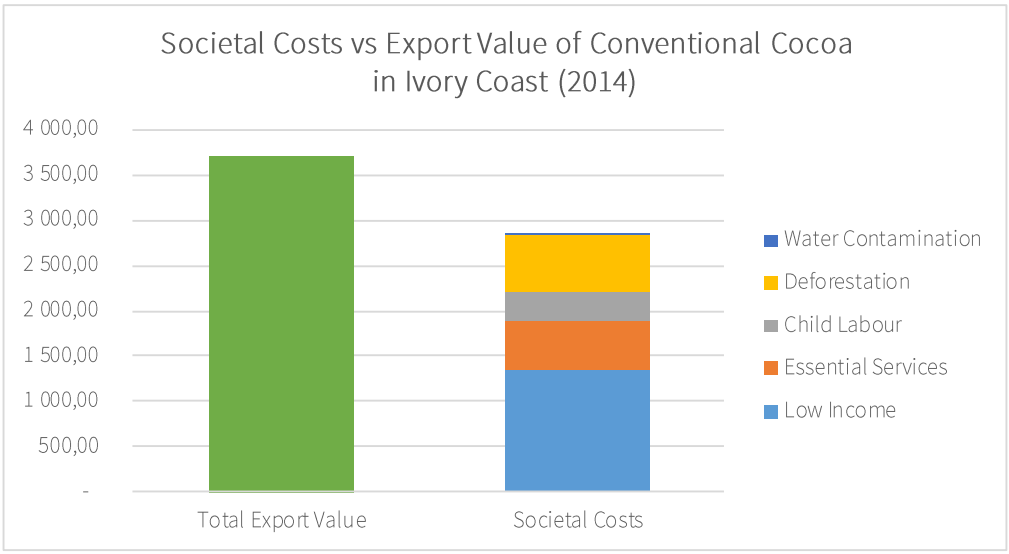


Figure 38. Societal costs generated by conventional cocoa chains in Côte d'Ivoire and comparison with the export value of cocoa. Source: BASIC

According to our estimation, the main component of societal costs relates to the underpayment and insufficient income of cocoa growers in Ivory Coast.

The main data used as a basis for the estimate are summarized in the table below:

[216] Fairtrade International et Fairtrade Africa, *Fairtrade Cocoa…*, op. cit.

Year of calculation: 2014	Conventional producers
Average size of cocoa farm	5,69 ha
Average yield	444 kg/ha
Average price received by producer	750 FCFA/kg
Average production costs per farm and per year	375 000 FCFA
Annual income generated by cocoa sales	1 545 000 FCFA
Total annual income (including other activities)	1 809 500 FCFA
Average number of people per cocoa producing family	10,9
Average annual income per person	170 300 FCFA
Annual cost of the basket of essential goods in Cameroon	272 000 FCFA
Annual cost of the basket of essential goods in Ghana	290 000 FCFA
Cost of the basket of essential goods estimated in Cote d'Ivoire	281 000 FCFA

Figure 39. Estimated income of conventional cocoa farmers in Côte d'Ivoire.
Source: BASIC, based on data from de M. A. Schweisguth, F. Ruf, GLSS6, ECAM 4 and the World Bank

As detailed above, the average annual income of cocoa farmers can be estimated in 2014 to slightly more than 1.8 million FCFA per family, or 170 000 FCFA per person and per year.

These numbers can then be compared with the World Bank evaluations of the absolute poverty line per country and per region which provide an estimate of the level of income required for an individual to meet his/her basic needs in terms of food (based on a daily caloric intake and a reference food diversity index) as well as education, health, housing and minimum savings.[217]
As there are no official statistics of the absolute poverty line for Ivory Coast, we used the evaluations conducted by two neighbouring countries, Ghana and Cameroon. Indeed, their demographic and socioeconomic characteristics are close enough to enable the extrapolation of the poverty line in Ivory Coast from the data of these two countries, once corrected for purchasing power parity. The resulting absolute poverty line in Cote d'Ivoire can be estimated at 281 000 FCFA per person and per year in 2014[218].

Based on this evaluation, we can observe that the average income received by Ivorian cocoa producers (even taking into account secondary income from other activities) is significantly below the absolute poverty line. This remains the case in 2015 as cocoa producers' income can be estimated at 227 000 FCFA/ person/year, taking into account the government increase of the minimum price to 1,000 FCFA last year.
The societal costs generated by this low income of cocoa growers can be estimated at roughly 1.35 billion euros (885 billion FCFA) in 2014 for the whole country. It corresponds to cumulated the 'loss of earnings' of producers who remain below the absolute poverty line.

L The second component relates to essential services. It corresponds to the difference between:

- On the one hand, public spending on education, health, housing, transport, the rule of law and support for agriculture in cocoa growing areas
- On the other, the money levied by the Ivorian state on the cocoa industry through the various taxes imposed on economic actors.

These estimates are summarized in the table below:

[217] Banque mondiale, « A Global Count of the Extreme Poor in 2012: Data Issues, Methodology and Initial Results », *Paper Series n°9442*, Octobre 2015 ; Banque mondiale, « Ending Extreme Poverty and Sharing Prosperity: Progress and Policies », *Policy Research Note* n°15/03, Octobre 2015 ; L. Pritchett, « Who is Not Poor? Dreaming of a World Truly Free of Poverty », Oxford University Press, 2006 ; Programme des Nations Unies pour le Développement (PNUD), *What is Poverty? Concepts and measures*, 2006

[218] Les évaluations menées par les offices nationaux de statistiques du Ghana et du Cameroun (respectivement en 2013 et 2015) aboutissent à un résultat très proche une fois extrapolées en Côte d'Ivoire à partir de la parité de pouvoir d'achat entre les pays : de l'ordre de 280 000 FCFA par personne et par an. On peut observer que le seuil de pauvreté absolue ainsi obtenu est supérieur au seuil de pauvreté relative publiée par le gouvernement ivoirien (de l'ordre de 260 000 FCFA /pers./an)

Scope: Côte d'Ivoire	Public spending in 2014	Extrapolated public spending in 2014
Education	819 bn FCFA	1 166 bn FCFA
Health	228 bn FCFA	239 bn FCFA
Water, sanitation, energy	180 bn FCFA	352 bn FCFA
Roads and bridges	139 bn FCFA	139 bn FCFA
Social spending	25 bn FCFA	25 bn FCFA
Agriculture and rural development	140 bn FCFA	140 bn FCFA
Rule of law	231 bn FCFA	231 bn FCFA
Total	1 764 bn FCFA	2 293 bn FCFA
Total spending attributable to cocoa sector (in proportion to population)	637 bn FCFA	811 bn FCFA
Total contributions from the cocoa sector (taxes …)	428 bn FCFA	

Figure 40. Estimated expenditures for essential services in Ivory Coast.
Source : BASIC, based on data from the IMF and the Republic of Côte d'Ivoire

To evaluate societal costs related to essential services, we relied on data published by the IMF in its latest report on Côte d'Ivoire for 2014, in particular the consolidation of all the pro-poor spending of the Ivorian State.
We then extrapolated these expenditures to reflect unmet basic needs related to the lack of access to public infrastructure in cocoa communities - when indicators were available - based on the survey of the living standards of households in Côte d'Ivoire conducted by the National Statistics Institute in 2015.

This information allowed us to estimate a 'shortfall' of roughly 550 million euros (380 billion FCFA) for 2014.

Finally, we estimated the societal costs generated by child labour, deforestation and water pollution linked to fertilizers and pesticides used in cocoa cultivation; based on the following data:

- Available information on public spending allocated to the fight against these negative impacts (both from the Ivorian government and international cooperation)
- Estimation of the costs generated over the long term by these impairments and / or investments needed to reduce significantly the impacts over time

The related expenses attributable to the impacts of the conventional cocoa value chain is summarized in the table below:

Scope: Côte d'Ivoire	Public spending in 2014
Deforestation	415 bn FCFA
Prevention (sustainable forest management)	6 bn FCFA
Damages (loss of resources)	1 bn FCFA
Attenuation (agricultural support programs)	45 bn FCFA
Mitigation (investments to reduce deforestation)	363 bn FCFA
Child Labour	204 bn FCFA
Prevention (programmes fighting against child labour)	8 bn FCFA
Health damages	2 bn FCFA
Social damages	194 bn FCFA
Water pollution (prevention)	6 bn FCFA

Figure 41. Estimated expenditures for social and environmental damage related to the cocoa value chain in Ivory Coast.
Source: BASIC, based on the data from the Republic of Côte d'Ivoire, European Union, ILO and the US Bureau of Labor

We estimated the total societal costs related to these social and environmental impacts to almost 950 million euros (625 billion FCFA) in 2014.

Once cumulated, the societal costs of the conventional cocoa value chain in Ivory Coast reach a total of € 2.85 billion (1890 billion CFA francs) in 2014, compared to € 3.7 billion (2500 billion CFA francs) of revenues from the export of Ivorian cocoa each year.

In other words, the costs reported by the conventional cocoa value chain on the Ivorian society represented approximately 77% of the value of cocoa exports in 2014, a higher figure than the annual income earned by cocoa producers in the country.

The following chart shows the societal costs for one tonne of cocoa produced in Côte d'Ivoire:

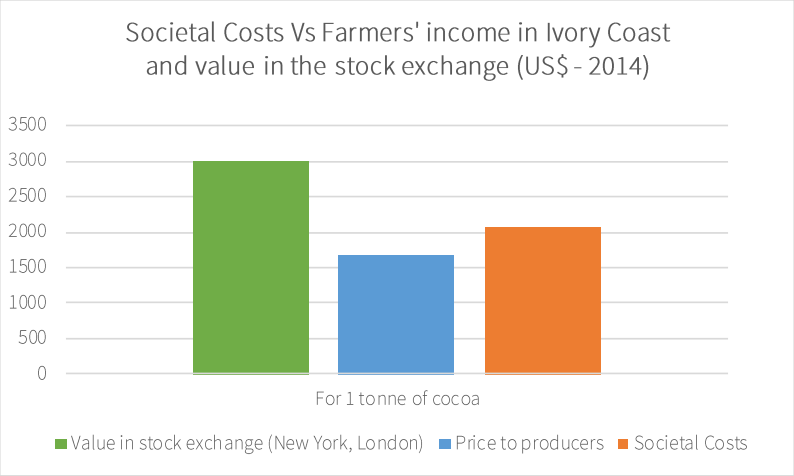


Figure 42. Societal costs of conventional cocoa in Ivory Coast, compared to the income of farmers and the stock exchange value of cocoa beans. Source: BASIC

3.4.1.2 Societal Costs of sustainable and fair trade value chains

Based on the methodology and sources used previously to estimate the societal costs of conventional cocoa, and complemented by available research on the impacts of sustainable and fair trade schemes in Côte d'Ivoire, we estimated the societal costs generated by those certifications (see results below).

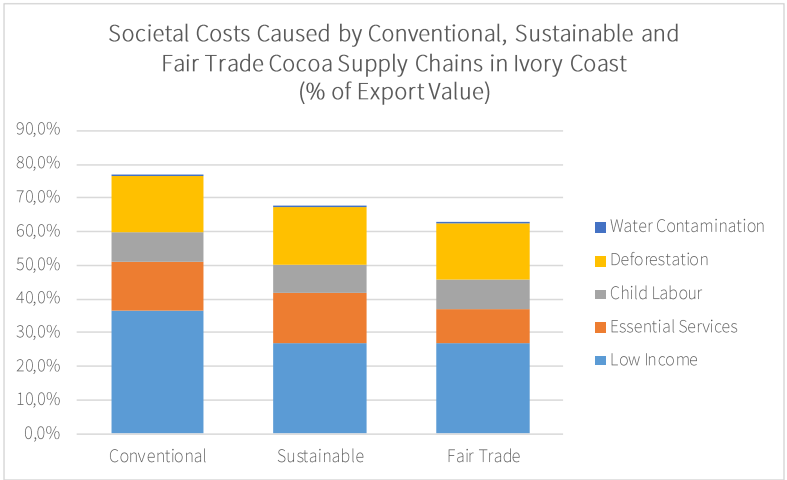


Figure 43. Societal costs generated by the conventional, sustainable and fair trade cocoa value chains in Côte d'Ivoire. Source: BASIC

As illustrated above, our estimate of societal costs related to the sustainable cocoa value chain shows an average reduction of around 12%, mainly due to the slight improvement of the producers' income (see the previous section on the impacts of sustainable and fair trade cocoa in Ivory Coast).

Regarding the fair trade cocoa value chain, the available data enables us to estimate a further reduction in societal costs of roughly 6%, mainly due to the fair trade premium use by cooperatives. As a result, we have estimated in the case of faire trade an overall reduction of societal costs of approximately 18% compared to conventional cocoa.

If these results highlight some capacity of sustainable and fair trade value chains to limit the negative impacts of conventional cocoa, the related societal costs are still above 60% of the value of exports of cocoa beans, even in the case of fair trade, which contrasts with the much more significant results achieved in the case of Peru (see next chapter).

Finally, we extrapolated these societal costs for a dark chocolate bar (70% cocoa) with beans coming from Ivory Coast and processed in Europe. We then made an estimation of the value breakdown of the same chocolate bar from cocoa producers to supermarkets, on the basis of available public data (INSEE, Eurostat, UN Comtrade ...).

The following chart illustrates the results of these estimates of societal costs and value breakdown of a dark chocolate bar for the 3 cases studied: conventional, sustainable and fair trade cocoa:

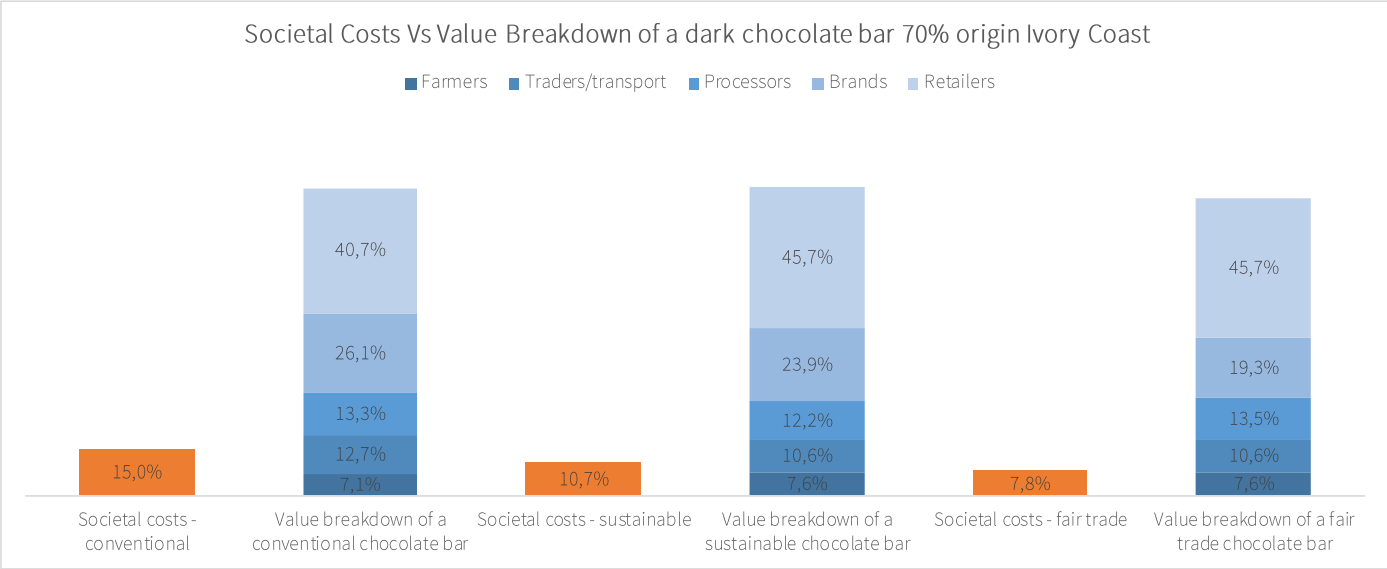


Figure 44. Societal costs and value breakdown of a dark chocolate bar 70% origin Ivory Coast (conventional, sustainable and fair trade)
Source: BASIC

The above chart compares between:

- The value breakdown of a dark chocolate bar with the respective share of value earned by each player
- The total societal costs generated in the producing country by each value chain set-up (conventional, sustainable and fair trade)

It is clear from this comparison that the majority of the final value of the product is captured downstream by brands and retailers (about 2/3 of the total value) while societal costs are mainly borne by cocoa producers upstream.
If the societal costs appear to be 2 times higher than the share of value earned by farmers in the case of conventional cocoa, our estimates suggest that it is equal in the case of fair trade, and 50% higher in the case of sustainable certifications.

Focus – Example of a cooperative with fair trade and organic certifications in Ivory Coast

In Ivory Coast, several small examples exist that seem to have share similar points with Peru (see next chapter).

A cooperative is of special interest. Created in the 2000s, it has roughly 100 producers who grow about a third of the cocoa sold by the cooperative under fair trade and organic standards.

The cooperative invested in a strategy to increase the quality in order to make good use of the development of the two certifications. Amongst other things, the cooperative offers to its members trainings on organic agricultural practices. The documented increase in yields, combined with an increased price and fair trade and organic premiums, allows the producers to increase significantly their incomes.

> *« To me, there is no alternative to standardisation and massification better than quality. Quality in the sense of* terroir, *designation of origin. Or beyond that, quality with organic production, products' aroma. »*
>
> *Fair trade chocolate brand representative*

The premiums for the sales of fair trade cocoa, also organic for part of it, allowed the cooperatives to reinforce their organisation and to support the producers. Moreover, the transition towards organic farming has reduced the environmental impact of the cocoa plantations of the cooperatives' members.

The main issue on the long term is to improve the profitability of the producers' plantations. The question is to know if it is interesting for the cooperative to invest in beans grinding infrastructures as some fair trade cooperatives in Peru did.

This small cooperative initiative is however subjected to the same constraints faced by the entire cocoa sector in Ivory Coast. The integration of new members questions the internal governance dynamic. The climate variations, such as drought or diseases, has impacts on cocoa plantations, destroying young cocoa plants or diminishing the yields. And the cocoa still grows on mostly specialised farms and without shade, with no clear solution regarding the deforestation issue in Ivory Coast.

Despite these limits and challenges, this cooperative in Ivory Coast seems to generate positive impacts that can be compared with those of fair trade Peruvian cooperatives. According to our estimates, the societal costs associated could be reduced by 80%, much more than the average reduction achieved by fair trade cocoa organisations in Ivory Coast.

4. Peru, an emerging actor on the world cocoa stage

4.1 The recent development of the cocoa chain in Peru

Peru has on its territory the most well-known varieties of cocoa, introduced from the Caribbean, Central America and Ecuador, and also numerous hybrids and native varieties from the country's tropical forests[219]. In the 1930s when the Peruvians developed cocoa and coffee pioneer fronts in the Amazonian jungle, they developed *forastero* and *trinitario* cocoa plantations[220]. Cocoa production grew constantly and in the 1970s, it was mainly oriented towards exports in order to respond to the world demand.

In the 1980s, political tensions arose, civil war begun and the illegal coca culture spread across the country: the cocoa producers pulled the plants off to replace them with coca which was a lot more profitable, as the ton of coca was sold three or four times the price of the ton of cocoa.

A climate of violence surrounded the cocoa production: wars between the narco-traffickers, followed by the conflict with the Peruvian State helped by the United States destabilised the cocoa producing regions. Violences reached such a high level that when the Peruvian State in partnership with USAID promoted the culture of cocoa to eradicate coca production, the producers embraced the development programme as they were tired of the continuous insecurity[221]. Since the 2000s, the production of cocoa has been encouraged by the international development cooperation and the public institutions[222], more particularly the CCN51 cocoa, a derivative from *forastero,* more disease-resistant and productive[223].

> *« People were tired of violence, deaths due to narco-trafficking, guerrilla […] Cocoa was the only viable alternative to coca, as we can see in the San Martin region. Even though the progress were made possible by the Peruvian regional government and USAID, to me it is also the result of fair trade. »*
>
> *Santiago Paz, manager of Norandino cooperative*

This massive investment in cocoa production can be seen in the increase in volumes: today, even though the country only represents about 1% of the world cocoa production[224], its exports are booming and Peru is the 9th largest cocoa producer in the world and the second exporter of organic cocoa in Latin America[225] just after the Dominican Republic[226].

[219] Seven of ten cocoa varieties grow in Peru (G. E. Nolte, « Cocoa Update and Outlook », USDA Foreign Agricultural Service, June 2014)
[220] O. Morales, A. Borda, A. Argandoña, R. Farach, L García Naranjo & K. Lazo, *La Alianza Cacao Perú y la cadena productiva del cacao fino de aroma,* ESAN University, 2015
[221] Interview by a cooperative manager in Peru, 03/01/2016
[222] G. J. Scott, « Growing Money on Trees in Latin America: Growth Rates for Cocoa 1961-2013 and Their Implications for Industry », *American-Eurasian Journal of Agricultural and Environmental Sciences,* 2016
[223] O. Morales, A. Borda, A. Argandoña, R. Farach, L García Naranjo & K. Lazo, *La Alianza Cacao…,* op. cit.
[224] ICCO, *The World Cocoa Economy: Past and Present,* september 2012
[225] ¼ of the Peruvian cocoa production is certified organic (Technoserve, *Building a Sustainable and Competitive Cocoa Value Chain in Peru. A Case Study of the Economic Development Alliance Program for San Martin, Huanuco and Ucayali 2010-2015,* 2015).
[226] K. Laroche, R. Jimenez, & V. Nelson, *Assessing the impact of fairtrade for Peruvian cocoa farmers*, Natural Resources Institute, Greenwich University, June 2012

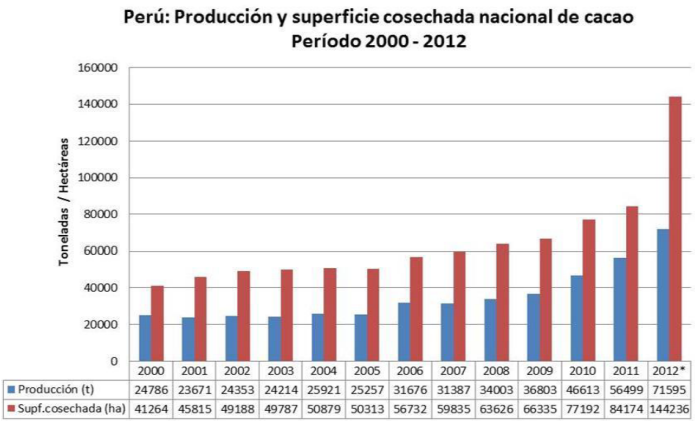


Figure 45. Cocoa production and crop area in Peru.
Source : C. Huamanchumo de la Cuba, Análisis de la cadena de valor del cacao en la región de San Martin, Perú, Swisscontact Perú, 2013

4.2 Description and analysis of the conventional chains, their impacts and their societal costs

4.2.1 Organisation and actors of the Peruvian cocoa-chocolate sector

Unlike Ivory Coast, the agricultural sector does not contribute a lot to national Peruvian wealth: it only represents 6,1% of the Peruvian GDP on average[227] as the main country's revenues still come from the mining sector. This is a fundamental difference between the two countries: cocoa does not count a lot in the Peruvian economy (around 0,6% of total exports according INEI) whereas it is vital for the Ivorian economy. If the cocoa share in the Peruvian agricultural exports is still small, it has been continuously increasing since 2009 (from 1,3% of FOB value in 2009 to 3,2% in 2014[228]). Most of the cocoa produced in the country (60% of the cocoa beans and semi-processed products) is exported on average every year[229].

The Peruvian State then chose to liberalise the cocoa market, unlike Ivory Coast that recently chose to reform the cocoa sector. A guaranteed minimum price for producer does not exist in Peru neither tax on exports of cocoa beans and semi-processed products[230].

As Peru was up until now not identified as an important country for chocolate production, the country has not been invested by international beans grinders and chocolate manufacturers. Cooperatives are very present in the cocoa buying sector (nearly 30% in 2013) and the cocoa grinding sector is led by Machu Picchu Coffee, a Peruvian company (almost 60%, see graphics below).

[227] SOS Faim, « Le pari coopératif : le café et le cacao au Pérou », *Dynamiques paysannes,* n°38 2015
[228] SOS Faim, « Le pari coopératif… », op. cit.
[229] Technoserve, *Building a Sustainable…,* op. cit.
[230] The only tax levied on economic actors in the Peruvian cocoa-chocolate sector is the corporation tax on benefits. Cf. Cristian L. & Calderón R., Devolucion del IGV a los exportadores, Estudio Calderón & Asociados, 2015

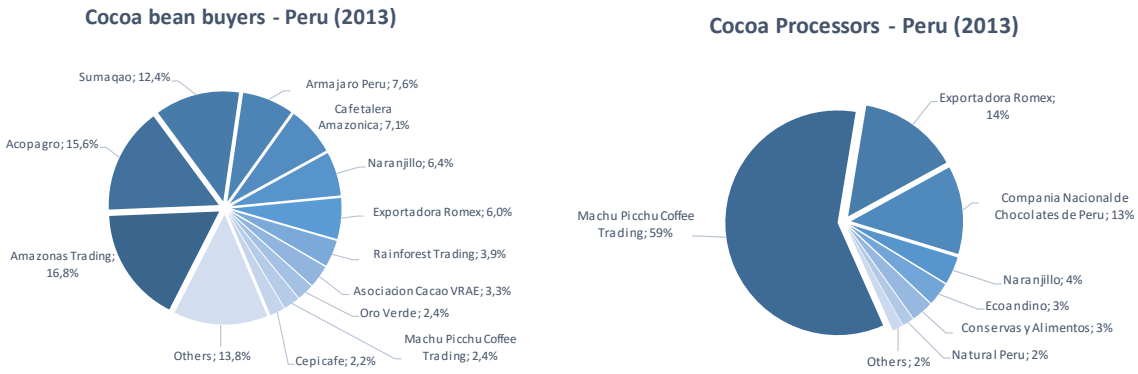
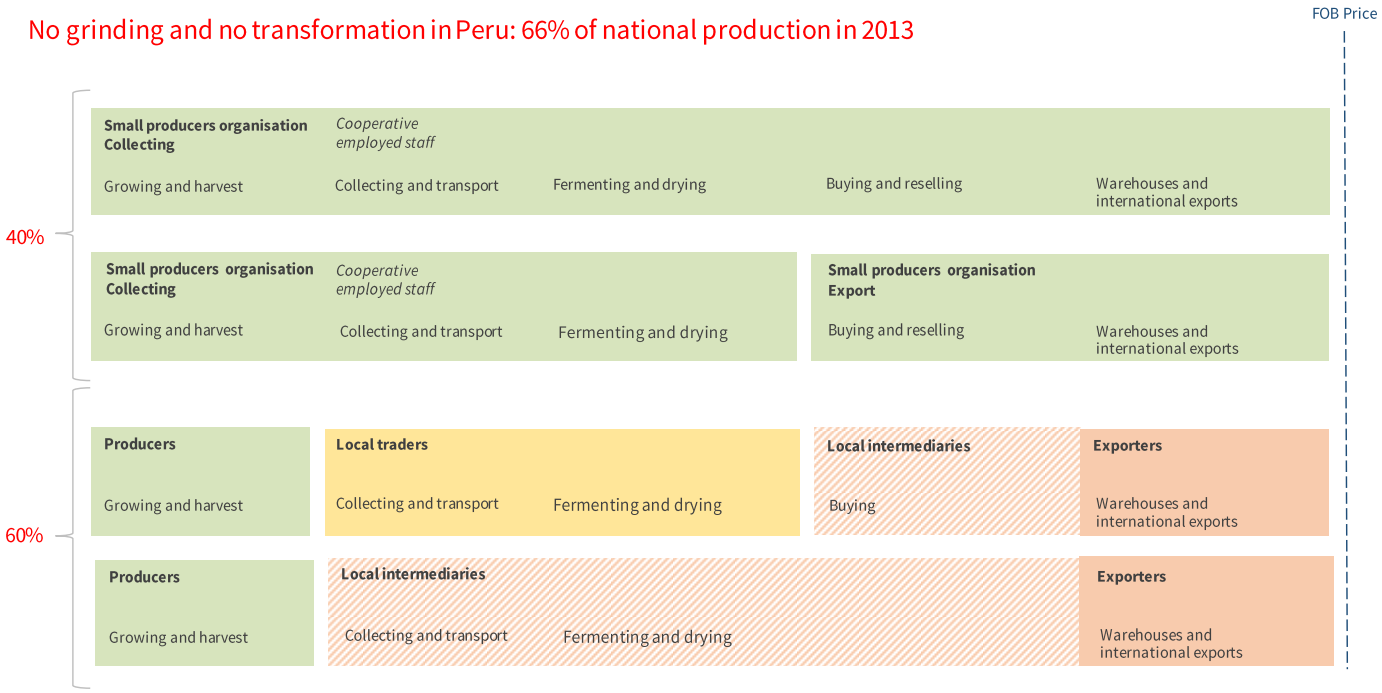


Figure 46. Major cocoa beans buyers and cocoa grinders in Peru.
Source: BASIC, based on data from C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.

The chain is organised as follows, with some differences depending on the final products of the chain (beans export or export/marketing of semi-processed products and in a few cases, chocolate).



Grinding and first transformations in Peru: 34% of national production in 2013

Figure 47. Organisation patterns of cocoa conventional value chains in Peru.
Source: BASIC

4.2.1.1 Small producers of cocoa on agroforestry plantations

Most of the Peruvian cocoa farms are agroforestry systems with very small plots, with estimates ranging between 2 and 5ha on average[231]. The agricultural system of the 90 000 cocoa producers[232] is oriented towards self-subsistence in which cocoa is a cash crop and the main source of income (between 60 to 70% of households' incomes[233]). Nevertheless, the strategy on the longer term for the cocoa producers is to diversify between cash crops and subsistence crops in order to be able to face potential falls of cocoa world prices and provide for their needs even in difficult times[234].

> *« In the coffee sector, agronomist engineers pushed full sun agricultural practices. Producers soon realised that the plant quickly depleted and needed a lot of agrochemicals. This bad experience in coffee growing taught the cocoa producers an important lesson: they choose to cocoa under shade trees, a system which is more viable economically speaking and allows the growing of subsistence crops. »*
>
> *Santiago Paz, manager of Norandino cooperative*

[231] Inter-American Institute for Cooperation and Agriculture (IICA), *Situación y Perspectivas…*, op. cit. ; Technoserve, *Building a Sustainable…*, op. cit. ; G. E. Nolte, « Cocoa…», op. cit.
[232] G. J. Scott, « Growing Money… », op. cit.
[233] K. Laroche, R. Jimenez, & V. Nelson, *Assessing the impact…*, op. cit.
[234] G. E. Nolte, « Cocoa Update… », op. cit.

More than 80% of cocoa producers live in the Peruvian jungle (*selva*). This geographic distance conditions their access to markets. In fact, most of the producers that are located in isolated areas sell their cocoa through local buyers (*acopiadores locales* in Spanish), the only intermediaries to go that far in the jungle to buy cocoa beans. Conversely, the best-served producers (for instance, road networks) are more likely to be members of a cooperative[235].
Unlike Ivorian producers, the Peruvian producers mostly sell their beans "green", meaning before fermentation and drying[236].
In Peru, most of the cooperatives are in charge of fermentation and drying before:

- Exporting the cocoa beans,
- Grinding cocoa beans into semi-finished products sold to national chocolate manufacturing industry or foreign buyers,
- Manufacturing into chocolate.

4.2.1.2 The cooperatives: a specificity of the Peruvian cocoa chain

Most of the Peruvian cocoa cooperatives are organisations historically developed in the coffee market. When the cocoa production started to grow, the cooperatives invested their expertise and practical knowledge from the coffee sector in order to develop their activities in the cocoa sector[237].

Most of these cooperatives were created in the 1960s and then increased in power to become genuine social companies in the 1980s. They then entered in a period of structural crisis, caused by a rapid growth that challenged their internal democratic governance[238], in a complicated political and social context with the rising of the Shining Path[239] and the war against narco-trafficking[240].

The pacification of the cocoa producing regions where the cooperatives were located, and the people's desire to end with the violence and recreate social ties, explain the renewal of the cooperatives in the 2000s[241]. The cooperatives acquired an important role in the Peruvian cocoa sector: within the 10 first beans exporters between 2000 and 2012, there are six cooperatives that represent almost 60% of exports[242].

Yet, since the 2010s, the cocoa cooperatives entered in a new crisis phase: victims of their success, they grew quickly at the expense of their internal democratic governance. Having become companies that deal with big volumes' market, several cooperatives suffer from a widening gap between their employees and their members[243]. The cooperative's management gains importance at the expense of the members[244]. Their activities are now more oriented towards the market's evolutions rather than the local development and the support for their members. Producers regret a loss of control or non-shared investments' strategies[245]. Losing their "cooperative essence", several cooperatives look more like their private competitors and its members are less and less involved in the structure[246].

Numbers at national level reflect this new crisis phase faced by the cooperatives: in 2013, only four cooperatives remain in the 10 first cocoa beans exporters[247].

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[235] A. Higuchi, M. Moritaka & S. Fukuda, « An analysis of the Peruvian jungle cocoa farmers: Acopagro cooperative vs. intermediaries – a case of study », *Agris on-line Papers in Economics and Informatics,* vol. II n° 4, 2010
[236] A. Higuchi, M. Moritaka & S. Fukuda, « An analysis of the Peruvian… », op. cit.
[237] Interview with a cooperative manager in Peru, 03/01/2016
[238] Interview with a cooperative manager in Peru, 03/01/2016
[239] SOS Faim, « Le pari coopératif… », op. cit.
[240] Interview with a cooperative manager in Peru, 03/01/2016
[241] Interview with a cooperative manager in Peru, 03/01/2016
[242] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.
[243] Interview with a cooperative manager in Peru, 03/01/2016
[244] SOS Faim, « Le pari coopératif… », op. cit.
[245] Interview with a cooperative manager in Peru, 03/01/2016
[246] Interview with a cooperative manager in Peru, 03/01/2016
[247] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.

4.2.1.3 The local buyers and intermediaries

The local buyers (*acopiadores locales* in Spanish) can be considered as the Peruvian equivalent the Ivorian *pisteurs.* Like the *pisteurs,* they are more or less independent as they are often prefinanced by local intermediaries who represent the exporters on the field. The prefinancement allows them, as it is the case in Ivory Coast, to be very reactive during peaks of the harvests: they have the money to pay in cash the producer. Like in Ivory Coast, the local buyers are capable to pay cash and directly the producers and compete strongly with the cooperatives that do not always have the funds to pay right away the producers that sell them their cocoa at the peak of the harvests.

Moreover, the buyers have a great knowledge of the field and know exactly when the cash payment is the most needed by the producers. One major consequence is that more than often, cooperatives' members sell their harvest not to their cooperative but to local buyers, which weakens a lot the cooperatives.

Finally, the local buyers are often the only one to go to the most remote areas of the jungle[248]. The producers located in the most isolated areas are thus more or less captive of these buyers, who have a high power of negotiation.

After the buyers there are the local intermediaries. The intermediaries are even more closely linked to exporters or industrials at the end of the chain[249]. This vertical integration is for example the model implemented by Amazonas Trading since the 2000s that holds six local intermediaries located throughout the country[250]. The vertical integration is supposed to be a very efficient system allowing exporters and industrials at the end of the chain to control the cocoa supply.

4.2.1.4 The exporters: the importance of the cooperatives

In Peru, cocoa beans represented almost 66% of the cocoa volume exported in 2013 whereas semi-processed products accounted for 28% and chocolate for 6%[251]. In value terms, the beans represented 56% of the sector's exports in 2013, semi-finished products 35% and chocolate 9%[252].

Regarding cocoa beans exports, the cooperatives were in the lead over the period 2000 – 2012 with six cooperatives amongst the 10 first Peruvian exporters amounting for about 58% of the market[253]. But their share is clearly in decrease since 2013, amounting now for 40%. This decrease is explained by the different crisis that Peruvian cocoa cooperatives currently face and the emergence of new actors[254].

4.2.1.5 The cocoa beans grinders and the chocolate manufacturers

The industrials of cocoa grinding and chocolate manufacturing sectors buy either from their local buyers or their local intermediaries.

Almost half of the Peruvian national production is bought each year by grinding and manufacturing industrials in Peru (in 2012, 47%)[255]. This share has been continuously increasing, driven by the growing rate of chocolate production in Peru: between 2007 and 2012, national chocolate production increased then by 19%[256].

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[248] A. Higuchi, M. Moritaka & S. Fukuda, « An analysis of the Peruvian… », op. cit.
[249] Fairtrade International, Internal report on fair trade cocoa chain, 2012 (non published)
[250] Fairtrade International, Internal report… op. cit.
[251] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.
[252] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.
[253] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.
[254] Interview with a cooperative manager in Peru, 03/01/2016
[255] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.
[256] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.

Imports of semi-processed products also increased: to produce at the lowest cost possible, it is sometimes more profitable for the industrials to import cocoa or semi-processed products from other countries in Latin America rather than exclusively rely on national production[257]. In 2013, Nestlé Peru and Kraft Foods Peru S.A. were the two first importers of semi-processed cocoa products[258].

4.2.2 *Impacts of conventional cocoa value chains*

This organization of the value chain has economic, social and environmental impacts on Peruvian cocoa producers which are analysed and detailed below.

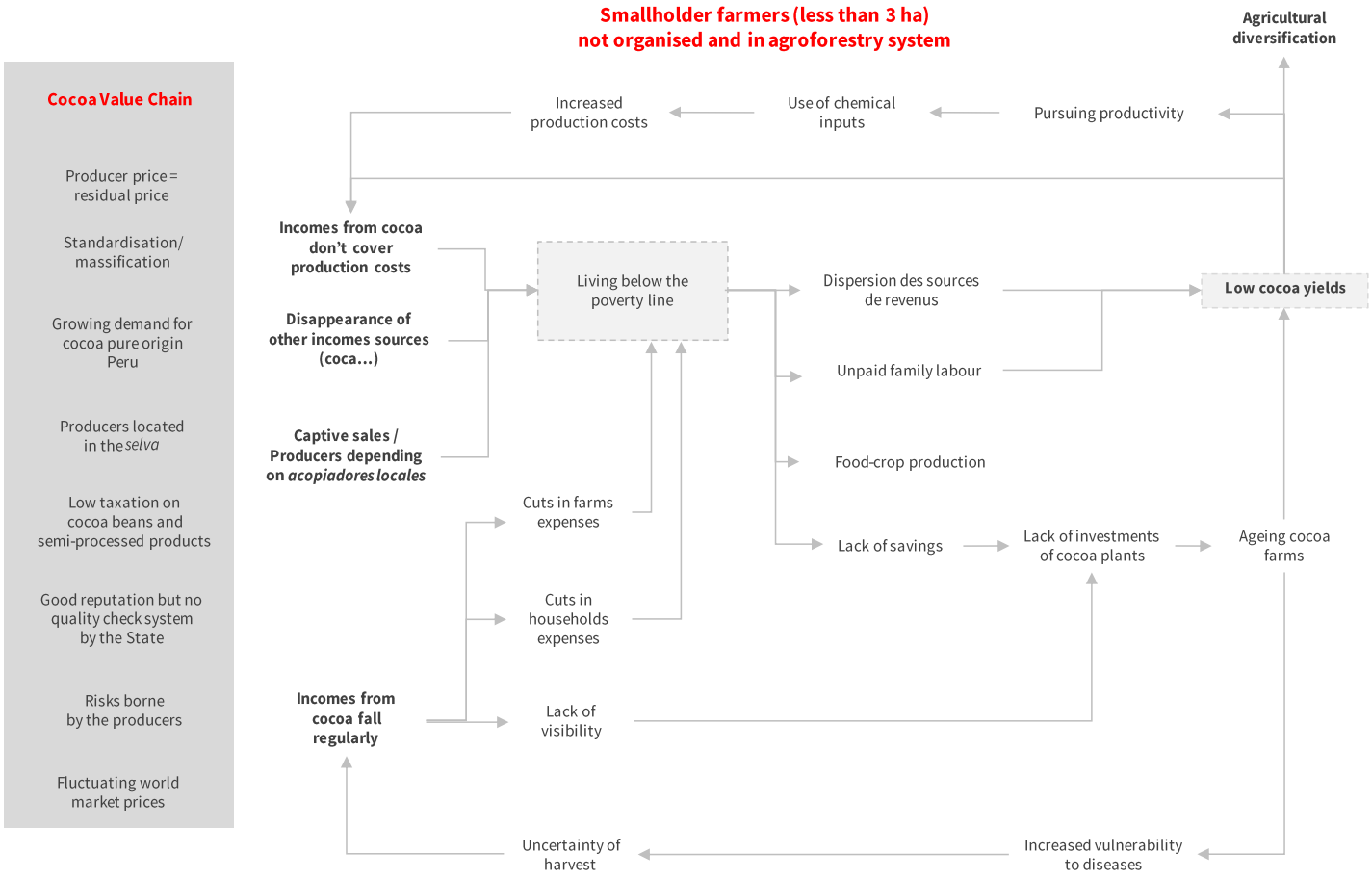

Figure 48. Impact pathways and loops in Peruvian conventional cocoa value chain.
Source: BASIC

[257] C. Huamanchumo de la Cuba, Análisis de la cadena..., op. cit.
[258] C. Huamanchumo de la Cuba, Análisis de la cadena..., op. cit.

4.2.2.1 Economic impacts

Yields are on average higher than in Ivory Coast but revenues are too low for Peruvian producers to get out of poverty

Yields registered on Peru cocoa farms are considered among the highest in Latin America [259]. However, the figures vary depending on crop varieties, especially for the supposedly highly productive CCN51. Nationally, average cocoa yields are 50% higher than those in Ivory Coast. The average yield of a Peruvian cocoa farm is between 600kg and 800 kg per year and per hectare[260]. Although these figures are considered quite good, Peruvian cocoa growers are generally poorer than the rest of the population: in 2014, it is estimated that the income earn by cocoa producers was about 1,900 USD per person and per year, while Peruvian absolute poverty line estimated by the National Statistics Institute (INEI) was 2600 USD per person and per year, cocoa representing on average 60% to 70% of family revenues[261].

Such income is subject to the variations of the world price of cocoa since there is no fixed minimum price in the conventional cocoa Peruvian system. The price at which the cocoa bean is bought in Peru is therefore a residual price, subject to the law of supply and demand, whereas there is a minimum guaranteed price by the state in Ivory Coast. However, this lack of price regulation also leaves the possibility for local collectors and intermediaries to enhance the quality of the bean they buy: prices can vary a lot depending on the variety and quality of the cocoa sold[262]. These high prices will nevertheless concern niche markets and the majority of farmers only produce CCN51 (a variety derived from Forastero) which selling price does not benefit from quality 'bonus'.

In the end, if a few emerging producers on the Peruvian cocoa market are able to take advantage of the reputation and quality of the cocoa produced in Peru, the majority of farmers live below or at the limit of the poverty line and their precarious situation creates a series economic, social and environmental impacts.

> *« On the issue of new generations taking on the cocoa farms, it seems clear that very few children want to stay in cocoa production when they are grown up. This is also true the other way: very few parents [...]wish for their children that they engage in cocoa production because they believe 'this is not life' and their children must try their chances elsewhere. »*
>
> *An NGO official*

The lack of savings capacity

Living below the poverty line for the majority of them, Peruvian cocoa farmers do not earn enough income from cocoa to allow investment in planting. Most of them work in family farming and agroforestry set-ups, multiplying cash crops and food crops in order to secure their situation[263]. The main disadvantage of this diversification is the dispersion of the work on the farm which has a negative impact on cocoa yields and maintenance of plots. In the long term, a vicious cycle takes place where the cumulative lack of work on the farm together with the natural aging of plants leads to loss of efficiency, increased vulnerability to diseases and growing uncertainty on harvested volumes.

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[259] Technoserve, *Building a Sustainable...,* op. cit.
[260] 600 kg / an / ha selon (A. Aponte Martinez, « Desarrollo del cacao en Perú », Ministère de l'agriculture du Pérou, mai 2013), 650 kg / an / ha (Technoserve, *Building a Sustainable...,* op. cit.) et jusqu'à 2,5 t / an / ha selon G. E. Nolte, « Cocoa Update… », op. cit. pour le CCN51.
[261] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact...,* op. cit.
[262] Entretien le 10 décembre 2015 avec un responsable développement durable chez un transformateur de cacao
[263] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact...,* op. cit.

4.2.2.2 Social impacts

Insufficient food crops to ensure food security for cocoa families

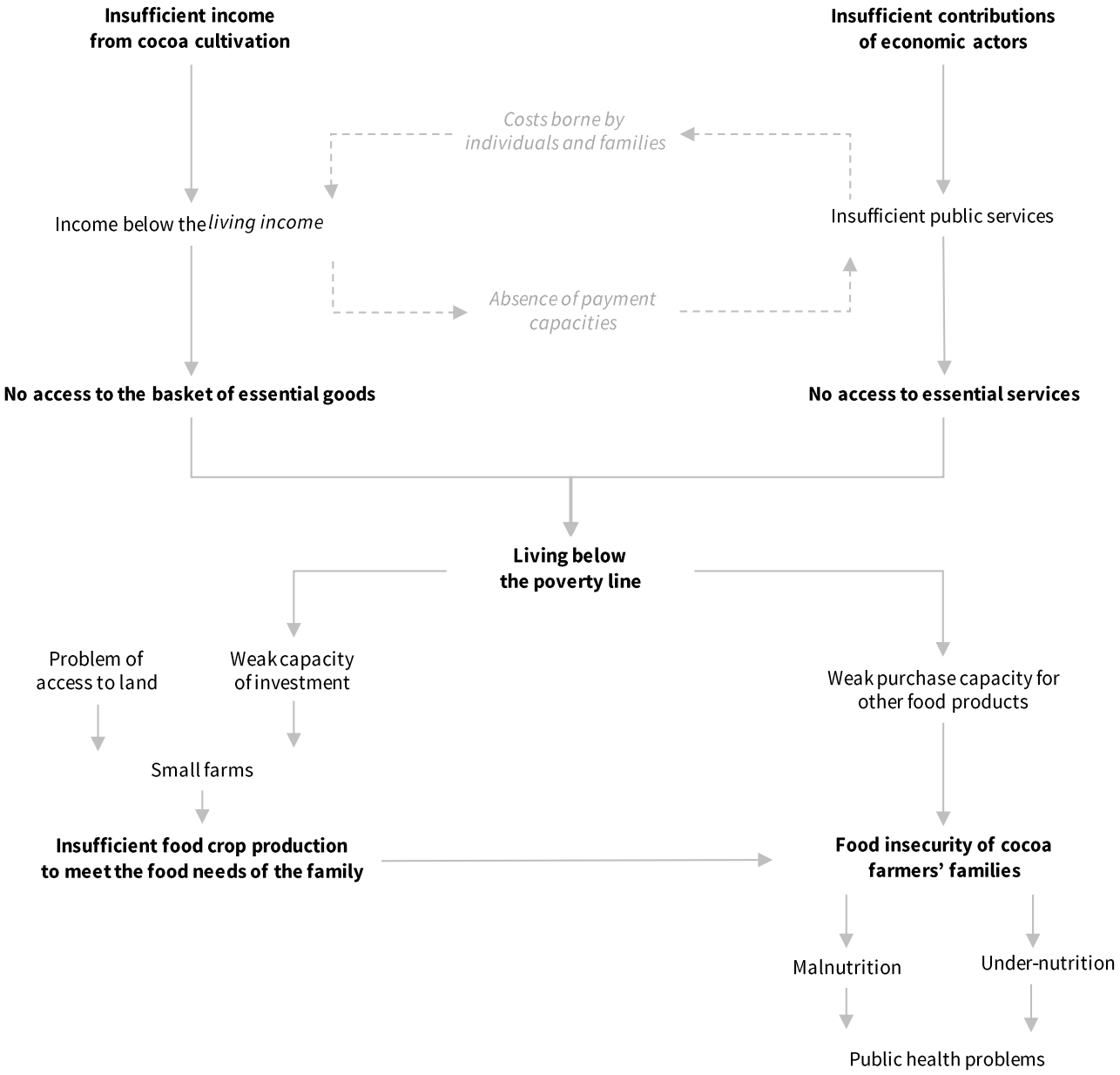

Figure 49. Impact pathways and loops related to food insecurity in the Peruvian conventional cocoa sector. Source: BASIC

One of the consequence of the lack of savings capacity of cocoa farmers is their very low level of investment in cash crops but also in food crops. This inability is a threat to the food security of farmers and their families. It is particularly meaningful as the income earned from cocoa sales cannot always compensate for the lack of food crops through purchasing capacity[264].

[264] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…*, op. cit.

If food crops allow some resilience of cocoa producers during the 'low season', they are not sufficient to provide food security for their families [265].

Existing child labour that is weakly documented

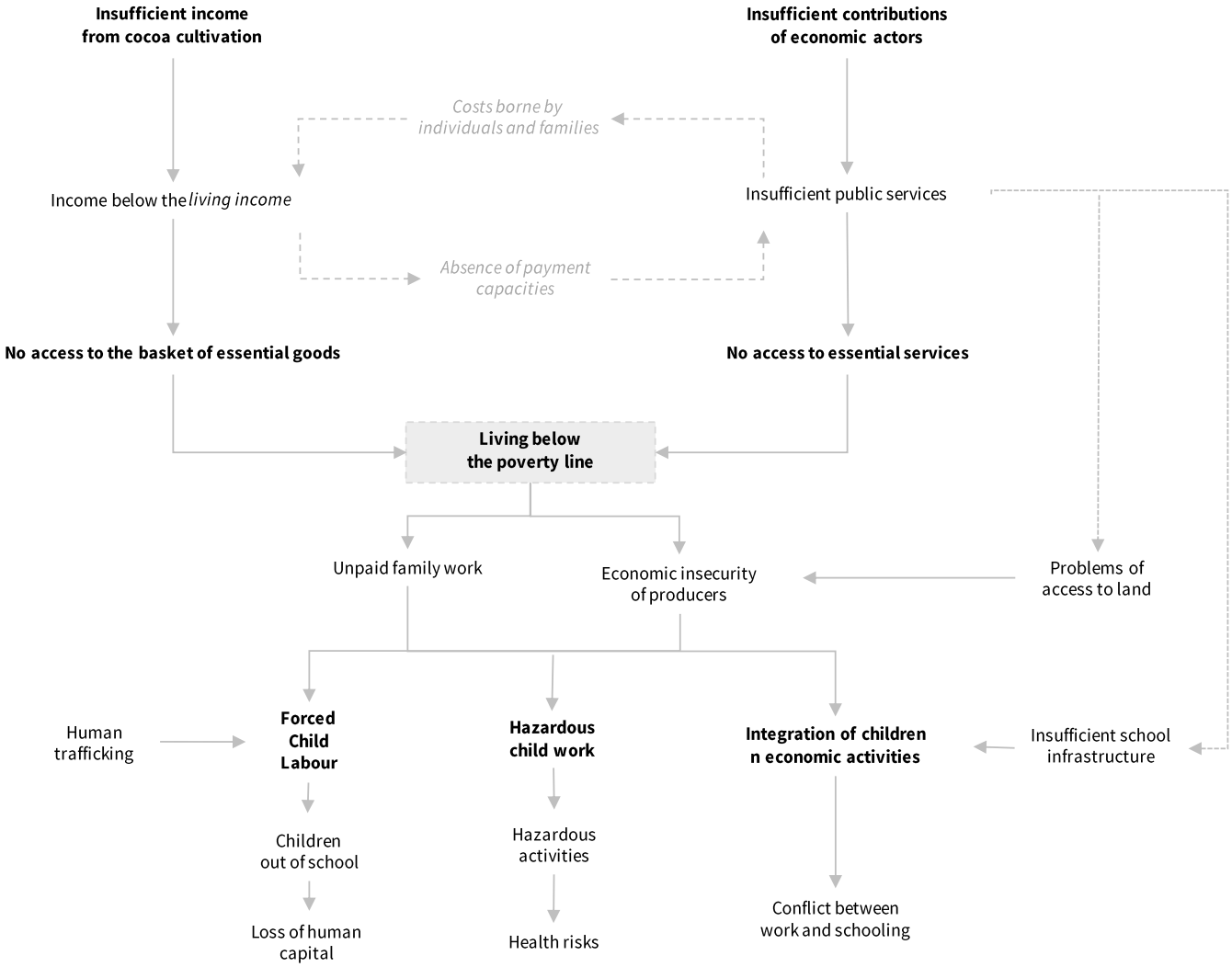

Figure 50. Impact pathways and loops related to child labour in the Peruvian conventional cocoa sector. Source: BASIC

Child labour is very little documented in Peru, to date only one report has been published on the subject by the ILO in 2008. As a result, little information is available on this field, even less in the specific case of the cultivation of cocoa in comparison to the Ivory Coast.

However, the ILO report shows that there are cases of child labour in the Peruvian rural areas producing cocoa, where 80% of children combine school and family work [266]. Of these 80%, the majority of working children (75%) carried less than 20 hours of weekly work on the family farm[267] while 10% performed work exceeding 40 hours[268]. As in Ivory Coast, it seems that the

[265] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[266] Organisation Internationale du Travail (OIT) et Institut national de la statistique et de l'informatique (INEI) du Pérou, *Trabajo infantil en el Perú. Magnitud y perfiles vulnerables. Informe nacional 2007-2008*, 2009
[267] Organisation Internationale du Travail (OIT) et Institut national de la statistique et de l'informatique (INEI) du Pérou, *Trabajo infantil…,* op. cit.
[268] Organisation Internationale du Travail (OIT) et Institut national de la statistique et de l'informatique (INEI) du Pérou, *Trabajo infantil…,* op. cit.

combination of poverty situations and irregular income mainly explains the existence of child labour. Most parents of these children are also reported having worked when they were young, making them believe that child labour must not take precedence over education which is the main access to social upgrading and increase of human capital[269]. The fact that parents value education certainly helps explain why the majority of children combines work and school.

As a result, the majority of children performing less than 20 hours of weekly work mainly spend their time attending school activities and therefore do not suffer - at least in statistical terms - of the work performed in family farms. For the remaining 10%, it seems that the enrolment rate at school is smaller and tends to decrease when they grow up.
Overall, approximately 70% of the children working on family farms are considered performing dangerous tasks (handling machete, applying chemical inputs, carrying heavy loads).

Il This suggests that child labour is as much an issue in Peru as it is in Ivory Coast, except that child slavery do not seem to exist in Peru according to the ILO report.

4.2.2.3 Environmental impacts

Deforestation: a future major issue?

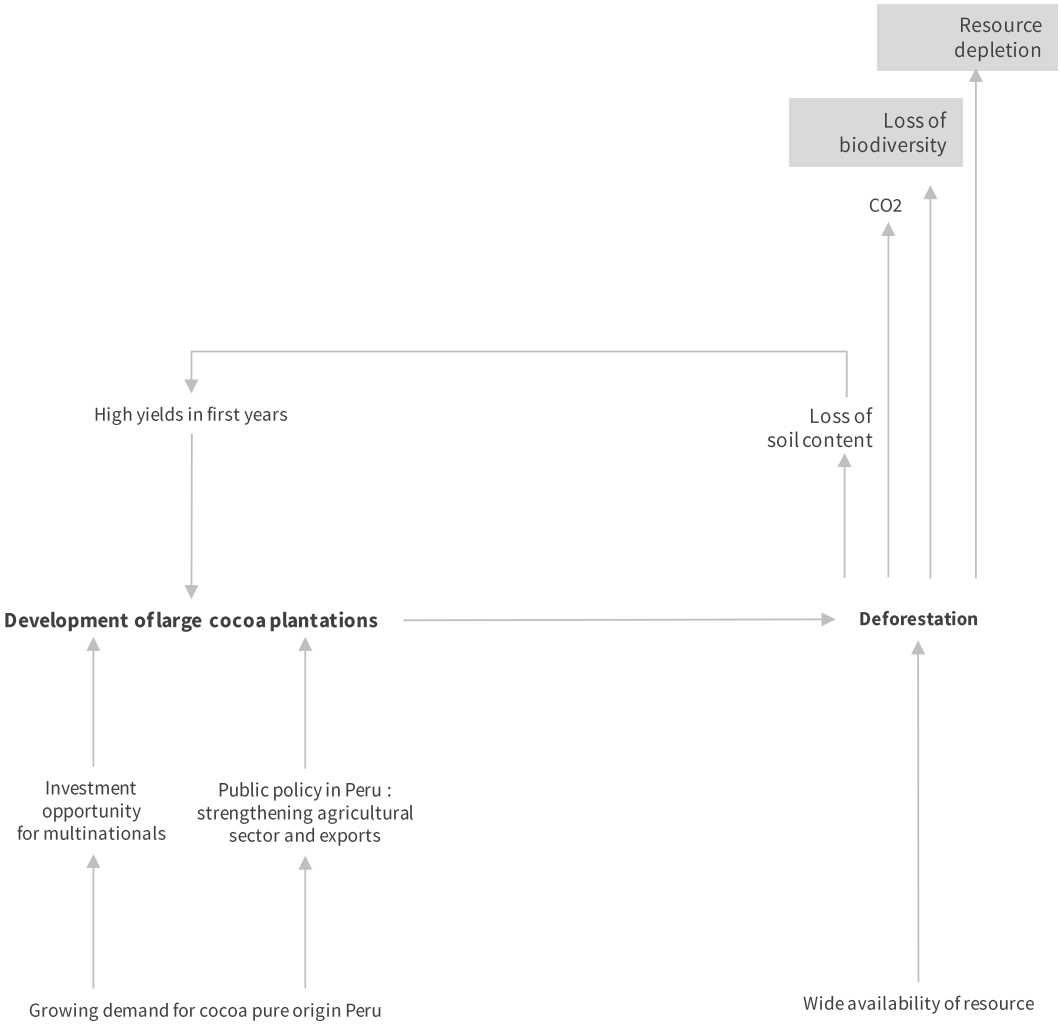

Figure 51. Impact pathways and loops related to deforestation in the Peruvian conventional cocoa sector. Source: BASIC

[269] Organisation Internationale du Travail (OIT) et Institut national de la statistique et de l'informatique (INEI) du Pérou, *Trabajo infantil...,* op. cit.

Unlike Ivory Coast, deforestation is not, at present, a major issue related to cocoa cultivation in Peru. As seen previously, the majority of Peruvian cocoa farms are in agroforestry set-ups. Even if an agroforestry plantation is not the equivalent of a forest plot, this agricultural system is comparatively much more respectful of the environment, biodiversity and ecosystems than 'full light' cultivation which predominates in Ivory coast. It is even considered as one of the main ways to fight against deforestation.

> *« Agroforestry is traditionally very much developed in Peru. That said, it has also become fashionable in recent years and is therefore better valued [...] The agroforestry and organic agriculture are interesting for producers, in economic as well as social terms: however, the primary motivation remains the economic interest of farmers. »*
>
> *An NGO official*

Nevertheless, massive deforestation was documented in 2014 in the Peruvian Amazon basin [270]. They were caused by a transnational company, United Cacao, which deforested 7,000 hectares[271] of which a little more than 2 000 hectares for cocoa cultivation. Despite complaints by the Peruvian State, this deforestation has not been ruled as illegal by the Peruvian justice[272]. The CEO of United Cacao, Dennis Melka, said he wanted to apply the agro-industrial model of Southeast Asia to the Peruvian cocoa plantations; he thinks the country is one of the places on earth with the lowest production costs, tax-free exports and high yields[273].

If this information is too recent to be analysed systemically or to know its impacts, it is nevertheless indicative of a dynamic that seems to be more global. Economic and political instability in Ivory Coast and fears that the climatic conditions would no longer allow for cocoa farming in this country seem to motivate huge investments in other countries such as Peru. United Cacao is one example, perhaps the first of a series to come.

[270] Monitoring of the Andean Amazon Project (MAAP), « MAAP Synthesis #1: Patterns and Drivers of Deforestation in the Peruvian Amazon », 19 septembre 2015 ; Monitoring of the Andean Amazon Project (MAAP), « MAAP #25: Deforestation Hotspots in the Peruvian Amazon, 2012-2014 », 20 février 2016
[271] D. Collins, « Head of London-listed company linked to illegal clearing of Peru rainforest », *The Guardian,* 7 avril 2015
[272] Stock Market Wire, « Peru Supreme Court rules in favour of United Cacao », *Interactive Investor,* 15 février 2016
[273] J. Ng, « United Cacao replicates Southeast Asia's plantation model in Peru, says CEO Melka », *The Edge Singapore,* 13 juillet 2015

4.3 *The fair trade value chain: a strong mitigation of the social impacts of conventional cocoa, and positive dynamics of local development*

4.3.1 A structured and major cooperative movement for the development of fair trade in Peru

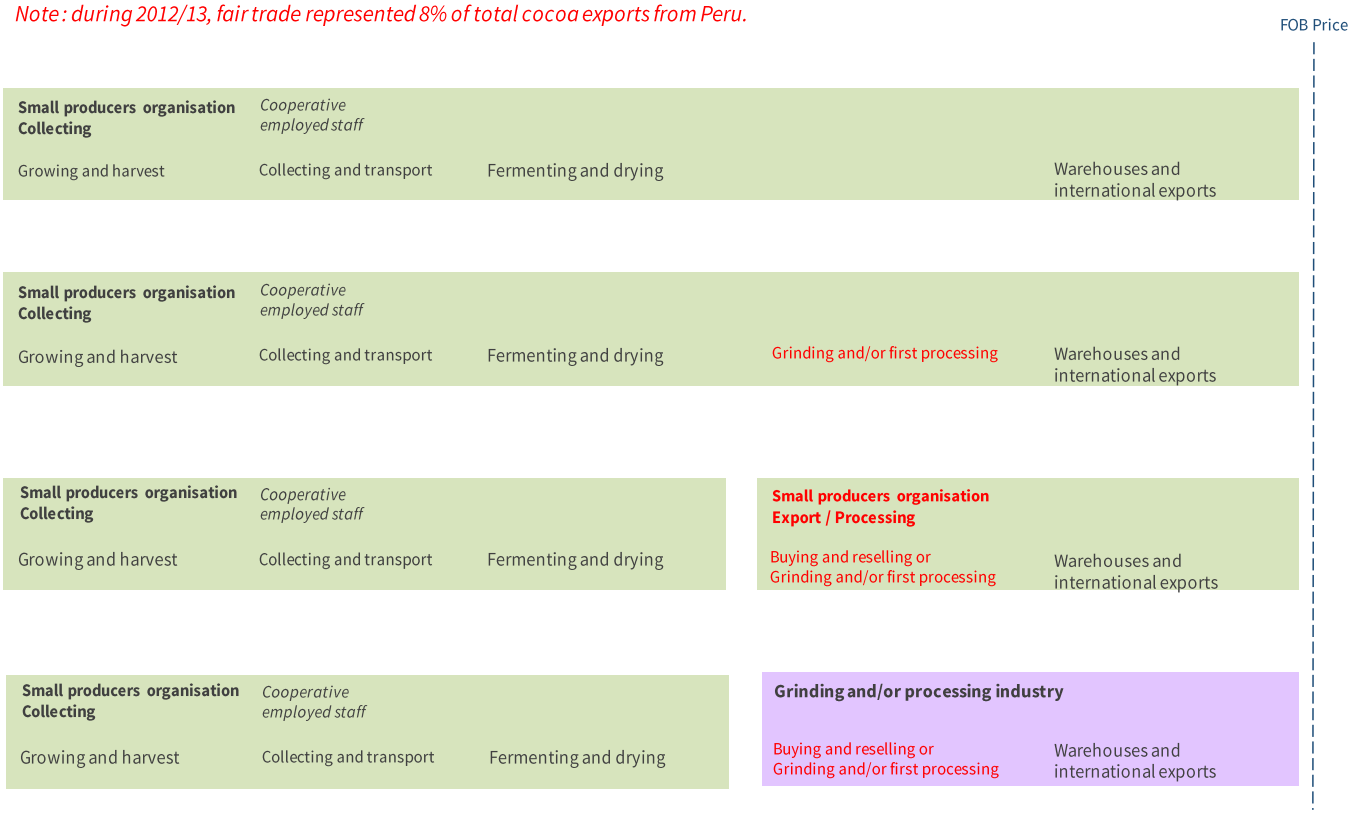

Figure 52. Organizational diagrams of fair trade cocoa value chains in Peru.
Source: BASIC

As described above, the Peruvian cooperative movement is much more developed than the Ivorian one. Historically, this movement has experienced times of crisis - and still does - but remains the foundation stone of an important social dynamics in the country, a strong feature of Peru which is reflected in the statistics of Peruvian agricultural commodities.

Cooperatives were able to strengthen and develop their base[274] as they benefited from important logistical and financial support from international cooperation, mainly from the USA[275], in their quest to eradicate coca cultivation through the promotion of cocoa farming has an alternative. For example, the Acopagro cooperative created in 1992 with the support of the UN is one of the several organisations that contributed to the retraining of farmers from coca to cocoa[276].

Better structured, these cooperatives have gained a relatively large weight in the Peruvian cocoa sector, which is also reflected in the global fair trade cocoa market. Some of them first developed through the fair trade coffee sector before reinvesting their experience in cocoa afterwards[277]. In the 2012-2013 campaign, fair trade cocoa volumes exported by cooperatives accounted for 8% of the entire Peruvian sector[278].

[274] SOS Faim, « Le pari coopératif… », op. cit.
[275] G. E. Nolte, « Cocoa Update… », op. cit.
[276] A. Higuchi, M. Moritaka et S. Fukuda, « An analysis of the Peruvian… », op. cit.
[277] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…*, op. cit.; Entretien le 1er mars 2016 avec un responsable de coopérative au Pérou
[278] C. Huamanchumo de la Cuba, Análisis de la cadena…, op. cit.

« In Peru, recent advances in the cocoa sector are spectacular and for me epitomize the result of fair trade. The figures speak for themselves: production increased from 40 000 to 100 000 hectares of cocoa, the value of exports rose from 16 to 257 million soles. »

Santiago Paz, manager of the cooperative Norandino

Cocoa fair trade cooperatives in Peru can play different roles. Some only collect the cocoa beans from farmers, then manage the drying and fermenting before selling the cocoa. This cocoa can be sold either to other cooperatives that have the capacity to organize international exports or process the product, or to non-cooperative organizations looking for fair trade cocoa.

Some unions, such as Naranjillo, have the capacity to manage the entire cocoa chain in Peru, from collection to export, either in the form of beans or semi-processed products.

4.3.2 Significant impacts of fair trade in Peru

The changes between fair trade and conventional cocoa value chains are vectors of positive impacts on the working conditions and lives of producers, which are summarized in the following diagram and explained in the following section.

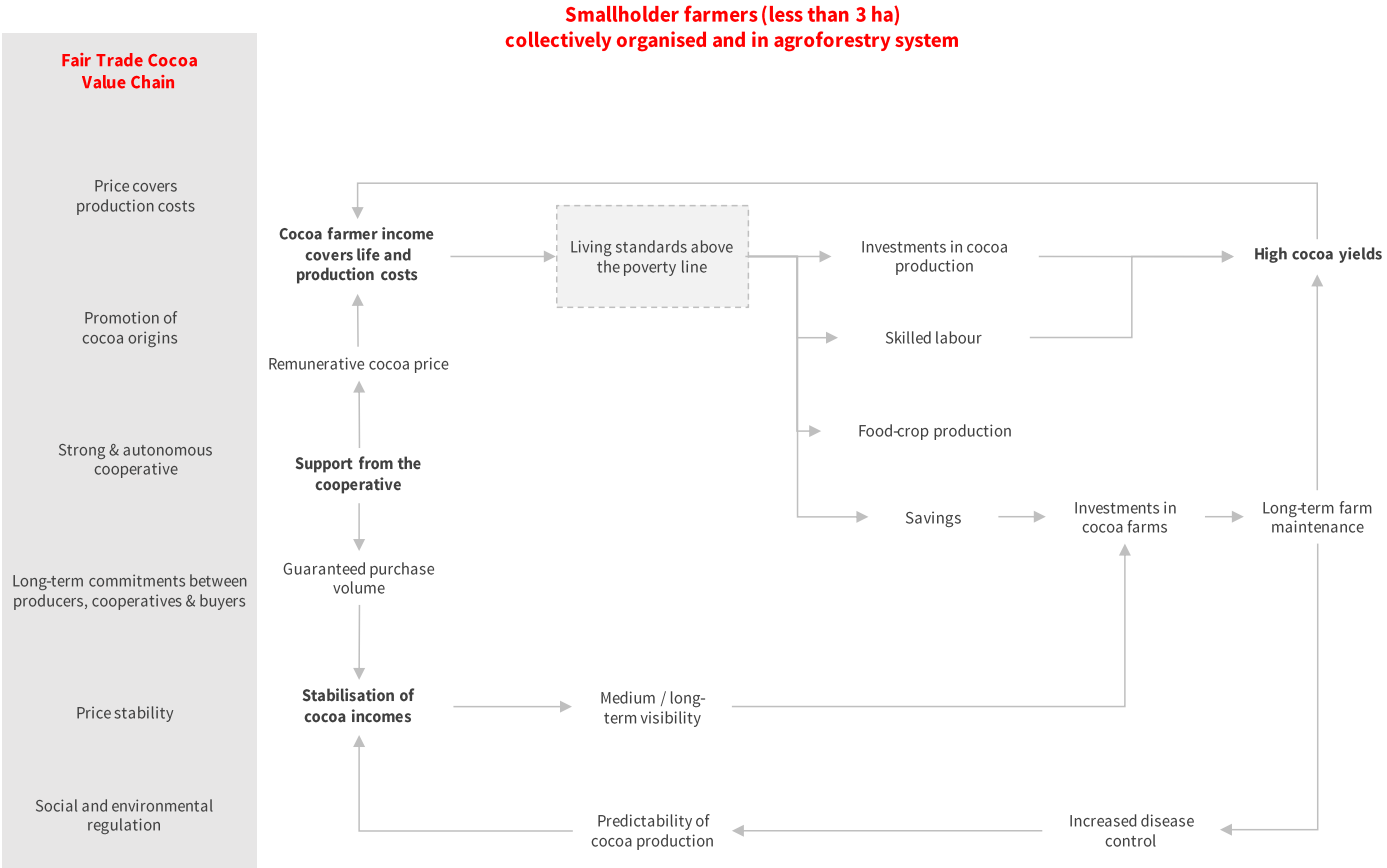

Figure 53. Impact pathways and loops of Peruvian fair trade cocoa value chains. Source: BASIC

4.3.2.1 Increasing and stabilized producers' income that enable them to save and invest

Higher and more stable incomes

The available studies show quite clearly the positive impact of fair trade cocoa chains on the income received by the producer members of cooperatives.

On average, fair trade farmers receive a larger percentage of the FOB price of the cocoa. For example, during the 2011 campaign, conventional cocoa producers of the San Martin region received between 64% and 79% of the FOB price of cocoa, whereas fair trade producers received roughly 84% of the FOB price of fair trade cocoa[279]. These differences may represent in extreme cases up to 800 USD more in annual income for fair trade cocoa producers.

In addition, producers selling their cocoa under fair trade conditions receive a second payment (and even a third one in some cooperatives). This second payment may be partly constituted by the fair premium, paid directly to farmers in the form of additional income and by decision of the general assembly of the cooperative. For example, in 2008, some cooperatives in the San Martin region have decided to use the fair trade premium to pay to farmers an additional 82 USD per ton of cocoa[280].

Beyond the increase of cocoa prices, producers value the stability of prices and incomes provided by the cooperatives selling fair trade cocoa [281]. This stability is linked to the distribution of payments band the long-term commitment between producers and the cooperative in which they are members. It is also related to the longer-term contracts between the cooperatives and fair trade buyers. Combining these elements enables producers to achieve sufficient income to cover their costs of production and also their costs of living, thereby overcoming the poverty line in most cases.

Savings and investment capacity

Thanks to the increase of their income, producers are able to save but also to invest in their cocoa farms, in financial as well as human terms. Building on this renewed savings and investment capacity, most farmers increase the area of cocoa cultivation, and also most often jointly increase the area for food crops[282]. However, existing studies show that the producers engaged in fair trade tend to be more specialized than conventional farmers. As fair trade Cocoa is better paid and generates a more stable income, it is a more attractive cash crop than other commodities whose world prices are less favourable (e.g. coffee)[283].

As a result, the increase of income achieved by cocoa farmers enables them to invest on their farm and to develop new cultivation areas. As cocoa is overwhelmingly grown in agroforestry systems in Peru, this specialization does not harm the diversification of food crops.

[279] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[280] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[281] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[282] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[283] O. Tuesta Hidalgo, A. Julca Otiniano, R. Borjas Ventura, P. Rodriguez Quispe et M. Santistevan Mendez, « Tipología de fincas cacaoteras en la subcuenca media del rio Huyabamba, distrito de Huicungo (San Martin, Perú) », *Ecología Aplicada*, 13(2), 2014

4.3.2.2 *The positive impacts of fair trade for producers, their families and communities*

Technical assistance, increased cocoa yields and reduced child labour

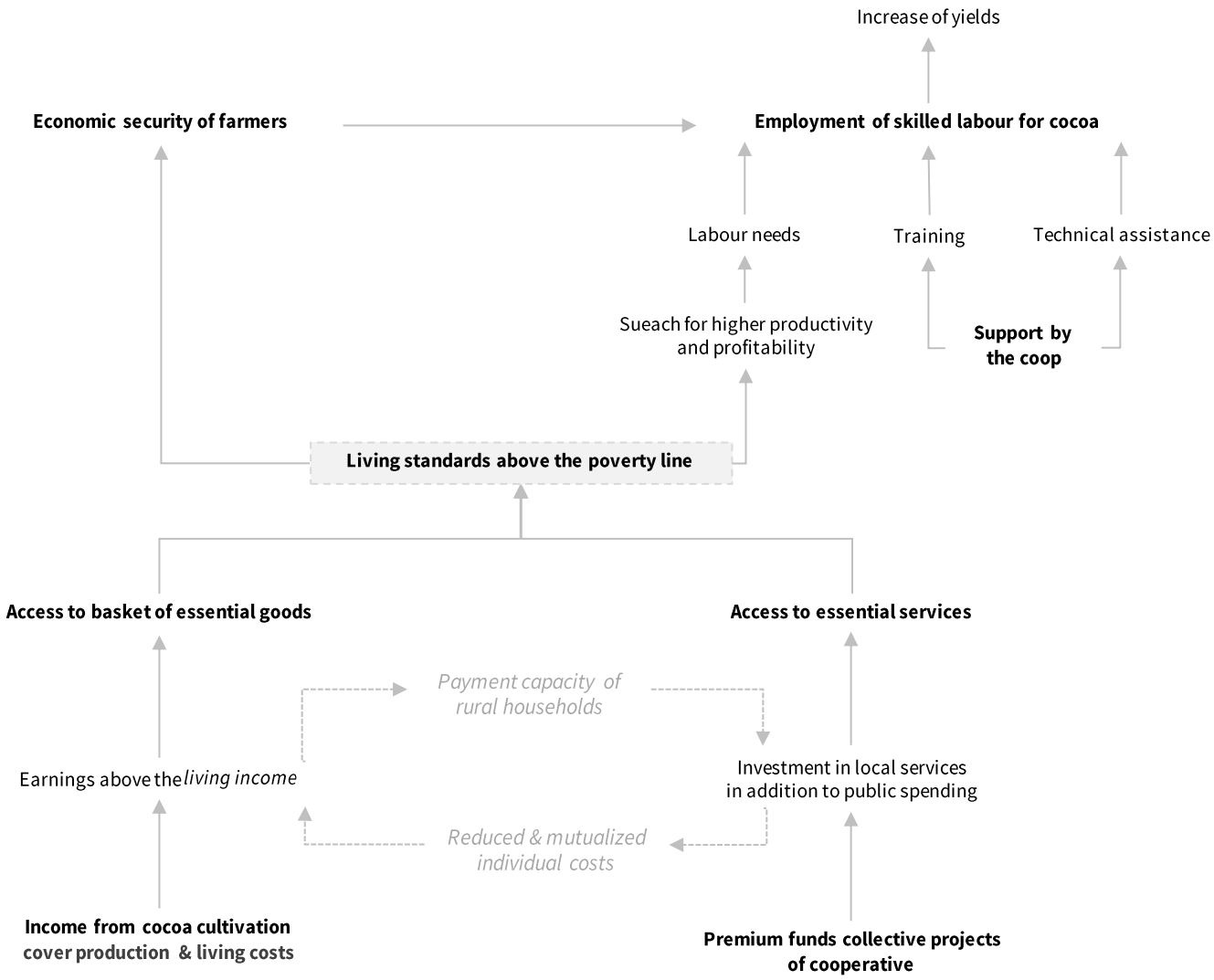

Figure 54. Chemins et boucles d'impacts liés à la main d'œuvre dans la filière cacao péruvienne équitable
Source: BASIC

Investments in cocoa farming are also encouraged by the easy access for cocoa farmers to the technical assistance delivered by cooperatives and funded partly by the fair trade premium.

This technical assistance seems to have a positive effect on yields and subsequently on producer income: according to an independent study published in 2014, a fair trade cocoa agroforestry farm benefiting from such assistance can increase its yields per hectare from 600 kg to 950 kg on average[284] .

The increase in yields is not only explained by the technical assistance delivered by the cooperative. The farms that manage to level up their yields are also those where producers are overwhelmingly employing skilled paid labour to help them with their

[284] O. Tuesta Hidalgo, A. Julca Otiniano, R. Borjas Ventura, P. Rodriguez Quispe et M. Santistevan Mendez, « Tipología de fincas cacaoteras… », op. cit.

farm work rather than their family and/or their children[285]. This use of qualified workforce is made possible by the increase of producer income thanks to fair trade, and seems to have a very positive effect on child labour. However, there is a lack of studies investigating whether child labour is eradicated in favour of qualified and paid work by adults in fair trade cocoa farms.

In summary, it seems that a virtuous circle is created, linking technical assistance by the cooperative, increasing yields, growth of producer income from cocoa cultivation and use of skilled and paid labour, not just family or community.

However, this balance is fragile. Indeed, the practical implementation of the instruction provided by technical assistance is time-consuming: the working days on the farm increase very significantly, from 110 to 175 days per year on some plantations studied[286]. The balance is only maintained if the producer selling price of cocoa is high enough to absorb this large increase in working time and encourages them to use primarily skilled and paid labour rather than family or children.

Improving health conditions through the reduction of chemical inputs and access to healthcare infrastructure

Technical assistance delivered to fair trade cocoa farmers by cooperatives also encourages to reduce the use of chemical inputs. As explained previously, these inputs are generally mildly used in cocoa farms in Peru because they are quite expensive. The fair trade cooperatives conduct programs to further reduce the use of pesticides and only 3% [287] to 13%[288] of their members actually report using chemical inputs. This low use of chemical inputs reduces the risks and side effects experienced by producers [289] and consequently improves their health conditions. In the event that chemical inputs are still used, cooperatives provide safety guidelines and adequate protective equipment through technical assistance[290].

The fair trade premium also provides financing for health infrastructure in the Peruvian context where access to healthcare in rural areas is often very limited. Cooperatives fund regular trips of doctors to their area to visit producers and their families directly. Other cooperatives have even chosen to hire medical personnel as employees so that they are full-time residents in the region and provide services to producers and their families[291].

Access to education facilitated by investments through the fair trade premium

In remote areas where school services are also lacking, cooperatives invest in the education of children. Some cooperatives directly fund teachers so they live on site, like doctors [292].

Where school infrastructure is more developed, cooperatives can support parents for the payment of tuition fees or the purchase of school supplies for children [293].

[285] O. Tuesta Hidalgo, A. Julca Otiniano, R. Borjas Ventura, P. Rodriguez Quispe et M. Santistevan Mendez, « Tipología de fincas cacaoteras… », op. cit.
[286] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[287] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[288] O. Tuesta Hidalgo, A. Julca Otiniano, R. Borjas Ventura, P. Rodriguez Quispe et M. Santistevan Mendez, « Tipología de fincas cacaoteras… », op. cit.
[289] Agronomes et vétérinaires sans frontières (AVSF), Le développement du cacao péruvien. Stratégies pour promouvoir et renforcer la filière cacao, 2013
[290] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create a Sustainable Supply of Goods. NPOs' Impact on Peruvian Cocoa Farmers' Quality of Life », School of Business, Economics and Law, Université de Gothenburg, 2014
[291] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create… », op. cit.
[292] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create… », op. cit.
[293] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create… », op. cit.

Increased areas of food crop production and positive impacts on household food security

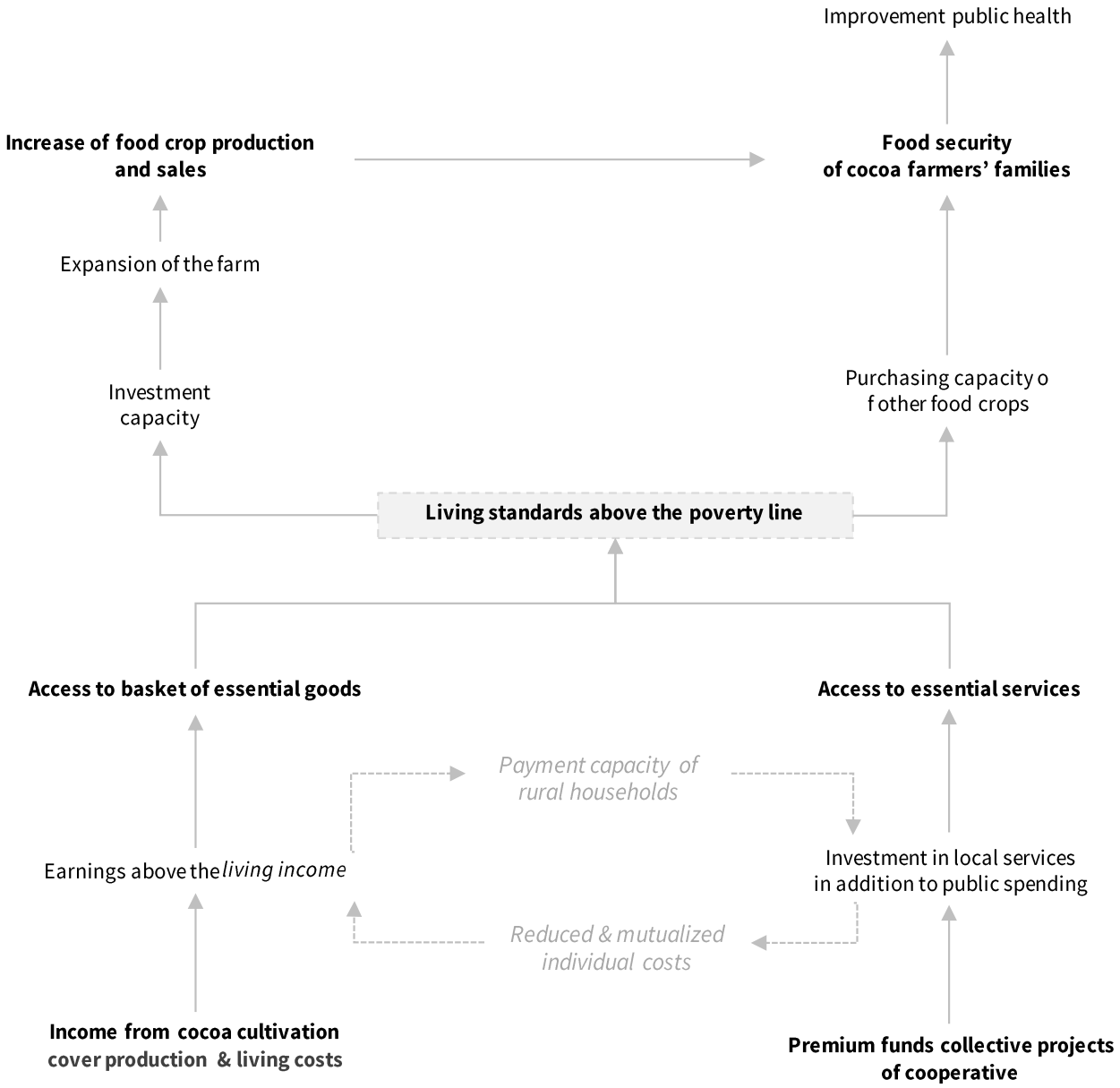

Figure 55. Impact pathways and loops of fair trade cocoa value chains in Peru on food security.
Source: BASIC

As explained previously, the increased producers' income generated by fair trade cocoa value chains enable investment on the farms. If this investment often results in greater area of cocoa cultivation, it is also accompanied by an increase in the area of food crops cultivation, although more modest. The majority of farmers produce more and more food on their own farm while also producing more cocoa[294]. Periods of food shortage and food insecurity seem to get rare, which ultimately contributes to the improvement of the health of all fair trade cocoa farmers' families.

[294] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit. ; O. Tuesta Hidalgo, A. Julca Otiniano, R. Borjas Ventura, P. Rodriguez Quispe et M. Santistevan Mendez, « Tipología de fincas cacaoteras… », op. cit.

Local development dynamics supported by the investments of the fair premium by the cooperative

As described earlier, the fair premium is usually split between funding collective and community projects and additional compensation paid directly to producers.

Regarding collective projects, a bit more than half of the fair trade premium is invested on average in the functioning of the cooperative and in support to producers[295]. The strengthening of the producer organization helps maintain the collective momentum around the project, integrate new members, and improve the efficiency of the cooperative. The fair trade premium may be used in part to fund administrative or accounting training[296], whereby increasing the competitiveness of the cooperative with regard to local intermediaries who receive massive support from the industrial sector.

In addition, fair trade seems to have a significant impact on the place of women in the Peruvian cocoa sector. While they are generally excluded from producer organizations, impact studies indicate the presence of women who are elected representatives in fair trade cocoa cooperatives, actively involved in their management and governance. More broadly, the fact that wives can represent their husbands in all meetings of the fair trade cooperatives, and participate fully in the training sessions organized collectively is a major lever for change documented by existing studies[297].

4.3.2.3 Few environmental impacts but the importance to preserve agroforestry systems so as to limit chemical inputs

As described previously, the environmental footprint of Peru cocoa farms is usually rather limited as cocoa is predominantly cultivated in agroforestry systems which naturally use low chemical inputs[298] (which are anyway considered too expensive to be purchased by most producers). Nevertheless, the constant search of higher volumes, including for niche markets, can create a mid-term risk of increasing the use of chemical inputs in order to maximize the productivity of cocoa farms.

However, in the current context of pressure on forests by large agricultural farms, fair trade can be seen in the Peruvian cocoa sector as a bulwark against possible excesses of industrialisation. By promoting traditional cocoa farming in Peru, fair trade supports agroforestry systems helping to preserve local ecosystems, biodiversity and limiting the impact of pollution for chemical inputs.

4.4 Sustainable value chains and their impacts

4.4.1 A recent establishment of sustainable schemes in Peru which already have a significant weight

Unlike the Ivorian cocoa context, sustainable certifications arrived well after fair trade in Peru. The main sustainable certifications began operations in 2008 but have grown heterogeneously.
On the one hand, less than 2% of global volumes of cocoa beans certified by Rainforest Alliance are produced in Peru, which correspond to 2,800 tons in 2014.
In comparison, UTZ has developed rapidly: 20% of the country's cocoa production is said to be UTZ certified (11,140 tonnes sold in 2014), which represents about 5% of global cocoa volumes certified by UTZ.[299].
As a result, in 2014, sustainable certifications represented 22% of cocoa bean sales in Peru, exceeding fair trade which accounted for 8% of sales only.

[295] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[296] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create… », op. cit.
[297] K. Laroche, R. Jimenez, et V. Nelson, *Assessing the impact…,* op. cit.
[298] Institut interaméricain de coopération pour l'agriculture (IICA), *Situación y Perspectivas de la Cadena de Cacao Chocolate en el Perú,* Ministère de l'agriculture du Pérou, 2009
[299] Potts J., M. Lynch, A. Wilkings, G. Huppé, M. Cunningham, V. Voora, The State of Sustainability Initiatives Review 2014, IISD et IIED, 2014 op. cit.

Note : during 2012/13, UTZ and Rainforest Alliance represented 25% of total cocoa exports from Peru.

Figure 56. Organizational diagrams of sustainable cocoa value chains in Peru.
Source: BASIC

4.4.2 *Limited differences in impacts between conventional and sustainable cocoa value chains in Peru*

The cocoa value chain linked to sustainable certifications described above generate economic, social and environmental impacts that differ greatly from those detailed for fair trade (see chart below).

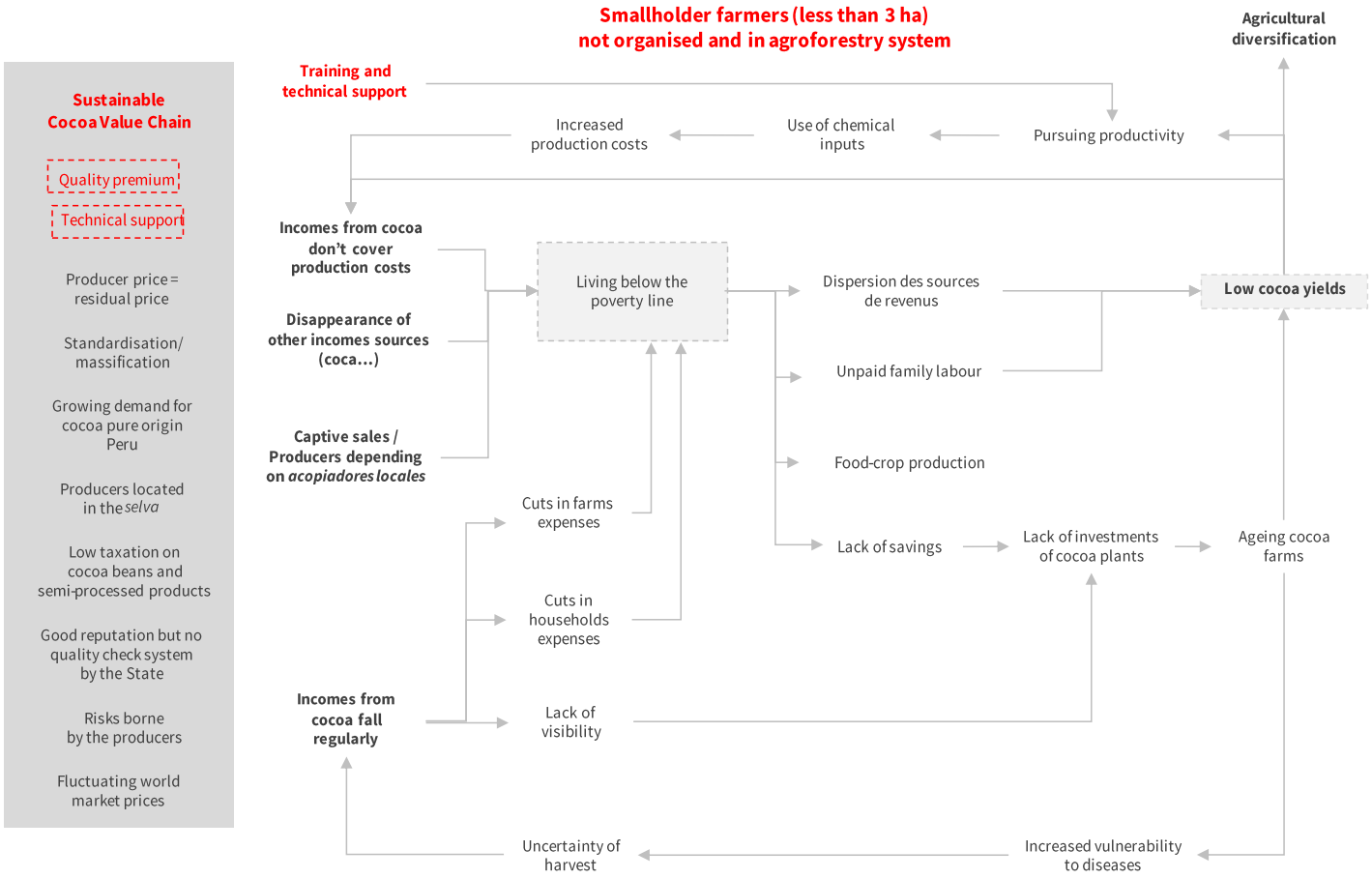

Figure 57. Impact pathways and loops of the Peruvian sustainable cocoa value chains.
Source: BASIC

4.4.2.1 *Incomes are globally close to those of non-certified producers: yields increase but production costs too*

Sustainable certifications located in Peru seek to improve the yields of Peruvian cocoa producers while reducing production costs in order to increase their income [300]. To achieve this, sustainable certifications mainly finance technical assistance for certified producers, focusing on improving the use of chemical inputs to fertilize the soil and prevent diseases, providing better cutting techniques and replanting new cocoa varieties.

For example, the Rainforest Alliance program promotes the combination of highly productive and high quality cocoa varieties on the same farm. The underlying idea is that producers can capitalize on productivity of some cocoa plants while earning increased income thanks to the production of quality cocoa beans sold at higher price on niche markets.

Some studies, based on the results obtained by sustainable certifications in other regions and products, state that these initiatives have an impact on yields and therefore manage to increase the incomes of Peruvian certified cocoa producers[301].

[300] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create... », op. cit.
[301] S. Bowall et S. Pettersson Dahlgren sous la supervision de A. Sandoff, « How to Create... », op. cit.

However, the conversion of cocoa farms to sustainable certifications also involves a very substantial increase in production costs. The implementation of agricultural practices recommended by the technical assistance delivered by sustainable certifications requires much more working time of cocoa farmers[302].

This increase in working time is however not compensated financially, in comparison with fair trade cocoa: the price difference between sustainable and conventional cocoa is actually very low [303].

Moreover, if there is a premium for sustainable certifications in Peru, it is very low with an average of USD 50 per tonne against USD 150 to USD 200 for fair trade or organic cocoa[304].

Thus, even in the case of a threefold increase in yields per hectare which can be sometimes documented in the case of sustainable certifications[305], the amount of additional working time which is required results in slight improvement of the incomes of cocoa producers who remain just above the poverty line.

As a result, the studies and information we have been able to collect on sustainable cocoa value chains in Peru do not demonstrate the existence of virtuous impact loops like those documented by the impact assessments on fair trade cocoa. They only reduce some of the negative impacts of conventional cocoa value chains.

4.4.2.2 Lack of monitoring and evaluation of social and environmental impacts

Regarding the social and environmental impacts of sustainable certifications in Peru, we did not find public studies that provide a documented and/or quantified assessment.

4.5 Societal Costs of conventional sustainable and fair trade cocoa value chains in Peru

In order to evaluate the magnitude of impacts of the conventional cocoa value chain in Peru, we have conducted a conservative estimate of the costs borne by the Ivorian society because of the negative consequences of the cocoa value chain on producers, their communities and ecosystems.

These so-called 'societal' costs are an indicator of the (un)sustainability of the cocoa sector which can be used to identify the models worth developing, and those that should be avoided, in a long-term goal of social and ecological transition (a 'zero societal costs' society being close to the ideal scenario promoted by the supporters of a circular economy).

Based on this first evaluation, we conducted a similar estimation of societal costs for fair trade and sustainable cocoa value chains in order to investigate and objectify their contributions to reduce the negative impacts of conventional cocoa chains.

[302] O. Morales, A. Borda, A. Argandoña, R. Farach, L García Naranjo et K. Lazo, *La Alianza Cacao…,* op. cit.
[303] C. Huamanchumo de la Cuba, *Análisis de la cadena…,* op. cit.
[304] Technoserve, *Building a Sustainable…,* op. cit.
[305] C. Huamanchumo de la Cuba, *Análisis de la cadena…,* op. cit.

4.5.1.1 Societal costs of the conventional cocoa value chain

We evaluated the costs borne by the Peruvian society based on the documented impacts of conventional cocoa production detailed in the previous sections.

The results of this evaluation of the societal costs of conventional cocoa in Peru are presented in the chart below:

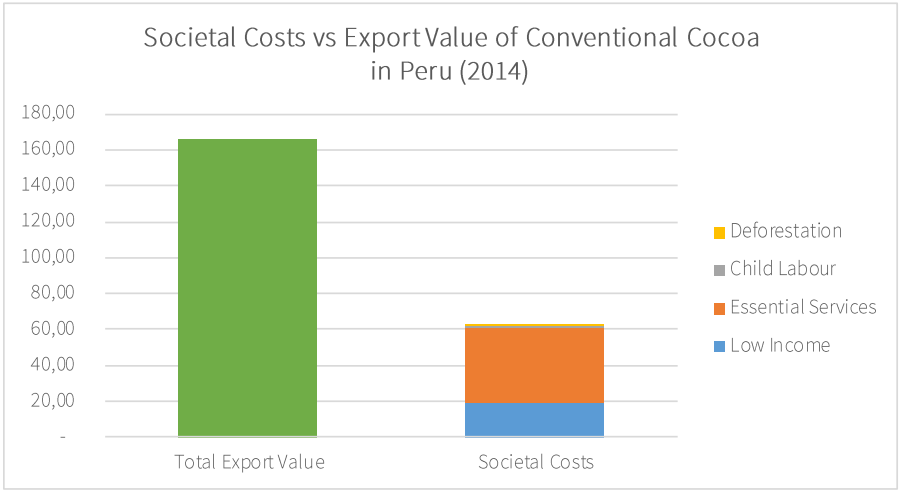

Figure 58. Societal costs generated by the conventional cocoa value chain in Peru and comparison with the export value. Source: BASIC

One of the two main components of societal costs is linked to the low income of cocoa farmers in Peru.
The main data used as a basis for this estimate are summarized in the table below:

Calculation year: 2014	Conventional farmers
Average size of cocoa farm	2 ha
Average yield	500 kg/ha
Average price received by producer	6,4 soles/kg
Average production costs per farm and per year	1 600 soles
Annual income generated by cocoa sales	4 800 soles
Total annual income (including other activities)	8 000 soles
Average number of people per cocoa producing family	4
Average annual income per person	2 000 soles
Annual cost of the basket of essential goods in Cameroon	2 600 soles

Figure 59. Estimated income of conventional cocoa producers in Peru. Source: BASIC, based on data from Swiss Contact, ENSAN, MINAG et INEI (2013-2015)

As detailed above, the average annual income of cocoa farmers can be estimated at 8000 soles per family in 2014, corresponding to 2 000 soles per person per year.

In comparison, the methodologies developed by the World Bank to estimate the absolute poverty line per country and region enables to assess the level of income required for an individual to meet his/her basic needs in terms of food (based on a daily caloric intake and a reference food diversity index) as well as education, health, housing and minimum savings.[306]

[306] Banque mondiale, « A Global Count of the Extreme Poor in 2012: Data Issues, Methodology and Initial Results », *Paper Series n°9442*, Octobre 2015 ; Banque mondiale, « Ending Extreme Poverty and Sharing Prosperity: Progress and Policies », *Policy Research Note* n°15/03, Octobre 2015 ; L. Pritchett, « Who is Not Poor? Dreaming of a

Official statistics published by Peru INEI provide an estimate of the absolute poverty line in cocoa producing provinces amounting to 2600 soles per person and per year in 2014.

Based on this evaluation, we can observe that the average income received by Peruvian cocoa producers (even taking into account secondary income from other activities) is not sufficient for them to rise above the absolute poverty line (this remains the case in 2015).

The cumulated societal costs generated by this low income of cocoa growers can be estimated at roughly 20 million euros (80 million soles) in 2014 at the level of Peru. They correspond to the 'loss of earnings' for producers in order to reach or rise above the absolute poverty line.

The second component relates to essential services. It corresponds to the difference between:

- On the one hand, public spending on education, health, housing, transport, the rule of law and support for agriculture in cocoa growing areas
- On the other, the money levied by the Peruvian state on the cocoa industry through the various taxes imposed on economic actors

All of these estimates are summarized in the table below:

Scope: cocoa growing regions in Peru	Public spending in 2014	Extrapolated public spending in 2014
Education	*844 Mns soles*	*923 Mns soles*
Health	*315 Mns soles*	*479 Mns soles*
Water, sanitation, energy	*57 Mns soles*	*62 Mns soles*
Roads and bridges	*1 928 Mns soles*	*1 928 Mns soles*
Social spending	*1 055 Mns soles*	*1 055 Mns soles*
Agriculture and rural development	*258 Mns soles*	*258 Mns soles*
Rule of law	*786 Mns soles*	*786 Mns soles*
Total	5 244 Mns soles	5 562 Mns soles
Total spending attributable to cocoa sector (in proportion to population)	173 Mns soles	184 Mns soles
Total contributions from the cocoa sector (taxes …)	27 Mns soles	

Figure 60. Estimated expenditures for essential services in Peru.
Source: BASIC, based on data from the Republic of Peru published by the World Bank

The evaluation of societal costs linked to essential services is based on the detailed budget of the Peruvian State for 2014 published by the World Bank as part of its *Open Budget Program* (also called BOOST). The budget lines are specified by program and province, which has allowed us to select only the public spending linked to cocoa producing regions in Peru (rather than to the whole country which would not have given representative figures due to large disparities among regions).

We then extrapolated these expenditures to reflect unmet basic needs related to the lack of access to public infrastructure in cocoa communities - when indicators were available - based on the survey on poverty in Peru conducted by the National Statistics Institute (INEI) in 2013.

This data allowed us to estimate a 'shortfall' of about 41 million euros (157 million soles) for 2014.

World Truly Free of Poverty », Oxford University Press, 2006 ; Programme des Nations Unies pour le Développement (PNUD), *What is Poverty? Concepts and measures*, 2006

Finally, publicly available data allowed us to estimate the societal costs associated with child labour and deforestation: they amounted to roughly 1.7 million euros (6.5 million soles) in 2014.

The summary of these expenses attributable to the impacts of the Peruvian cocoa sector is summarized in the table below:

Scope: cocoa growing regions in Peru	Public spending in 2014
Deforestation (zero deforestation cocoa program)	5 Mns soles
Child Labour	1,5 Mns soles
Prevention (programs fighting against child labour)	*50 000 soles*
Health damage	*1,5 Mns soles*

Figure 61. Estimated expenditures for social and environmental damage related to conventional cocoa in Peru. Source: BASIC, based on data from the Peruvian government, the EU, the ILO and the US Bureau of Labor

Once cumulated, the societal costs of the conventional cocoa value chain in Peru reached a total of 62 million euros (243 million soles) in 2014, compared to 166 million euros (630 million soles) of revenues generated by cocoa exports from Peru the same year.

In other words, the costs reported by the conventional cocoa value chain on the Peruvian society represented approximately 38% of the value of cocoa exports in 2014.

The following chart shows the societal costs for one tonne of cocoa produced in Peru.

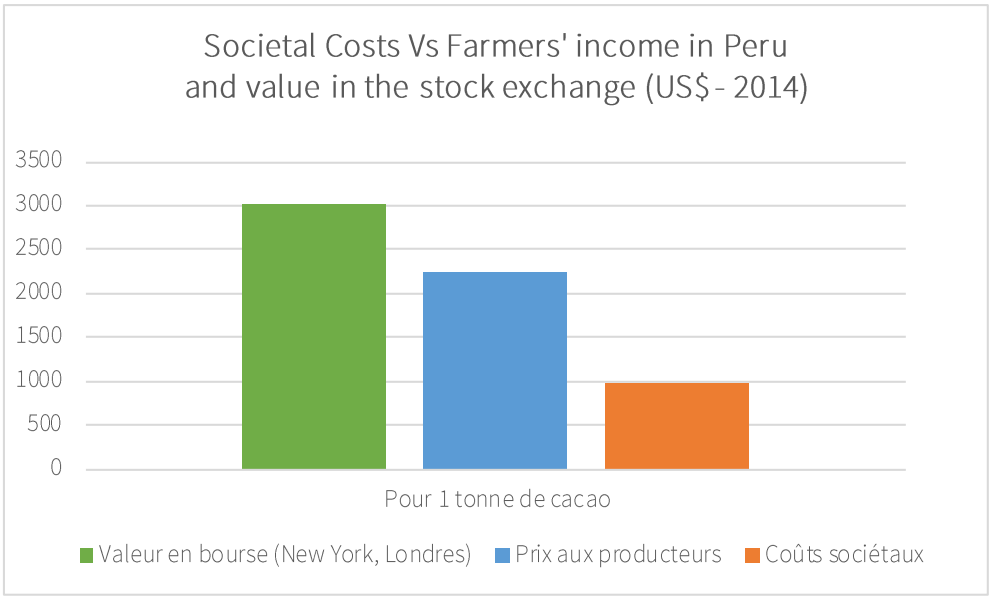

Figure 62. Societal costs of conventional cocoa in Peru, compared to the income of farmers and the stock exchange value of cocoa beans. Source: BASIC

4.5.1.2 *Societal costs of sustainable and fair trade cocoa value chains*

Based on the methodology and sources used previously to estimate the societal costs of conventional cocoa, and complemented by available research on the impacts of sustainable and fair trade schemes in Peru, we estimated the societal costs generated by those certifications (see results below).

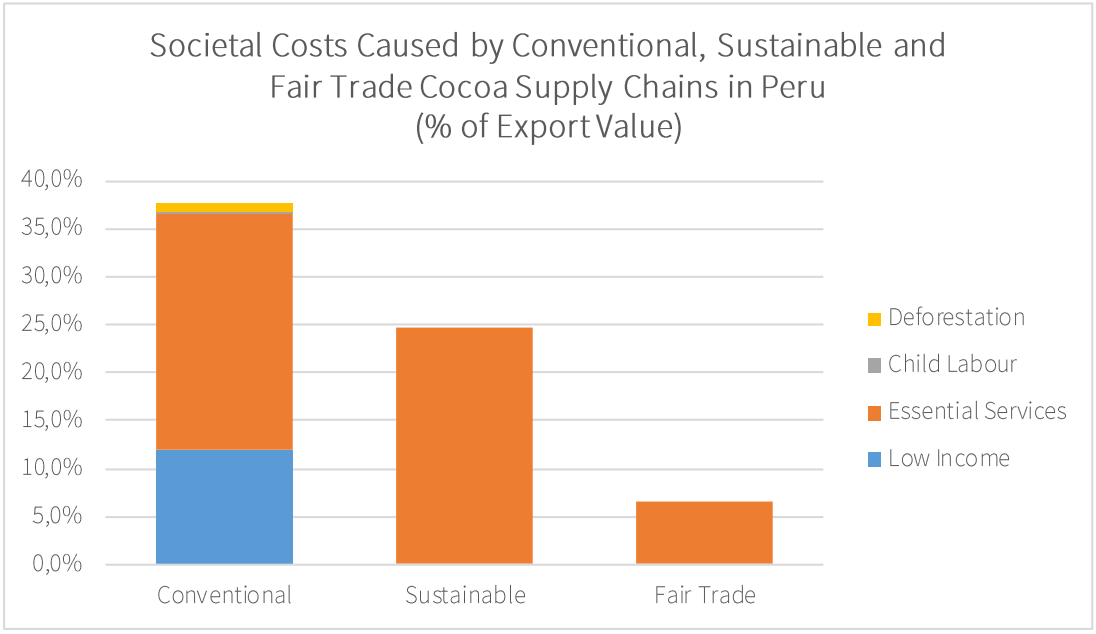

Figure 63. Societal costs generated by the conventional, sustainable and fair trade cocoa value chains in Peru. Source: BASIC

As illustrated above, our estimate of societal costs related to the sustainable cocoa value chain shows an average reduction of 34%, mainly due to the slight improvement of the producers' income.

Regarding fair trade cocoa value chains, available data shows a much higher reduction of the societal costs of more than 80% compared to conventional cocoa, mainly due to the use of the collective premium by cooperatives to strengthen their organizations and invested in essential services.

If these results show a certain capacity of sustainable certifications to limit the negative impacts of conventional cocoa value chains, the related societal costs still represent 25% of the value of cocoa exports, which contrasts with the much more significant results achieved by fair trade value chains documented in impact assessment studies, their cost to society representing barely 5% of the value of fair trade cocoa exports.

Finally, we extrapolated these societal costs for a dark chocolate bar (70% cocoa) with beans coming from Ivory Coast and processed in Europe. We then made an estimation of the value breakdown of the same chocolate bar from cocoa producers to supermarkets, on the basis of available public data (INSEE, Eurostat, UN Comtrade ...).

The following chart illustrates the results of these estimates of societal costs and value breakdown of a dark chocolate bar for the 3 cases studied: conventional, sustainable and fair trade cocoa:

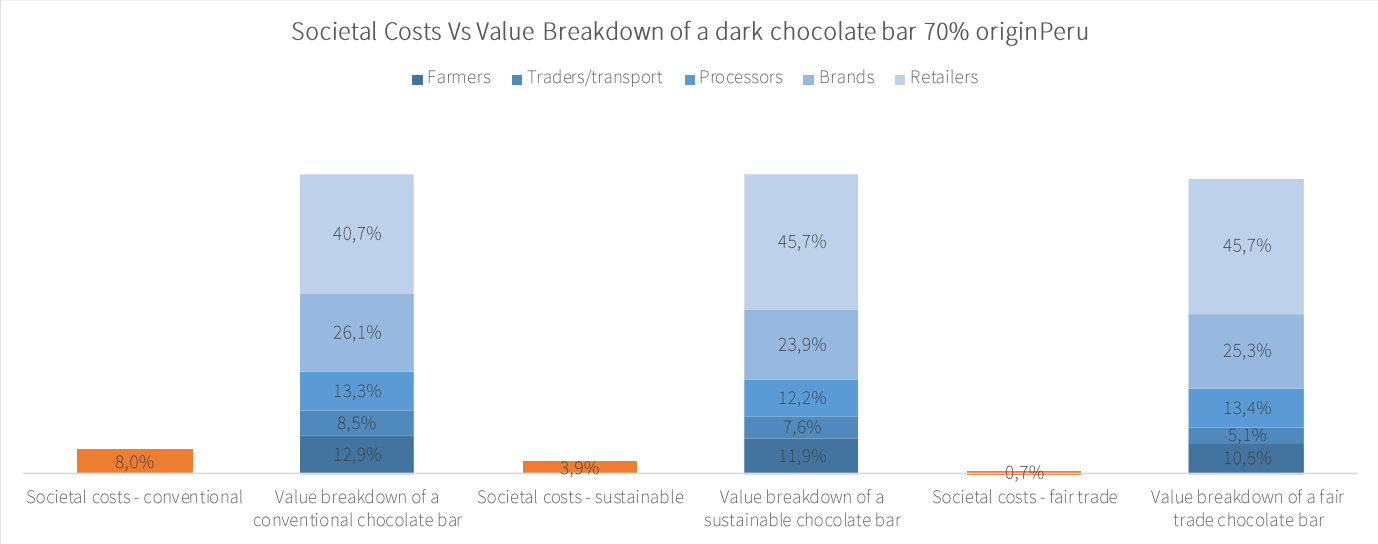

Figure 64. Societal costs and value breakdown of a dark chocolate bar 70% origin Peru (conventional, sustainable and fair trade). Source: BASIC

The above chart compares between:

- The value breakdown of a dark chocolate bar with the respective share of value earned by each player
- The total societal costs generated in the producing country by each value chain set-up (conventional, sustainable and fair trade)

It is clear from this comparison that the majority of the final value of the product is captured downstream by brands and retailers (about 2/3 of the total value) while societal costs are mainly borne by cocoa producers upstream.

If the societal cost represents 8% of the estimated final value of a dark chocolate bar made of cocoa from Peru, i.e. 2/3 of the share of the value earned by producers, the societal costs in the case of fair trade only represent 0.7% of the final price of the product.

5. Cross-cutting analysis

The terms of reference of this study stipulated the following objectives:

- Understand the cocoa value chain and how it has developed over time – the workings of the conventional industry, the tensions to which it is prey and the actions of the players that drive it;
- Analyse the impacts caused by the conventional industry and the ensuing societal costs in Ivory Coast and Peru, the world's largest and ninth-largest cocoa producers respectively;
- Objectively assess the differences in the societal impacts and costs generated by the sustainable and fair trade supply chains;
- Identify practices that appear to promote positive impacts that have the potential to kickstart virtuous circles of development, and learn wider lessons that might make the cocoa industry more sustainable and lasting.

5.1 The impacts of the conventional cocoa value chain are closely correlated to its organization

As detailed in the first part of the report, consumers in all markets mostly buy chocolate products whose main ingredients are sugar and fat. This is a historical trend which dates back to the early twentieth century and has spread to all countries of consumption since then, particularly in emerging countries. The French market is somewhat specific, with a more pronounced taste for dark chocolate and the persistence of a strong artisan chocolate sector which represents 20% of the market. In terms of sales, France is one of the main chocolate markets internationally but its total value has stagnated in recent years; the prices to consumers are on the decline because of the strong competition among retailers that sell most of the vast majority of chocolate products in the country (over 80%).

In France, as in most other consuming countries, cocoa is very rarely valued in chocolate products sold to consumers, even when it is the main ingredient emphasized on packaging. Consumers are essentially guided by the brand image, which has enabled retailers and brands to capture more than 60% of the total value of finished products, and generate subsequent high margins. To achieve this, the main leverages used by brands are marketing, but also the outsourcing of (part of) their manufacturing capacity to large-scale industrialized chocolate processors in order to lower the costs (especially in a context of stagnation/decline of prices to consumers).

Historically, chocolate products are made from semi-finished products which are very calibrated and mass produced. Manufacturers and brands are looking for a homogeneous and regular cocoa supply in quantity and quality, at the best price (as for most other ingredients).
To meet their requirements, cocoa processors and manufacturers of semi-finished products (cocoa mass, cocoa butter, cocoa powder, couverture chocolate...) make significant and growing investments to standardize products and achieve higher economies of scale. The studies we have collected indicate that their business model generates quite low margins (of the order of 2% of gross margin on average in France) in comparison with chocolate brands. At this scale, every penny counts and most of the pressure on prices and volumes of cocoa is carried on farmers upstream.

As a result, cocoa production has been increasingly commoditised and standardised since the mid-twentieth century. Apart from the 3 'standard' cocoa varieties (Criollo, Forastero and Trinitario), cocoa origins and 'terroirs' are almost never valued.

In this context, one might expect that the world's cocoa is mainly produced by large industrial plantations in order to meet the growing requirements of standardisation and economies of scale imposed by the other actors of the chocolate value chain. However, cocoa farming is difficult to mechanize and requires a lot of manual labour. Agricultural industrialisation is most often unprofitable (even in Brazil and Malaysia where some large cocoa plantations remain) and small farmers dominate production all over the world. These farmers cultivate small areas (between 2 and 5 hectares on average) in family farming in most countries. This feature is found both in Ivory Coast, the first world producer and exporter of cocoa, and in Peru, a small emerging cocoa origin rapidly expanding and positioned on the high quality market.

Our research shows that family farmers have an economic 'comparative advantage' on large plantations: they can absorb low prices through unpaid family labour. Because of the price pressure exerted by other actors in the cocoa value chain, and the significant volatility of cocoa prices, the majority of the world's cocoa farmers are trapped below the poverty line (or just at this level). To make ends meet, they use family labour and the work of their children (with significant risks for their health, to the detriment of their education and even situations of forced labour).

Most producers find themselves trapped in a model where they only receive a residual share of the consumer prices, and suffer from the fluctuations and uncertainties of the market (except when their governments put in place a form of guaranteed price protection like in Ivory Coast and Ghana), being dependent on the cultivation of cocoa for their living and locked-in with their buyers. The ones who give up cocoa cultivation are soon replaced by other migrant farmers whose situation is even more difficult (case of coffee in Côte d'Ivoire, food crops in the Sahel region...).

Small cocoa farmers continually struggle to maintain their yields and only manage to increase production by expanding cocoa cultivation areas, largely through deforestation which enable them to maximize yields while minimizing manual labour in early years. In Ivory Coast, the end of the forest resource is envisaged within 15 to 20 years only, which profoundly questions the sustainability of the whole cocoa sector, while Peru is now one of the biggest potential for the cultivation of cocoa due its natural forest resource.

Our analysis of the conventional cocoa value chain shows that this model, like in many other commoditised sectors, is solely based on the search for financial short-term profitability at constant quality. This dynamic is rarely questioned because much of the cost generated by this model are outsourced by companies and borne by society as a whole, mainly by farmers and governments in producing countries (in the form of low income of producers, child labour, deforestation, water pollution, health impacts, etc.).

These societal costs, according to our estimates, represent more than 70% of the export value of cocoa each year in Ivory Coast and more than 35% in Peru. They come mainly from the underpayment of cocoa farmers – most of them remaining under the poverty line - and the lack of resources available for investment in essential services (education, health, housing, transport ...). The impacts of deforestation and the threat it poses to the viability of the sector (mainly in Ivory Coast), as well as social impacts in the long term (child labour, producers of health ...) are also taken into account for the estimation of societal costs, but remain undervalued.

5.2 Impacts of the fair trade cocoa value chain and its key success factors

In comparison with conventional cocoa, the conditions for fair trade to succeed are much more complex to achieve. It requires to combine economic efficiency, ethical commitment and prevention of negative impacts in cocoa producer communities and ecosystems. Compliance with these requirements involves a lot more thoughtful and weighed development, questioning the ability of fair trade to compete on the short term with conventional trade in terms of market share growth.

When the conditions for success are met, the producers engaged in fair trade manage to overcome the vicious circles of impacts of conventional cocoa and foster virtuous loop of local development.

In this context, fair trade generates a different model that reduces by more than 80% the costs borne by society as a whole: in such situations, cocoa producers manage to generate enough income to meet their needs and those of their families, cooperatives have the financial means to invest in local services in addition to the government, the worst forms of child labour can be eradicated, and pollution is reduced.

Available impact studies in Peru identify at least two conditions that seem necessary to initiate such virtuous circles:

- A sufficiently strong producer cooperative movement rooted in communities, supported by members and fulfilling their expectations.
- A price sufficiently high to enable producers to sustain the living of their families (on the basis of average achievable yields), coupled with a sufficient collective premium to strengthen the cooperative and invest in local essential services.

The positive impacts that are documented in these "virtuous" cases can nevertheless be affected in the medium term by the depletion of the forest resource - the primary means to offset the downward trend in cocoa yields over time - and the associated decrease in income for cocoa farmers over the years.

The use of inputs and improved agricultural technicality are not sufficient to halt the decline of the yields. From the studies we have gathered, the main or even the only alternative is the adoption of agroforestry farming models that preserve environmental resources (forests, soils, ecosystems) and stabilize the cocoa yields in the long run.

The above-mentioned requirements (organization of producers, price, premium and agroforestry) are certainly complex to implement simultaneously, but when combined, they can generate very significant positive impacts, as well as higher costs of production in comparison with conventional cocoa (+ 40% to + 90% increase in costs).

Based on our analysis of the cocoa value chain, these additional costs appear to be virtually incompressible and incompatible with the requirements of mass producing standardized chocolate products, due to the pressure on volumes and low prices imposed by other actors in the value chain, especially the big brands.

This is why the studies conducted in Peru tend to show that positive impacts related to fair trade cocoa could be achieved in this country - and very punctually in Ivory Coast – thanks to the emergence of alternative and more favourable value chains which value the origin of cocoa and target the high quality chocolate market.

On the contrary, the studies we have collected on Ivory Coast indicate that the fair trade cocoa seems to have few significant impacts when it is integrated in standardized mass production value chains (this is even more flagrant in the case of sustainable certifications). As long as the conventional value chain model remains unchanged, negative impacts tend to persist for the most part.

5.3 Impacts of the sustainable cocoa value chain

Similarly, the weak impacts generated by sustainable cocoa initiatives – documented in the studies we have been able to gather – seem to be correlated to the "conventional" configuration of the value chain which cannot absorb significant increases in costs of production and remain focused on the search for large volumes at constant quality and at the best possible price.

By focusing on intermediate actions, especially training and voluntary incentives, sustainable initiatives leave cocoa farmers in a weak position of negotiation, which only allows them to earn a residual share of the value generated along the chain. These initiatives thus appear essentially guided by ‘productivist’ approaches aiming at fulfilling the needs of major brands and chocolate manufacturers.
In addition, the protection of the environment and the respect of labour rights prove to be very difficult to implement as the producers still do not earn enough to meet their basic needs.

A good illustration is that sustainable cocoa value chains reduce much less the societal costs according to our estimates, whereas fair trade ones can foster virtuous circles in some cases: societal costs are only reduced by 15% in Ivory Coast and 35% Peru, compared with 80% for fair trade in the latter case.

In Ivory Coast, the most significant changes were not linked to certification systems but due to the action of the government which has reinstated a ‘safety net’ in the form of a guaranteed minimum price for all cocoa farmers in the country, and has

taken over and rebuilt the quality control system to ensure the credibility of its cocoa production on the market. Nevertheless, it has taken no action to rebalance the power relationships in the cocoa value chain and has even contributed to the strengthening of the concentration of corporate power by encouraging major international players to locate their cocoa processing plants in the Ivory Coast.

In the case of Peru, the studies we have collected show some significant improvement in yields driven by the training and agricultural support programs. However, they also generate significant increases in labour costs, which do not enable cocoa farmers to fully escape their low income situation, plus the prospect of lower yields with aging plantations and associated threats in terms of deforestation.

In summary, our cross-cutting analysis of Ivorian and Peruvian cases shows that a virtuous model is possible in the fair trade cocoa value chain, which is in stark contrast with the limited impacts of the sustainable cocoa value chain, provided that the following conditions are met:

- A sufficiently solid cooperative dynamic that is rooted in the communities, supported by the members and has the resources for its own development;
- A price that is sufficient to allow cocoa farmers and their families to rise above the absolute poverty line, and a collective premium that is sufficient to strengthen the cooperative and allow it to invest in local services
- The association of fair trade and agroforestry in cocoa to ensure the sustainability of impacts in the long run ;
- The development of cocoa value chains which value the quality and the origin of the cocoa towards customers and end consumers.

Hence the necessity to support and/or preserve such models where and when they are working, and to help develop them where they are not yet implemented.

6. Recommendations

Based on the analysis of virtuous cases fostered by fair trade cocoa value chains, we identified a series of recommendations to initiate the necessary changes in the conventional cocoa value chain so as to address the critical issues and ensure its long-term sustainability.

Our recommendations are organized around 5 key goals:

- The establishment of cocoa prices in producing countries that enable producers and their families to meet their basic needs
- Sufficient financial contributions of the cocoa value chain so as to give to cocoa communities the means and resources to invest in local essential services and local development
- The strengthening and development of cocoa producer organizations that are dynamic, democratic and governed by their members
- The promotion of agroforestry models at the heart of the cocoa sector
- The development of chocolate value chains that value the quality and the origin of cocoa towards consumers

6.1 Allow the comparison between the price of cocoa and subsistence income for producers

- Recommendations to international organizations (in particular FAO and ICCO):
  establish a system for calculating costs of production and 'living incomes' for each cocoa producer countries that is transparent, public, debated with actors and stakeholders of the cocoa sector, and regularly revised (building on the experiment conducted by FAO on living wages in the banana sector).

- Recommendations to the European Union and French government:
  enable the use of production costs and living income - estimated through the mechanism described above – for the control of the 'due diligence' obligations of cocoa and chocolate companies, in order to ensure that their purchasing policy does not oblige cocoa farmers to sell at a loss and remain in poverty.

- Recommendations to fair trade actors and systems:
  - Promote and contribute to the implementation of the above detailed system.
  - Ensure that the guaranteed minimum prices are not inferior to these estimates (i.e. that minimum prices are sufficient to cover the costs of production, including skilled labour, and generate incomes that enable families to meet their basic needs on the basis of average yields achievable by family farmers).

6.2 Ensure adequate financial contribution of the cocoa value chain to essential local services

- Recommendations to the governments of producing countries:
  - Establish an adequate financial contribution of the different actors of the cocoa value chain and the allocation of these resources to the development of essential services in communities living out of cocoa, in dialogue with them.
  - Based on a transparent and shared assessment of societal costs, increase the taxation on large industrialised plantations which generate the highest negative impacts on society and the environment, and allocate the related resources, in a concerted way, to the development of essential services in the cocoa communities.

6.3 Strengthening cocoa producer organizations and rebalance the power relations in the cocoa value chain

- Recommendations to the European Union:
    - Introduce a leverage in cocoa producing countries through the creation of a European investment fund whose objective would be to strengthen the management and investment capacity of farmers' collective organizations, in order to ensure the long-term sustainability of cocoa production.
    - Address the structural problems of competition in the cocoa value chain, particularly the excessive accumulation of buyer power. To achieve this, it is necessary to introduce the principle of neutrality in the European competition law and to revise the European regulation on the control of mergers and acquisitions by inserting clauses on sustainability, using existing legal concepts (e.g. collective dominance) and strengthening EU economic assessment tools (e.g. the Herfindahl-Hirschman).

- Recommendations to the governments of producing countries:
    - Develop dynamic cooperatives in the cocoa sector, including through the implementation of investment programs in strengthening producer organizations, improving their access to credit, and developing the participation of women within them.
    - Increase the control mechanisms of the internal governance of producer organizations.
    - Develop / strengthen sectoral roundtables on cocoa in order to allow the diversity of producers, traders and processors to discuss together, and with public authorities, the economic challenges of the industry and its social and environmental issues.

- Recommendations to fair trade actors and systems:
  develop the support programs carried out by cooperatives, invest in strengthening producer organizations and their networks; increase the control of the internal governance of producer organizations since the first audits.

6.4 Put the agroforestry model at the heart of the cocoa sector

- Recommendations to civil society organisations in the North:
    - Educate consumers on the issue of agroforestry and its important role in the sustainability of the cocoa industry, in combinations with the necessary minimum price guarantees covering the cost of production and the needs of cocoa producers' families.
    - Create potential partnerships with organizations in France and in Europe who fight against deforestation and promote agroforestry as a solution, in order to develop synergies and a broader advocacy base.

- Recommendations to fair trade actors and systems:
  develop training, information and exchange of experience on agroforestry models in the cocoa sector; introduce incentives for agroforestry (like those existing for organic farming).

- Recommendations to the European Union and the French government:
  Introduce agroforestry at the heart of the program against deforestation REDD + in Ivory Coast, and finance through this mechanism the development of cocoa agroforestry systems adapted to local conditions and having a food security dimension, working closely with farmers and their organizations on the ground.

- Recommendations to producing countries governments and international organizations that support the cocoa sector (in particular FAO and ICCO):

- Develop programs of financial investment, capacity building and innovation in cocoa agroforestry systems by working closely in the field with the farmers and their organizations.
- Strengthen access to land for cocoa producers.
- Promote agricultural diversification systems between cash crops and food crops.

- Recommendations to the Ivorian government:
  establish a legal reform enabling the farmers to be the owners of the trees on their land so as to encourage farmers to capitalize them and stop the savage cuts encouraged by the current system (where the one who cut the tree possesses it)

6.5 Develop / promote value chains that enhance cocoa and 'terroir'

- Recommendations to economic actors in the cocoa value chain and civil society organisations in the North:
  - Value cocoa as a key ingredient of chocolate products, in particular its origin and potentially 'terroirs' in product offering to consumers.
  - Educate citizens about the importance of the link with the producers, and provide transparency on their economic and social situation (especially the prices paid for the cocoa they produce).

- Recommendations to fair trade actors and systems: ensure systematic physical traceability of the cocoa in order to provide transparency and strengthen the relationship between producers and consumers.

- Recommendations to the French government:
  - Require transparency on the origin of cocoa in chocolate and confectionery products, and physical traceability for processors and chocolate manufacturers.
  - Building on a transparent and shared assessment of societal costs, increase the VAT on chocolate and confectionery products with a high proportion of sugar and fat that generate significant negative impacts, and/or decrease VAT on high chocolate content products that demonstrate a significant mitigation of impacts.

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