Managing risk in the cocoa and chocolate industry

Photo credit: Brian Moody

Introduction

This paper is part of a series on materials and resources. In this series we ask how we can use risk management approaches, techniques and tools to improve the way we source, develop, use and dispose of the materials, resources and products that power our modern economy, and to support everyone involved in their value chains. The series uses the United Nations Sustainable Development Goals (the SDGs) as a common thread to discuss diverse sustainability and risk aspects and elements to each subject.
Cacao, and the origins of cocoa and chocolate

Records of fermented beverages made from the cacao bean can be traced back to 450 BC. It is believed the cacao plant first grew in the Amazon and upper Orinoco basins of South America. The word cacao is believed to originate from the Nahuatl (Aztec) word “cacahuatl”. The Mayans and then the Aztecs developed techniques to cultivate the plant, with the Aztecs believing cacao seeds to be a gift from the god of wisdom, Quetzalcoatl. Cacao seeds were prized and used as a form of currency. ¹

It is thought the seeds were consumed solely as a drink – a bitter liquid mixed with spices or corn puree. Such drinks are still made today in the South of Mexico. ² Etymologists trace the origin of the word "chocolate" to the Aztec word for this bitter drink, "xocoatl".

After the introduction of the cacao bean to Europe in the sixteenth century, when it was brought back by Christopher Columbus and the Spanish Conquistador Don Hernán Cortés, sugar was added to make it sweeter and more appetising to the European palate. It soon became popular throughout European society – first among the elite ruling classes, then among the general population. This led to an increase in cacao cultivation and production of what we call chocolate, and, in the centuries that followed, the expansion of production and consumption to form the market it is today.

The cacao tree is believed to have evolved some 10 million years ago in ancient Amazonian rain forests. The tree has flowers which emerge directly from the trunk and main branches. Pollination of the cacao tree is done mostly by tiny midges. The fruits, which come in different colours and textures, ripen on the tree in hard-shelled pods. Before humans discovered what was in them, cacao trees relied on animals to break open their pods in order to distribute the bitter seeds nestled within the shell in a sweet viscous pulp. The beans themselves are bitter due to the alkaloids they contain. The sweet pulp may have been the first part consumed by humans.
The difference between cacao and cocoa

Raw cacao is made by cold-pressing un-roasted cacao beans. The process retains living enzymes in the cacao and removes the fat (the cacao butter). Cocoa looks the same as cacao – the difference is that it is raw cacao that has been roasted at high temperatures, which is typically used for chocolate production. Cocoa is the slightly more bitter-tasting of the two.

How big is the cacao / cocoa and chocolate industry today?

It is thought that chocolate is eaten by one billion people every day. It’s a big industry when you consider all the elements involved across its value chain.

First, let’s consider cacao / cocoa production.

Back in 2013, world cocoa bean production (the term cacao bean is interchangeable with cocoa bean) was estimated at 4.6 million tonnes. ³ By 2019, the annual production of cocoa is estimated to have grown to be almost 5 million tonnes. ⁴ A continued production increase is forecast to be required to meet the growing global demand for chocolate.

Cacao trees are cultivated in a tropical band around the Equator, where climate conditions are appropriate.

![Chart: World Population Review: Cocoa Producing Countries 2019](image-url)
Ninety per cent of the world’s cocoa today is grown on small family farms by about 6 million farmers who earn their living – toiling hard every day – from growing and selling their beans. 

Some 60 countries around the world produce cocoa today, spread in the band around the equator. About two-thirds of the world’s cocoa beans are currently grown in West Africa, with Côte d’Ivoire (the Ivory Coast) and Ghana being the two goliaths of production: together, they provide half of the world’s cocoa as of today. Behind them, the largest cocoa producing countries are Indonesia, Nigeria, Cameroon, Brazil, Ecuador, Mexico, Peru and the Dominican Republic. 

The geography of cocoa production is changing. The current dominant area, West Africa, is challenged with the ongoing availability of land to keep up with global demand. Cocoa markets could tighten in 2020, as more cocoa is consumed than is produced (examples relating to this situation are provided later in this Paper).

Some industry watchers think that Asia, which produces about 13% of the world’s cocoa beans today, has the potential to grow its market share to help meet the increasing global demand. As an example, Indonesia grew very little cocoa before 1980, and it is now a large producer (although production levels have varied annually). Today, several countries in the Asia region produce cocoa, including India, Malaysia, Vietnam, Philippines, and Thailand.

Then we have chocolate production to meet consumer demand.

Global chocolate consumption continues to increase. Data from the research firm, Statista, suggests that it is currently around 7.7 million tonnes a year.

According to a report by Zion Market Research, the global chocolate market was valued at around US$104 billion in 2017 and it is projected by some to reach approximately US$162 billion in revenue by 2024, which would mean it grows at a strong compound annual growth rate of around 7% between 2018 and 2024. Of course, chocolate requires other core ingredients in addition to cocoa, particularly sugar and, for milk chocolate, milk – major global commodities in their own right.

Then we have the manufacturers of chocolate goods.

The world’s major producers of chocolate are household names. The likes of Barry Callebaut, Chocolate Frey, Ferrero, Hershey, Kelloggs, Lindt, Mars, Meiji, Mondelez International (owner of Cadburys) and Nestlé employ many thousands of people in various roles around the world, from workers in factories to sales managers and accountants. In addition, there are many small producers and artisans around the world that use the base cocoa product to create artisanal chocolate delights.

And we have retailers and restaurants around the world.

This paper does not try to estimate the number of shops, retail outlets, bakeries, market stalls and restaurants around the world that sell chocolate in one form or another. With one billion people eating it each day, a lot of us buy it.
Our global cacao, cocoa and chocolate footprint

The cocoa and chocolate industry can be viewed through the lenses of the Sustainable Development Goals (the SDGs). Looking at chocolate consumption and responsible production through the SDGs is a useful way to give us a balanced understanding of the benefits the industry provides, and the challenges that need to be tackled.

1. No Poverty

SDG#1 is the place to start with sustainability in the cocoa and chocolate industry.

Today, small local farmers who cultivate the cacao beans used for cocoa and chocolate receive only a tiny fraction of the profits from the global industry. Typically, less than 7 per cent of the price of a chocolate bar goes to the farmers who grew the beans. 25

Why are cocoa farmers poor, when the demand for chocolate is so high?
The issue is a complex one, involving market pricing and demand and the way the industry value chain currently operates. It is linked to SDG#3 (good health & wellbeing), SDG#8 (decent work and economic growth) and SDG#15 (life on land).

There are many cross-sectoral issues of cocoa farming. Can farmers find gainful employment outside of the two main growing seasons of main crop and mid-crop (which vary from country to country), and can land ownership and access to finance be tackled? Today is a challenging time to be a cocoa farmer.

3. Good Health & Wellbeing

Health and wellbeing has many aspects to it. This paper focuses on two.

First, the health and wellbeing of the farmers and their families who grow cacao trees and sell the beans to make a living is crucial to the industry being sustainable. Yet they continue to lead difficult lives and, as mentioned above, they receive only a small proportion of the profits made from the global consumption of chocolate.

Second, when we consider the impact on our health from eating chocolate, there is a lot written about it. When we eat chocolate we benefit from a chemical feel-good stimulus (hence its “comfort food” status). Chocolate is thought to have certain health benefits, when consumed in moderation, although it is a complex matter with different facets to it. Some reports state that some elements of chocolate – especially in dark chocolate – may help to maintain cardiovascular health. 26, 27

5. Gender Equality

Gender equality in the industry is an important driver to sustainable development now and in future. In the countries where the crop is cultivated, the role women play is key. For example, in rural West Africa women are responsible for 80% of the labour associated with food production (including cacao farms). Women reinvest household income in expenses related to education, health and food security.
The income they receive is vital for improving livelihoods, and it helps to address critical issues like child labour (see below), since families with higher incomes are less dependent on work performed by children and are able to invest in education.  

Several companies are now providing microfinance opportunities to women in cocoa producing communities, through Village Savings and Loans Associations (VSLAs). Many chocolate companies support activities to provide women with literacy and business skills in cooperatives and communities.  

8. Decent Work & Economic Growth

Ensuring decent work and economic growth for cocoa-producing countries, in the context of their general economies, is a complex and vital matter for the industry, and it is strongly linked with all three SDGs discussed so far. Growing cacao trees is not easy. It is a delicate and sensitive crop – farmers have to protect their trees from the wind, sun, pests, and disease. Soil management is important. With proper care, the trees begin to yield pods at peak production levels by their fifth year, and they can continue to do so for 10 years. 

Once they are harvested, the beans go through a complex production process, with additional ingredients added to form chocolate. Many stakeholders are involved – starting with farmers and then including people such as buyers, shipping organisations, processors, manufacturers, chocolatiers, and distributers. Everyone should get their fair share of industry proceeds, but the distribution of wealth today is uneven.

We need to remember, as mentioned earlier, that a key risk to chocolate market is the availability of sugar, which is dependent on the type of sugar you use – cane or beet. A challenge is that there are two main growing seasons for cocoa, but four growing seasons for sugar. What if there are challenges in supply to either at the same time?
Current industry pricing challenges, and quality considerations

Quality Control and Quality Assurance is a critical consideration for the industry, and it is closely linked to the issues of tackling poverty and improving wellbeing. When looking at commercial / bulk / confectionary cocoa beans, the price bracket is generally around US$2,500 per tonne, and the productivity of the land is generally not optimised. By providing proper education and agronomy, the bean price can rise markedly, with a much more productive yield per hectare – which leads to much better opportunities for farmer income and welfare.

As an example of the economic complexities facing the industry, it is instructive to look at the 2019 and 2020 cocoa production situation with the two largest producing nations, Côte d’Ivoire and Ghana. The Côte d’Ivoire cocoa regulator (the CCC) wants to reduce its country’s production from 2.2 million tonnes to 2 million tonnes for their 2020/21 season. It is a move aimed at deterring their farmers from overproducing, after both Côte d’Ivoire and Ghana introduced a plan in July 2019 to raise farmers’ income.

The plan involves a fixed “living income differential” (LID), which is a premium of US$400 per tonne on all their cocoa sales for the 2020/21 season, in an effort to combat the poverty of farmers. It represents a major overhaul of how cocoa is priced, however, it depends on a stable and planned production quota.

Farmers in Côte d’Ivoire are reportedly not happy with the new CCC policy for reducing the quota for 2020/21 season, because of a likely reduction in their revenues. They want to see more done to encourage diversification in the agricultural sector. A lack of business alternatives outside the cocoa / chocolate industry leaves them with little choice, they say, but to maximise their output and make the most of improved prices. Some cocoa buyers believe that the LID could lead to excess production which could lead, eventually, to lower prices.

On the other hand, global stocks of cocoa for 2020 are thought to be falling towards 30 per cent to 35 per cent of demand, and the projected deficit for 2020 could trigger a further drawdown. When stocks go below 30 per cent, there are risks of a shortage, which will impact prices.

It is believed that some cocoa buyers are partially offsetting the new LID premium by negotiating down a different charge that they pay for West African cocoa - the “country premium”, or “differential, which covers bean quality differences and is a key element in the cocoa price.

The LID may cause problems with the hedging strategies of the major chocolate manufacturers and boost the attraction of other producers outside of Côte d’Ivoire and Ghana. If so, this would be an unintended consequence of a well-meaning push to reduce inequality in the cocoa and chocolate industry in West Africa.
On tackling child labour

A critical matter for general economic development of cocoa-producing countries is child labour. UNICEF is a co-custodian for the specific UN SDG indicator 8.7.1, which focuses on ending child labour. 14

In 2001 the Harkin Engel Protocol - an agreement between cocoa and chocolate industry representatives aimed at ending the worst forms of child labour in the production of cocoa (according to the International Labour Organisation's Convention 182) and forced labour (according to ILO Convention 29) was signed. 15

Whilst many efforts continue to eliminate child labour in the cocoa industry, the number of children working in cocoa production continues to be a key concern. According to the 2018 Cocoa Barometer, which is a report by 15 European non-profit organisations, as many as 2.1 million child labourers were found to be working in West Africa alone (let alone the numbers in other geographies). 33

As UNICEF describes, the projected growth in the cocoa industry to cater for the demand for chocolate will put additional strain on small farmers to deliver enough of the crop. 17 Will they need to keep putting their children to work? How the problem of child labour will be addressed for the long-term remains a topic of debate. 18, 33

What we do know is that, in the last decade, a wide range of initiatives by businesses, governments and charities to combat child labour problems in cocoa-producing countries, from building schools to training farmers in more efficient growing methods, are helping to solve the situation. But it will take sustained effort.

As an example of how businesses are responding to this situation, Nestlé has for many years operated its Child Labour Monitoring and Remediation System (CLMRS), which seeks to get cocoa farmers to self-declare instances of child labour and take action within the community itself to prevent it. 34

On a smaller scale but just as important, Tony’s Chocolonely, which was created in the Netherlands in 2005 by three journalists in response to stories of child abuse in the cocoa industry, claims to make 100 per cent slave-free chocolate. They establish direct, equitable relationships with farmers, while helping them to increase their productivity and improve product quality. 35 Their approach to procurement is designed for larger buyers to follow their lead. As an example, Tony’s has worked with the chocolate manufacturer Barry Callebaut to ensure all its cocoa purchases can be traced back to sustainable sources. 33

9. Industry Innovation & Infrastructure

There are many great examples of innovation taking place in the cocoa and chocolate industry. Innovation is vital as the world changes, and climate change continues to impact and change our ecological systems.

Ensuring good financial management is an important part of addressing farmer livelihoods and welfare.
Working to establish transparent and traceable supply chains for both physical and financial flows is an example of how good risk management can help to create and maintain close ties between the physical product and finances across the value chain. The type of technology available to farmers in many crop-growing countries for managing their finances and procurement is still basic. The possibility of having a trusted contract system in place, for example through a data link solution as part of digital farm development, can help to ensure the ‘first mile’ paid in an efficient way. Today, it tends to require the customer / industrial buyer to pay for such a solution. Several businesses in the industry are seeing how they can use this as a way to help farmers.

Technology is also helping production techniques. The World Cocoa Foundation has in recent years brought together diverse groups of people, from individual cocoa farmers to large multinationals such as Cargill, Nestlé, and Mars, under the theme “Accelerating Sustainability Through Technology and Innovation.” Innovation is key to finding solutions for continuing to ensure the right drying conditions for the bean, and the challenges of dealing with rising temperatures – which may make the incumbent leading West African countries less suitable for cocoa cultivation over time.

In terms of sustainable farming techniques, there is much that can be written. To provide two examples, the Rainforest Alliance has been working in West Africa and Indonesia to teach sustainable farming techniques to cocoa producers, and an Australian company, Daintree Estates, has been helping to select and breed cacao trees to be less dependent on water.

12. Responsible Consumption & Production

The UN Environment Programme (UNEP) and partners have been working for many years on projects aimed at making the cocoa industry more environmentally friendly and sustainable. A core part of this focuses on the production process (which also incorporates efforts to manage quality).

*Greening the Cocoa Industry* is one of these projects. Its objective is to change production and business practices in major cocoa producing countries and chocolate companies towards conserving biodiversity, providing greater long-term stability to all value chain participants, and increasing income for smallholder farmers.

The Sustainable Agricultural Network / Rainforest Alliance cocoa programme has seen growth over the past five years, with around one million hectares of cocoa farmland in 15 countries achieving Sustainable Agricultural Network / Rainforest Alliance certification in 2016.

When it comes to the increasing consumption of chocolate, the key is for consumers to support responsible production initiatives such as Fairtrade and the Rainforest Alliance when buying their chocolate and cocoa. It is easy to spot the logos of these organisations on packets and wrappers. Consumers should pay attention to ethical trading practices and buy chocolate from ethical manufacturers. In today’s connected world, it is easy to find out which manufacturers are supporting ethical trading.
13. Climate Action

Climate change threatens all manner of industries and economies. The cocoa and chocolate industry is feeling the effects of climate change, including the threat of cocoa shortages due to environmental hazards, and the various impacts it can have. It’s one thing for consumers to see the effect of cocoa shortages in higher prices for their favoured nibble, but for the millions of small farmers in the countries where cacao trees are cultivated, they depend on the crop to support their families. The impact of a warming climate on their crop threatens their livelihoods and way of life.

Since most of the world’s cocoa is produced by smallholder farmers who have less than five acres (two hectares) of land, it’s important that farmer training programs provide methods to build resilience to droughts, floods, higher temperatures, and changing growing seasons. As an example, the Rainforest Alliance has developed a climate-smart agriculture (CSA) program to help cocoa farmers in vulnerable regions to tackle these challenges. This includes measures such as planting locally appropriate shade trees that can help to minimise heat stress and potential damage to the cacao trees and tackling soil erosion from heavy rainfall.

It is also important to consider the CO₂ emissions from the cocoa and chocolate industry. Research shows that, depending on how chocolate is produced, the CO₂ emissions involved in its production vary quite widely. The ingredients used (especially milk-based), transportation and processing all count. Production that minimises CO₂ emissions is a key element to sustainable farming practices.

![Kilograms of greenhouse gas emissions per serving](image-url)

*Source: Poore & Nemecek (2018), Science*
Many chocolate manufacturers are taking steps to reduce their CO$_2$ impact. For example, Lindt state (on their website) that they have reduced energy consumption per ton of chocolate produced by 18% between 2008 and 2017, thanks to better thermal insulation and energy recovery of their facilities. Lindt is increasing its use of renewable energy. 32

15. Life On Land

The appropriate management of forests and forestry systems, and the protection of the ecology within them, is fundamental to achieving a sustainable cocoa and chocolate industry. A sense of urgency has prompted leading cocoa suppliers and chocolate manufacturers to join the governments of Côte d'Ivoire and Ghana to commit to ending deforestation and forest degradation in the cocoa supply chain through the Cocoa & Forests Initiative (CFI), an initiative that was launched in March 2017 and coordinated by the World Cocoa Foundation (WCF), the Sustainable Trade Initiative (IDH) and the Prince of Wales’s International Sustainability Unit.

A top priority is ensuring the right policy environment is in place to effectively implement action – per SDG#16 (see below). Building the capacity of national institutions is key to success. Big businesses in the industry play an important role in working with governments and other stakeholders to ensure crop production is sustainable. 23

16. Peace, Justice and Strong Institutions

New solutions, including new legal commitments, are needed to preserve and restore the forests that the cocoa and chocolate industry depends on.

As an example, the Cocoa & Forests Initiative (CFI) partnership demonstrates the power of proper landscape approaches to tackle commodity-driven deforestation.

The governments of Côte d’Ivoire and Ghana and 33 of the world’s leading cocoa and chocolate companies signed a joint Frameworks for Action in 2017. They agreed to make policy changes and investment commitments that will improve forest governance, reduce deforestation risks, improve forest protection and restoration and help to secure cacao farmer livelihoods, plus improve the sustainability and reliability of cocoa supply for the future. There is still more to do, to ensure a fair share of sustainable profits for farmers of the raw product that serves the industry. 24
Is our production and consumption of cocoa and chocolate changing? It looks like it…

As this Paper has reviewed, various factors are driving a change in the production and consumption of cacao, cocoa and chocolate.

Different approaches have very different implications for costs, benefits and ease of implementation in the cocoa and chocolate market. This is an example of where risk management can be a valuable aide to help stakeholders in the industry make good long-term and sustainable decisions. Risk management can help us appreciate different perspectives and the diverse range of views that exist in order to make risk-informed decisions.

The general public (and consumers of cocoa and chocolate)

Consumers increasingly want to know that what they are purchasing has been ethically sourced. As described earlier, they are much more aware of associations such as Fairtrade and the Rainforest Alliance, and there continues to be evidence that people are willing to pay a little extra to know that the chocolate they are buying comes from ethical sources.

Consumers are also increasingly aware of the different properties of food types, and the science behind different food types. Judging by analyst reports on industry growth, chocolate remains as popular as ever – with increased vigilance and awareness by those who buy it.

Sales of milk chocolate may be stagnating in some parts of the world as consumers become more health-conscious (and environmentally-conscious). Manufacturers have responded by producing various forms of “premium chocolate”, using words such as organic, natural, cacao-rich and single-origin. The packaging may not say so, but the impression may be that if it’s dark, it’s good for your health.

Governments and international public policy

Examples earlier described how the governments of cocoa-producing countries are pursuing different policies and actions to ensure they receive what they see as a fair share for their part in the chocolate industry.

As the UN has made clear, large amounts of global cocoa production are still associated with illegal deforestation and biodiversity losses. Whilst various measures are underway to tackle this problem, challenges still remain to eradicate it.

The UN Environment Programme (UNEP) and its partners have been working for several years on projects focused on ensuring the cocoa industry is sustainable and environmentally responsible. *Greening the Cocoa Industry* is one of these projects. Its objective is to change production and business practices in major cocoa producing countries and chocolate companies towards conserving biodiversity, providing greater long-term stability to all participants in the value chain, and increasing the incomes for smallholder farmers.
A key focus is area how the soil is managed in order to ensure healthy and sustainable harvests. Science is helping us to better understand how to manage and cultivate the soil in better ways. This is particularly important when we consider potential impacts of climate change on all parts of the world where the cacao tree is farmed. The small African island nation of São Tomé and Príncipe may perhaps provide some valuable lessons for larger countries in how to cultivate the cacao tree responsibly and organically. 

NGOs and Environmental campaigners

NGOs and Environmental campaigners have an important role in the cocoa and chocolate industry.

For example, to help restore the Amazon and also provide better livelihoods, The Nature Conservancy (TNC) has created an initiative to work with farmers to plant sustainable agro-forests of cacao trees, along with other types of trees. 

Scientists and Researchers

Scientist and researchers produce important studies about various aspects of cocoa and chocolate. They play an important role in understanding and learning cultivating techniques to ensure healthy and sustainable cocoa farming (including the trees, soil, use of water and pest eradication).

Back in 2010, scientists announced that they had decoded the DNA of the cacao tree. This understanding is contributing towards research into how to maximise the yield of the cacao tree, and to understand the health benefits of cocoa and chocolate.

It is important that research studies are unbiased. Research has repeatedly shown that when food companies are paying for studies, they are more likely to get helpful results.

Journalists and the Media

Journalists from many respected news sources provide us with a regular source of well-researched information about the cocoa and chocolate industry and its challenges. This paper draws upon many such resources.

Financiers and Investors

Investors are crucial to supporting a sustainable industry. By virtue of asking questions about the way that industry businesses undertake their activities, they are key to driving ethical and sustainable behaviours.

Cocoa industry associations and chocolate producers

Chocolate producers need to ensure they are responsible and that they can ensure they recognise their purpose to society.
Some large producers own cacao plantations and process cocoa; others source cocoa to make their chocolate products. A key question for chocolate manufacturers and retailers is this: can find a good balance between being a profitable business and also a purposeful one, which contributes equitably to everyone involved, especially the small farmers.

Industry associations have a major role to play in ensuring that the industry moves forward in a positive direction.

The World Cocoa Foundation (WCF), which has over 100 members from across the industry, is aligning its strategies and working to ensure synergies among industry members, who represent 80 percent of the global cocoa and chocolate market.

The International Cocoa Organization (ICCO) is composed of cocoa producing and cocoa consuming member countries. Located in the Côte d’Ivoire, the ICCO was established in 1973 to put into effect the first International Cocoa Agreement that was negotiated in Geneva at a UN International Cocoa Conference. There have since been seven Agreements. The Seventh International Cocoa Agreement was negotiated in 2010 in Geneva.

The Académie Française du Chocolat et de la Confiserie is another major association with a strong voice.

Sustainable certification (such as Fairtrade, the Rainforest Alliance and UTZ) has increased markedly. The UN reports that sales of Rainforest Alliance Certified cocoa now represent 5 per cent of global sales and that, in addition, a much larger amount of cocoa is being produced sustainably than is being sold as Rainforest Alliance Certified. 25

An International Cocoa Initiative exists to tackle child labour, and a Cocoa and Forests Initiative is in place to tackle deforestation. 29

The Chocoa Conference, held annually in Amsterdam for the past eight years, has gained a strong reputation for providing a platform for detailed discussions on sustainability and quality in the cocoa sector. 41

**Industry innovation – and learning from others**

As discussed earlier, the technology available to farmers in many countries for managing finances and procurement is still basic. Opportunities exist to improve it, for example with data link solutions as part of digital farm development 40, to help to get the ‘first mile’ of the industry value chain paid.

As an example of recent industry innovation and learning from a “sister industry” of coffee, blockchain is being used to provide an equitable way for the industry in Ecuador. Carlo Ruiz, Head of UNDP’s Inclusive Economic Development Unit, has introduced the technology to benefit producers and consumers alike.
With the help of Istanbul-based AltFin Lab and Amsterdam’s FairChain Foundation to use blockchain — a technology that creates an independent virtual ledger of records that cannot be manipulated and is fully traceable — the partnership has delivered The Other Bar — the world’s first blockchain shared value chocolate bar, which went on sale in the UK in late 2019.  

The initiative was funded by UNDP’s country investment facility and funds from FairChain foundation. After buying a bar, customers can scan (if they want to) a blockchain-powered token which can be used towards buying a quarter of a tree or receive a 25 pence discount on their next purchase. Through this mechanism, it is said that Ecuadorean farmers receive more money than through any other method.

"With our blockchain technology, and we’re using The Other Bar for it, we’re giving the consumers more than a voice. We act, we give them part of our money and they can decide where to invest it,” says Guido van Staveren, Founder, FairChain Foundation. UNDP selected the Amazonian Organic Food Association APEOSAE (Federación De Pequeños Exportadores Agropecuarios Orgánicos Del Sur De La Amazonía Ecuatoriana) as its local partner. They represent over 165 organic cacao farmers in the Amazon, who were keen to develop a traceability platform.  

**How can Risk Management help the industry?**

Risk Managers and Risk Advisors can play a valuable role in helping the stakeholders in the cocoa and chocolate industry work out how to navigate complex situations and achieve their objectives of ensuring a sustainable and ethical industry in which all parties make fair and reasonable profits. It can be used to help people understand different perspectives and be open to different views. Risk tools and techniques (such as workshops, scenario analysis, risk appetite, decision trees and controls tools such as bow-tie analysis) can help people across the value chain to ensure they make informed decisions.

Examples of risk management that can be applied are as follows:

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Ideas and thoughts for consideration</th>
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| 1. Cacao farming | • If you are involved in cacao farming, what is your involvement?  
• Can you help farmers to manage their finances and their financial risks?  
• Are you supporting sustainable farming practices?  
• Can you help farmers with their land management and procurement to improve their yields in a sustainable way?  
• Can tools such as decision trees help to look at the different pricing options in the complex situation facing growers? |
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<tr>
<th>Consideration</th>
<th>Ideas and thoughts for consideration</th>
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<tbody>
<tr>
<td>1. Consideration</td>
<td>• Can Risk tools such as Bow-ties be used to identify the controls, and control effectiveness, to the risks that farmers face?   &lt;br&gt;• Are innovations such as blockchain open to you?</td>
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<tr>
<td>2. Roasting of cacao beans to produce cocoa</td>
<td>• Are you using sustainable methods of roasting, including understanding your energy use, and your sources of energy?</td>
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<td>3. Cocoa buyers</td>
<td>• If you are buying cocoa, you play a pivotal role in influencing how it is ethically procured. What risk management practices do you have in place for understanding the supply chain and modern slavery? &lt;br&gt;• Can you support the use of data-driven farming to improve the productivity of cacao farming?</td>
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<td>4. Manufacturers of chocolate</td>
<td>• How can you support farmers with better education on production techniques and diversification of how they can farm and use their land? &lt;br&gt;• Have you established full visibility across your supply chain and the various elements that go into it (from understanding your carbon footprint to ethics)? &lt;br&gt;• Do you have good business resilience (business continuity) measures in place to deal with disruption to parts of the value chain? Not only for cocoa beans, but for other essential commodities such as sugar. For example, if there was a disruption to cocoa beans supply or to another key ingredient for your production, do you know exactly what the impact would be and how to maintain continuity of service as best you can? &lt;br&gt;• Do you have well-tested emergency preparedness and response procedures in place to deal with unexpected emergencies?</td>
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<td>5. Investors in the cocoa and chocolate industry</td>
<td>• Are you driving the companies that you invest in to be sustainable, and to support the farmers that they source their raw product from in a financially sustainable manner? &lt;br&gt;• Do you have a series of risk-based questions that drive your decisions on which businesses to invest in?</td>
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<td>6. Retailers of chocolate</td>
<td>• Presumably you know where your cocoa is sourced from. &lt;br&gt;• Are you working to encourage your chocolate suppliers to be sustainable, for example, asking them how they are performing against the SDGs?</td>
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<td>• Are you able to use modern financial services and payment systems, and perhaps looking at blockchain with your suppliers?</td>
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**Conclusion**

The cocoa and chocolate industry is experiencing a period of change at the same time as global demand is increasing. The SDGs provide a good lens through which to assess the challenges it faces.

Slave and child labour is still a major problem, and it is being tackled with some great examples of small and large businesses changing their procurement and ethical supply practices.

The industry has complex economic matters to tackle, principally in the distribution of wealth across the value chain.

Farmers need to be supported with ways to improve land management and finances.

Consumers can, and should, “do our bit” by buying ethically sourced chocolate. It only takes a second to look at the labels on packaging to make sure that we support the industry as it changes to become more sustainable. It’s the least we can do if we want to continue to enjoy this delectable product.
Further suggested reading and watching

Lots of books exist on the history of chocolate and the nature of the industry. [Chocolate Nations](#) is a particularly good book about the industry and its value chain.

[World Cocoa and Chocolate Day](#) is celebrated on 1st October each year. The Day is the brainchild of the International Cocoa Organization and the Académie Française du Chocolat et de la Confiserie.

It was initiated to create awareness of the living conditions of cocoa farmers worldwide, in an effort to build a sustainable cocoa economy. By growing a local chocolate industry you contribute to economic diversification and helping to secure a better income for farmers.

Also, visit the website of [Tony’s Chocoloney](#) to find out about how they are seeking to make the cocoa and chocolate industry more sustainable, and [The Other Bar](#), the chocolate bar developed using blockchain.

Finally, did you know that the origins of the Coca-Cola bottle stem from a design that is based on the cocoa pod? According to the Coca-Cola Company: 37

“In Terre Haute, Indiana, the Root Glass Company received the brief and had a meeting to begin to work on their design. The Root team was composed of C.J and William Root, Alexander Samuelson, Earl Dean and Clyde Edwards. Samuelsson, a Swedish immigrant who was the shop foreman, sent Dean and Edwards to the local library to research design possibilities. When the team came across an illustration of cocoa bean that had an elongated shape and distinct ribs, they had their shape. The team developed the bottle idea and Dean carefully sketched the now recognizable shape on heavy linen paper and under Samuelsson’s direction, a few sample bottles were struck.”

About the author

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The wonders of chocolate, from a personal viewpoint...
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