

Interconnections, Biomes and Economic Activity

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https://upload.wikimedia.org/wikipedia/commons/9/91/Godiva_factory_tour_and_workshop_-_piping_%283954586231%29.jpg

NSW GEOGRAPHY SYLLABUS AND AUSTRALIAN CURRICULUM

Stages 4 and 5:

- Landforms and Landscapes (soil), Interconnections (trade, production, consumption, globalisation)
- Water in the World (weather, climate), Liveability (cocoa farms)
- Sustainable Biomes (rainforests, plants), Changing Places (communities and settlements)
- Environmental Change and Management (climate change, sustainability), Human Wellbeing (inequalities, human rights, citizenship)

Stage 6: People and Economic Activity

- Farming, manufacturing, retailing
- Local study-chocolate manufacturer or retailer (shop)

Cross Curriculum: Asia, Sustainability

Geographical inquiry and skills: maps, graphs, statistics, tables, photographs, visual literacy, infographics, ICT, spatial technology

INTRODUCTION

Chocolate provides one of life's simple and inexpensive pleasures with consumption concentrated around Christmas (chocolate Santa Claus), Easter (chocolate eggs), St. Valentine's Day (chocolate hearts) and Hanukkah (chocolate coins). This special treat supports a wealthy industry worth \$100 billion that is the equivalent to the Gross Domestic Product (GDP) of over 130 countries. However, the darker side of chocolate encompasses deforestation, pollution, poverty and child labour

WHAT IS CHOCOLATE?

Chocolate comprises of a number of raw and processed foods produced from the seed of the wild tropical *Theobroma Cacao* tree. This unique bean is the only vegetable that is solid fat (cocoa butter) at room temperature but melts deliciously in your warm mouth!

Cocoa beans are converted into chocolate to flavour biscuits, ice creams, dairy drinks and cakes. Cocoa is also employed in the manufacture of tobacco, soaps and cosmetics and used as a folk remedy for burns, fevers, malaria and rheumatism.

At the core of the chocolate debate is the definition of chocolate.

Since 2000, the Economic Union (EU) accepts 5% content of vegetable fats in chocolate products, such as palm oil, illipe, sal, shea, kokum gurgi and mango kernel.

Cocoa growers object to this food being called 'chocolate', as it will reduce demand for cocoa beans by 200,000 tons a year and increase unemployment in poor cocoa farming communities.

WHAT IS MEANT BY 'SWEET AND BITTER' CHOCOLATE?

While you chomp happily into your next chocolate treat, note there is little happiness for child slaves in the Ivory Coast, who harvest cocoa, an essential ingredient in chocolate bars. One wonders, *if Willie Wonka was aware these child labourers had never tasted chocolate, would he still think the chocolate industry was a benevolent uncle?*

Obviously all is not sweet in the chocolate industry as it faces many challenges in the 21st century. Today, more than five million families in Africa, Southeast Asia and

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the Central and South America grow and depend on cocoa for their livelihood. Many of them struggle with low productivity due to traditional farming practices, lack of access to credit and property rights, and competition from large plantations. The cocoa industry is also affected by deforestation from clearing forests for cocoa trees and the adverse impacts of pesticides and fertilisers on the environment and on people's health. Other issues include the control of the market by transnational corporations; child trafficking in the industry; impacts of climate change on cocoa production; substitution of cocoa butter with other fats; and genetically engineered cocoa species.

Stakeholders along the chocolate chain are under pressure to ensure the cocoa industry is equitable, supports human rights, and is sustainable (economically, socially and environmentally). The chocolate of tomorrow faces rising proliferation of consumer tastes with volatile cocoa markets – it is not an easy journey!

Activities

- You Tube introduction: infographics show-chocolate facts and statistics <https://www.youtube.com/watch?v=LRRKs4or5Pg>
- List the good and bad aspects of chocolate in a two column table.
- Investigation: name the products in your house that have chocolate in their content.

BIOMES: WHERE ARE COCOA TREES GROWN?

Countries that grow and harvest cocoa beans to satisfy human's sweet tooth are restricted to tropical biomes.

Tropical rainforest biome

Cocoa cultivation is restricted to the hot, humid belt between 10°C and 20°C north and south of the equator experiencing an average temperature of 25.5°C. The cocoa tree grows at altitudes between 0masl and 700masl. They grow in places that are not too mountainous and do not receive monsoons or droughts.

Cocoa production between the Tropics of Cancer and Capricorn

Image: <http://www.worldagroforestry.org/treesandmarkets/inaforesta/documents/cocoa%20and%20chocolate/cocoa%20and%20chocolate.pdf>



A cocoa plantation in Surinam.circa 1885

Image: https://commons.wikimedia.org/wiki/File:KITLV_-_39071_-_Muller,_Julius_Eduard_-_Paramaribo_-_A_cocoa_plantation_in_Surinam_-_circa_1885.tif

Global expansion

As the popularity of chocolate spread, European countries established plantations in colonies located in the hot humid cocoa belt. Today nearly 60 tropical countries grow cocoa. Ghana, Cote d'Ivoire/Ivory Coast, Nigeria, Indonesia and Brazil account for 79% of the world's production. In 1900 Latin America led the world in cocoa production but today Africa asserts the largest production.

Global trends:

- Asia's growing numbers of chocoholics are driving chocolate producers to grow and process cocoa in the region, especially Indonesia-the world's third-largest cocoa grower.
- Australia: at a farm near Mission Beach, in Northern Queensland a cocoa tree plantation has been established. Owners Chris and Lynn Jahnke have planted 2,000 cocoa trees and plan to open a chocolate factory and run excursions for tourists. Mr Jahnke says the chocolate farm will be one of the only places in Australia where consumers will get a 'tree-to-bar' experience.
- Computer software and 3D printers means the potential for personalised chocolate is endless!

Cocoa plantation tours, Mission Beach Qld

Image: <http://www.missionbeachholidays.com.au/tour.view.charley-s-chocolate-factory>



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WHAT IS THE BIOPHYSICAL ENVIRONMENT?

Cocoa is selective as regards location, soil and climate. The optimum development of cocoa trees requires a hot, wet and humid climate. Leaves covering the ground fertilise the soil and provide a breeding ground for insects to pollinate the cocoa flowers. As cocoa trees are fragile and prefer shade and high humidity, they are generally located on the lower level of rainforests, protected from wind and sun.

Biophysical environment

Temperature high and uniform	Precipitation abundant	Humidity high	Light and shade	Soil nutrient rich
High temperatures with a maximum annual average between 27°C and 32°C and a minimum average between 18°C and 21°C.	Cocoa tree yields are affected by rainfall. The trees require 1,500mmpa and 2,000mmpa distributed through the year.	Relative humidity is high, around 100% during the day and falling between 70% and 80% during the night.	The cocoa tree was traditionally grown under the shade in rainforests.	Nutrients, to a depth of 1.5m to allow development of a good root system.

Climate statistics: Accra (Capital of Ghana, major cocoa growing country in Africa)

Month	Temperature °C		Precipitation	Relative Humidity %	
	Min	Max	mm	am	pm
January	23	31	11	95	61
February	24	31	22	96	61
March	24	31	56	95	63
April	24	31	100	96	65
May	24	31	132	96	68
June	23	29	215	97	74
July	23	27	67	97	76
August	22	27	28	97	77
September	23	27	72	96	72
October	23	29	62	97	71
November	24	31	28	97	66
December	24	31	18	97	64



Photograph <https://rctom.hbs.org/wp-content/uploads/sites/4/2016/11/2-4.jpg>

Apart from being choosy about the biophysical environment, the cocoa tree is susceptible to fungal infections, plant diseases, and infestation by insects or rodents. As a result modern plantations devote large amounts of money into research aimed to protect cocoa crops.

Advances in knowledge and technology has resulted in efficient modern plantations producing around 1,500 kg per hectare that is more than four times the average yield of three hundred years ago.

WHAT TYPE OF SOILS ARE SUITABLE TO GROW COCOA TREES?

A productive cocoa tree requires good structured soil that contains humus. The soil is permeable and deep to enable the tap root to descend into the soil. The cocoa tree is sensitive to lack of water, so the soil must have both water retention properties and good drainage.

Soils for cocoa production – suitable type

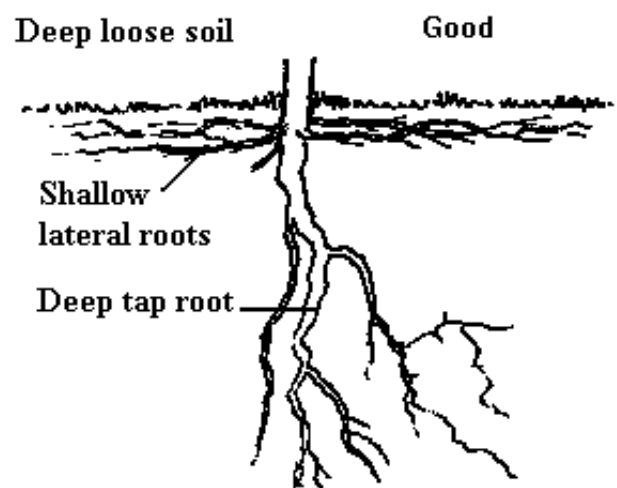
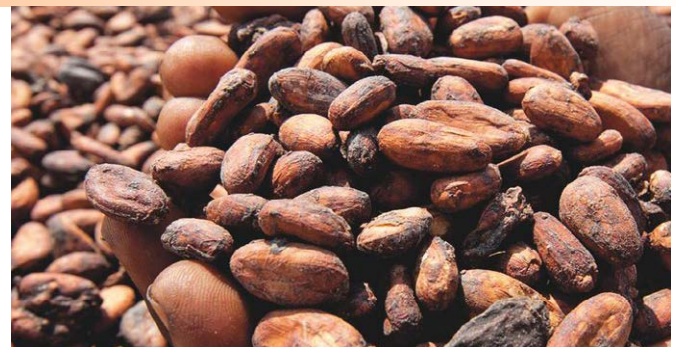
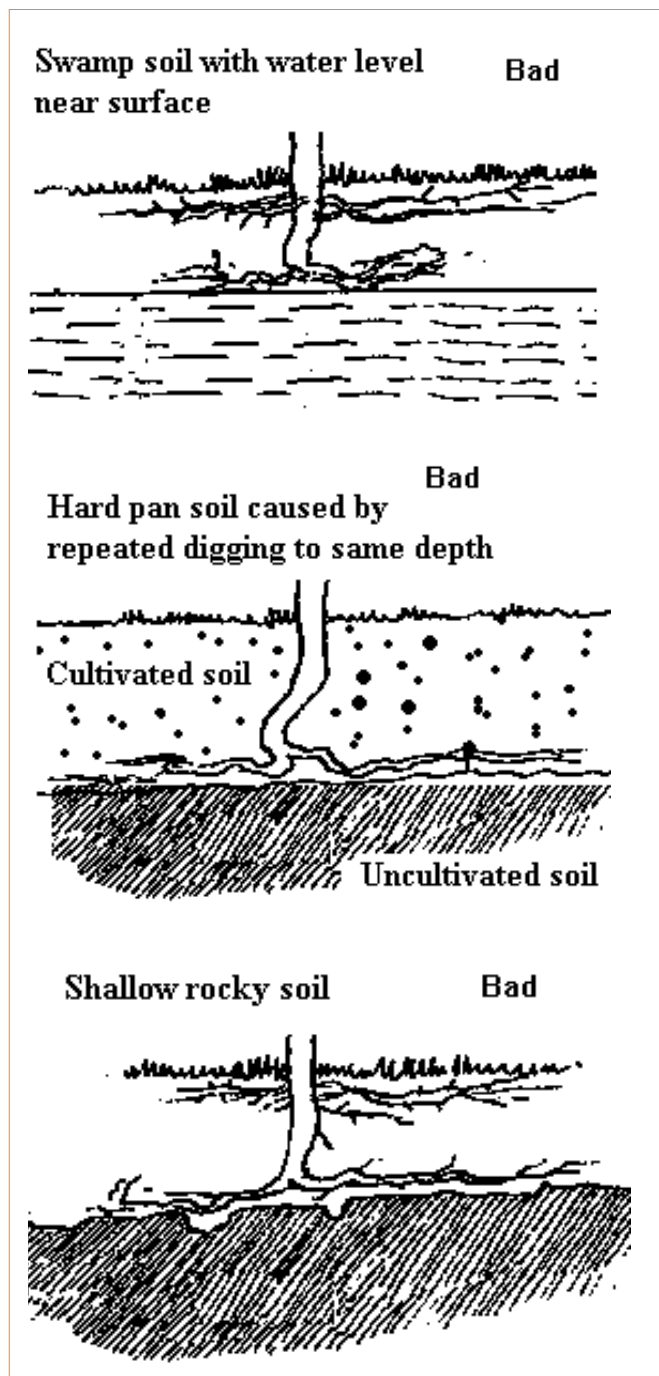


Diagram: http://www.uq.edu.au/_School_Science_Lessons/55.13.GIF

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Soils for cocoa production – unsuitable types



Answer the following questions – *True or False*

- The average temperature in Accra is 26.5°C (T)
- The average temperature range is 4°C (F)
- The highest monthly temperature is 31°C in January, February, March and April (T)
- The lowest monthly temperature is 21°C in August (F)
- Accra receives 787 mm of rainfall per year (F)
- The driest months are January and February (T)
- The wettest weather is in June with 215 mm of rain (T)
- There are 0 days with frost in Accra (T)
- It is hotter and wetter in Accra than Sydney (T)

HOW DO COCOA TREES BECOME CHOCOLATE?

As we tuck into a chocolate truffle, we need to think about where it came from, and who helped in its transformation from the humble cocoa bean.

The world cocoa market distinguishes between two broad categories of cocoa beans, 'fine or flavour' and 'bulk or ordinary'. Generally, fine cocoa beans are produced from Criollo or Trinitario varieties, while bulk cocoa beans come from Forastero trees. Virtually all major production over the past five decades involved bulk cocoa, with the global share of fine cocoa production at only 5%.

What's in cocoa bean?

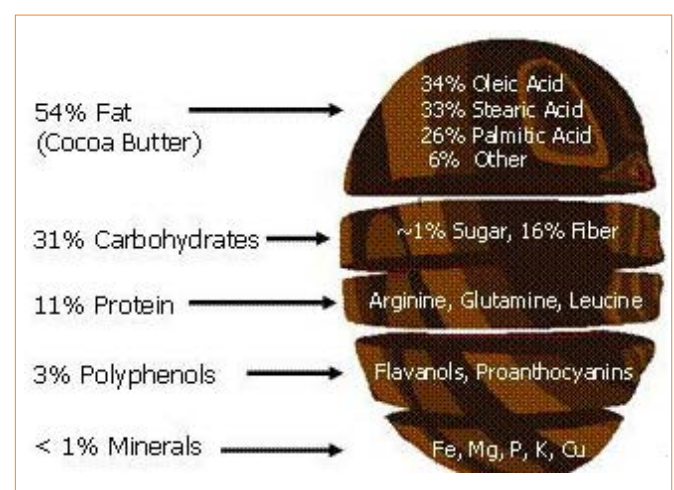


Diagram: <https://s-media-cache-ak0.pinimg.com/originals/c8/63/9f/c8639fe87fd162f041056982f70f4ad2.jpg>

Activities

- Draw the climate graph of Accra
- Complete the following table:

	Answer
1. Annual average high temperature	
2. Annual average low temperature	
3. Average temperature	
4. Average annual precipitation	

(Correct answers: 1. 29.6 °C, 2. 23.4 °C, 3. 26.5 °C, 4. 811mm)

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Major types of cacao cultivated around the world

	CRIOLLO	FORASTERO	TRINITARIO	NACIONAL
Main cultivation countries	South and Central America	Africa, Central and South America	Central and South America and Asia	South America
Characteristics	Yield is low.	80% of world production of cacao. Tree grows faster and gives higher yields than other types of cacao.	Crossbreed between the Forastero and Criollo. Resistance to disease and productivity from Forastero. Aroma from Criollo	Crossbreed between the Forastero and Criollo. Resistance to disease and productivity from Forastero. Aroma from Criollo

Cocoa flow process-from cocoa bean to chocolate bar

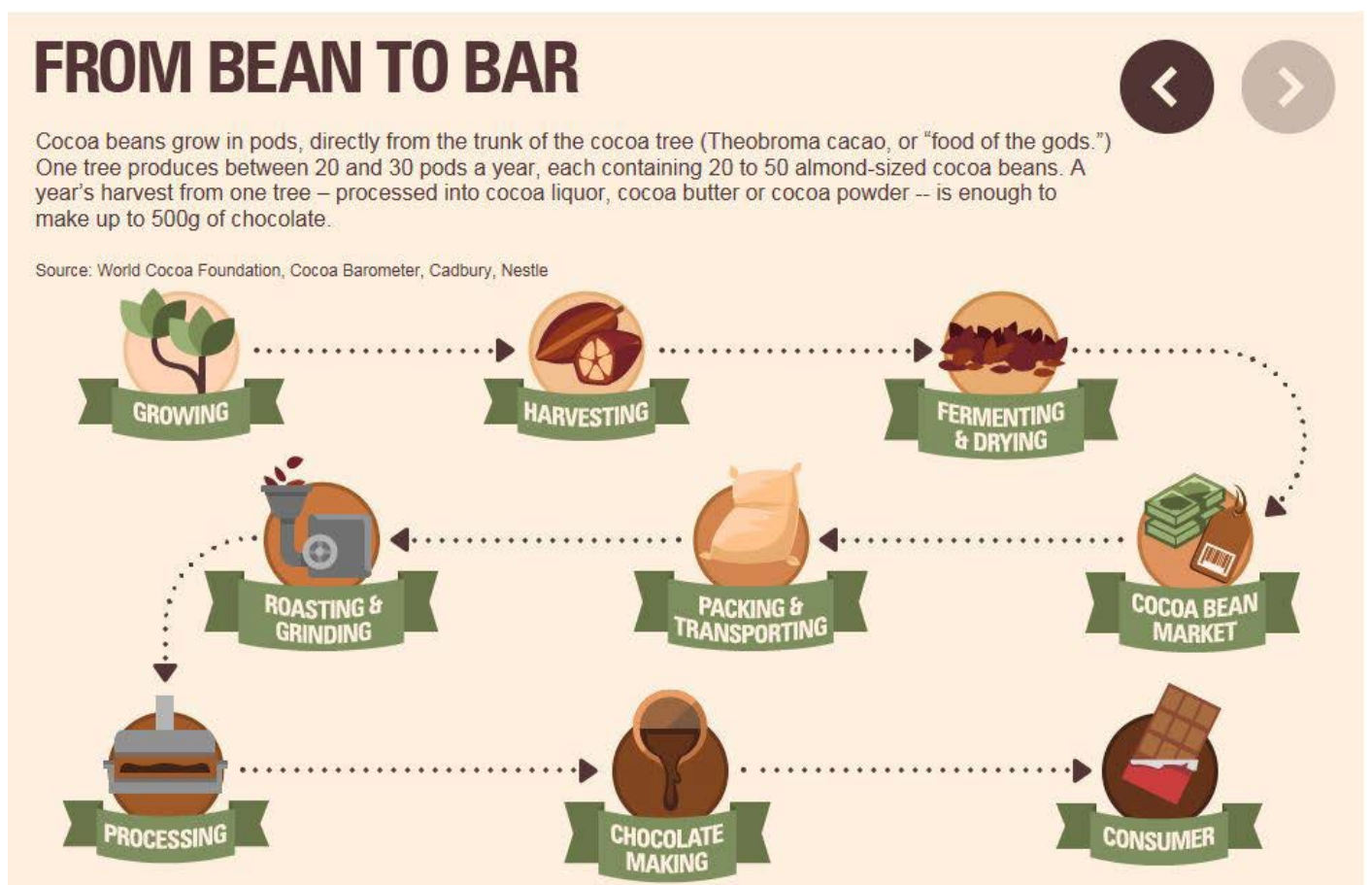


Diagram: <http://edition.cnn.com/2014/02/13/world/africa/cocoa-nomics-explained-infographic/index.html>





Image: http://static.wixstatic.com/media/2f6f7d_42446e38337845608cbb22377171105f.jpg

WHAT ARE THE COCOA PROCESSES?

GROWING

- The cocoa tree grows between five and ten metres high. They begin to bear fruit in the fifth year and reach peak production around 10 years. Inside the cocoa pod is a layer of sweet pulp, with 20-60 cream coloured cocoa beans.
- Pesticide are applied to the cocoa tree as they are affected by pests (e.g. Cocoa beetle and Cocoa pod borer), diseases and fungus causing a reduction in global production between 30% and 40%. The Black Pod fungus dries beans and Witches' Broom fungus results in trees not producing proper pods. As a result shoots grow to look like witches' brooms.

HARVESTING

- To harvest cocoa, farmers reach the cocoa pods with long handled tools or sharp machetes. After the fruit has been cut down, it is opened and the seeds (beans) with its surrounding pulp are extracted. Although fruits mature throughout the year there are usually two harvests. The main crop generally has larger yields than the mid-crop (see table below).

FERMENTING

- After the beans and pulp have been extracted, fermentation takes place. The beans with pulp are placed in fermentation boxes or between banana

leaves, for 5-6 days, during which the sugar from the beans will turn into alcohol. During this process heat is generated. When the temperature reaches 50°C beans lose some of their raw, bitter flavours. After fermentation, the beans are spread out and dried for 14 days. Large plantations use hot air or heat from the burning wood to dry beans. Smaller farms dry the beans on raised bamboo mats. The beans are required to reduce their moisture level to 8%. Properly dried beans lose half their original weight.

ROASTING WINNOWING & GRINDING

- The next step in the preparation of chocolate is roasting followed by winnowing and grinding. After the beans are roasted the shell is removed to produce cocoa nibs. The nibs are ground to form pure chocolate in rough form. Because this cocoa mass usually is liquefied then moulded it is called chocolate liquor. The liquor may be processed into cocoa solids or cocoa butter.
- Sweet chocolate is made by combining cocoa solids, cocoa butter or other fat, and sugar. Milk chocolate is sweet chocolate containing milk powder or condensed milk. White chocolate contains cocoa butter, sugar, and milk but no cocoa solids. In recent years a change in consumers taste led to an increase in dark chocolate with perceived links to improved health.

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Main seasons for cocoa crops

Country	Main crop	Mid-crop
Brazil	October-March	June-September
Ghana	September-March	May-August
Indonesia	September-December	March-July
Cote d'Ivoire	October-March	May-August

WHAT ARE ENVIRONMENTAL EFFECTS OF COCOA PRODUCTION AND SOME SOLUTIONS?

The environmental effects of cocoa production, such as deforestation, soil erosion and cocoa resistant herbicides are becoming more severe as the global demand for cocoa increases.

Cocoa farming contributes to deforestation. By clearing the land farmers increase soil erosion, and decrease biodiversity and soil nutrients. When soil erodes, land becomes less fertile and cocoa yields decrease. The more intense the farming practices-the more damage to the ecosystem.

Environmental effects of cocoa production and solutions:

- Using intercropping that involves planting trees, within cocoa trees. It helps growth of cacao plants and provides shade to cacao plants. Intercropping

with fruit bearing trees provide additional income to the farmer.

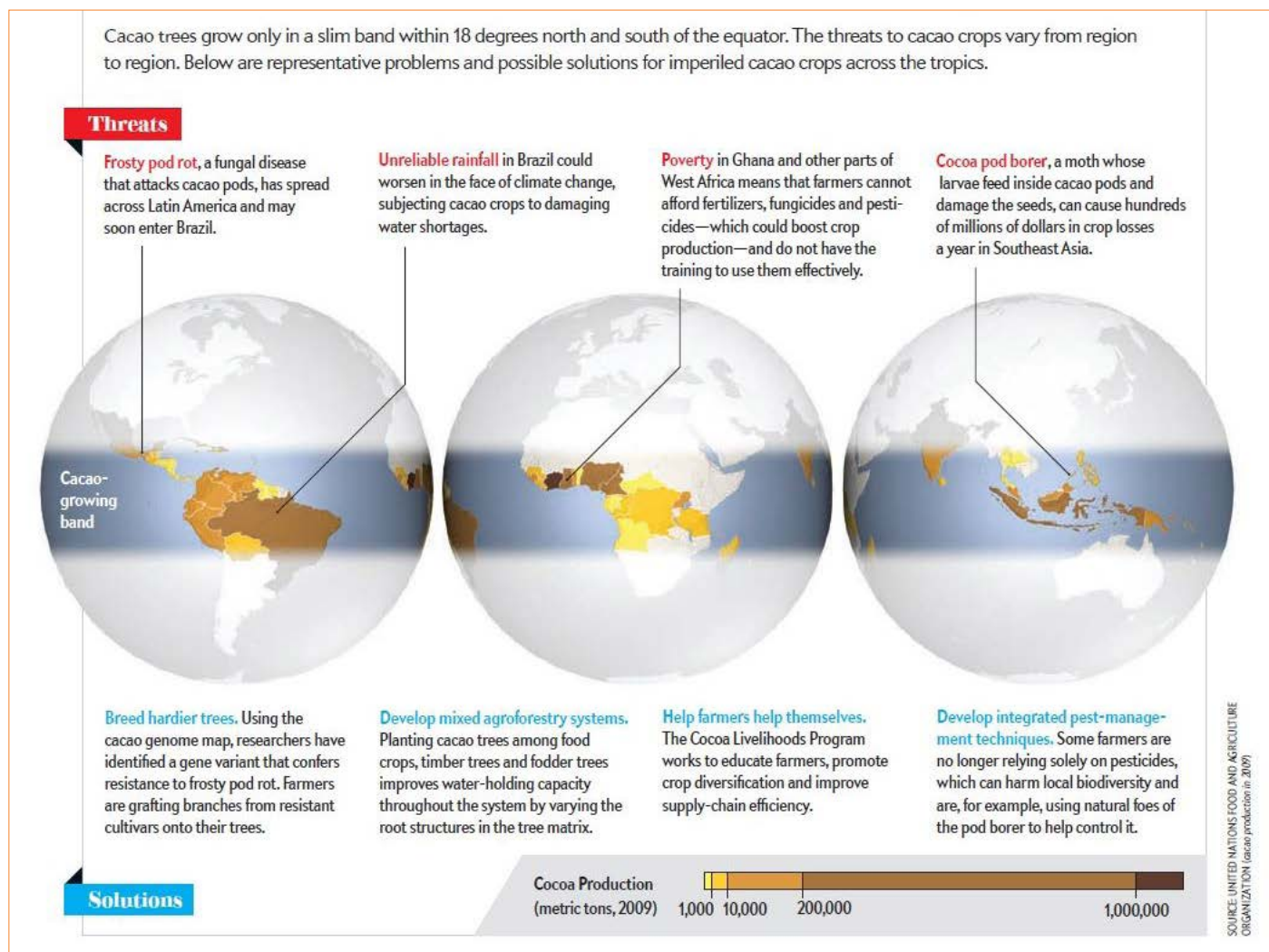
- Burning old, fermented cocoa pods and placing them back on the soil as a form of compost and fertiliser.
- Implementing Good Agricultural Practices (GAP) such as terracing slopes, mulching soil, composting use water efficient irrigation
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- Replanting on current land reduces deforestation. Trees provide shade that return organic matter to the soil through falling leaf litter. The shade helps keep soil moist which results in less wasteful irrigation practices and provides more biodiversity.
- Introducing sustainable programs such as the World Cocoa Foundation, Rainforest Alliance, Roundtable for a Sustainable Cocoa Economy, and activities of regional NGOs like Conservation Alliance
- Returning cocoa farming to its sustainable roots through education programs
- Applying pest products such as biocides as an alternative to the harmful pesticides

Photo https://upload.wikimedia.org/wikipedia/commons/a/a6/Cocoa_farmers_during_harvest.jpg



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Threats and solutions – Global Efforts to Boost Cocoa Crops



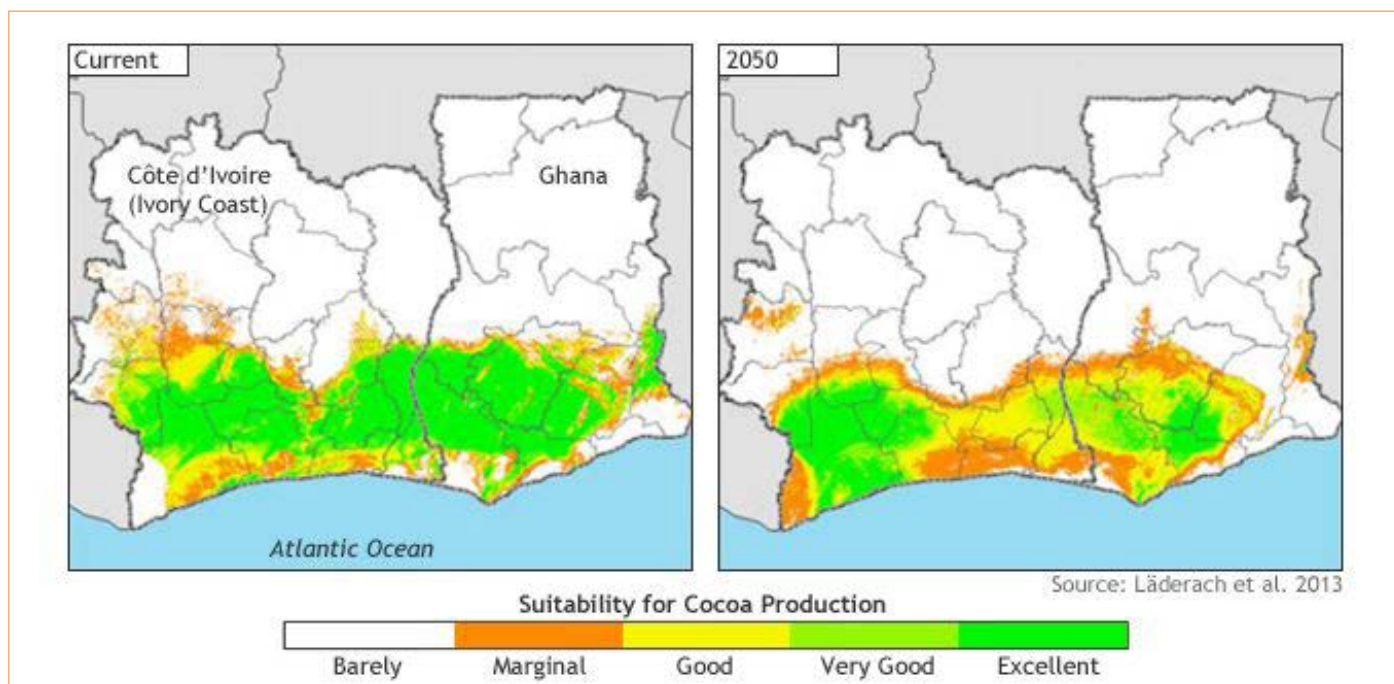
Maps: https://chocolateclass.files.wordpress.com/2016/05/global-efforts-to-boost-cacao-crops_scientific-american.jpg

Climate change

The Intergovernmental Panel on Climate Change (IPCC) *Climate Change 2014: Impacts, Adaptation, and Vulnerability* report indicates that cocoa producing countries that by 2050, rising temperatures will cause a reduction in suitable cultivation areas. The IPCC reported that Côte d'Ivoire and Ghana's optimal altitude for cacao cultivation is expected to rise from 100–250masl to 450–500masl.

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Impacts of climate change in Côte d'Ivoire and Ghana's cocoa production



Maps: <https://www.climate.gov/news-features/climate-and/climate-chocolate>

INTERCONNECTIONS: HOW HAS CHOCOLATE EVOLVED INTO A GLOBAL PRODUCT?

In Central America, 3,000 to 4,000 years ago an Indian picked up a football shaped fruit from a rainforest and started cultivation. Around 1100 BC the Olmec Indians (Maya) made cocoa beans into a drink and offered it to their gods during puberty rites, marriages and funerals.

Cocoa was made into a beverage known as xocolāt (meaning 'bitter water') by the Aztecs, flavoured with local spices (chilli, cinnamon, musk, pepper and vanilla) and thickened with cornmeal. The Aztecs saw cocoa as a gift of the serpent god Quetzalcoatl (god of light) and was considered a stimulant, intoxicant, hallucinogen and aphrodisiac. The drink was served as a cure for anxiety, fever and coughs as well as warriors counted on cacao's caffeine to assist them in battle. Today chocolate has progressed from a simple drink and food eaten by ancient Latin American tribes to a sophisticated drink favoured by the rest of the world.

Chocolate globalisation timeline – from origin until today

3,000 to 4,000 years ago

Cocoa plants were first cultivated in Mexico by the Myan and Aztec Native Central Americans

1400s

1492 Columbus brought cocoa beans to Spain

1500s

1518 Cocoa used in Aztec court of Emperor Montezuma. He built a cocoa plantation..

1600s

1606 Carletti discovered chocolate in Spain and took it to Italy. Chocolate spread to Germany, Austria, and Switzerland.

1657 First chocolate house in London

1700s

1700, drinking chocolate expanded worldwide. 1728 Fry set up first chocolate factory in England using hydraulic machinery to process and grind cocoa beans. 1750 European countries acquired cocoa plantations in colonies

1800s

1810 Venezuela produced 50% of world's cocoa. Spaniards consumed 30% of chocolate products.

1847 Fry created a paste that could be moulded - first modern chocolate bar. 1861 Cadbury created first heart-shaped candy box for Valentine's Day.

1879 Formation of Nestlé Company.

1879 Lindt invented conching machine to heat and roll chocolate into a smooth consistency.

1895 Hershey sold first Hershey Bar 1899 Tobler started to produce chocolate.

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1900s

1900 Price of cocoa and sugar dropped, making chocolate affordable to middle class.

1920s Chocolate became individual sized for snacking.

1990s Chocolate became a multibillion-dollar industry

2000s

2000 Fusion cuisine: exotic spices such as saffron, curry and lemongrass now commonplace in chocolate. Chocolate has organic and kosher brands.

Activities

- Explain the biome that is most suitable for growing cocoa beans.
- Describe what type of soil is most desirable to grow cocoa beans.
- Research the impact of climate change on cocoa production.
- Name four main types of cocoa produced around the world.
- List the interconnections between the cocoa bean and consuming the delicious treat.
- How is the cocoa bean grown?
- Explain the process of fermentation.
- Distinguish between the months for main and mid crops in Indonesia and Ghana.
- Describe how chocolate became a global commodity over time.

WHAT ARE THE GLOBAL INTERCONNECTIONS?

Cocoa, the key ingredient in chocolate, is the base of an intricate global system of people, families and communities who depend upon cocoa for their livelihood. From seed to sweet, chocolate began in the rainforests before it moved around the globe.

Not all countries enjoy the sweet taste of chocolate equally as there is a dichotomy between countries extracting the raw materials and countries indulging in the finished product.

Production

The eight largest cocoa-producing countries are developing countries - Côte d'Ivoire/Ivory Coast, Ghana, Indonesia, Nigeria, Cameroon, Brazil, Ecuador and Malaysia. These countries represent 90% of world production.

Changing future production:

- West Africa is running out of land and climate change affecting Ghana and Côte d'Ivoire will result in these countries becoming less suitable for cocoa production.

- Asia's environment is suited to increase cocoa production. Asia Cocoa Director at Mars stated that the growth in the next 10-20 years will be in Asian countries. In Vietnam state-owned companies are converting coffee and rubber plantations to cocoa, and the Philippines aims to produce 100000 MT of dried cocoa beans by 2020 aimed to alleviate poverty and boost sustainable agriculture.

Consumption

The processing and consumption of chocolate products is dominated by western developed countries with 70% of profits from chocolate sales concentrated in these countries. Europeans consume 40% of the world's cocoa per year of which 85% is imported from West Africa. Nineteen of the top twenty cocoa-consuming countries are classified as developed, with 16 located in Europe.

Changing future consumption

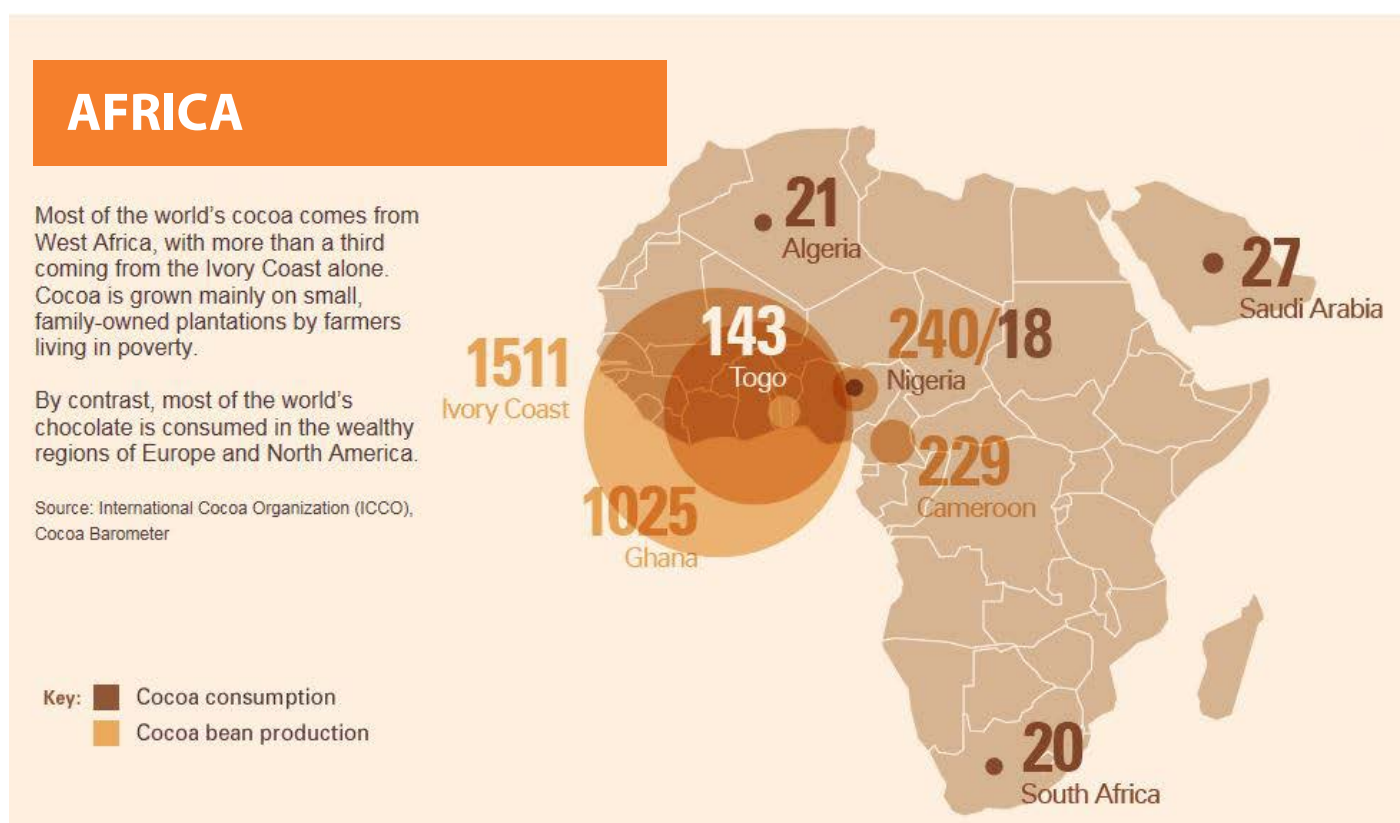
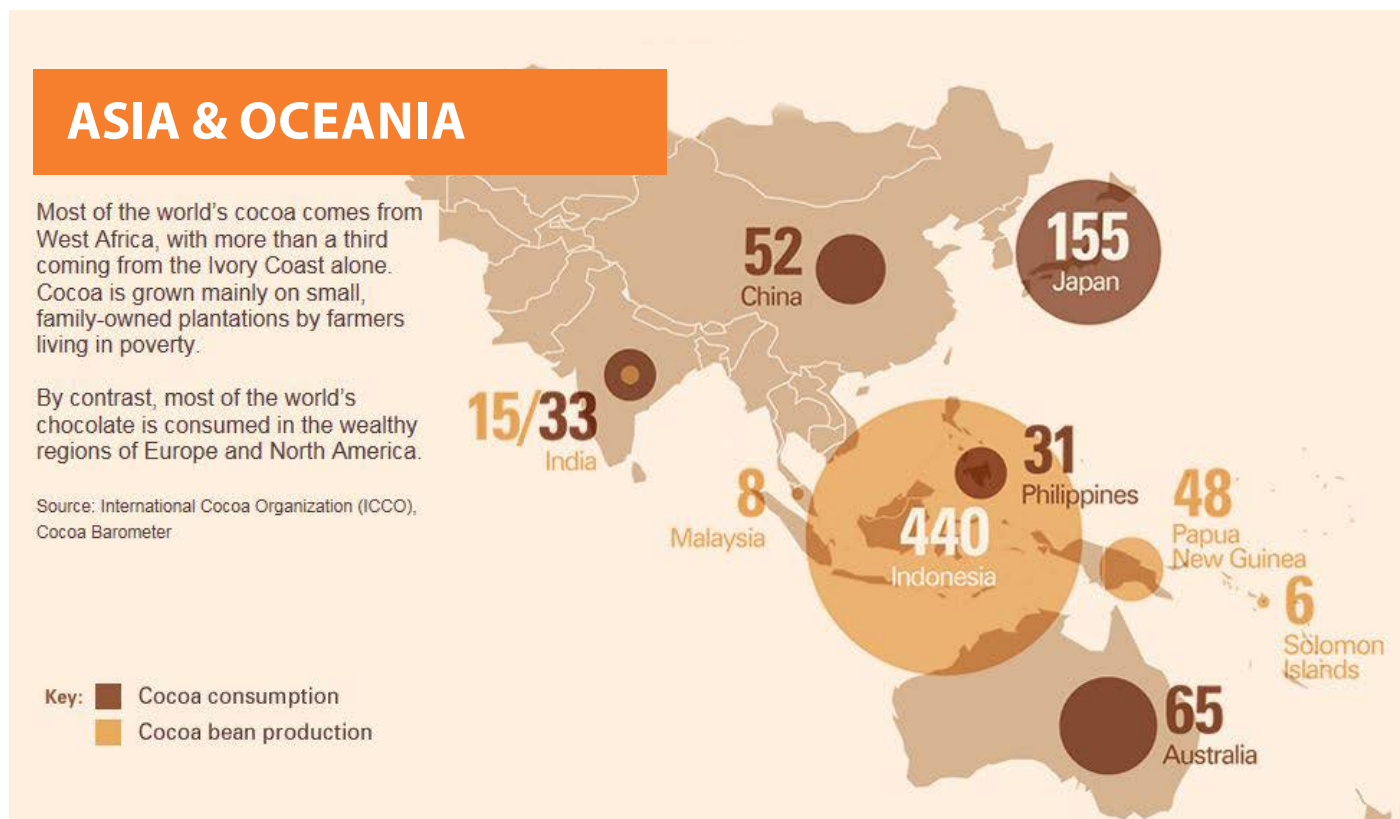
World consumption will rise 2.2% from 2013/14 to 2018/19. Over the same period China and India's consumption is forecast to grow 8%

Table: Characteristics of world production and consumption of cocoa

CHARACTERISTICS OF WORLD PRODUCTION	CHARACTERISTICS OF WORLD CONSUMPTION
<ul style="list-style-type: none">• Predominantly grown by smallholders• Highly concentrated – 3 major producing countries• High labour requirement during harvest• Increasing threats from pests and diseases• Recent liberalisation of markets in major producing countries led to lower quality and increased exposure of growers to price changes• Political instability in some producing countries• Ageing farmers and reduced plant stock in West Africa affects future supplies• Low prices led to reduced inputs and lower productivity on many farms	<ul style="list-style-type: none">• Traditional major markets – Western Europe and North America• High focus on advertising• Emerging markets in Asia, Eastern Europe and Latin America• Growth in China over next decade• Positive health aspects (antioxidant flavinoids) and negative health aspects (fat and sugar content) influences consumption

WHAT ARE THE GLOBAL COCOA PRODUCTION AND CONSUMPTION PATTERNS?

Coco-nomics – Global production & consumption (Thousand tonnes)





CENTRAL & STH AMERICA

Most of the world's cocoa comes from West Africa, with more than a third coming from the Ivory Coast alone. Cocoa is grown mainly on small, family-owned plantations by farmers living in poverty.

By contrast, most of the world's chocolate is consumed in the wealthy regions of Europe and North America.

Source: International Cocoa Organization (ICCO), Cocoa Barometer

Key:  Cocoa consumption
 Cocoa bean production





EUROPE

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Key:  Cocoa consumption
 Cocoa bean production



Source – adapted from: <http://edition.cnn.com/2014/02/13/world/africa/cocoa-nomics-explained-infographic/index.html>

WHAT IS 'BIG CHOCOLATE'?

The chocolate industry has been reshaped by globalisation and downsizing. 'Big Chocolate' is essentially an oligopoly between major international chocolate companies such as Mars (USA), Mondelez (which owns Cadbury-USA) and Nestlé (Switzerland). The industry has responded to popular demand by selling health-conscious shoppers pricier treats with complex flavours, organic ingredients and less sugar. Most aim to produce sustainable and ethical products in the future.

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Percentage of global sales – chocolate and confectionary market 2012



Diagram: <https://makechocolatefair.org/issues/cocoa-prices-and-income-farmers-0>

Farmers are losers in the lucrative cocoa and chocolate industry

Within the global cocoa chain, most of the billions of dollars is generated after the beans have reached developed countries (manufacturing and retailing industries). On the other hand, many cocoa farmers and workers in developing countries receive less than US\$1.25 US a day. In fact cocoa growers receive about 6% of the price that consumers in rich developed countries pay for chocolate. This has led to poverty for millions of cocoa farmers.

In the 1980s the cocoa farmers share was higher at 16%. Over time profits of multinational chocolate companies have increased while incomes of cocoa farmers declined. Since the 1980s cocoa prices have been volatile and production costs have increased.

Currently farmers in Ghana earn 84 cents a day and Ivorian farmers 50 cents a day. As a result of the low wages, young farmers are leaving farms and not replacing the aging population. Company mergers and takeovers have left a few large companies dominating 80% of the value chain. Lack of education and opportunity have meant farmers are unable to voice their opinions in an organised method.

Source: <https://www.worldvision.com.au/docs/default-source/buy-ethical-fact-sheets/forced-child-and-trafficked-labour-in-the-cocoa-industry-fact-sheet.pdf>



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WHO GETS THE GREATEST SHARE OF CHOCOLATE PROFITS?

Share in the value of chocolate production

THE REAL COST OF A CHOCOLATE BAR

Chocolate may be big business, but its key ingredient, cocoa, is cultivated by some of the poorest people on the planet. While demand for cocoa is growing to the point that some experts warn we may run out of affordable supplies within 20 years, the farmers who grow it earn a tiny proportion of the price we pay at the grocery store – and their share has dropped sharply over the past 35 years.

Source: Oxfam

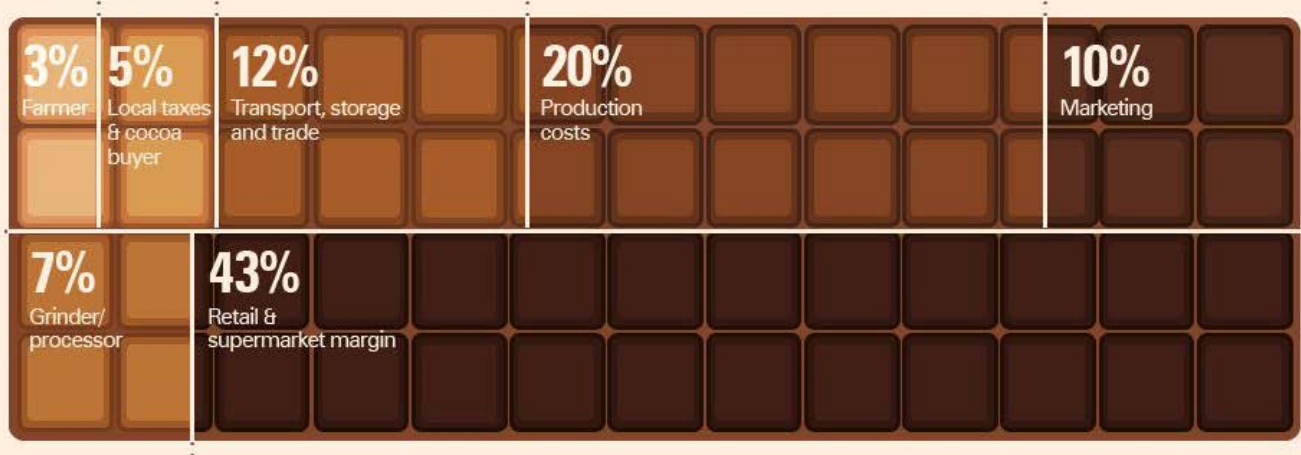


Diagram adapted from: <https://chocolateclass.files.wordpress.com/2016/05/b7obgpeiiaa9gs4.jpg?w=604;>

The global cocoa sector is in crisis

Firstly cocoa farmers need to receive a wage, referred to as a 'living income' as extreme poverty is the norm for West African cocoa farmers. The industry also requires improving farming practices, curbing market concentration, investing in local infrastructure and reviewing global price setting mechanisms-otherwise a sustainable cocoa industry will not be achieved.

Cocoa yields need to increase by providing tenure security, improving infrastructure and enabling farmers access to current information and technology. All players in the cocoa chain need to share the responsibility to solve the industry's problems-governments, retailers, companies and consumers.

Elements of a living income

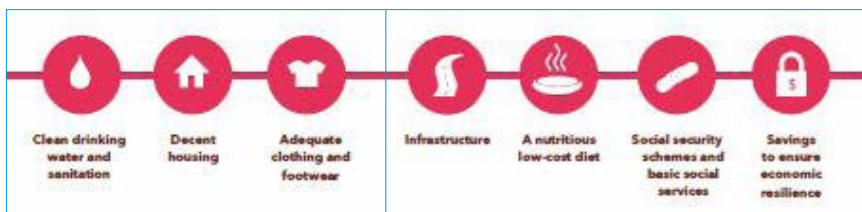


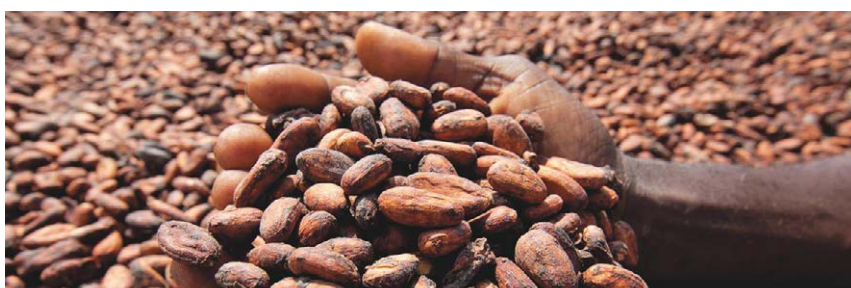
Diagram:http://www.cocoabarometer.org/Download_files/Cocoa%20Barometer%202015%20Print%20Friendly%20Version.pdf



<https://s-media-cache-ak0.pinimg.com/236x/2a/58/69/2a5869364bbdec97b2a328f472f35cc.jpg>

Activities

- Where is most cocoa produced?
- Where is most chocolate consumed?
- Explain the growth in Asian production and consumption.
- In groups, refer to the four maps which regions are the major producers and consumers. Include statistics in your answers
- List the five largest confectionary companies with some form of chocolate



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WHY IS COCOA INDUSTRY UNFAIR TO WEST AFRICAN FARMERS?

Throughout chocolate's evolution, from the first bitter beverage to thousands of ways it is enjoyed today, chocolate remains the 'food of gods'. This rich imagery of chocolate around romance, luxury, energy and health is associated with the advertising industry. When you buy a box of chocolates remember most of the money goes to transnational corporations and retailers as well as lifestyle magazines and TV stations, with little (6%) ending up in the hands of the world's small cocoa farmers.

Côte d'Ivoire

Cocoa is produced by 5–6 million farmers and contributes to the livelihoods of 40–50 million people. In Côte d'Ivoire and Ghana, this commodity accounted for more than 30% of export earnings.

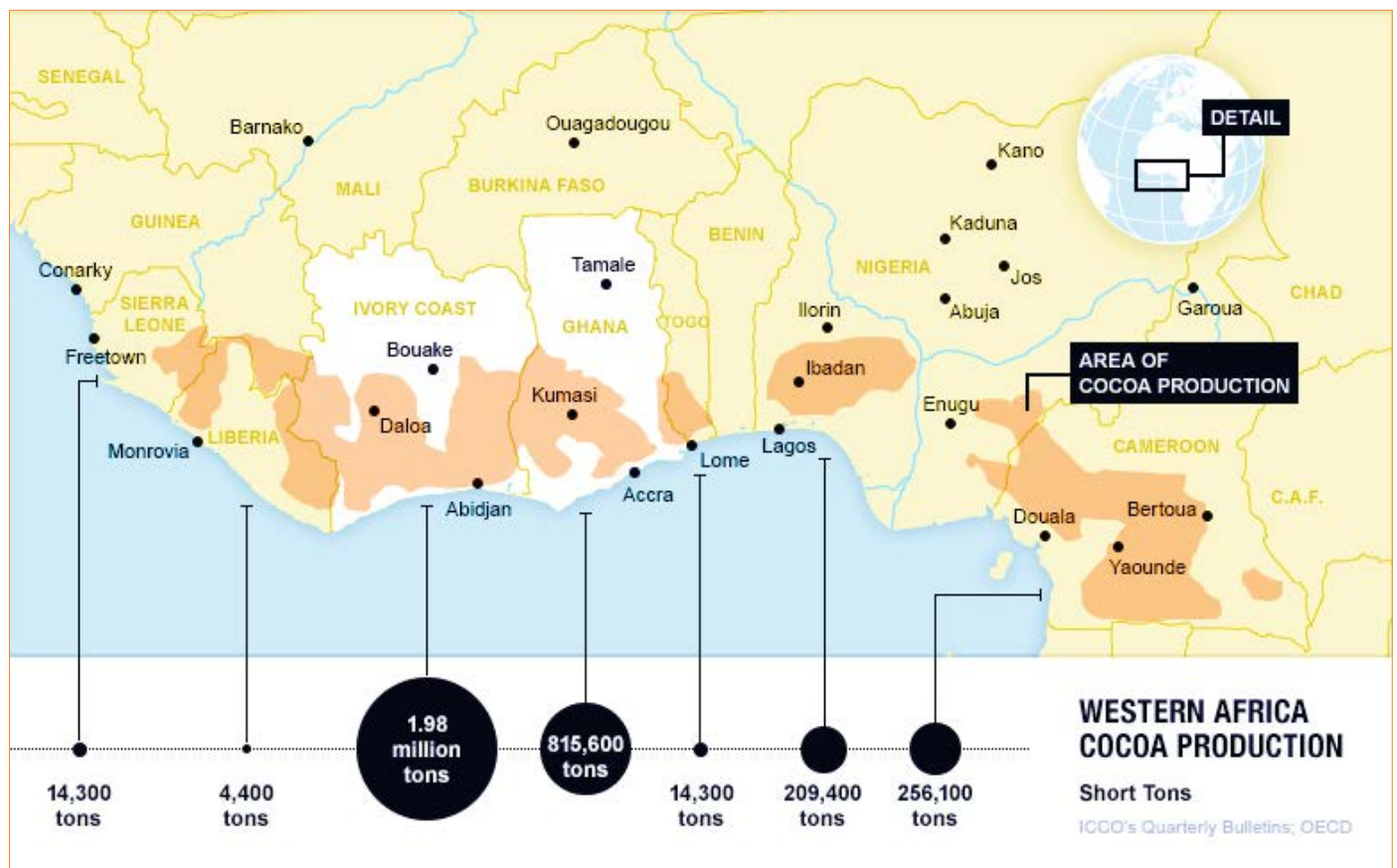
In the Côte d'Ivoire, 800,000 small-scale farmers, each earn about \$300 a year. Despite growing most of their food, farmers face the following problems:

- lack of long term security due to fluctuating prices



- receive a small fraction of the sale price for their beans which means they are unable to buy essential tools, fertilisers and pesticides and pay for school fees, medicine, transport and clothes
- often underpaid by local cocoa buyers using 'fixed' (false) scales
- caught in a trading system benefiting transnational corporations based in rich countries

Map of West Africa showing cocoa production



Map <http://fortune.com/big-chocolate-child-labor/>

Geographical inquiry skills and geographical tools

WHAT IS 'BLOOD' CHOCOLATE?

While many of us are aware of Blood Diamonds, thanks to the movie starring Leonardo DiCaprio, most do not realise Blood Chocolate also exists as a tragic reality for a significant number of very poor people in West Africa.

The Chocolate Industry and Child Slavery



Photo and notes : <https://mypullzone-wiredrlc.netdna-ssl.com/wp-content/uploads/The-Chocolate-Industry-and-Child-Slavery.jpg>

West Africa

Chocolate slavery is widespread in West African countries such as Mali, the Ivory Coast (Cote d'Ivoire), Cameroon, Ghana and Nigeria. More than 1.8 million children in West Africa are involved in growing cocoa. On a daily basis children work long hours, in hot temperatures, with dangerous tools and poisonous pesticides, and are then locked up at night to prevent escape. The majority of young children are either kidnapped or sold into slavery, robbing them of their freedom and a chance for an education.

Ivory Coast

There are 15,000 children from Mali working as slaves on 600,000 cocoa farms in the Ivory Coast. The 'locateurs' wait at Mali bus stations looking for children, mostly boys aged between 9 and 15 years, who are begging

or lost. They offer the children well paid jobs then lock them in warehouses near the bus stations overnight. They are then transported in small vans to the Ivory Coast where they are sold as slaves to cocoa farmers. Mali's Save the Children Fund director described 'young children carrying 6 kg of cocoa sacks so heavy that they have wounds all over their shoulders.'

The Ivory Coast, blamed transnational corporations for keeping prices low and farmers' poor, driving some into using child and forced labour. Cadbury, Hershey and Nestlé buy cocoa at commodity exchanges where Ivorian cocoa is mixed with other cocoa. The industry advocates the cocoa buying chain is so complex it is impossible to guarantee fair working practices on every farm.

Geographical inquiry skills and geographical tools

WHAT IS FAIRTRADE?

Infographic: What fair trade means...



Source: <http://www.lakechamplainchocolates.com/media/fair-trade-chocolate-lcc.jpg>

For a product to be certified as Fairtrade it must comply with international Fairtrade standards. This certification provides consumers with the option of buying products that meet environmental and labour standards. In the last few years, Fairtrade chocolate sales have increased 1500%, and Coles, Starbucks, ALDI and Cadbury are sourcing and selling Fairtrade products.

How fair is Fairtrade?

Fairtrade buyers offer members a set price for their product, providing them with the means to invest in tools or machinery, and to provide them with a better standard of living. Fairtrade has helped fund new school buildings in remote villages, support community health centres, and assist farmers to move out of debt as well as giving them a voice in global markets.

However, there are critics of Fairtrade such as:

- keeps prices artificially high
- promotes poor farming or manufacturing practices by propping up low performing famers.

How green is your chocolate?

While Fairtrade certification focuses on the social and ethical practices to help growers, other groups such as the **Rainforest Alliance** is concerned with environmental standards, and **Stop the Traffik** aims to eradicate child trafficking. Five major chocolate manufacturers such as Verkade, Swiss Noir, Cadbury, Nestlé and Mars supply 'traffik-free' chocolate bars.

How can Fairtrade support cocoa farmers?

Fairtrade supports small cocoa farmers by focusing on the following principles:

- producers receive a fair price – a living wage
- forced labour and exploitative child labour not allowed
- producers have access to financial and technical assistance
- sustainable production techniques are encouraged
- working conditions are healthy and safe
- equal employment opportunities for all workers



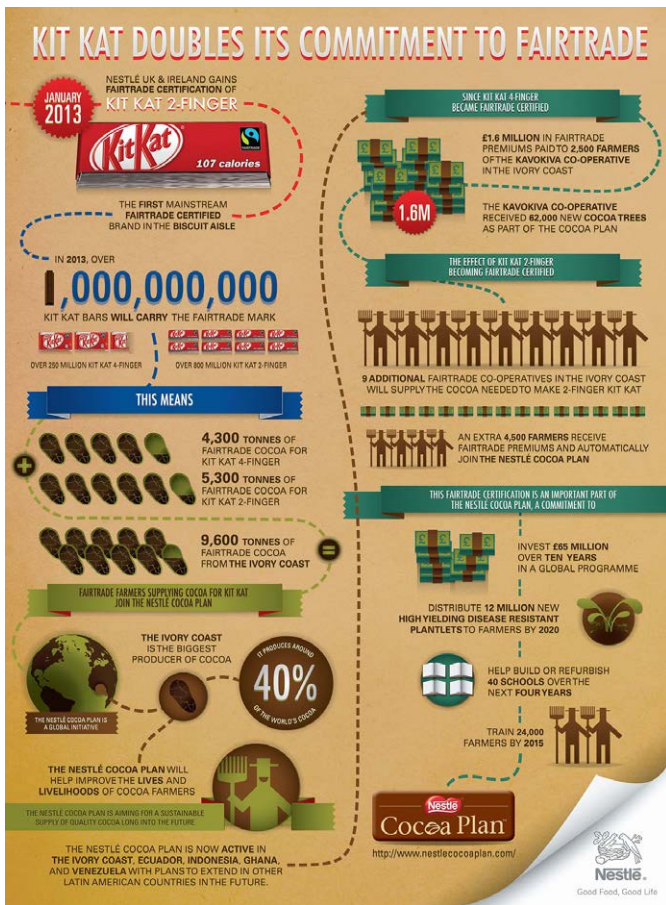
The Endangered Species Chocolate Company purchases cocoa through Fairtrade. The company encourages Indigenous people to harvest naturally grown cocoa rather than producing cocoa requiring the clear cutting of rainforests.

In 2011 more Australians selected ethically produced Easter eggs and bunnies according to Oxfam Australia. The increase coincides with the release of a report showing only 3% of the world's chocolate supply is certified as being produced without the use of child labour.

Geographical inquiry skills and geographical tools

HOW CAN WE USE AN INFOGRAPHIC IN THIS TOPIC?

Infographic: Kit Kat



Source: <http://www.infographicsarchive.com/wp-content/uploads/2012/10/KitKat-nestle.jpg>

Activities

- What is Fairtrade?
- Research chocolate products traded under this accreditation.
- Kit Kat infographic. List the economic and social benefits of this initiative
- Develop your own poster which reflects your values about the social justice issues relevant to the cocoa and chocolate industry.
- Conduct a taste test of Fairtrade chocolate. Write an article about Fairtrade chocolate for your school newsletter and include your taste test results.
- Select a manufacturer such as Nestle or Nescafe and develop an oral report on the work they are undertaking with either Fairtrade or Rainforest Alliance.
- Create a digital poster for World Fair Trade Day or a blog outlining why fair trade is not fair.
- What is meant by being a chocoholic with a conscience?



<http://ecotoysblog.com/2016/03/the-truth-behind-chocolate/>

WHAT ARE WE DOING ABOUT IT?

In 2001, eight members of the Chocolate Manufacturers Association, including industry leaders Mars and Nestle, signed the non-binding Harkin-Engel "Cocoa Protocol" that committed the companies to eliminating the "worst of child labour" in West Africa. Participating manufacturers were supposed to have met the international agreement's standards by 2005, but hundreds of thousands of children continue to work on cocoa plantations in Ghana and the Ivory Coast

In 2009, Bill and Melinda Gates foundation provided \$48 million to support 200,000 small cocoa farmers in Cameroon, Ivory Coast, Ghana, Liberia and Nigeria. The project, aims to increase the revenues of small cocoa farmers by increasing productivity and the quality of cocoa.

The Hershey Company founded in 1984 in USA is one of the largest chocolate manufactures in North America. Hershey products are sold in over 60 countries. Hershey's announced, *'it will source 100% certified cocoa for its global chocolate product lines by 2020 and accelerate its programs to help eliminate child labour in the cocoa regions of West Africa.'*



Image <http://www.stopthetraffic.org>

STOP THE TRAFFIK's chocolate box

STOP THE TRAFFIK has identified six steps covering a range of factors that chocolate companies should take to bring about the end of child trafficking in the cocoa industry.

Certification



Public deadline
for certification

A public deadline to
certify their entire
range of cocoa



Product
certified

At least one product
or a range certified



100% certified

100% of their
chocolate
range certified

Programmes



Report on
money spent

Annual reporting on
money spent to redress
child trafficking including
clear communication on
non-economic impacts



Ensure a living
income

Clear action taken to ensure
that farmers and dependents
receive a sufficient and fair
income for cocoa



Impact
assessment

Public assessment of
programme impacts by
independent third
party auditors.

STOP THE TRAFFIK has ranked the five biggest global chocolate companies against these criteria, find out more at <http://www.stopthetraffik.org/campaign/chocolate/page/chocolate-box>

Poster: <http://www.slideshare.net/LexisNexisBIS/risks-in-the-chocolat-supplychain>

Activities

- Explain why the cocoa industry is unfair to small farmers in West Africa
- Imagine you are a child labourer working on a cocoa farm in West Africa. Describe your life.
- In groups research organisations working to stop child labour and child trafficking in the cocoa industry. Present as an e-poster
- The \$100 billion dollar-a-year chocolate industry is steadily growing but its consumption comes at a heavy price. Explain this statement.
- Discuss the six steps towards ending child trafficking in the cocoa industry. Present as a short report.
- Useful website –Slave free chocolate <http://www.slavefreechocolate.org/>



Photo: <http://www.businessinfocus.com.au/index.php/2013/07/fairtrade-chocolate/>

WHAT IS A SUSTAINABLE COCOA INDUSTRY?

Three sustainable strands – environmental, social and economic



Photo background: <https://pbs.twimg.com/media/CuLBKZMXgAlgrDL.jpg>

Sustainable cocoa tree

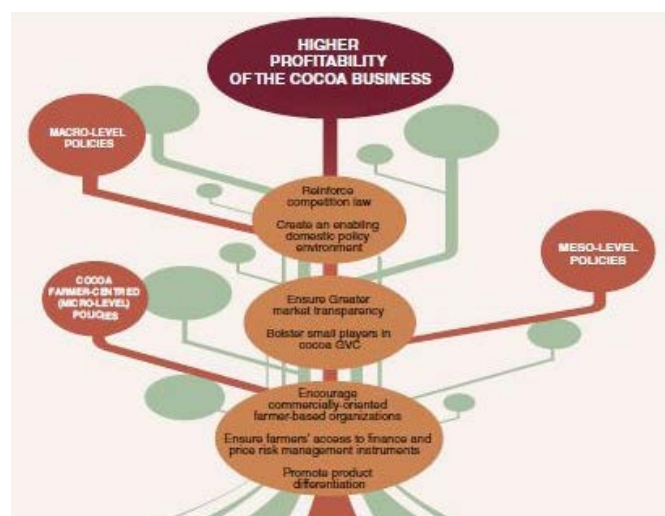


Diagram: http://unctad.org/en/PublicationsLibrary/suc2015d4_en.pdf

The World Cocoa Foundation (WCF)

This organisation supports cocoa farmers and their families worldwide. The WCF programs raise farmer incomes, encourage sustainable cocoa farming, and strengthen communities.

Table: World Cocoa Foundation Programs

WORLD COCOA FOUNDATION PROGRAMS	
VIETNAM	LIBERIA
Aim: Promote cocoa among smallholder farmers in 12 provinces	Aim: Work with 5,600 smallholder cocoa farmers
Progress: <ul style="list-style-type: none"> Cocoa breeding program Maintains demonstration plots in eight provinces to teach farmers about cocoa and conduct experiments 5,252 farmers and local officials trained Post-harvest and pest control research 	Progress: <ul style="list-style-type: none"> 4,365 farmers trained through farmer field schools: 2,500 farmers trained in crop diversification. Farmer Field School participants developed 39 nurseries and provided 481,843 improved cocoa seedlings 17 farmer associations supported 2,082 farmers trained in Farming Business

World Cocoa Foundation and CocoaAction

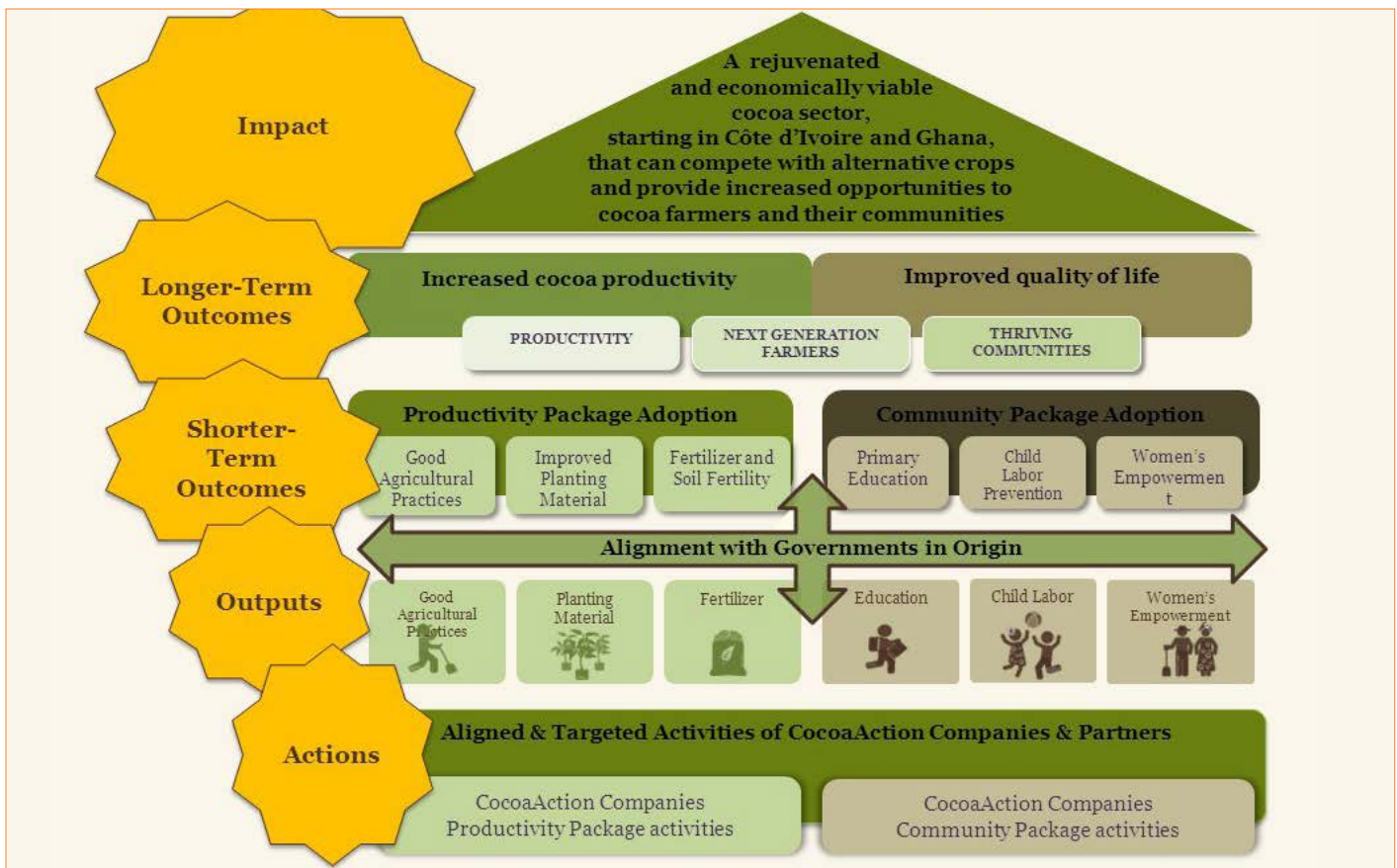
Implementation of framework aims to rejuvenate an economically viable cocoa sector starting with Côte d'Ivoire and Ghana



Photo: http://www.conorashleigh.com/blog/wp-content/uploads/2015/03/Conor_Ashleigh_%C2%A92014_Vanuatu_chocolate-7.jpg

Geographical inquiry skills and geographical tools

CocoaAction: Results Framework



Oxfam Report

Image http://images.slideplayer.com/22/6427421/slides/slide_4.jpg

This report noted that 8 of the 10 largest multinational food companies have improved their sustainability policies since 2015. Unilever passed Nestle at the top spot in the 7 categories –treatment of workers, farmers, women, land, water, climate and transparency.

Oxfam Report – sustainability progress

Table: http://www.foodnavigator.com/var/plain_site/storage/images/media/images/behind-the-brands-2015/9793759-1-eng-GB/Behind-the-Brands-2015.jpg

Rank	Company	Score	Land	Women	Farmers	Workers	Climate	Transparency	Water	Total
1	Unilever	71%	7	5	8	8	9	7	6	50/70
2	Nestlé	69%	8	5	7	6	8	7	7	48/70
3	Coca-Cola	54%	8	6	2	6	6	5	5	38/70
4	PEPSICO	43%	7	2	2	3	6	5	5	30/70
5	MARS	40%	2	5	4	4	6	4	3	28/70
6	Mondelez International	37%	3	6	4	3	4	4	2	26/70
7	Kellogg's	34%	2	3	2	2	7	5	3	24/70
= 8	DANONE	31%	2	1	2	3	6	5	3	22/70
= 8	GENERAL MILLS	31%	2	2	2	2	5	4	5	22/70
9	Associated British Foods plc	30%	3	2	3	4	4	3	2	21/70

KEY

0–1 Very poor

2–3 Poor

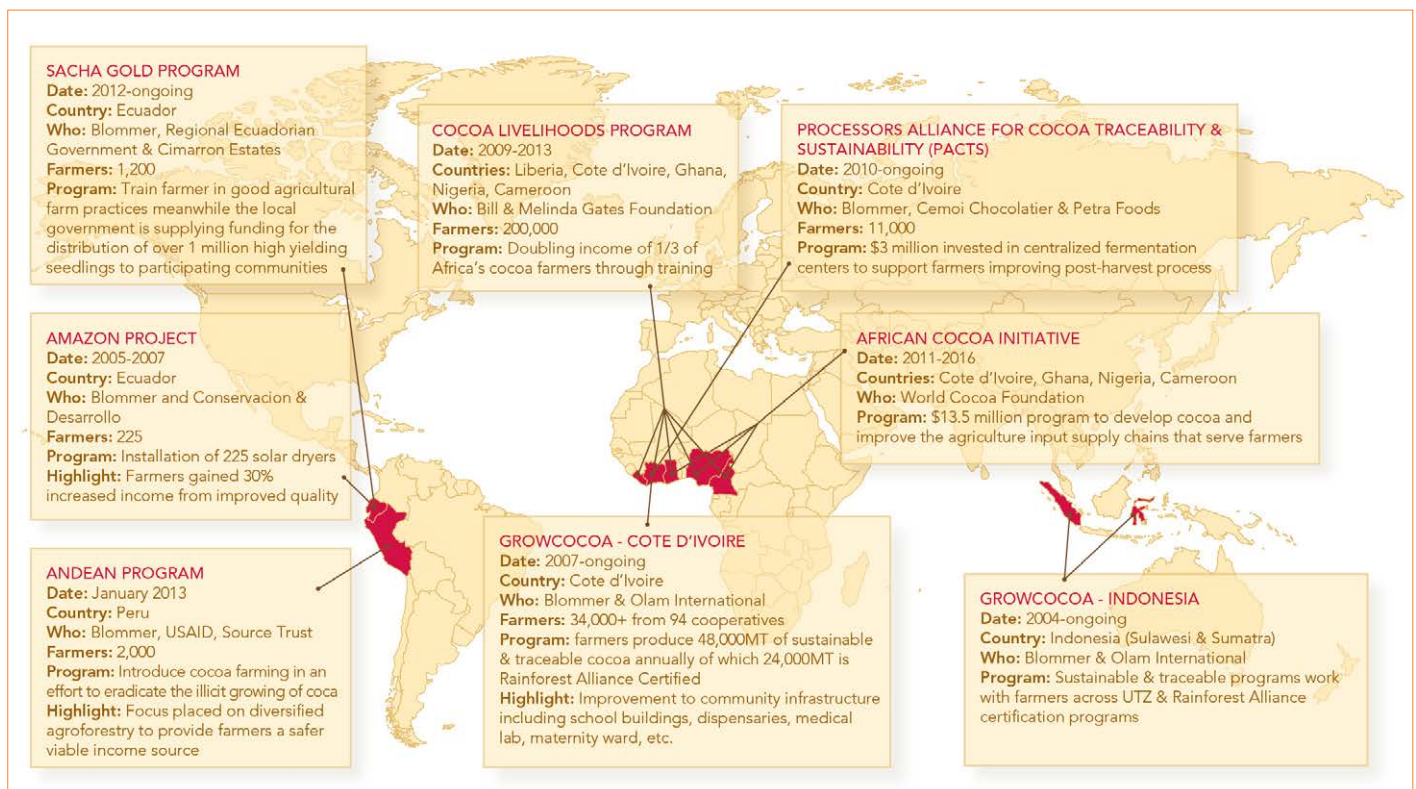
4–5 Some progress

6–7 Fair

8–10 Good

Geographical inquiry skills and geographical tools

Cocoa sustainability projects by Bloomer Chocolate Company



Map: http://www.blommer.com/images/Blommer_Sustainable_Origins_Map.jpg

Activities

- In groups research Sustainable Cocoa Initiative <http://cocoasustainability.com/>. Select one article at this website and discuss how it has improved the Cocoa Industry. Articles can include the Cocoa Genome, empowerment of women or the Mars Certification Goal
- Summarise the Bloomer Chocolate Company's sustainable projects. Discuss how these projects can improve farmers' wellbeing.
- Compare Nestle with Mars sustainability progress in the Oxfam Report. What aspects need improving?

HOW CAN WE WORK TOWARDS A SUSTAINABLE COCOA CHAIN?

The 2001 Sixth International Cocoa Organisation (ICCO) Agreement promotes a sustainable cocoa economy where each person in the supply chain should be able to earn a decent income for themselves and their family, work in fair and healthy conditions, and in a manner which does not harm the environment.

The cocoa industry works with West African governments, non-governmental organisations (NGOs) and other stakeholders to ensure cocoa is grown responsibly, without the worst forms of child labour and slavery.

Active local-global citizenship

UTZ Certified

In Ghana and Cote d'Ivoire the Certification process is underway. Nearly all children surveyed both helped on the family farm and attended school. Whether it involves hazardous tasks or takes place at the expense of education, is more difficult to determine accurately.

International Cocoa Initiative (ICI)

www.cocoainitiative.org

Combats worst forms of child labour and forced adult labour on cocoa farms. In Ghana, the ICI is working with 119 farming communities, to implement community based programs to change labour practices.

World Cocoa Foundation (WCF)

www.worldcocoa.org

Supports and manages multiple programs to help farmers: earn more for their cocoa crop; practice sustainable cocoa farming; have access to education; and use safe, responsible labour practices.

World Vision Australia

World Vision's Don't Trade Lives campaign asked Australian chocolate manufacturers to stop child exploitation in West Africa's cocoa farming industry. 'This is a fantastic milestone on the road to ending child labour and trafficking' said Tim Costello.

Geographical inquiry skills and geographical tools

Responsible chocolate manufacturers

Major chocolate manufacturers have the power to stop child exploitation and trafficking by: paying farmers a fair price for their cocoa; investing in community infrastructure to support social and economic development; and participating in independently audited ethical certification schemes.

Informed, responsible chocolate consumer

One way you can improve the global cocoa situation is to become an ethical consumer. It is difficult to determine which products we purchase are made through the use of exploited labour but here are some suggestions:

- Educate yourself further: Global Exchange (www.globalexchange.org); Child Labour Coalition (www.stopchildlabor.org); Anti-Slavery (www.antislavery.org); Unfair Trade (www.unfairtrade.co.uk); Fair Trade (www.fairtrade.org/html/english.html)
- Write a letter to your local newspaper on child labour in the chocolate industry
- Buy Fair Trade chocolate as a fundraiser for your school
- Contact the big chocolate companies, and ask them to buy Fair Trade cocoa
- Support Fair Trade campaigns by joining organisations such as World Vision Australia

WILL ORGANIC CHOCOLATE BE THE FUTURE PRODUCT?

The organic cocoa market represents a small share of the cocoa market, estimated at less than 0.5% of total production. The International Office of Cocoa, Chocolate and Confectionary (ICCO) estimates production of certified organic cocoa at 15,500 tonnes, sourced from: Madagascar, Tanzania, Uganda, Belize, Bolivia, Brazil, Costa Rica, Dominican Republic, El Salvador, Mexico, Nicaragua, Panama, Peru, Venezuela, Fiji, India, Sri Lanka and Vanuatu. However, the demand for organic cocoa products is growing as consumers are increasingly concerned about the safety of their food supply along with other environmental issues, such as food miles.

More than a decade ago, cocoa producers in Sao Tome and Principe were suffering from the falling global price of cocoa. Many abandoned their cocoa plantations, while others cut trees to clear land for maize or other crops. Thanks to the International Fund for Agricultural Development (IFAD), 2,200 farmers now grow cocoa certified as organic or fair trade for the chocolate industry. As a result smallholder families participating

in the programme saw their income increase from 25% below the poverty line to 8% above it. Many farmers invested in home improvements and purchased items such as bicycles, generators, radios, refrigerators and televisions.

WHAT ABOUT THE 'OZ' COCOA INDUSTRY?

Around the 1900s cocoa seeds were introduced into North Queensland but with limited commercial success. In 2008 Australia harvested its first commercial cocoa crop at Mossman, located in Far North Queensland. This 'super chocolate' is low in GI sugar and high in anti-oxidants.

Cocoa farming using innovative horticultural practices to improve yields made cocoa growing and processing a viable new industry in Australia by:

- using the cocoa pod packed with bioactive compounds (previously discarded)
- identifying lower temperature tolerant cocoa plants aimed to push the productive growing range further south to Mackay and west to the Atherton Tablelands
- using reduced water
- working on the microbiology of cocoa fermentation, using Australia's and New Zealand's dairy and brewing expertise.

While the crop improves, Horizons Science's, 100% owned subsidiary, Cocoa Australia, aims to integrate the cocoa industry from plantation to consumer.

Also Cocoa Farm's Wine Chocolate is hailed as a world first. The chocolates contain Australian vintage wine, high in cocoa antioxidants and polyphenols. The Wine Chocolate has won many awards.

Activities

- In pairs research cocoa production in Far North Queensland. Explain how innovative farming and processing have resulted in a small thriving cocoa industry. Present as an oral report. For example Daintree Estates grows expensive beans, rich in polyphenols and antioxidants, for its high-end brand. Daintree- taste of the future <http://www.daintreeestates.com/news/taste-of-the-future.pdf>
- In groups research one organic cocoa producing farm or plantation. Include in your answer: map locating farm with latitude and longitude, climate, growing process and the advantages of this type of production. Present as an e-poster.

CONCLUSION

The harvesting of cocoa beans is in decline warning chocoholics the afternoon chocolate fix could become a costly indulgence and as rare as caviar by 2030. In fact within 10 years an expected 2% increase in consumption will require an area corresponding to another Cote d'Ivoire to satisfy demand. In 2010 the decoding of the cocoa **genome** aims to produce greater quantities of cocoa from fewer trees using less land, as well as improving nutritive properties. Higher yields will free up land for other under-utilised crops in West Africa such as yams, sorghum and plantains.

Chocolate may be sweet but child trafficking, financing of conflicts, poverty and unsustainable farming practices are the bitter truth. The next time you savour a bite of chocolate - remember the sweet treat is the product of a global supply chain including shippers, processors, marketers, natural habitats and about 6 million farmers. In fact 284,000 children who toil in abusive labour conditions in West African cocoa fields have never tasted chocolate as it is both too expensive and most is exported. In other words your minor indulgence comes with major consequences.

Image: <http://gigabiting.com/wp-content/uploads/fairtradeeaster.jpg>



The BBC found most of chocolate sold in the UK, involved human trafficking and child slave labour. It also established that there was no guarantee Fairtrade chocolate, did not involve child labour as by the time chocolate hits the shop it is difficult to trace. The controversial issue is complex, but if you are consuming chocolate you have a responsibility to find out what and who is involved in its production.

Did you know?

- 1624 Johan Rauch of Vienna condemned chocolate as it inflamed passion
- 400 beans required to make half a kilogram of chocolate
- Cadbury packs 345,000 bars in 12 hours.
- Chocolate manufacturers use 40% of the world's almonds and 20% of the world's peanuts
- Chocolate was the centre of several books and film adaptations such as *Charlie and the Chocolate Factory* and *Chocolat*



GEOGRAPHICAL INQUIRY AND SKILLS

Geographical inquiry refers to the method geographers use to understand and explain the world around them. Students learn to design and apply the inquiry process, reflect on their findings and are open to multiple explanations. How much cocoa is in chocolate? How much of what we pay for our chocolate fix, makes its way back to cocoa farmers? Is chocolate sustainable? What can we do as active informed citizens to eradicate poverty, unfair trade and child labour in the chocolate industry?

Geographical skills are the techniques and tools used by geographers. These skills are employed both in fieldwork and in classroom investigations.

Developing geographical skills

1. Where is cocoa grown?



2. What type of biome is required to grow cocoa?



3. Where is most cocoa produced? What countries are the largest producers?



4. How does the cocoa bean become chocolate? What are the processes?



#traffikfreechocolate – <http://acrath.org.au/wp-content/uploads/2014/09/chocolate.jpg>

Geographical inquiry skills and geographical tools

5. What countries are the largest consumers of chocolate?



6. Where are emerging chocolate producing and consuming countries located?



7. What are the largest chocolate companies? Why are they wealthy?



8. Where and why is child labour in the chocolate industry? What should we do about it?



9. Why are the producers of cocoa in Ghana still poor?



10. What is fair trade?



11. What organisations are working for social and environmental sustainability?



12. How can cocoa production be sustainable?



13. What are the recent changes to the industry?

Activities

- Answer the geographical inquiry questions
- Collect information from a variety of primary and secondary sources evaluated for reliability and bias
- Gather and process information into maps, tables, graphs, diagrams and photographs
- Decide whether action is required in order to respond to the results of the investigation based on environmental sustainability, economic costs and benefits, and social justice
- Communicate findings using a combination of verbal, audio, visual, texts and ICT
- Reflect on the investigation (strengths and weaknesses)
- Develop an action plan to address issues identified through the investigation
- Implement appropriate and responsible action



Source: https://upload.wikimedia.org/wikipedia/commons/d/d0/HK_Kln_Bay_Telford_Plaza_GODIVA_Chocolatier_a.jp

FIELDWORK

Create a chocolate tour of your capital city. You might choose to visit places such as Haighs, Max Brenner and chocolate boutiques where chocolates are handcrafted.

- Interconnections: Use primary and secondary sources to research the connections these shops have the region and the world (this may include as an importer, an exporter, an employee or tourist provider, ethical trade signatory).
- Primary sources could include an interview of the owner or manager of the shop photographs of the products and stores, the creation of a map to illustrate the sources of chocolate used by the manufacturer.
- Secondary sources could include any internet material available about the business, newspaper or journal articles about chocolate manufacturing, pamphlets or marketing material provided by the company, a business prospectus.
- Use your information to develop a webpage, video or written report.



Geographical inquiry skills and geographical tools



Photograph: <https://s-media-cache-ak0.pinimg.com/originals/7a/ab/f1/7aabf1e51f77344a71c3031c112acaae.jpg>

ROLE PLAY

Take a chocolate bar (complete with wrapper) and divide students into seven groups relating to the cocoa supply chain such as:

Producer

e.g. farmers, miners (wrappers, machines)

Raw materials

e.g. cocoa beans, sugar, milk, wood for paper wrappers, aluminium for foil wrappers

Manufacturer

e.g. chocolate factories, sugar mills and refineries, milk processors

Distributor

e.g. warehouses, transport companies (delivery trucks)

Retailer

e.g. supermarkets, service stations, vending machines, hotels

Service provider

e.g. designers, advertisers, market researchers

Consumer

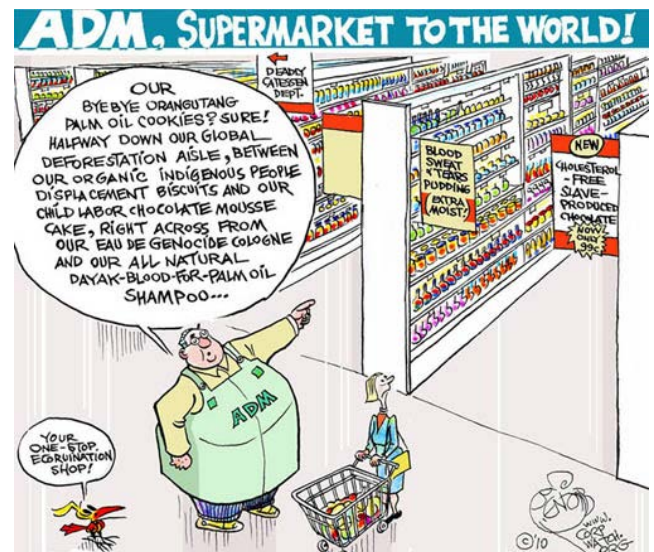
e.g. almost everyone!

Role play adapted from <http://www.tdtvictoria.org.au/rightmove/activity5.htm>

Each group provides a short oral presentation detailing their key stage in the cocoa supply chain. Their presentation should include the problems of each stakeholder e.g. harvesting times, perishable nature of the product, type of transport used (refrigerated tankers) and price.

CARTOON ANALYSIS

Refer to the two cartoons and explain the message.



Cartoon: http://community.corpwatch.org/adm/resources/images/adm_car2.jpg



Cartoon: <http://www.cartoonstock.com/directory/c/chocoholic.asp>

ACTIVE CITIZENSHIP: CHOCOLATE FUNDRAISING

Most students raise money for their school or sporting club by selling chocolates. But did they investigate whether the chocolate had a 'bitter' history? Research chocolate fundraising activities and decide which chocolates you should sell to raise funds. Provide reasons for your selection. Some examples include:

- Cadbury fundraiser – <http://www.fundraising.com.au/Successful-Fundraising-Stories>;
- Nestle fundraiser – http://www.fundtastic.ca/Nestle_s/64.htm;
- Australian fundraiser – <http://www.australianfundraising.com.au/>;

Geographical inquiry skills and geographical tools

- Equal Exchange fundraiser – <http://www.equalexchange.coop/fundraiser>;
- Trade Aid – http://www.tradeaid.org.nz/index.php/pi_pageid/83.
- Suggest other fundraising activities

Other activities

- There is a sinister twist in the chocolate industry as it is not always a symbol of sweetness and innocence. Discuss the sweet and bitter truth providing global examples.
- Design an information leaflet explaining how the chocolate you are eating is connected to people producing cocoa in West Africa or Asia.
- Design a class or family survey on chocolate. What kinds of chocolate flavoured items do they eat? Where do they buy chocolate items (large supermarket, small business)? Have they eaten fair trade chocolate? Would they buy fair trade chocolate if it was more expensive than other types of chocolate?
- Discuss how political awareness of slavery in cocoa production has moved individuals, organisations, governments and the chocolate industry into action
- Explain how small poor farmers manage an increase of 107% for cocoa prices but at the same time experience an increase of 657% for insecticides, 250% for fungicides and 400% for spraying machines. Discuss a future scenario if this trend continues. Suggest sustainable strategies.
- Cocoa plantations have higher yields than small farms as they use more agrochemicals and slave labour. Explain how the promotion of organic chocolate only improves 59part of the environment
- Most children in Africa are unwilling to take over farms from their ageing parents. Discuss the future problems for the cocoa producing industry
- When cocoa prices go up - the quality of small cocoa farmers' life goes down. Explain the irony in this statement. Who gets the extra profits?

ICT activities

- Read the article on Chocolate History and Cocoa at <http://www.cadbury.co.uk/> and answer the following questions:
 - What are the origins of chocolate?
 - Who brought the first cocoa beans back to Europe around 1503?
 - What is the name of the explorer who first realised

the commercial value of cocoa beans?

- What new information about chocolate surprised or interested you the most?
- Describe the ICI initiative http://www.cocoainitiative.org/images/stories/pdf/Press_kit/Press_Kit_April_2011_Eng/ICI_-_Presentation_April_2011.pdf
- Explain the ICI projects around the globe <http://www.cocoainitiative.org/en/projects>
- Describe the functions of the World Cocoa Foundation <http://www.worldcocoaoundation.org/>
- Discuss how the farmer is connected to the consumer by a flow diagram <http://www.worldcocoaoundation.org/learn-about-cocoa/>
- Explain what is meant by 59Sustainability in Action <http://www.worldcocoaoundation.org/sustainability-principles-and-goals/sustainability-in-action.html>
- The Australian Fair Trade Association and organisations such as Oxfam and World Vision want chocolate lovers to think about the injustice behind the indulgent chocolate treat. Explain this statement. <http://www.theage.com.au/articles/2007/11/03/1193619205911.html>.

TV program

- The Darker Side of Chocolate: Channel 9's Sunday Program 9 March 2008 <http://www.fairtrade.com.au/node/1987>

You tube

- Chocolate – The Bitter Truth - Child Trafficking – BBC Panorama Investigation - 5 videos – <http://www.youtube.com/watch?v=LD85fPzLUjo>
- Child labour and child trafficking in cocoa industry and citizenship – <http://www.cocoainitiative.org/7.52min>
- UTZ Certified – 12 videos – http://www.utzcertified.org/mediacenter/utzvideo?option=com_contushdvi&deoshare&view=player&id=32&catid=20
- Children of Fairtrade: cocoa farmers in Ghana – <http://www.papapaalive.org/>
- Sustainable Cocoa – <http://www.nestle.com/CSV/CreatingSharedValueCaseStudies/AllCaseStudies/Pages/Sustainable-Cocoa-Cote-d-Ivoire.aspx> 2.23min
- Sustainable Cocoa Farming Cargill– <http://www.cargill.com/corporate-responsibility/pov/cocoa-sourcing/cote-divoire-wafrica/index.jsp>

Geographical inquiry skills and geographical tools

- Sustainable coffee farming, Vietnam – Nestle <http://www.nestle.com/CSV/CreatingSharedValueCaseStudies/AllCaseStudies/Pages/Coffee-growing-sustainable-farming-Vietnam.aspx> 2.21 min

PowerPoint

- Sustainable Cocoa: Côte d'Ivoire – http://www.certified-cocoa.com/download/PPDC_Project-Presentation_en.pdf

Websites

- Bitter Chocolate: Politics and economics of cocoa and chocolate by Michael Niemann – <http://michael-niemann.com/blog/cocoa-chocolate-graphs/>
- Chocolate challenges emerging markets and opportunities for manufacturers – http://www.reportbuyer.com/food_drink/confectionery/chocolate/chocolate_challenges.html
- Chocolate tree – <http://www.anu.edu.au/Forestry/wood/nwfp/chocolatetree/chocolatetree.html>
- Developments and challenges – <http://www.csae.ox.ac.uk/resprogs/cocoa/pdfs/CAA-Development-Challenges.pdf>
- Divine education – <http://www.divinechocolate.com/edu.htm>. Secondary Resources <http://www.divinechocolate.com/edu.htm>
- Dubble: Cacao trail – Follow the cacao trail – games (e. g. cacao chaos) and movies <http://www.dubble.co.uk/e>
- Ending slavery – <http://www.freetheslaves.net/>
- Fair trade and chocolate – <http://www.globalexchange.org/campaigns/fairtrade/cocoa/-student-activities>
- Fair trade into classroom – <http://www.globalexchange.org/campaigns/fairtrade/cocoa/fairtradeinthe classroom.html>
- Global justice – <http://globaljusticeideas.blogspot.com/2008/07/chocolate-crisis.html> (individual action for global justice)
- Growing cocoa – <http://www.icco.org/about/growing.aspx>
- History of chocolate – <http://www.bendicks.co.uk/history/chocolate.html>
- ICCO agreements – <http://www.icco.org/about/agreement.aspx>
- Main traders – <http://image.slidesharecdn.com/riskchocolatsupplychain-131230064026-phpapp02/95/risks-in-the-chocolat-supply-chain-14-638.jpg?cb=1388394179>
- Nestle – <http://en.wikipedia.org/wiki/Nestl%C3%A9>
- Oxfam cool planet – <http://www.oxfam.org.uk/coolplanet/ontheline/explore/journey/ghana/choclat.htm>
- Oxfam: Towards a sustainable cocoa chain – <http://www.oxfam.org/sites/www.oxfam.org/files/towards-a-sustainable-cocoa-chain-0901.pdf>
- Quarterly Bulletin on Cocoa – <http://www.icco.org/statistics/qbcs.aspx>
- Reality tour – <http://www.globalexchange.org/tours/index.html>
- School of chocolate – <http://library.thinkquest.org/4317/>
- Slave free chocolate – <http://www.slavefreechocolate.org/>
- Sustainable and responsible cocoa activities in West Africa – <http://www.cargill.com/wcm/groups/public/@ccom/documents/document/fs-cocoa-west-africa.pdf>
- Teach about fair trade and cocoa – <http://www.papapaa.org/>
- Trade map – http://www.trademap.org/Country_SelProductCountry_TS_Map.aspx
- Working towards Responsible Labour Standards for Cocoa Growing – <http://www.cocoainitiative.org/>
- World Cocoa Directory – <http://www.icco.org/documents/wcd.aspx>
- World Cocoa Foundation – <http://www.worldcocoafoundation.org/>
- World Vision and chocolate – <http://www.worldvision.com.au/wvconnect/content.asp?topicID=97>

GTANSW webinars series in Term 1 2017

Tuesday, 21 February 4.00 – 5.00pm. Presenter Clare Kinnane
Information Technologies for the NSW Geography Curriculum

Tuesday, 28 February 4.00 – 5.00pm. Presenter Sharon McLean
Developing a Summative Assessment Task

There is no charge for the webinars, register at <https://goo.gl/forms/K0JcnyEQqL7u1ggG2>

Once registered you will be sent information to access the webinar.