



National Certificate of Educational Achievement
TAUMATA MATAURANGA A-MOTU KUA TAEA

Exemplar for Internal Achievement Standard

Geography Level 2

This exemplar supports assessment against:

Achievement Standard 91246

Explain aspects of a geographic topic at a global scale

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	For Excellence, the student needs to explain, comprehensively, aspects of a geographic topic at a global scale. This involves: • fully describing the global pattern of the geographic topic, using geographic terminology • fully explaining the factors and/or processes that contribute to the pattern • fully explaining, showing insight, the significance of the topic for people. The student has fully described the global spatial pattern of malaria, using geographic terminology. The quality of the description is shown through the extension of the global linear pattern (1). Detail is provided through descriptions of concentrations within the linear pattern and evidence that the line is broken (2). Reference to topics with similar spatial patterns adds fullness to the description (3). The examples used show the global scale of the topic and continue the focus on the global pattern. The student fully explains the two most significant factors contributing to the spatial pattern (climate and poverty). Discussion of climate and lack of sanitation interacting to contribute to the pattern (4) provides evidence of depth of understanding. Several poverty indicators contributing to the spatial pattern have been explained. The strength of this explanation is how pattern continues to form an integral part of the response (5). Global statistical evidence (6) supports the explanation. Access to international/regional aid to implement eradication programmes is used to explain breaks in the linear pattern (7). Altitude and periods of drought were also discussed as a cause for breaks in the linear pattern. For a more secure Excellence, the student could make more effective use of the evidence on the maps and the poverty cycle, and include additional supporting statistical evidence (5).

Global topic is Malaria.

The student evidence included maps of Malaria Distribution, Climate Regions and Global Poverty Rates and a detailed poverty cycle.

Spatial pattern:

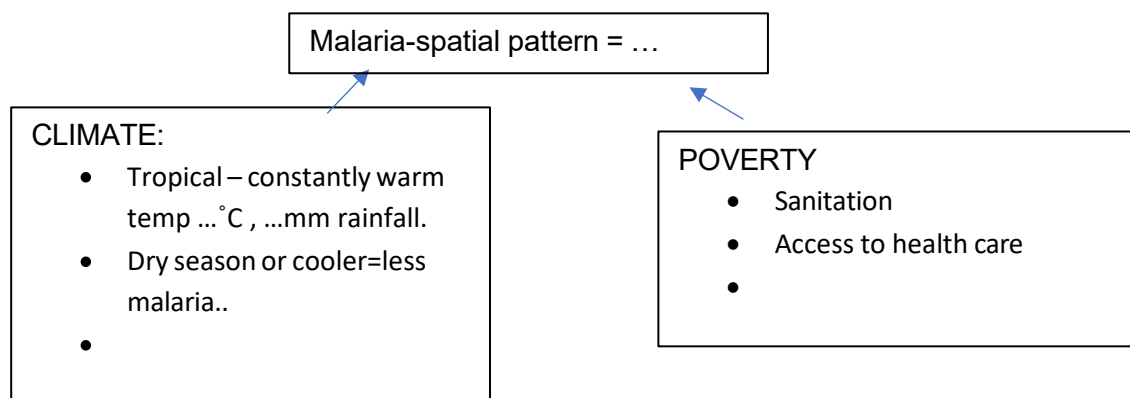
Transmission of malaria forms a linear/banded spatial pattern generally between the Tropic of Capricorn and the Tropic of Capricorn, covering equatorial and tropical environments. The line appears unbroken and is made up of 3 distinct concentrations. ①

The largest concentration on the linear band is in the central region of Africa. As shown on the map this concentration extends further south than the others reaching south of the Tropic of Capricorn into Madagascar, Mozambique, and northern Namibia and Botswana. The northern edge of this concentration follows the edge of the Sahara Desert. A significant characteristic of this concentration is that it has approximately 86% of all malaria cases and more than 90% of all deaths caused by malaria. ②

The South Asian concentration is more widespread and pushes the linear band further to the north... The South American concentration is almost all south of the equator...

When the concentrations are examined closely it is evident that they each show areas not affected by malaria and this breaks the linear pattern. For example, ... where environmental conditions such as high altitude change the climate conditions, long dry seasons and/or malaria eradication programmes have been effective. The linear band is broken in Peru because... ②

Causes plan:



There are two key reasons for the linear pattern, climate and poverty. When comparing the malaria map with the climate map it matches the equatorial/tropical regions and on the poverty map there is a match with the highest rates of poverty. The linear band across the equatorial region clearly shows a relationship with tropical climate characteristics of consistently warm temperatures (18+ °C) and high rainfall (...mm). This factor also explains the dramatic fall in malaria rates in the cooler regions further north and south... ③

A high malaria rates forming the concentrations on the linear band are related to less economically developed regions such as the central region of Africa, Amazon...

5

In these less economically developed nations, most of the people live below the poverty line... and in communities where infrastructure is poorly developed and health care and education often limited if accessible at all. Most countries within the linear band formed by malaria transmissions also have limited funds to improve the situation. The average national investment in health care for countries forming the Central African concentration was..., in the Indian subcontinent it was ... From this how much would be available for targeting malaria?

5

Poverty in the regions forming the linear band through the equatorial and tropical regions results in communities being left vulnerable to Malaria. Of the 738 million people globally, who lack access to clean water, 35% are living in the Central Africa concentration where approximately 49% of the population lives on less than \$1.25 a day.

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In regions where rainfall is high and sanitation not developed there is an increase of stagnant water and in the warm tropical environment this attracts the infected mosquitos and is a breeding ground for Malaria... 98% of malaria deaths occur in 35 countries concentrated in tropical and sub-tropical regions, of these 30 are in the Central African concentration and the remaining 5 are in the South Asia concentration...

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Investment in programmes to eradicate malaria can explain some of the breaks in the linear pattern. International and regional organisations like WHO, USAID and AMI (Amazon Malaria Initiative)... often fund and monitor the eradication programmes. Countries that have contributed to the break in the linear band include Belize, El Salvador, Ecuador, Surinam, Peru, Botswana, Malaysia... Belize is a member of AMI and no deaths due to malaria have been reported since 2006...

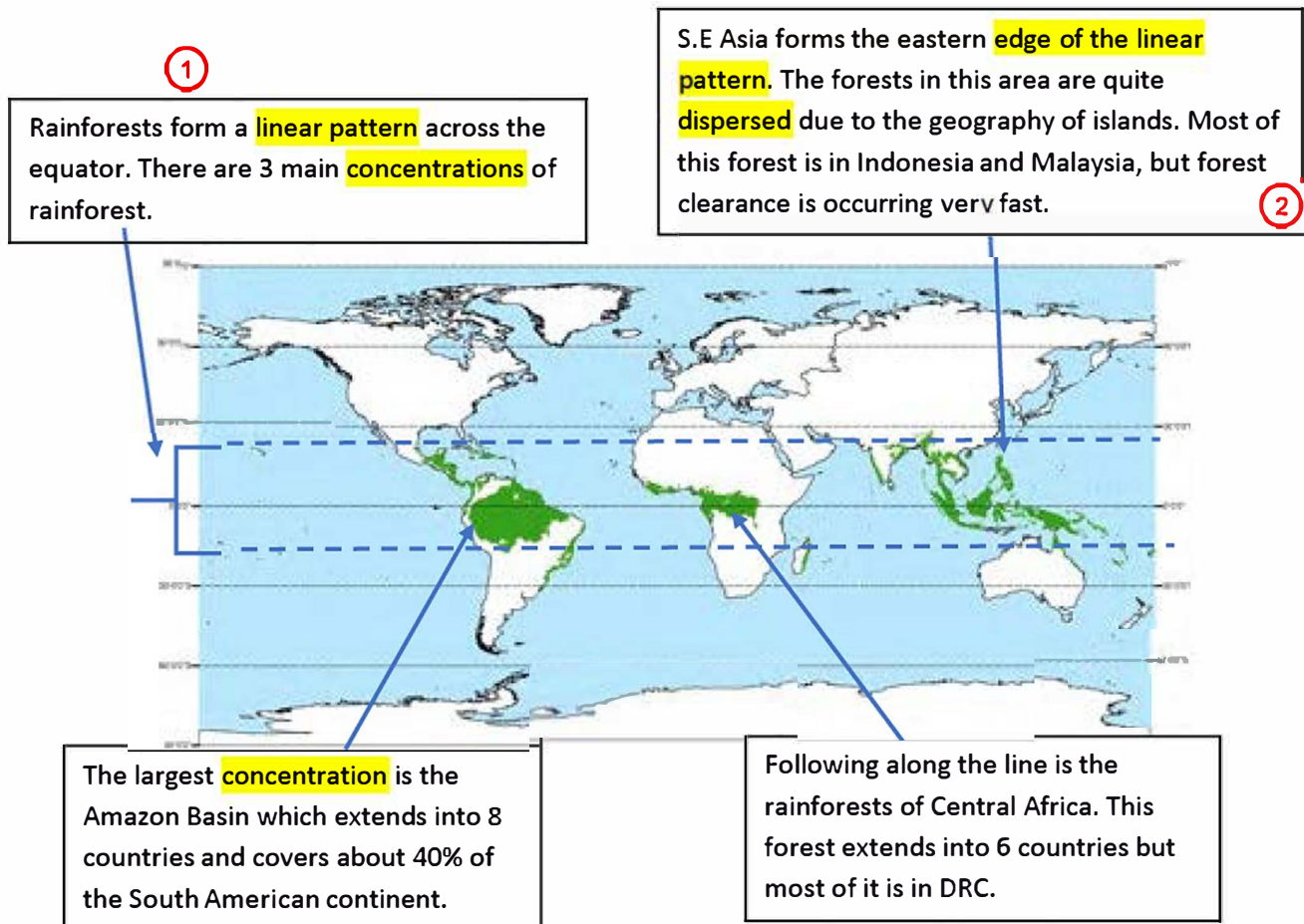
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	Grade Boundary: High Merit
2.	For Merit, the student needs to explain, in depth, aspects of a geographic topic at a global scale. This involves: • describing, in detail, the global pattern of the geographic topic using geographic terminology • explaining, in detail, the factors and/or processes that contribute to the pattern • explaining, in detail, the significance of the topic for people. This student has described the global spatial pattern of rain forests using geographic terminology. The examples used show the global scale of the topic and continue the focus on the global pattern. The annotations added to a resource map provide an overview of the pattern at a global scale (1). In-depth understanding is shown through descriptions of specific characteristics of the wider pattern (2). The detailed explanation of the significance of rainforests covers tribes, commercial interests and society at large (3). The in-depth explanation relating to indigenous people (4) is supported with detailed reference to specific groups. The evidence shows the use of case studies to exemplify ideas and maintain the global scale of the topic. To reach Excellence, the student could more fully describe the spatial pattern by describing the gaps in the linear pattern that have resulted in the concentrations, for example the gaps along Western South America and Eastern Africa. A full explanation of the significance of the topic could include further development of other ideas to reflect the quality provided for the section on indigenous people. For example, the student could provide detailed evidence of the significance of commercial logging as a contributor to economic growth (5) for specific rainforest countries, and rates of deforestation in named rainforests (6).

Global distribution of Tropical rainforests

Student 2: High Merit

NZQA Intended for teacher use only



The rainforests extend in linear pattern across the globe between the tropics but as shown on the map it is not a continuous line. In South America and Asia the line extends as far as the Tropic of... Africa has a much narrower rainforest area only about 10° North and South...

CAUSES:

Latitude and a range of climatic factors and processes were explained in detail as contributing to the pattern.

Significance of the topic for people

The rainforests are significant for a range of groups including **indigenous tribes, commercial interest groups and the wider global community**. Significance can be based on how the forests are used and our dependence on them, for example, **basic needs like food and shelter, valuable timbers, medicines** etc. But forests are also important because of the **influence they have on global climates**.

Indigenous tribes inhabit all the major rainforest, these groups include the **Matis and Waorani tribes in the Amazon, Mbuti and BaAka Pygmies in ...** These peoples have a sustainable perspective and a vast knowledge of the qualities of the rainforest ecosystem... The forests tribes tend to live in small

groups and are often nomadic as this ensures minimal impact on the forests... The canopy is not disturbed as it is needed to protect the people, undergrowth plants and animals from the sun, this practice also encourages fast regeneration... Foods include “bush meat”, honey, fruit ... The indigenous people such as the Waorani in the Amazon and BaAka of the Central African Republic use forest products to construct a range of tools. For hunting bows, arrows, nets, darts... The darts are made from a sharpened rib of a palm leaf, this is dipped in poison from a poisonous frog, beetle or plant. The quiver for the darts is made from bamboo and cotton from the kapok tree... Shelter is also provided from rain forest materials... The Pygmies in Central Africa make huts like igloos from saplings and leaves, the bows, arrows and nets used for hunting are made from materials of the forest... Culture and traditions are largely intertwined with the rainforest with many tribes believing that in death they become forest animals... Even as the forest people begin to harvest the forest for more commercial reasons they use more sustainable practices like in Indonesia they use the natural strength of elephants for logging instead of using industrial machines and selectively log rather than clear felling...

Rainforests are significant as a source of income for many developing nations, with timbers like Mahogany and teak in high demand for ... Commercial logging provide employment ...

5

One quarter of all current medicines have been derived from species living within these tropical rainforests

Tropical forests are of global importance due to their large impact on the climate. Tropical rainforests act as a ‘carbon sink’ meaning that they absorb carbon dioxide from the atmosphere. Rates of deforestation globally are currently high. Through this removal of trees, there is less conversion of CO² to O² through photosynthesis, further increasing CO² levels... Greenhouse effect... The rise in global temperature...sea levels rise...upset the balance of global ecosystems...

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	Grade Boundary: Low Merit
3.	For Merit, the student needs to explain, in depth, aspects of a geographic topic at a global scale. This involves: - describing, in detail, the global pattern of the geographic topic using geographic terminology - explaining, in detail, the factors and/or processes that contribute to the pattern - explaining, in detail, the significance of the topic for people. This student evidence is a response to version 3 of the standard and therefore does not completely exemplify the changes to the global pattern from version 4, published in December 2024. Student evidence for this exemplar will be updated when it becomes available. The student has described localized patterns of deforestation in detail, through reference to characteristics of the linear pattern such as peripheral, corridor and pockets (1). Evidence for version 4, for the global pattern of deforestation in detail, would have a focus on the wider global linear pattern. Causes are explained in detail as contributing to the corridor pattern in the Amazon and larger concentrations in Africa and Southeast Asia. The explanation provides a range of evidence, including recent causes such as logging along with more traditional causes like shifting cultivation (3). 91246 version 4 places more emphasis on the global pattern. Consequently, the evidence for contributing factors and/or processes needed to maintain the focus on the linear global pattern rather than more localized patterns in the Amazon, Africa and Southeast Asia. The explanation could focus on how accessibility created peripheral and corridor type patterns in the rainforests, making up the linear pattern. For a more secure Merit, the student could ensure that they develop the explanation of the causes with a focus on the global pattern, rather than explaining the general causes for deforestation (4). This section also needs to show the use of more specific details such as statistical evidence for rates of deforestation, return times of shifting cultivators, or size of areas that have been converted to plantation etc.

Deforestation

Spatial Pattern: The spatial pattern of deforestation follows the linear pattern of tropical forests between the tropics where the deforested areas are mostly on the peripheries of the major areas of rainforest. When examined closely the peripheral pattern shows pockets of deforestation with some areas forming inroads into the forest like corridors. This pattern can be seen in the Amazon where distinct corridors extend from the southern and eastern edges of the forest into the interior... In Central Africa the linear pattern is made up of concentrations of deforestation especially in Western Africa and Ethiopia. In South East Asia deforestation is widespread showing both concentrations in parts of Malaysia and large pockets in Indonesia.

①

②

Causes for the spatial Pattern: The pattern of deforestation is caused by people's access to the forest. The corridor pattern common in the Amazon follows roads that are used by logging companies to take the logging equipment in and transport the logs out of the forest... The Trans-Amazon Highway forms one of the major corridors of deforestation, it is about 4,000 km long and goes from ...The logging companies use heavy equipment which needs roads that won't cause them to get bogged down when there is heavy rain...

③

Most of the settlers in the forest stay close to the roads where they clear small areas for farming, continuing the corridor pattern. These settlers lack the finances or machinery to develop roads to alter this pattern. These small holders are often given government grants, this is the case in Brazil... Cheap land and government subsidies are creating increasing deforestation especially in Southern Brazil... As population grows areas for settlement become limited and ... Increasing need for food production ... expansion of infrastructure also led to deforestation.

④

If burning is used as the means of deforestation this creates larger concentrations and pockets of deforestation which can be seen in the southern Amazon, Malaysia and Indonesia. This is very common when ranchers extend their farms in to bordering forest. The pockets of deforested land in Malaysia and Indonesia is mostly used for plantations.

③

Changing forest land to agriculture is the primary cause for deforestation in the Amazon and in South East Asia. Deforestation is caused by the rising demand for a range of crops like palm oil, soy beans, cocoa, coffee etc.

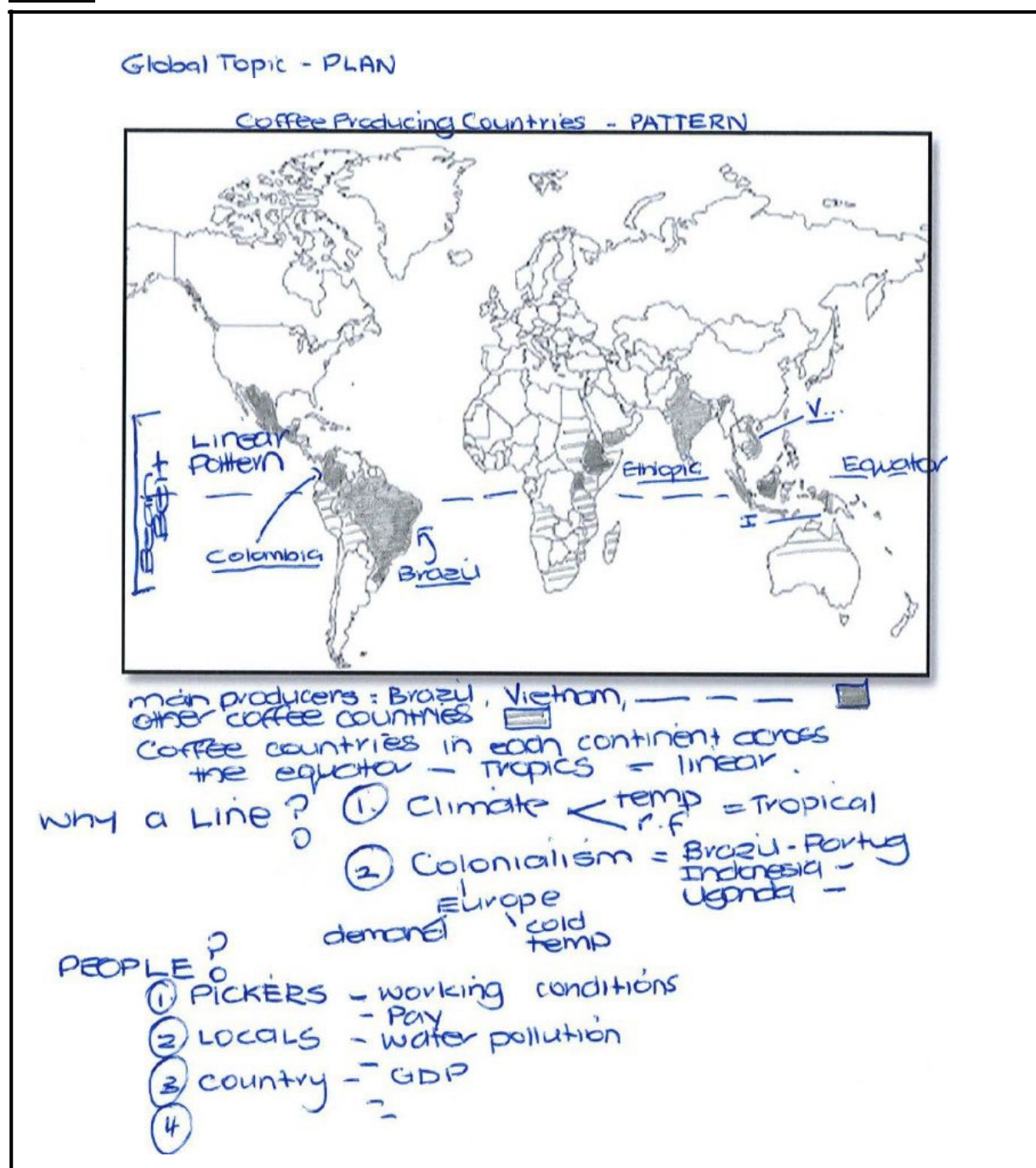
④

The main cause of the concentrations in Eastern and Central Africa is a result of shifting cultivation. This concentration is often the result of population growth and people returning to cultivate land too soon...

③

The significance of deforestation for people was explained in detail including discussion of a range of ideas from hardships faced by indigenous people through to economic benefits for individuals and communities.

	Grade Boundary: High Achieved
4.	For Achieved, the student needs to explain aspects of a geographic topic at a global scale. This involves: • describing a global pattern of the geographic topic, using geographic terminology • explaining the factors and/or processes that contribute to the pattern • explaining the significance of the topic for people. This student has provided a plan (1), including a map which demonstrates understanding of a global spatial pattern of coffee production, and introduced causes for this pattern. Extending the description for the overall pattern “<i>The line is nucleated in...</i>”, and the use of appropriate global evidence, shows the quality expected (2). The explanation of climate includes explicit links to the pattern, demonstrating understanding of the causal relationship between tropical climatic conditions and the global linear pattern (3). The plan shows the range of groups the student will include in the explanation of the significance of the topic. The explanation begins with the pickers/labour, and proceeds through to wider economic benefits for people. Specific global evidence is used to support the explanation (5). To reach Merit, the student could further describe the global spatial pattern. The description could include variations in the width of the linear pattern or the position of coffee producing countries making up the line. A detailed explanation could consider how the equatorial and subtropical conditions create variation in the linear pattern. While temperature and rainfall statistics are provided for Brazil (4), these need to be extended to continue the focus on the coffee belt rather than an emphasis on one country.

COFFEE**SPATIAL PATTERN:**

There is a linear **pattern** of coffee production horizontally along the equator and in between the Tropic of Cancer and Capricorn. This line is known as the 'Bean Belt'. The line is nucleated in Southeast Asia (Indonesia and Vietnam), Central Africa (Ethiopia and Uganda), India, Central America and South America (Mexico, Guatemala, Honduras, Colombia and Brazil).

The five top coffee producers are underlined above and shown on the map and these clearly reflect the global spread...

CAUSES for the pattern:

1. Climate

Coffee has such specific conditions for successful growth, it can only be grown in certain areas of the world that are warm, humid, and at the correct altitude, making the equatorial and subtropical region of the world perfect for coffee production. This shows the linear pattern shown in the map in the plan. 3

Coffee needs one of two optimal growing climates the first being subtropical at an altitude between 1800-3600 feet and the rainy and dry seasons must be well defined. These conditions result in one growing season and one maturation season of the plant which usually falls during the coldest part of autumn. Mexico, Jamaica, Brazil and Zimbabwe are examples of areas with these conditions. For example, the world's largest coffee producer, Brazil, has an average temperature of 22 to 26°C all year round, with an average rainfall between 1000 and 1500mm annually, most of which falls during the summer months. At an average, Brazil sits at an altitude of about 1000 metres. These conditions are perfectly aligned with coffee's optimal growth conditions, helping to explain why Brazil is the largest producer of coffee in the world. 4

The second being Equatorial at latitudes lower than 10 degrees, an altitude of 3600-6300 feet and frequent rainfall that causes almost continuous flowering which results in two harvesting seasons. The period of highest rainfall determines the main harvesting period while the period of least rainfall is usually the secondary harvesting. Kenya, Colombia and Ethiopia are examples of areas with these climates and together with the countries in the subtropical section show the coffee belt or linear pattern. 3

The process of colonialism was also explained as contributing to the linear pattern

SIGNIFICANCE of the topic for people:

Coffee is second only to oil in terms of world trade, meaning the coffee industry generates billions of dollars internationally, every year. This can have both positive and negative impacts on different groups of people, especially in terms of the economies of the areas they live in...

Coffee production is mostly in developing countries and as plantations. The coffee pickers are often migrant workers who are exploited, e.g. receiving less than the minimum wage and ... There is evidence that children as young as 5 are used for picking...cheap labour... In Kenya it is estimated that about 30% of pickers are under the age of 15. 5

Housing conditions in Central America and Colombia are often like large dormitories with no privacy and limited sanitation... Working conditions are variable, sometimes, equipment like machetes and boots are not provided or safety equipment and training when working with pesticides...

Pesticides impact on the health of workers and people living near the plantations...