

THEME 1

- Overpopulation
- High rate of natural population growth
- Underpopulation
- Youthful population(High young dependent population)
- Low rate of population growth
- An International migration
- Densely populated country
- Sparsely populated country

THEME 2

- Earthquake
- Volcano
- River
- Coastline
- Tropical rainforest
- Hot desert

THEME 3

- 3.1 Development
- 3.2 Food Production
- 3.3 Industry
- 3.4 Tourism
- 3.5 Energy
- 3.6 Water
- 3.7 Environmental risks of economic development

[Overpopulation: Bangladesh]

Location: Southern Asia, Near Pacific

Current Pop: 169 million

Causes:

1. Lack of education → X educated about contraception
 - 74.7%: literacy rate
 - Women not aware of effects of overpopulation/contraceptives and continue to have babies
2. Social and religious superstition that encourages having children
 - Muslims are 91% of the population
 - Continuous increase in birth rate
3. High child mortality rate
 - 22.6 deaths per 1000 live births
 - Parents choose to have babies to replace to use as workforce(to supplement the family's income)
 - However, since child mortality rate is high, give more birth

Impacts:

1. Traffic Jams
 - Average traffic speed dropped from 21kmph to 7kmph in the last 10 years
 - Social chaos/Money invested by the country to solve these problems
 - Further lead to even serious air pollution in Bangladesh
2. Lack of healthcare
 - 0.6 doctors per 1000 people
 - Unable to gain healthcare when needed → Social problems
 - Further lead to high risk of disease spreading in Bangladesh
3. Educational problems
 - More than 4.3 million children aged 6~15 not in school
 - Due to low quality of education → Would lead to even more serious overpopulation → X get educated on problems of overpopulation & importance of contraception

[High rate of natural population growth: Gambia]

Location: Gambia, a country located in Western Africa and population of 2.6 million, is one of the countries with a rate of natural population growth.

Causes:

1. Low literacy rate
 - Adult literacy rate in 2021 - 58% → close to half X completed proper education
 - Unaware of contraceptives/Problems they face with high population growth rate → population will continue to grow
2. Agricultural industry
 - LEDC → need child worker(to supplement the family's income)
 - High BR low DR (decreased DR due to improved healthcare → compared to past)
3. Religion
 - Evidence: Muslim(95%) encourages followers to have as many child as possible → influenced by religious leader
 - Explanation: Continued increase in births
4. LEDC (poor country)
 - Hard to get access to contraception

Impacts:

1. Traffic Jams
2. Point: Lack of healthcare
 - lacks doctors & access to healthcare services
 - Unable to gain healthcare when needed → Social problems
 - Further lead to high risk of disease such as Malaria spreading in Gambia
3. Point: Educational problems
 - Rural areas 43%, Urban areas 22% X getting education
 - Due to low quality of education (there are only 6 senior secondary schools in low river region w/ limited resources) → Would lead to even more serious overpopulation

[Youthful population(High young dependent population): Gambia]

Location

- Western Africa
- Current population: 2.6 million (2021)
- Each woman in her lifetime has 5.7 children

Causes:

1. Low literacy rate
 - Adult literacy rate in 2022 = only 52% (half)
 - Unaware of contraceptives/Problems they face with high population growth rate
2. Women do not have freedom to manage childbearing
 - Only 25 % of girl attend to school while 32% of male attend school
 - Unaware of contraceptives or cannot claim to not want to have a child
3. Religion
 - more than 95% of the whole population are Muslim → encourages followers to have as many child as possible
 - Continued increase in births

Consequences:

1. Cost of services such as healthcare → very young people and older people are more likely to be sick → dependent population are exerting big pressure to the country's health insurance service and hospitals → **high demands for health service**
2. **Lack of available jobs in the future** → lead young people to crime in order to survive and make a living
3. Lack of education → large numbers of people aged 0 – 15 will put a huge pressure on the education system → However, Gambia = LEDC X have enough money for universal education.
4. Traffic Jam
 - Bigger family → There are so many houses and built up areas so in most of the areas of Gambia, the speed limits can be as low as 25 km/h

Management:

1. Contraception
 - There are now awareness campaigns and radio adverts explaining contraceptives → An NGO(non-governmental organisation) helping to address the problem by delivering very cheap contraception → Due to this programme the population growth rate has dropped from 4.2% to 3%.
2. Health

- To reduce the infant mortality rate, funding from Canada is used to provide free vaccination for children + Improved maternity care helps the mothers to survive → Parents are encouraged to space out the births so that the mother has enough time to recover.

3. Managing Resources

- The German government is funding a forest management scheme. The plan is to plant new forests and educate the population on how to look after and use the forests.

[Densely populated region: Northeast of the USA]

New York = most densely populated city in USA with population of 8.4 million

It is located in Northeast of USA(east coast) with cities such as Boston, Washington and New York

Causes:

[Physical factor]

Climate

- Very warm with a moderately rainy season, but has few muggy months.
 - Easy for people to live
 - Can access to water

Landscape

- Landscape
 - road valleys(good for transportation), rolling hills(provides good crops), and low mountains which makes it easy for people to build house and live

[Human factor]

Agriculture

- Fertile soil makes the northeast of USA a good agricultural area
 - Intensively farmed
 - Agriculture is key factor for high population

Accessibility

- Highly developed transport network as it has long coastline
 - Can easily access to different countries and cities

[Underpopulation: Australia]

Statistics:

- Population is only 24.1 million as of 2016
- 3 people per square km

Location:

- Southern hemisphere
- Between Indian and the Pacific ocean

Causes:

1. Climate factors make it hard for people to live in central Australia
 - Highest maximum temperature = 48.7 degrees celsius
 - Health problems to the citizens
2. Lack of precipitation
 - Less than 250mm per annum in most of central Australia
 - Failure to continue farming
3. Difficult to access service in central Australia
 - Only one main road in Central Australia that pass through one main urban area
 - Hard to get access to healthcare services and goods

Consequences:

1. Low pollution levels
 - Air pollution level 18.19
 - Lower than same land mass in the US → Helpful for the environment both in the country and as a whole
2. Shortage of workers
 - Shortage of over 200,000 workers by 2050
 - Lower optimum productivity
3. Harder to defend country
 - 59,000 people in military compared to 1.4 million in US
 - Lack of security when war or some other kind of inner conflict breaks out

[Low rate of natural population growth: Russia]

Statistics:

- Roughly 75% of people in Russia live in the European part (especially moscow)

Location: Northern Asia, bordering the Atlantic ocean

Causes:

1. Lower life expectancy in men
 - 66 years old
 - Reason: very high intakes of alcohol , high incidence of smoking, pollution & Ravages of HIV/AIDS
2. Gender imbalance
 - 11 million more women in Russia
 - All women X marry & give birth
3. Use of contraception
 - Almost 70 % of population use contraception
4. Low BR
 - 1.1 per woman.
 - Increase in education within the country among women → less inclined to have large families

Consequences:

1. Increase in retirement age
 - A rise in the dependency ratio which would increase the economic pressure on the workforce
2. Poor quality in end of life care for the elderly as there are not enough caregivers for them (low birth rate, low number of younger generations)
3. Tax \uparrow
 - The Russian Union of Industrialists and Entrepreneurs (RSPP) has proposed raising the current 20% income tax on Russian companies

[Sparsely populated region: Canadian Northland]

Whole area has a population density of less than one person per Km^2

Location: North side of Canada(north of 55°N)

Causes:

Climate

- Canadian northland's population is hugely influenced by low temperature
 - January temperature is below $-20^{\circ}C$
 - As shown in Fig.1 the northern part of Canada is extremely cold(Tundra and Polar climate)

Climate/Soil

- Permafrost
 - Ground is permanently frozen to a depth of about 300 metres
 - Results in a marshy, waterlogged landscape
 - Only people involved in exploitation of raw materials and maintaining defence installations live there
 - \Rightarrow Life is extremely difficult

[Human factors]

Agriculture

- Cold weather is beyond the limits of agriculture
 - Agriculture is key factor for population
 - The grounds are permanently frozen which makes it almost impossible for agriculture

Accessibility

- Environmental conditions create difficulties for transportation development
 - Road system is very sparse
 - Railway and roads are not being able to be built
 - Leads to lacking in surface communications \rightarrow hard to trade & travel \rightarrow difficulties in economics(tourism)

[International migration: Immigrating from Mexico to US]

Number of immigrants(Mexico to US): Around 100 million in 2010 and now, 12 million

Push

1. Point : High crime rate
 - Homicide rates come in at around 10-14 per 100,000 people(higher than world avg.)
 - Major concern = drug related crimes
 - 47,500 people were killed
2. Point : Unemployment and poverty
 - Mexico unemployment rate for 2021 = 4.38%
 - 40 % cannot get jobs and even though they do get job, it is low paid
3. Point : Farming
 - Large portion of population = farmers living in rural area
 - Extreme temp, and poor quality land makes it hard to farm
 - → 46 % of the population is living under poverty

Pull

1. Point: Better living standard
 - Better services such as health care, education → live better life
 - Excellent medical facilities: 400 per doctor
 - Well paid jobs GNP \$24,750
2. Point: Easy to settle
 - States such as Texas and California help people easily settle
3. Point: Better Education
 - 86.1 % of Mexican population can read while 99 % of American population can read
 - Mexico students finish school at age of 14 while American students finish at 16
 - → better academic opportunities

Impact on origin:

1. Point: Economical benefits to Mexico
 - Evidence: Remittance to Mexico in 2021- 51.6 billion dollars/Second largest source of foreign currency
 - Explanation: A source of money for the country's government
2. Point: Developing an increasingly dependant population
 - Majority of people left are elderly who X work
 - Leaving Mexico = Majority is male → girls are left => Unable to find partners, get married and have children (reducing BR and increasing dependency ratio)
3. Point: Food Shortage
 - Majority of migrants = from rural areas → leaving a shortage of farmers => potential for food shortage as economically active people from rural areas leave

Impact on destination

1. Point: Decrease in workplace injuries for U.S. natives

- Evidence: Between 1980 and 2015 the overall rate of nonfatal occupational injuries fell by more than 60 percent
 - Explanation: With immigrants working in riskier jobs and natives shifting to safer jobs this has happened.
2. Point: Increase in labour force
- Evidence: Median age of mexican immigrants - 46
 - Explanation: These immigrants tend to participate in jobs that are unwanted by US citizens
3. Point: Poverty in America
- Americans who are desperate for work wishes to get jobs with low wages which they X => increased poverty in America
 - Many companies are now also replacing American labour with cheaper migrant labour

[Volcano - Montserrat]

<p>Background</p>	<p>In Montserrat Chances peak, on 18th of July 1995, a volcanic eruption with magnitude 3-4 occurred, creating a devastating hazard.</p>
<p>Hazard</p> <p>정리해둔건 없고 전에 풀마크 받은거 적어둔 것밖에 없어서 강 이거 옮겨놨어요 ㄱ큐ㅠ</p>	<p>Firstly, there were ashes of volcanoes; they sometimes landed on roofs of settlements, causing houses to collapse which resulted in 50 % of the population emigrating to the northern part of the island. In addition, it sometimes landed on farmland, which substantially decreased the yield of crops.</p> <p>Moreover, volcanic gases were also hazardous as they were toxic. Some cause breathing difficulties, diseases or even death. Particularly, volcanic gases such as sulphur dioxide that produced sulphuric acid, lead to acid rain that destroyed and damaged buildings.</p> <p>Lastly, pyroclastic flow - a flow of ashes down the steep slopes of the stratovolcano - was also a problem as it covered 2/3 of the island in ash, destroying all vegetation and buildings. For example, W.H. Bramble airport was completely destroyed by pyroclastic flow, interrupting transportation of people and goods. They also destroyed the beautiful landscape that attracted tourists, causing a fall in the tourism industry and unemployment of 50 %.</p> <p>As well as these hazards, lots of other hazards such as lava flow and lahars(mud flow) were present in montserrat. These lead 19 people to death and 100 people to injury.</p>
<p>Caused</p>	<p>Volcano eruption in Montserrat was destructive plate boundary → as plate moves toward each other, oceanic plate subduct under continental plate Atlantic plate(oceanic plate) was slowly forced under the caribbean plate(continental plate)</p> <p>This oceanic plate subducted under cause friction → friction cause heat so oceanic crust melt (magma heat) → eventually more magma → high pressure → magma escape through weak surface of earth → Energy is released</p>
<p>Management</p>	<p>Short term:</p> <ol style="list-style-type: none"> 1. Evacuation to the North side of Montserrat → 50 % of the population emigrating to the northern part of the island 2. Abandonment of capital city → capital city Plymouth is close to the soufriere hill so many are severely harmed by the volcano eruption(pyroclastic flow, lahars) 3. Getting support by British government → giving 41 million dollars for reconstruction <p>Long term</p> <ol style="list-style-type: none"> 1. Volcanic observatory built to monitor the volcano 2. airports are reconstructed(W.H. Bramble airport)

Jan 17 1995 Kobe Earthquake

Basic Information	Southwest of Japan, January 17th 1995, magnitude 6.9, in Awaji island, death of 6000 people
Plate boundary	<ul style="list-style-type: none"> - Destructive plate boundary → Pacific and Philippine Plate(oceanic) subducts under Eurasian(continent) plate
Effects	<p><u>Social</u></p> <ol style="list-style-type: none"> 1. More than 6000 people were dead and 35000 people injured → 316000 people left homeless and refugees moved into temporary housing as 150000 buildings were destroyed 2. Damaged electricity and gas caused fire burn → Took about 2 days in total to completely put off the fire 3. Electricity and water supplies were damaged so not available for large areas → No power for heating, lights, cooking, clean water etc <p><u>Environmental</u></p> <ol style="list-style-type: none"> 4. Ground liquefied → Soft ground caused rocks to move easily which resulted in ground liquefied → sinking in buildings <p><u>Economic</u></p> <ol style="list-style-type: none"> 5. Buildings and bridges collapsed despite their earthquake proof design → Immense amount of money required to rebuild(About to \$100 billion in damage) <ul style="list-style-type: none"> • Japan = MEDC so materials used to build buildings were expensive → In order to reconstruct all of the buildings and provide home for homeless people, a lot of money is needed 6. Central part of kobe which had docks and port area → built on soft and easily moved rocks so ground liquefied which also caused buildings to topple sideways → massive amount of money required (a lot of goods and materials since there is port area) + problem in export of goods
Responses	<p>Short term</p> <ol style="list-style-type: none"> 1. People were evacuated and emergency rations provided 2. Rescue teams searched for survivors for 10 days 3. Water, electricity, gas, telephone services were fully working by July 1995 4. Reconstruction of railways and buildings → railways were back in service by August 1995

	<p>→ by 1999 134,000 housing had been constructed but some people were still living in temporary accommodation</p> <p>Long term</p> <ol style="list-style-type: none"> 5. Many people moved away from the area permanently 6. Instruments installed in the area to monitor earthquake mov. 7. Jobs were created in the construction industry as part of a rebuilding programme <p>→ buildings to be designed to be earthquake proof (created a law)</p> <ol style="list-style-type: none"> 8. Earthquake drills carried out in schools
Factors	<ol style="list-style-type: none"> 1. Material used for building house → wood (traditional house) <ul style="list-style-type: none"> - Some buildings built recently were earthquake proof but most were built by wood so easily collapsed and burnt by fire caused by broken gas and electricity lines. 2. No earthquake for over 400 years → not prepared + slow arrival of emergency aid <ul style="list-style-type: none"> - Less prediction and less equipments 3. Interflow of traffic → more time for emergency service to get where they need + people can be trapped

[Fluvial opportunities and hazards - The Ganges]

Background Information
<p>Current Population: 169 million</p> <p>July 2020, 30 million Bangladeshis were exposed or living close to flooded areas</p> <p>Ganges:</p> <ul style="list-style-type: none">- Source: The Himalayas - Gangotri glaciers in India- Mouth: Bay of Bengal in Bangladesh- Length: 2,525 km <p>Bangladesh: Southern Asia, Near Pacific</p>
Impacts
<p>Human</p> <ul style="list-style-type: none">● In Samserganj block of Murshidabad district, the erosion that started due to increased flooding washed away homes, temples, a school and agricultural land → Around 2.7km along the Ganga has been eroding over the past fifty years → However, agriculture is the main economy in Bangladesh● 18% of the country is flooded each year Approximately 5000 deaths● Tens of thousands of people living in low lying areas were evacuated to flood shelters along with their cattle <p>Environment</p> <ul style="list-style-type: none">● Floodwaters can erode soil, destroy vegetation, and alter the natural ecosystem<ul style="list-style-type: none">○ International Union for Conservation of Nature (IUCN) found that floods in Bangladesh can cause soil erosion rates of up to 10,000 tons per square km per year (IUCN, 2021)● wetlands in Bangladesh have been reduced by 62% over the past 50 years due to human activities such as urbanisation(BCAS, 2021) → flooding exacerbates this problem by causing further damage to the remaining wetlands, leading to a loss of biodiversity and ecosystem services
Causes of flooding
<p>Human:</p> <ul style="list-style-type: none">● Deforestation (12% decrease in tree cover since 2000) – Population increase in Bangladesh means there is a greater demand for food, fuel and building materials<ul style="list-style-type: none">○ deforestation has increased significantly → reduces interception and increases run-off● Urbanisation - Urbanisation of the flood plain has increased magnitude and frequency of floods.<ul style="list-style-type: none">○ Paved roads causes higher surface runoff rates(rain cannot be infiltrated) → shortening the time to achieve peak runoff and discharge● Building of dams in India and irrigation has increased the problem of sedimentation in Bangladesh -

sediment is now removed upstream and when flooding occurs [there is not enough silt/mud/sediment in the river to build up the height of the floodplain overtime](#)

Physical:

- Tectonic Activity(Indian plate moving north-east at 5cm per year) – The Indian Plate is moving towards the Eurasian Plate. The land where they meet (Himalayas) is getting higher and steeper every year (fold mountains). As a result, the soil becomes loose and is susceptible to erosion. This causes more soil and silt in rivers. This leads to flooding in Bangladesh.
- Snowmelt from the Himalayas takes place in late spring & summer
 - Along with mountain getting steeper, the time of snow melts reaching the stream(river) has shortened, causing flood

Opportunities

Industry:

- Cheaper Hydro electric power
 - As water stored in a reservoir falls on a turbine, its kinetic energy is converted to mechanical energy. In turn, the generator converts the mechanical energy of the turbine into electricity.
- Reduced transport costs
- Textile: Makes \$19 billion per annum. Accounts for around 70% of export earnings. 10% of Bangladesh's GDP.

Agriculture:

- Fertile soil on floodplains
 - When it floods, it deposits a layer of fine soil, rich mineral salts, nutrient-rich silt, sediment, and distributes it across a wide area. These sediments make the soil very much fertile → vital for agriculture
- Water suitable for aquaculture.
 - Waters ranging in pH from 6.5 to 8.5 are generally the most suitable for pond fish production → pH of river water is 7.4 → water from flooding provides sufficient amount of water for aquaculture
 - Economy of Bangladesh is primarily agriculture based.

Domestic

- Water generally clean enough for drinking
 - Can be a source of water for residents
- Also the waters are crucial for:
 - Cookings
 - Wahsing
 - Cleaning
- Upwards of 300 million people are supported by the Ganges Delta.

Responses & solutions

- CERF(Central Emergency Response Fund) immediately released 5.2 million US dollar
 - Allowed the aid to reach 220,000 people before the flood hit
 - Food aid from the government and other countries
 - Sajida (non- governmental organisation) BDT 500 cash grant to purchase dry food

Hard engineering

- Dec 2021, 249 km of embankments were created and 215.6km of drainage channels.
 - Creating more pathways and increasing the speed for the river to flow out to the ocean.
- More sustainable ways of reducing the flooding include building coastal flood shelters on stilts and early-warning systems.

Soft engineering

- Afforestation in the upper course (Nepal) reduces the flood risk. → Planting more trees allows to control the rate of water to enter the stream of the river → Reducing flood
- Food aid - Pumpkins have been introduced to be grown as they can grow in the bad conditions and they are a source of food.

[Borneo Rainforest]

Background Information
<p>Area: 743,330 km² Age: Around 130 million years old Statistics:</p> <ul style="list-style-type: none">• 15,000 species of flowering plants and 3,000 species of trees;• 221 species of terrestrial mammals <p>- 50% of the Bornean rainforest was lost between 1973 and 2015</p> <p>Location:</p> <ul style="list-style-type: none">- Southeast Asia between Brunei, Malaysia and Indonesia (Kalimantan)
Causes/Reason
<ul style="list-style-type: none">- (Logging) Industrial uses: Borneo rainforest is a very old rainforest so trees are cut down for commercial and industrial uses such as: furniture production, constructions and buildings. EX) Most of the timber is exported to Asia.- Agriculture: Forest lands are cleared and trees are cut down for agricultural exploitation → especially oil palm plantation. About 6 million hectares of oil palm plantations are found in Indonesia (11 million hectares in the whole world). → Very profitable.- Mining: Plans for economic development → coal - to help meet growing domestic and export market demands. Borneo holds rich metal and mineral resources, including tin, copper, gold, silver, coal, diamonds etc
Impacts
<p>Social</p> <ul style="list-style-type: none">- Child labour (Oil palm plantation): Children receive little or no pay and are forced to harsh work including long hours and exposure to toxic chemicals → may be due to poor education, a lack of school facilities in rural areas- Poverty: Reduced forest → people are less able to benefit from the natural resources these ecosystems provide → lead to increased poverty <p>Environmental</p> <ul style="list-style-type: none">- Loss of biodiversity → when animal species that live in the trees no longer have their habitat, cannot relocate, and therefore become extinct → only 50% of forest cover remains today- Impact of Palm oil

→ Oil palm plantation - orangutans live in areas that are favoured for establishing oil palm plantations: fertile lowland soils close to rivers. As the trees are cut down for agricultural use, orangutans' natural habitat is reduced.

Economic

- Increased global demand for palm oil as palm oil is used for power/energy (cheap) → Palm oil trade improves the livelihoods of local communities by improving their incomes.
- Soil degradation - after destruction of forest, the soil is no more suitable for proper agriculture as the minerals which are on the top layer of the ground are washed off with new planted trees → X agriculture → impact on economy

Impact of Mono-culture

Negative impact on the natural balance of soils

- Too many of the same plant species in one field area rob the soil of its nutrients → resulting in decreasing varieties of bacteria and microorganisms that are needed to maintain fertility of the soil

Negative impact on structure of the underlying soil (soil erosion)

- One species of crop → only one type of root will be available to trap moisture and prevent soil erosion (which requires multiple types of roots → limiting ability to prevent)

Increase in specific pests → susceptible to disease/pest → loss of biodiversity

- As the population of one specific plant increases, it will impact the ecosystem, leading to an increase in the consumers and predators of that plant species as a result of the abundance of food → However, other species that consume different plants won't survive

Responses

1) Provide healthcare

- Medical expenses are one of the main reason as hospitals are expensive and far away → Organisation Health in Harmony operate a nearby clinic that meets the health needs of local communities with reduced costs of treatment

2) Monitor

- Health in Harmony makes regular visits to communities → check for evidence of deforestation (ex, farm clearings, logging roads, and sawmills) → + survey households across the region to learn about changing social and economic conditions

[Namib Hot Desert]

Background Information	Location & Size
<p>Specific animals/plants:</p> <ul style="list-style-type: none"> - Fennec fox, Baobab, Quiver Tree <p>Locals</p> <ul style="list-style-type: none"> - Almost no people, except for a few scattered towns <p>Climate:</p> <ul style="list-style-type: none"> - Hot and dry with sparse and erratic rainfall - 40/50°C in summer - 20/25°C in winter (at night, may drop to 0°C) 	<p>On the West coast of Southern Africa</p> <p>Size:</p> <p>Stretches 2000 km between the city of Namibia and the Olifants River in South Africa</p>
Threats/Causes	
<p>Mining</p> <ul style="list-style-type: none"> - Rich in diamond, copper, and uranium - “Uranium Rush” peaked around five years ago + is centred on the fragile Central Namib, saw a surge in demand for large numbers of mining <p>Farming</p> <ul style="list-style-type: none"> - agriculture is constantly under threat from climatic fluctuations such as droughts, floods and changing rainfall patterns → which cause climate change <p>Tourism</p> <ul style="list-style-type: none"> - With unique scenic landscapes to admire and a history of dedicated conservation efforts → holds many attractions for the foreign, as well as domestic, traveller - The oldest desert in the world and a world heritage site 	
Impacts	
<p>[Mining]</p> <ol style="list-style-type: none"> 1. Contributes significantly to the increase of Namibian GDP 2. Destruction of habitats and ecological processes → may cause environmental degradation and loss of ecosystem services. 3. Lose significant parts of biodiversity <p>[Farming]</p> <ul style="list-style-type: none"> 1. Provide food source for locals - Economic highly dependent of agriculture - 4,000 commercial farms in Namibia → Almost half of the 2.3 million inhabitants depend on agriculture as their source of revenue 	

[Tourism]

1. Increased employment and GDP

- travel and tourism contributed approximately 14.7 percent of GDP in Namibia, and 15.4 percent to total employment in 2019

2. CO2 emission

- travel for tourism purposes is responsible for around 8% of global emissions → global warming and climate change

Responses

- WWF-supported conservancy movement → 235,000 people across Namibia have joined together to create some 59 special conservation areas, which protect 132,000 sq km of vital wildlife habitat
- Any profit generated by the conservancy's activities - guide services, eco-tourist facilities or controlled hunting - is invested back into the community

[Typhoon Haiyan Case Study]

Background Information
<p>Where: The Philippines</p> <p>When: Early November 2013</p> <p>Strength: Reached Category 5 with wind gusts of up to 370 km/hr</p> <p>Locational factors: The Philippines is 7,641 islands (3 main); its located between 4 and 21 degrees north of the equator</p>
Impacts
<ul style="list-style-type: none">- 6000 deaths in the province of Leyte.- Power infrastructure damaged.- 70-80% of infrastructure in Tacloban was destroyed.- Roads filled with debris.- Mobile phone communication is impossible - radio communication only. <p>Social effects</p> <ul style="list-style-type: none">● Infection and diseases spread, mainly due to contaminated surface and groundwater.● Survivors fought for food and supplies. Eight people died in a stampede for food supplies.● Power supplies were cut off for months in some areas.● Education was disrupted as many schools were destroyed. <p>Economic effects</p> <ul style="list-style-type: none">● An oil tanker ran aground, causing an 800,000-litre oil leak that contaminated fishing waters.● The airport was badly damaged and roads were blocked by debris and trees.● Rice prices had risen by nearly 12% by 2014. <p>Environmental effects</p> <ul style="list-style-type: none">● The leak from the oil barge led to ten hectares of mangroves being contaminated● Flooding caused landslides
Management
<p>Short - term</p> <ul style="list-style-type: none">● The government issued a televised warning to people to prepare and evacuate.<ul style="list-style-type: none">○ Eight hundred thousand people were evacuated following a televised warning by the president. Many people found refuge in a stadium in Tacloban.● Three days after the storm, the main airport was reopened, and emergency aid arrived. Power was restored in some regions after a week. One million food packs and 250,000 litres of water were distributed within two weeks.● Over \$1.5 billion of foreign aid was pledged. Thirty-three countries and international organisations promised help, with rescue operations and an estimated US \$ 88.871 million.

Long - term

- A cash for work programme paid people to clear debris and rebuild Tacloban.
- The international charity organisation Oxfam replaced fishing boats.
- Build Back Better is the government's response to the typhoon. Launched in 2014, it intended to upgrade damaged buildings to protect them from future disasters. They have also set up a no-build zone along the coast in Eastern Visayas, a new storm surge warning system has been developed, and mangroves replanted to absorb future storm surges.

[Nike]

<p>General Facts</p> <p>USA but the company has over 700 shops worldwide, offices across 45 countries and over 700 contract factories with nearly 1 million workers across 50 countries</p> <p>LEDCs and NICs</p> <p>504 out of 640 factories manufacturing Nike products are in LEDCs/NICs</p> <ul style="list-style-type: none">- Very high % of factories are in Asia	<p>Locations</p> <p>HQ: Beaverton, Oregon</p> <p>Biggest market of Nike: North America (contributing 14.5 billion dollars)</p> <p>Factories: 206 in China, 66 in Vietnam (largest)</p>
<p>Nike and China</p> <p>Around 206 factories in China employing 260,000 workers → because of cheap labour costs</p> <ul style="list-style-type: none">- 8500 US dollars per person (GDP) <p>How can Nike help development in China?</p> <ul style="list-style-type: none">• The jobs that have been brought into China often provide a much better standard of living than other local jobs.• The global partnership between Nike and China continues to go from strength to strength → they are likely to keep investing more money in the country<ul style="list-style-type: none">○ in recent years the Chinese market has become increasingly important to the 'Greater China' brand in Nike.• Nike claim that they have been an important force in helping to improve worker conditions, pay and rights within China<ul style="list-style-type: none">○ local workers should be better off as a result of working for Nike than compared to other companies. <p>How can Nike hinder development in China?</p> <ul style="list-style-type: none">• Wages in China are still quite low compared with similar jobs in MEDCs<ul style="list-style-type: none">○ The government are worried that if wages were to rise quickly, this might mean that big organisations like Nike would look to move their factories to cheaper suppliers.• Much of the profit generated by the company will not remain in China but will leak out and back to company headquarters in the USA.	
<p>Nike and Vietnam (Benefits & Disadvantages in LEDC/NIC)</p> <p>312 850 workers, 66 factories producing products for Nike in Vietnam</p> <ul style="list-style-type: none">- 8500 US dollars per person (GDP) <p>Benefits of manufacturing in LEDCs/NICs like Vietnam</p> <ul style="list-style-type: none">- As NICs become more developed, there will be a growing market for Nike goods so this will improve sales and profits worldwide- The cost of building, equipping and staffing factories might be up to 40% cheaper than in MEDCs	

- More relaxed laws over worker's right, trade unions, health and safety and environmental laws in LEDCs

Benefits (on Vietnam)

- Substantial employment
 - 30,000 jobs created, plus additional linked jobs in other industries
- Pays higher wages than local firms
 - Higher than average
 - Money earned and taxes paid to the government ⇒ multiplier effect
- Workers get new skills and improve their employability on the jobs market

Disadvantages

- Exploitation of workers
 - Pay and conditions in Vietnam are poorer than in Nike factories in other countries
- Nike is accused of having excessive influence over the Vietnamese government and adopting a bullying attitude
- Nike is a US company and might not show loyalty to Vietnam if the business faces problems ⇒ could just pull out and relocate in cheaper location

Disadvantages to host countries

- Paying low wages, expecting workers to work long hours, not providing sufficient training, having poor and unsafe working conditions ⇒ abuse workers
- Factories causing pollution
 - In China Nike factories were causing river pollution through waste discharge from the dying and printing process

Disadvantages to country of origin

- Indirect loss of jobs as manufacturing is outsourced
- Balance of profit to cost isn't passed onto the customer
- Company image damaged due to outsourcing

[Rice Farming in Bangladesh]

Location

Area of intensive subsistence rice cultivation

- lower Ganges valley in India and Bangladesh

Ganges basin in India

- most extensive and productive agricultural area

Farming type

- Water intensive: 90% of agricultural water in Asia is used for rice production
- Much of Asia's rice production → intensive subsistence cultivation

Physical Factors

- Temperatures of 21 degree celsius and over throughout the year → allows two crops to be grown annually (rice needs a growing season of only 100 days)
- Tropical Monsoon: Monsoon rainfall over 2000 mm → water for the fields ('wet rice' cultivation)
 - River floodplain → fertile soil → prone to flooding since they use flood irrigation
- Relief: Flat → floodplain → easy to farm
- Dry period for harvesting the rice

The system (inputs, processes, outputs)

Inputs: Inputs are high

- Water: Traditional irrigation → Ganges floods
- Fertiliser: Often used in excess - water pollution
- Labour: limited mechanisation → labour-intensive nature of rice cultivation also provides work for large number of people

Processes:

- Cropping cycles (Several harvests per year)
 - 1) Rice transplanting
 - 2) grow seedlings in a nursery then plant them in field when mature → yield increases by 20%
 - 3) Main crop harvested when the drier season begins in late October
 - 4) Second rice crop can be planted in November
- Application of pesticides fertilisers

Outputs:

- Rice → significant yields reported → Some farmers over 6 tons per hectare.
- Waste pesticides + fertilisers (run off)
- Soil degradation → over use of land waste

[Food Shortage]

Background Information
In Sub-Saharan Africa Middle East Africa, next to Chad Global Hunger index - 27, 103rd(serious)
Causes
<ul style="list-style-type: none">- High population growth rate - 3% → Overgrazing, land erosion due to high demand of food- Has to import food from Uganda - Double the price- High dependency on farming for income - 70% of workforce- Civil war started from 1983<ul style="list-style-type: none">- Loss of 5.2 million jobs- National poverty rate increase by 4.5- 60~70% of the land is sem-desert
Effects
<ul style="list-style-type: none">- 70,000 died from hunger and disease during the war- 1 million children facing moderate acute malnutrition- 5.9 million are internally displaced- 1.4 million have fled as refugees- The price of basic commodities such as fuel, food and water increased by 60%
Solution
<ul style="list-style-type: none">- Red Cross Emergency relief air dropped food- FAO project - rehabilitates those flooded on the Malarial ricer and improves watermelon growth along the river Nile- WFP has delivered life-saving food assistance to over 6.5 million people since the start of the conflict.

[3.3 Industry: Ulsan Industrial Complex]

Location:

- Southwest of South Korea, neighbouring Busan to the South and facing Gyeongju to the North
 - 1.2 million people
 - Areas developed in late 1970s

Factor	How has it influenced the location
Land	Offer affordable land and infrastructure specifically designed for factories <ul style="list-style-type: none"> - Covers an area of 75.13 km²
Labour	Complex =located in an area with large pop. → so factories can find skilled workers Unemployment rate = 3.2% in 2021
Raw material	Ulsan is located near the ports & airports → easy to access to raw materials Gov. has established free trade agreement with various countries to ensure a stable supply of raw materials
Transport	<ul style="list-style-type: none"> - Located near Busan New Port → Largest containers port in Korea → Provides easy access to global markets
Markets	<ul style="list-style-type: none"> - Close to major cities such as Busan, Daegu → easy to access to global market <ul style="list-style-type: none"> - Korea has established free trade agreements with various countries → provides easy access to global market
Political Factors	<ul style="list-style-type: none"> - Korean gov offers incentives to companies who set up factories in Ulsan Industrial zone → reduced customs duties → exemptions from corporate income tax for 5 yrs → low interest loans

Systems model examples: Car manufacturing and oil refinery

Hyundai Car factory

<u>Inputs</u>	<u>Processes</u>	<u>Outputs</u>
Imports annually <ul style="list-style-type: none"> - 60,000 tons of steel - 18,000 tons of plastic annually 	<ul style="list-style-type: none"> - Stamping - Welding - Painting - Assembly 	1.3 million vehicles in 2020

Oil refinery

<u>Inputs</u>	<u>Processes</u>	<u>Outputs</u>
<ul style="list-style-type: none"> - 93.6 million barrels of crude oil - 13.8 million tons of liquefied natural gas (LNG) 	Process crude oil into usable petroleum products such as gasoline, diesel, raw jet fuel <ul style="list-style-type: none"> - Naphtha cracking - Polymerisation - Catalytic reforming 	\$ 26.8 billion worth of petrochemical products were exported in 2020

Type of pollution	Statistic	Impact on natural env	Management of risks
Air	2019, avg concentration of 33.3 microorganisms of PM2.5 particles per m ³ of air	Caused by petrochemical & refining industries High SO ₂ → acid rain (impact on plants, animals, crops)	<ul style="list-style-type: none"> - Implemented regulations & monitoring system - Switch to cleaner technologies - Hyundai's low NO_x burner reduces nitrogen oxide emission by 25% compared to conventional burners
Water	S-oil's membrane bioreactor system can treat up to 6000 tons of water waste per day	Release to nearby rivers & sea → increased levels of heavy metals, chemicals and other pollutants Conc of heavy metal → higher than recommended Damage to fish (e.g. Korean rockfish)	<ul style="list-style-type: none"> - Obtain permits to discharge waste water - Installing water treatment system
Soil contamination	2017, the Ministry of Env conducted a survey of 6,710 soil samples from the complex and found that 46.1% of the samples had levels of pollutant above the standard	Hazardous chemicals such as benzene and toluene detected detected in the soil around some factories → detrimental consequence on plants & animals living → affect biodiversity + loss of species	<ul style="list-style-type: none"> - Korean government implemented strict regulations on waste disposal - Conduct regular waste disposal testing (companies) - Lotte chemical's soil improvement project → use of specifically formulated soil conditioner to prevent soil contamination

[Tourism - Jeju]

Background Information
Far end of South Korea, biggest island About 15 million tourists every year
Attractions
<ul style="list-style-type: none"> - Mt. Halla (tallest mountain, UNESCO world heritage) → Beauty of unique natural environment - Oserloc-Farm, Museum (honey pot site) - Oreums (360 in the island) - Beaches → 1.8 million tourists in 2019, not available in cities, enjoy recreational activities
Positive effects
<ul style="list-style-type: none"> - Provides job opportunities - 91,000 - Total sales of tourism industry is \$6.34 trillion each year → used to invest local infrastructure → Improves lives of locals - Cultural awareness → Hanyeo - Environmental awareness → Jeju's unique natural environment being popular
Negative effects
<ul style="list-style-type: none"> - Increased local price, house price - Increased crime rate 4470 to 5758 cases per 100,000 from 2011 to 2015 → Insecurity, lower quality of life - The rate of waste per person is the highest in South Korea → 1500 tons of waste is collected every day in Jeju → Plastic pollution → Non-biodegradable microplastics damages ecosystem → Loss of biodiversity - Jeju's economy is heavily dependent on tourism → COVID-19 effects (restaurant shut down, loss of jobs, loss of income)
Response - Sustainable Tourism
<ul style="list-style-type: none"> - Quotas → The number of tourists that can explore Mt.Halla is limited to 1500 people per day. - 천지연 만원 입장료 - Promotes electric cars → Number of electric vehicles takes up 20% of all EVs in Korea, (highest in Korea)

[Energy Supply in China]

Location/General Info
<ul style="list-style-type: none"> ● Country in East Asia ● Overtook the USA in total energy usage in 2009 ● In 2015: <ul style="list-style-type: none"> ○ Coal 63.7 percent ○ Oil 18.6 percent ○ Hydroelectricity 8/5 percent ○ Natural gas 6.9 percent ○ Nuclear energy 1.3 percent ○ Renewables 2.1 percent
More balanced approach to energy supply and reduce its environmental impact through:
<ol style="list-style-type: none"> 1. Energy conservation 2. Placing a strong emphasis on domestic resources 3. Diversified energy development 4. Environmental protection 5. Mutually beneficial international cooperation
China's energy policy:
<ul style="list-style-type: none"> ● Development of clean coal technology <ul style="list-style-type: none"> ○ China is constructing clean coal plants at a rapid rate and gradually retiring older, more polluting power plants ○ China has recently built a small experimental facility near Beijing to remove Carbon dioxide from power station emissions and use it to provide carbonation for beverages → Overall coal consumption in China declined for the first time in 2015 ● Development of nuclear and hydropower ● Stabilise and increase the production of oil while augmenting that of natural gas and improving national oil and gas network
China's strategic petroleum reserve: (페페 보니까 애랑 바로 밑에 있는건 필요한지 모르겠음 강 덩거가 additional 로 하라한듯)
<ul style="list-style-type: none"> ● Building up the national oil reserve <ul style="list-style-type: none"> ○ In 2007 China announced an expansion of its crude reserves into a two-part system ○ Chinese reserves consist of a government-controlled strategic reserve complemented by mandated commercial reserves ○ Will protect China to a certain extent from fluctuations in the global oil price
Renewable energy policy
<ul style="list-style-type: none"> ● China = very serious about tackling air pollution and plans to have a total renewable capacity of more than 800 GW by 2021 ● In 2020, China committed to have 1,200 GW of renewables capacity by 2030
The Three Gorges Dam
Where?

- Across the Yangtze river
 - Located in China
 - Rises at Tanggula Mountains and flows in a easterly direction to the East China Sea

Size and Scale

- World's largest electricity generating plant
 - Major part of China's policy in reducing its reliance on coal
- Dam = over 2km long and 100 m high
 - 38 main generators giving the scheme a massive 22,500 MW generating capacity

Advantages

- Dam supplies Shanghai and Chongqing in particular with electricity
- Allow large ships to navigate the river and reach Chungong Create thousands of jobs Develop new towns and farms
- reduces the potential floods downstream
- Create more jobs
- Provide 10% of China's electricity through HEP Increase tourism along the river

Disadvantages

- Over 150 towns and 4500 thousand villages will be flooded displacing people from their homes
 - 1.3 million people will be forced to move
- Visual pollution + The river landscape will be forever changed
- The lake which will be created could become very polluted from industrial waste

Contribution to China's energy strategy

- The coal energy from Three Gorges Dam is able to replace around 50 million tons of coal that otherwise would have been burned

[Water - Jeju]

Background Information
Largest island to the south of South Korea, West of Japan. It is a special autonomous province, the smallest in the country
Factors affecting water supply
<ul style="list-style-type: none">- Physical Factor<ul style="list-style-type: none">- Abundant annual rainfall that is about 1.5 times larger than that on the mainland- Lack of perennial rivers- Permeable basalts- Human Factor<ul style="list-style-type: none">- Due to increasing population and tourists, the demand for water is expected to increase
Agriculture
<ul style="list-style-type: none">- Farmers use wells and boreholes to extract groundwater from aquifer- Jeju island has a traditional system of water management called “Dorok” which is a network of small ponds and canals that collect rainwater and distribute to agricultural fields- Management<ul style="list-style-type: none">- Shared responsibility between the Jeju water authority and individual farmers- Authority provides support to farmers on water conservation
Industry
<ul style="list-style-type: none">- Relies on seawater for cooling in industry- Seawater is processed at the Seawater Resources Development Centre to remove the salt and other impurities- Management<ul style="list-style-type: none">- Jeju water authority monitors water quality- There are 11 industrial wastewater treatment facilities
Domestic
<ul style="list-style-type: none">- Samyang dam in the centre of the island provides drinking water for the population- The small islands of Gapado and Marado have desalination plants as they are too far from Jeju island- Biyangdo has water piped across from Jeju as it is close.- Management<ul style="list-style-type: none">- Jeju water authority operates 3 water treatment plants which can treat 100,000 cubic metres per day- They also operate 22 reservoirs with a total capacity of 62.8 million CMD(Cubic Meters per Day)

[Environmental Risk - Citarum River, Indonesia]

Background Information
Indonesia's HDI ranking is 111 out of 189, putting it in the 'High' category The river is located on the island of Java, the largest island in Indonesia which is to the east of Jakarta, the capital city
Causes of pollution
<ul style="list-style-type: none">- Indonesia is in the top 10 textile producing countries- 3 million people work in textile industries- The local population has increased 300% in 30 years- 2,800 factories rely on the Citarum river for their supply and disposal of waste water
Impacts on people and natural environment
<ul style="list-style-type: none">- The river carries rubbish to local communities and contaminates crops field- More than 60% of children suffer from skin diseases.- Destruction of wildlife: 60% of the fish species has been wiped out- Economic losses over \$866 million over 20 years.- People drink polluted water with mercury and get cancer.
Possible solutions
<ul style="list-style-type: none">- Indonesia has developed 7,000 military troops to clean up the river- Over 70 factories have been temporarily closed down due to illegal waste dumping- A law has been introduced which states that factories are required to clean up their waste water before flushing it back to the river- More than 2,000 public toilet facilities are built