



**ZIMBABWE SCHOOL
EXAMINATIONS COUNCIL
(ZIMSEC)**

ADVANCED LEVEL SYLLABUS

**GEOGRAPHY
9156**

EXAMINATION SYLLABUS FOR 2013 - 2016

PREAMBLE

Geography occupies a pivotal position in the understanding and interpretation of social, economic, political and environmental conditions and change, both spatial and temporal. This syllabus is designed to produce an A- level Geography graduand

- ◆ that can be a self-reliant and productive student with a clear understanding of the socio-economic problems facing Zimbabwe as part of a family of nations;
- ◆ that is able to cope with further tertiary education and be adaptable and marketable in the world of work;
- ◆ that is dynamic and holistic to understanding the interactions that are taking place in Zimbabwe and the world in which we live;
- ◆ that is appreciative of their own country Zimbabwe and the world, with knowledge, skills and decision-making qualities that are required for the ever-changing needs of Zimbabwe.

The student needs to realise how people impress their ways, habits and economic demands upon the environment and to develop a sense of awareness and responsibility towards the management of this environment, ultimately leading towards sustainable development.

AIMS

The aims of this syllabus describe the educational purposes of a course in Geography at Advanced Level. These are to:

- ◆ develop awareness of the relevance of geographical analysis to understanding and solving contemporary human and environmental problems;
- ◆ introduce students to the main components of Physical and Human Geography and the inter-relationships between these components;
- ◆ encourage an understanding of the principal processes operating at different scales within Physical and Human Geography;
- ◆ develop a sense of relative location, including an appreciation of the complexity and variety of natural and human environments;
- ◆ demonstrate and explain the causes and effects of change over space and time on the natural and human environment;
- ◆ demonstrate the importance of scale in understanding Physical and Human Geography;
- ◆ make students aware of the problems of explanation (including data collection

and processing) in Physical and Human Geography, and to give them an appreciation of the nature, value, limitations and importance of different approaches to analysis and explanation in Geography.

For Skills and Attitudes, the aims are to:

- ◆ increase knowledge of, and ability to use and apply, appropriate skills and techniques relevant to the greater understanding and interpretation of facts and relationships in Physical and Human Geography;
- ◆ encourage a concern for accuracy and objectivity in collecting, recording, processing, analysing, interpreting and reporting data in a spatial context;
- ◆ develop the ability to handle and evaluate different types and sources of information;
- ◆ develop the skill to think logically, and to present an ordered and coherent argument;
- ◆ promote an appreciation of the need for understanding, respect and co-operation in conserving the environment and work towards its sustainable development.

ASSESSMENT OBJECTIVES

An assessment objective is an intended area of competence within the subject on which test items will be set. Four are identified in Geography:

1 KNOWLEDGE

Candidates should be able to:

- 1.1 offer definitions and explanations of relevant geography terms and concepts
- 1.2 show working knowledge of relevant principles, theories and models
- 1.3 recall accurately the location and character of selected places and environments
- 1.4 demonstrate knowledge of the physical and human processes at work.

2 UNDERSTANDING AND APPLICATION

Candidates should be able to:

- 2.1 understand the complex and interactive nature of physical and human environments
- 2.2 understand how processes bring changes in systems, distributions and environments
- 2.3 recognise the distinctiveness and generality of places and environments
- 2.4 recognise the significance of spatial and time scales
- 2.5 apply this geographical understanding to new contexts.

3 SKILLS AND ENQUIRY

Candidates should be able to:

- 3.1 collect, record and interpret information from primary (fieldwork) sources and secondary sources (e.g. statistical data)
- 3.2 interpret a range of map and diagram techniques displaying geographical information
- 3.3 assess methods of enquiry and consider the limitations of evidence
- 3.4 demonstrate skills of analysis, synthesis, explaining and hypothesizing.

4 EVALUATION AND DECISION MAKING

Candidates should be able to:

- 4.1 assess the effects of geographical processes and change on physical and human environments
- 4.2 consider the relative success/failure of initiatives and demonstrate a sense of judgement
- 4.3 analyse and identify different viewpoints and areas of conflict
- 4.4 undertake decision making processes in Physical and Human Geography.

SCHEME OF ASSESSMENT

The assessment structure will comprise **TWO** papers:

<u>PAPER 1</u> PHYSICAL GEOGRAPHY 3 HOURS 50%	<u>PAPER 2</u> HUMAN GEOGRAPHY 3 HOURS 50%
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Each paper will consist of THREE (3) SECTIONS split as follows:

SECTION A:	PRACTICALS	Two or Three questions will be set and candidates must answer only ONE.
SECTION B:	CORE TOPICS	(4 IN EACH PAPER) - Six to Eight questions that are <u>structured</u> will be set and candidates will be required to answer any TWO.
SECTION C:	OPTIONS	(5 IN PAPER 1 AND 4 IN PAPER 2) - One question will be set on each option and candidates will be required to answer any ONE.

In both papers, candidates must answer FOUR questions, one from Section A, two from Section B and one from Section C. Some questions will be based on stimulus material. All questions will carry 25 marks. (NB: SECTION A QUESTIONS WILL BE BASED ON CORE TOPICS IN BOTH PAPERS). Diagrams, maps and statistics should be regarded as important ways of representing data and should be used to illustrate basic principles and concepts particularly in core topics. Candidates should be able to interpret them. Examples should, wherever possible, be drawn from Zimbabwe and other African countries, but where comparability is required (especially in Paper 2), or where exemplification from these regions is absent, candidates are free to take a broader world view.

SPECIFICATION GRID

Links between the assessment objectives and components of the examination are set out in the specification grid below. The objectives are weighted and should be interpreted within the context of individual questions and the paper and examination as a whole.

Assessment objective	Paper 1	Paper 2	Total
Knowledge	25%	30%	27,5%
Understanding	30%	30%	30%
Skills and Enquiry	20%	20%	20%
Evaluation and decision making	25%	20%	22,5%
TOTAL	100%	100%	100%

DESCRIPTION OF PAPERS

PAPER 1 (PHYSICAL GEOGRAPHY)

This consists of FOUR CORE topics and FIVE OPTIONS.

CORE TOPICS

- 1 CLIMATOLOGY
- 2 HYDROLOGY AND FLUVIAL PROCESSES
- 3 GEOMORPHOLOGY
- 4 BIOGEOGRAPHY

Candidates are advised to study these topics in detail, with the view that they will answer the Section A practical based on them as well as Two questions from Section B.

OPTIONS

- 5 STRUCTURAL LANDFORMS ON A GLOBAL SCALE
- 6 HAZARDOUS ENVIRONMENTS
- 7 ARID AND SEMI-ARID ENVIRONMENTS
- 8 COASTAL GEOMORPHOLOGY
- 9 GLACIAL AND PERI-GLACIAL ENVIRONMENTS

Candidates are advised to study at least TWO of the Options 5 to 9.

PAPER 2 (HUMAN GEOGRAPHY)

This consists of FOUR CORE topics and FOUR OPTIONS.

CORE TOPICS

- 1 POPULATION GEOGRAPHY
- 2 SETTLEMENT DYNAMICS
- 3 AGRICULTURAL SYSTEMS AND FOOD PRODUCTION
- 4 MANUFACTURING AND SERVICE INDUSTRIES

Candidates are advised to study these topics in detail, with the view that they will answer the Section A practical based on them as well as TWO questions from Section B.

OPTIONS

- 5 MINING, FUEL AND POWER
- 6 ENVIRONMENTAL MANAGEMENT
- 7 TRANSPORT AND TRADE
- 8 ECONOMIC DEVELOPMENT AND PLANNING

Candidates are advised to study at least TWO of the Options 5 to 8.

PAPER 1

PHYSICAL GEOGRAPHY

SECTION A: RELEVANT TECHNIQUES AND SKILLS

- 1 The use of large-scale topographic maps in the study and interpretation of relief, landforms and drainage patterns. The drawing of sketch-maps and sketch profiles. Simple block diagrams.
- 2 The use of photographs (oblique and ground-level) in the study and interpretation of landforms. Annotated sketch diagrams as aids to photograph interpretation.
- 3 Field techniques in Physical Geography.

- (a) General fieldwork design: identification of the problem; the formulation of an initial hypothesis; data collection and analysis; conclusions (or the reformulation of the hypothesis etc). The role of sampling in fieldwork design.
- (b) Specific field techniques:
 - (i) Field sketching, observation and recording.
 - (ii) Measurement of landforms (e.g. slope angles and profiles).
 - (iii) Mapping of landforms (e.g. river channels in plan).
 - (iv) Measurement of sediments (e.g. in stream channels; on alluvial fans; on beaches). Particle rates in different soils; well-level recording).
 - (v) Basic hydrological techniques (e.g. measurement of stream velocity and discharge; infiltration rates in different soils; well-level recording).
 - (vi) Simple weather observations (e.g. temperature; rainfall; wind-speed and direction; cloud types).
 - (vii) Soil mapping. The study of soil profiles in pits and natural exposures. Soil acidity and alkalinity.
 - (viii) Vegetation mapping (including quadrant survey).

4 Other techniques and methods in Physical Geography.

- (i) Graphs: temperature and rainfall graphs; hydrographs; histograms; cumulative frequency graphs; graphs showing the relationship between dependent and independent variables (simple correlation).
- (ii) The analysis of patterns (e.g. drainage basin morphometry; drainage density; river sinuosity and the geometry of meanders).
- (iii) Distribution maps (e.g. rainfall distribution maps; slope maps; soil maps). The use of isolines on maps.
- (iv) Weather maps, including simple synoptic charts and their interpretation.
- (v) Simple geological maps.
- (vi) Miscellaneous techniques (e.g. wind-rose diagrams; rainfall dispersion graphs).

SECTION B: PHYSICAL GEOGRAPHY CORE TOPICS

Candidates are strongly recommended to study Topics 1 to 4 inclusive.

1 CLIMATOLOGY

1.1 Energy Budgets

The six factor 'day model' (incoming solar radiation, reflected solar radiation, energy absorbed into the surface and subsurface, sensible heat transfer, longwave earth radiation, latent heat transfer-evaporation); the four factor 'night model' (long wave earth radiation latent heat transfer, dew, sensible heat transfer, absorbed energy returned to earth).

1.2 The Earth - Atmosphere energy budget

The latitudinal pattern of radiation excesses and deficits and resultant atmospheric transfers, seasonal variations in pressure and wind belts; the influence of latitude, land/sea distribution and ocean currents on the global distribution of temperature, pressure and wind.

1.3 Weather processes and phenomena

Atmospheric moisture (vapour, liquid, solid)
the processes of changes to atmospheric moisture
(evaporation, condensation, freezing, melting, deposition and sublimation)
humidity and precipitation (radiation cooling, environmental and adiabatic lapse rates),
stability, instability and conditional instability;
resultant weather phenomena (clouds, rain, hail, snow, frost, dew, fog)

1.4 Air masses

Characteristics of air masses, their migration, the ITCZ winds, ocean currents, monsoons; resulting climatic characteristics and distribution of temperature and rainfall in the humid and seasonally humid tropics.

1.5 The human impact

The greenhouse effect and global warming (greenhouse gases and the energy budget climatic and other impacts e.g. cloud seeding acid rain)
urban effects on climate (heat island, humidity, precipitation, pollution, winds).

2 HYDROLOGY AND FLUVIAL PROCESSES

The global hydrological cycle - cascade, showing the inputs, processes and

outputs to be studied as an introduction to this unit.

2.1 The drainage basin system

A study of the terminology and processes operating within drainage basins to be studied in a variety of climatic environments. Inputs, outputs, stores and flows. These should include precipitation, evaporation, evapotranspiration, interception, throughfall, stemflow, infiltration, percolation, overlandflow, throughflow, baseflow, water tables, groundwater, recharge.

2.2 Rainfall - discharge relationships within drainage basins

The concept of water balance, the components of the flood hydrograph, climatic influences on hydrographs to include precipitation type and intensity, temperature evaporation, transpiration, evapotranspiration, antecedent moisture. The influence on hydrographs and stores and flows of drainage basin characteristics including size and shape, drainage density, porosity, permeability of soils, rock type, slopes, vegetation type, landuse.

2.3 River channel processes and landforms

Channel processes of load transport (solution, suspension, saltration and traction), deposition and sedimentation (the Hjulstrom curve), erosion processes (abrasion, corrasion, solution, hydraulic action), velocity and discharge, patterns of flow (laminar, turbulent and helicoidal), channel types (straight, braided, meandering). channel landform (riffle and pool sequences, gorges, waterfalls, bluffs, point bars, flood plains, unpaired terraces, levees, alluvial fans, deltas); long and cross profiles; drainage patterns and their evolution; genetic, generic.

2.4 The human impact

Modification to catchment flows and stores and to channel flows by landuse changes (including urbanisation), abstraction and water storage, the causes and effects of floods and droughts, flood prediction, prevention and amelioration.

3 GEOMORPHOLOGY

3.1 Weathering and rocks

Physical weathering processes (freeze thaw, heating/cooling, wetting/drying, exfoliation/spheroidal, crystal growth, pressure release. Chemical weathering processes (hydrolysis, hydration, carbonation, solution, oxidation organic action-humic acids and chelation). Types of weathering and effectiveness in different climates (Peltier diagram), general factors influencing weathering (climate, rock type, structure, vegetation, relief). Properties of granite and limestone, their chemical composition and physical nature in relation to weathering and erosion.

3.2 Slopes, processes and development

The slope system and types of profile in relation to inputs and outputs; the factors controlling slope form and development (rock type and structure, climate, soil, vegetation, gradient aspect). Slope processes of mass movement, heaves, flows, slides and falls (conditions under which each occurs) elementary slope evolution theories - down wearing, back wearing etc.

3.3 Tropical Landforms

Weathering processes under humid and sub-humid tropical conditions; the development of deep weathering profiles and the basal surface of weathering. The development of landforms in granite (tors, dwalas, bornhardts, kopjes, etchplains, pediplains. The development of landforms in limestone (karst and tower karst).

3.4 The human impact

The impact of human activities on rocks and weathering (quarrying, mining, pollution, acid rain, dumping material on Earth's surface, impact on slope processes and form).

4 TROPICAL ECOSYSTEMS

4.1 Vegetation

Plant communities; development of climax and plagioclimax vegetation in the tropics; vegetation structure of the tropical rainforest and savanna; the development of seres. Biomass productivity - biodiversity, nutrient cycling, fragility (Gerschemel diagrams). Adaptation of plants and animals to the tropical ecosystems.

4.2 Soils

Characteristics of soils; soil forming processes; soil types and profiles (oxisols/latosols, tropical red and brown earths); tropical soil catena (role of slopes in soil formation); eluviation and illuviation; upward capillary movement of water and minerals; soil fertility; soil erosion processes and solutions.

4.3 The human impact

A case study illustrating some of the problems of the sustainable management of areas either within the tropical rainforest ecosystem or within the savanna ecosystem and an evaluation of attempted solutions. Preferable are Zimbabwean case studies.

SECTION C: PHYSICAL GEOGRAPHY OPTIONAL TOPICS

Candidates are advised to study at least TWO of the options 5 - 9.

5 STRUCTURAL LANDFORMS ON A GLOBAL SCALE

Distribution and characteristics of continents and oceans; mountain building, volcanicity, new and old fold mountains, rift valleys, islands arcs, sedimentary basins and plate tectonics.

6 HAZARDOUS ENVIRONMENTS

6.1 Hazardous Environments resulting from Crustal (tectonic) Movement

Global distribution and the relationship of hazards to plate tectonics (convergent, divergent, conservative plate margins, hot spots). Earthquakes and resultant hazards (shaking, landslides, tsunami). Volcanic hazards; types of eruption and their products (nuees ardentes, lava flows, mudflows, pyroclastic and ash fallout); prediction and monitoring of hazard; perception of risk. Effects on lives and property.

6.2 Hazardous Environments resulting from Mass Movements

Nature and causes of mass movements on slopes leading to hazards that result from slope instability, level of impact, the nature and causes of avalanches and the hazards produced; prediction and monitoring of the hazard and the perception of risk. Effects on lives and property.

6.3 Hazards resulting from Atmospheric Disturbances

Distribution of areas most at risk from tropical storms and tornadoes; processes causing the development of tropical storms and tornadoes; related hazards (coastal flooding, severe river floods, landslides, storm surges, high winds, pressure imbalances) prediction, monitoring of hazards and perception of risk. Effects on lives and property.

6.4 Sustainable Management in Hazardous Environments

A case study illustrating some of the problems of sustainable management of hazardous environment and an evaluation of attempted or possible solutions.

7 ARID AND SEMI-ARID ENVIRONMENTS

7.1 The Distribution and Climatic Characteristics of Hot Arid and Semi-Arid Environments

Definitions and causes of aridity, effective precipitation, pressure and wind systems in deserts and influence of ocean currents; degrees of aridity, high wind energy environments, diurnal and seasonal variations in precipitation and temperature, past climatic change (Pleistocene pluvials and evidence for climatic change).

7.2 Processes producing Desert landforms

Weathering processes (thermal fracture, exfoliation, chemical weathering); results of weathering on rocks (block and granular disintegration). Processes of erosion, transport and deposition; by wind (corrasion/abrasion, deflation, saltation); by water (hydrological regime, episodic rainfall, flash floods, changing climate, sheet and stream and stream floods); development of sand dune landscapes, development of wadis, alluvial fans, arroyos, pediments, piedmont zone (bahadas, plays, salt lakes, inselbergs).

7.3 Soils and vegetation

Soil characteristics, biomass productivity, adaptation of plants and animals to semi-arid and arid areas.

7.4 Sustainable Management of Arid and Semi-Arid Environments

A case study illustrating the problems of sustainable management in either arid or semi-arid environment and an evaluation of attempted or possible solutions.

8 COASTAL ENVIRONMENTS

8.1 Wave and Marine Processes

Wave generation and characteristics (fetch, energy, refraction); breaking waves, high and low energy breakers (constructive and destructive) swash, backwash; marine erosion (hydraulic action, wave quarrying, corrosion/abrasion, solution, attrition); wave transportation and deposition, (sediment sources and characteristics, sediment cells, longshore drift).

8.2 Coastal landforms of cliffed and constructive coasts

Cliffs and wave cut platforms; cliff profiles (including caves, arches and stacks) and their evolution; formation of depositional features (beaches in cross section and plan, simple and compound spits, tombolos, offshore bars, barrier beaches and islands, coastal dunes, tidal sedimentation in estuaries and coastal saltmarshes).

8.3 Coral Reefs

Characteristics and distribution of fringing reefs, barrier and atolls; conditions required for coral growth and development; theories of atoll formation; causes and results of sea change on coral reefs.

8.4 Sustainable management of coasts

A case study illustrating some of the problems of the sustainable management of a stretch or stretches of coastline and an evaluation of attempted solutions.

9 GEOMORPHOLOGY OF COLD REGIONS

9.1 Pleistocene glaciation and legacy

Glacial processes of erosion and deposition i.e. grinding, plucking, nivation and morainic deposition.

9.2 Processes and landforms in periglacial environments

Permafrost, frost action, solifluction (the mollisol and pergellisol), thermokarst, nivation, water and wind action.

9.3 Modification of drainage

Effects of ice sheets, glaciers and moraines

9.4 Sustainable management of cold regions

A case study illustrating some of the problems of the sustainable management of a cold environment and an evaluation of attempted solutions.

HUMAN GEOGRAPHY (PAPER 2)

SECTION A: RELEVANT TECHNIQUES AND SKILLS

Diagrams, maps and statistics should be regarded as important ways of representing collected data and should be used to illustrate basic principles particularly of concepts in Section B (The Human Core topics), and candidates should be able to interpret them.

1 DATA COLLECTION

1.1 General Fieldwork and Project Design

The stages are:

recognition of the issue or problems to be studied; the formulation of one or more hypotheses; data collection in the field or from primary and secondary sources; analysis of the data or evidence, including the testing of hypotheses; conclusions and/or reformulation of the hypotheses.

1.2 Data Collection

- (i) Simple methods of random and systematic sampling.
- (ii) Fieldwork techniques relevant to individual studies in human geography:
 - (a) questionnaire surveys;
 - (b) pedestrian/traffic counts;
 - (c) field identification, classification and plotting of industrial; urban and rural landuse;
 - (d) identification and plotting of spheres of influence.
- (iii) Collection of data from secondary sources:
 - (a) census reports;
 - (b) other official publications, including data on production, trade, income and welfare;
 - (c) maps, including land-use maps and administrative regions;
 - (d) newspapers;
 - (e) directories;
 - (f) appropriate maps and data in the field of physical geography where relevant;

(g) any other suitable methods.

2 THE ANALYSIS, REPRESENTATION AND INTERPRETATION OF DATA

- 2.1** Calculation, use and significance of the mean, mode and median, including quartiles and quintiles in dispersion diagrams;
- 2.2** Techniques for showing distributions and patterns in human geography by maps, diagrams, graphs and tables; dot maps, proportional symbols, isoline maps, density maps, bar diagrams or graphs, pie diagrams, flowline maps, age-sex pyramids. etc

SECTION B: HUMAN GEOGRAPHY CORE TOPICS

Candidates will answer two questions from this section and should illustrate their answers where appropriate with reference to case studies drawn from L.E.D.Cs (Less Economically Developed Countries) and M.E.D.Cs (More Economically Developed Countries). A historical perspective may form an instructive context for some of the topics. Where possible Zimbabwean examples are strongly recommended.

1 POPULATION GEOGRAPHY

1.1 Natural Increase as a Component of Population Change

Natural increase rate; birth rate and death rate and the factors affecting levels of fertility and mortality. The interpretation of age/sex pyramids. Population structure (age, gender, dependency and dependency ratio). Demographic transition; a critical appreciation of the demographic transition model. The link between population and development.

1.2 Migration as a Component of Population Change

Internal and international migration (excluding all movement of less than one year's duration); reasons, processes and patterns of migration and impacts on source and receiving areas including population structures. The characteristics and problems of multi-racial societies. Internal and international migration should be studied.

1.3 Population - resource relationships

The concept of population density and distribution. Carrying capacity and the

concept of a population ceiling. The roles of technology and innovation in resource development (e.g food production); the role of constraints (e.g. war, climatic hazards) in relation to sustaining changing populations. A critical appreciation of the concepts of overpopulation, optimum population and underpopulation. Population theories (e.g T Malthus' work; Limits to Growth-Club of Rome ideas, Boserup ideas).

1.4 The Management of Population Change

A case study of the home country and other countries' population policies, comprising the two components (natural increase and migration) illustrating the difficulties faced and evaluating the attempted solution(s). The case study or studies should encompass policies on controlling populations and managing the results of population change.

2 SETTLEMENT DYNAMICS

2.1 Relationships between settlements

Functions of rural and urban settlements; rural - urban interaction. Spheres of influence. The settlement hierarchy and factors affecting it; the primate city and urban dominance. Relationships between different sizes of settlements (the size hierarchy). Growth points and service centres the concepts of range, threshold and orders of goods and services (the functional hierarchy); the Central Place Theory by Christaller.

2.2 Changes in Rural Settlements

Contemporary issues in rural settlement in LEDCs and MEDCs including the impacts of rural-urban and urban-rural migration and the consequences of urban growth. A case study of a rural settlement or a rural area illustrating some of the issues of its development and growth (or decline) and evaluating the responses.

2.3 The Changing Structure of Urban Settlements

Factors affecting the location of activities within urban areas (including planning) and how urban locations change over time for retailing, services and manufacturing. Functional zonation and competition for space in urban areas and the concept of bid-rent. The changing Central Business District (C.B.D). Residential segregation and the process basis of residential zonation. The classic urban landuse models should be studied.

2.4 Urban trends and Issues of Urbanisation

The process of urbanisation in LEDCs and MEDCs including counter-urbanisation, new or satellite settlements and re-urbanisation, competition for

land, urban renewal, gentrification, changing accessibility and lifestyles. A case study illustrating the difficulties of and evaluating the attempted solutions in each of the following: shanty towns and/or squatter settlements in a LEDC; the provision of infrastructure for a city; the inner city in a MEDC; strategies for reducing urbanisation in LEDCs; controlling the spread of urban areas in MEDCs.

3 AGRICULTURAL SYSTEMS AND FOOD PRODUCTION

3.1 Factors (physical, social, economic, political) affecting agricultural land use and practices. Agroecological regions; the roles of irrigation, land tenure and size of holdings; nature of demand and distance from markets, agricultural technology. The concept of an agricultural system with inputs, throughputs, subsystems and outputs. Examples from subsistence and commercial farming systems in tropical regions (shifting cultivation, plantations, small scale mixed/commercial crop farming and ranching/pastoral farming). Intensive and extensive production and agricultural productivity. Issues in the intensification of agriculture and the extension of cultivation in LEDCs. The Von Thunen Land use Model.

3.2 The Management of Agricultural Change

A case study illustrating the need for, and some of the difficulties in the management of agricultural change including Land Reform policies in one country; at both local and national scales, with an evaluation of the attempted solutions.

4 MANUFACTURING AND SERVICE INDUSTRY

4.1 Factors affecting the growth and location of manufacturing industry and service industry (land, labour, capital, markets, materials, technology, economies and diseconomies of scale, inertia, transport, government policies). Industrial agglomeration: functional linkages, the industrial estate, the export processing zone (EPZ). The growing importance of service industries e.g. banking, insurance, information technology (IT). The informal sector of manufacturing and services: causes, characteristics, location and impact. Include the Industrial location theories of Weber and others.

4.2 Patterns, problems and policies of industrialisation in third world countries. A case study of industrial policy of one country and consequent changes in the character, location and organisation of its industrial production. Illustrate some of the issues faced and evaluating the attempted solutions.

4.3 The development of tourism and recreation

Reasons for and trends in the growth of domestic and international tourism: the impacts of tourism on the environments, societies and economies (local and national) of tourist destinations, carrying capacity, the multiplier effect. A critical appreciation of the life cycle model of tourism. Recent developments including eco-tourism. The role of tourism in national economic planning.

A case study from one LEDC e.g. Zimbabwe, Zambia and Kenya and from one MEDC e.g. U.K, Japan and Spain.

Landuse for recreational purposes in and near urban settlements and the factors affecting the intensity of recreational landuse.

SECTION C: HUMAN GEOGRAPHY OPTIONAL TOPICS

Candidates must study at least TWO of the human options, which will be assessed in Paper 2, Section C. A question will be set on each option topic. Candidates should illustrate their answers, where appropriate with reference to case studies from LEDCs and MEDCs. A historical perspective may form an instructive context for some of the topics.

1 MINING, FUEL AND POWER

1.1 Mining

Conditions affecting the location and exploitation of mineral resources (including coal, oil and natural gas). Studies should be made with reference to coal, oil and natural gas. Case studies involving iron ores and non-ferrous minerals; the location of processing and refining of mineral products in relation to economic and social factors, including transport. (Regional studies should be made involving areas strongly affected by mining activity, and national economies in which mining is important e.g. Zambia, Venezuela, U.K.); the impact of mining on surrounding areas (e.g. employment, settlement and character of the environment) and on national economic geographies, with special reference to LEDCs.

1.2 Fuel and Power

Renewable and non-renewable energy resources. Factors at the national scale affecting levels of demand for and supply of energy and the balance between different sources (including levels of development, resource endowment, capital, technology, pollution, energy policy). Trends in the consumption of fossil fuels; nuclear power, and renewables (e.g. hydro-electric power, wind, solar power) in LEDCs and MEDCs. The environmental impact of energy production, transport and usage at local and global scales.

1.3 The Management of Energy Supply

A case study of one country's energy strategy illustrating some of the issues of changes in demand and supply, in the production of electrical energy and its location, and evaluating the strategy's success.

2 ENVIRONMENTAL MANAGEMENT

2.1 Environmental Degradation

Factors leading to the deterioration and pollution of the environment: land, air and water. Factors in the degradation of contrasting rural environments e.g. poor agricultural practices, deforestation and mineral extraction. Factors in the degradation of urban environments (e.g. urbanisation, industrial development,

inadequate infrastructure). Attempts at upgrading the quality of degraded rural and urban environments: the protection of environments at risk.

2.2 The Management of a Degraded Environment

A case study of a degraded environment either rural or urban, illustrating the problems faced, issues in attempts to upgrade the environment, and evaluating the attempted solution(s).

3 TRANSPORT AND TRADE

3.1 Transport

Characteristics of various modes of transport and their relative balance for different purposes in different areas. Factors governing patterns of transport networks. Case studies of transport by road, rail, air and water in selected areas. Improvements in transport systems, problems and impact on surrounding areas. The elementary network theory and its application.

3.2 Trade

Import and export patterns in relation to the development of LEDCs and MEDCs. Global inequalities in trade flows. Visible and invisible imports and exports. Factors affecting trade flows and trading patterns globally (including resource endowment, locational advantage, historical factors such as colonial ties, trade agreements, changes in the global market and innovation).

A case study of the international trading patterns (imports and exports) of one country, illustrating some of the issues in its involvement in international trade and evaluating the country's trading strategy.

4 ECONOMIC DEVELOPMENT AND PLANNING

4.1 National Development

The nature of the primary, secondary, tertiary and quaternary sectors and their roles in economic development. The nature, causes (physical and human) and a critical appreciation of some of the indices of measurement of social and economic inequality.

(Note quaternary industry or the quaternary sector covers activities such as research and development, information technology and high technology industries, training and management consultancy. It is often subsumed into tertiary)

4.2 The Globalisation of Development

An introduction to global patterns of resources, primary production, markets and the international spatial division of labour. The connections between industrial growth in some LEDCs and deindustrialization in MEDCs. Factors affecting the growth and spatial structure of transnational corporations (TNCs); distribution of global inequalities in social and economic well being: a case study of the global organisation and operation of one TNC.

4.3 Regional Development within Countries

Regional disparities in social and economic development. The concept of core-periphery. The process of cumulative causation from initial advantage(s): spread and backwash effects.

4.4 The Management of Development

A case study of one country's policy for social and economic development at either the national or regional scale (between the different regions within that country) illustrating some of the difficulties faced and evaluating the attempted solutions.