RIVER VALLEY HIGH SCHOOL
General Certificate of Education Advanced Level
Preliminary Examination 2 2017
Higher 2

GEOGRAPHY 9751/02

Paper 2 Data Response Questions **15 September 2017**

3 hours

Additional Materials: Answer Paper
1 Insert
World outline map
Cover Page

READ THESE INSTRUCTIONS FIRST

Write your name, admission number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

At the end of the examination, fasten all your work below the cover page securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Section A

Theme 4 – Geographical Investigation

Answer **one** question from this section.

1 On August 12 2017, Kampung Admiralty welcomed its first residents and the elderly residents received the keys to their newly-completed studio apartments from Transport Minister Khaw Boon Wan.

Kampung Admiralty is the first development in Singapore to integrate housing for the elderly with a medical centre, eldercare and childcare centres, a community park, vegetable farm, as well as a 900-seat hawker centre and nearly 20 dining and retail outlets. Resource 1 illustrates some of the key features of this integrated development and Resource 2 shows the development site of Kampung Admiralty in Singapore. Resource 3 captures how some of the facilities are integrated within the premises of Kampung Admiralty.

As announced by Minister Khaw at the ground-breaking ceremony of the project, Kampung Admiralty is a project developed by the Housing and Development Board, along with the Ministry of Health, the National Environment Agency, National Parks Board, Land Transport Authority and Early Childhood Development Agency. It is intended as a 'retirement kampung' for elderlies to live near their married children and parents, and is one of 15 projects to have won this year's Minister's Team Awards 2017 for its degree of innovation, teamwork and impact.

Catering to the growing cycling population at Admiralty, Minister Khaw also announced that Kampung Admiralty residents will be able to try out Singapore's first fully automated underground bicycle parking system when it is completed in August 2017. Resource 4 shows an artist's impression of the automated bicycle parking system. Similar to the ones in Spain and Japan, cyclists can push their bicycles into a lift where they will be given a code or token for retrieval, and their bicycles will be transported underground, sorted and then stored in a cylindrical shaft. This automated bicycle parking system aims to provide secure and convenient storage of over 500 bicycles.

You and a group of classmates are tasked to conduct a needs analysis of the elderly living in Kampung Admiralty during the upcoming December school holidays. One of your group members came up with the below research question:

'How well are the needs of the elderly catered for in Kampung Admiralty as compared to the other housing estates in Singapore?'

Your Geography teacher commented that this may be an unrewarding research question but did not further elaborate.

(a) Suggest how you would improve upon your group member's research question. Explain your answer. [3]

(b) Design a recording sheet that you and your group can use to conduct the primary fieldwork for your research question. Include some examples of questions you would use for the fieldwork. [6]

(c) Suggest some challenges that you and your group might face when conducting the geographical investigation. [4]

(d) Explain how the introduction of the automated bicycle parking system may impact on the ecological footprint of residents at Kampung Admiralty. [3]

(e) Explain how urban liveability for residents at Kampung Admiralty can be measured. [9]

Section B

Theme 1: Tropical Environments
Arid Landforms in the Tropics

2 Resource 5 shows a climograph and map of Koro Toro in Chad, a country in Sub-saharan Africa. Resource 6 shows a close-up satellite image of the area marked 'Y' in Resource 5. Resource 7 shows Sossusvlei, a clay pan in the Namib desert under typical conditions (A), and after a rare flood (B). (C) details the river Tsauchab that feeds into the Sossusvlei.

(a) With reference to Resource 5, explain the factors contributing to the climate of Koro Toro in Chad. [4]

(b) With the help of an annotated cross-sectional diagram of transect PQ in Resource 6, explain the processes that have led to the formation of the landform shown. [5]

(c) With reference to Resource 7, describe the channel form of the Tsauchab river. [4]

(d) Citing evidence from the resources, compare the characteristics of dryland hydrology with hydrology typical of the humid tropics. [5]

(e) Using examples, discuss the notion that aeolian processes are the most influential in the development of landforms in the arid tropics. [7]

Theme 2: Development, Economy and Environment
Water Scarcity and Privatisation of water resources

3 Resource 8 shows the global estimate of the internal renewable water resources (IRWR) reported by the Food and Agriculture Organisation (FAO) of the United Nations. The IRWR figures refer to the volume of water resources (surface water and groundwater) generated from precipitation within a country or catchments. Resource 9 shows the areas of physical and economic water scarcity at the basin level in 2007. Resource 10 shows the global pattern of per capita consumption of bottled water by countries.

(a) With reference to Resources 8 and 9, identify the region(s) most likely to suffer from the effects of water stress. Support your answer with data from the two resources. [3]

(b) With reference Resource 9, outline the differences between physical water scarcity and economic water scarcity. [5]

(c) Suggest the range of socio-economic and political problems that can occur in societies facing water scarcity. [5]

(d) Describe the trends in the global bottled water consumption shown in Resource 10. [3]

(e) Can the bottled water be a viable solution to the problems of water scarcity experienced around the world? Discuss. [9]

Theme 3: Sustainable Development
Energy in Vietnam

4 Resource 11 shows energy consumption in Vietnam in 2005 and 2010 and forecasts of its energy consumption for 2015 and 2020. Resource 12 shows total primary energy supply and Resource 13 shows electricity generation by fuel type, in Vietnam, 1975-2008. Resource 14 gives information about the potential for growing Jatropha, a biofuel, in Vietnam and locates the country's regions on a map.

(a) Describe the trends in energy consumption shown in Resource 11. [3]

(b) Compare the changing contribution of fossil fuels and non-fossil fuels to Vietnam's primary energy supply shown in Resource 12. [5]

(c) With reference to Resource 13, explain the changing environmental impact of electricity generation in Vietnam. [6]

(d) With references to Resources 12 and 13, explain the issues that may affect the sustainability of Vietnam's energy supply. [6]

(e) With the help of Resource 14, explain why Jatropha could contribute to ensuring the sustainability of Vietnam's future energy supply. [5]

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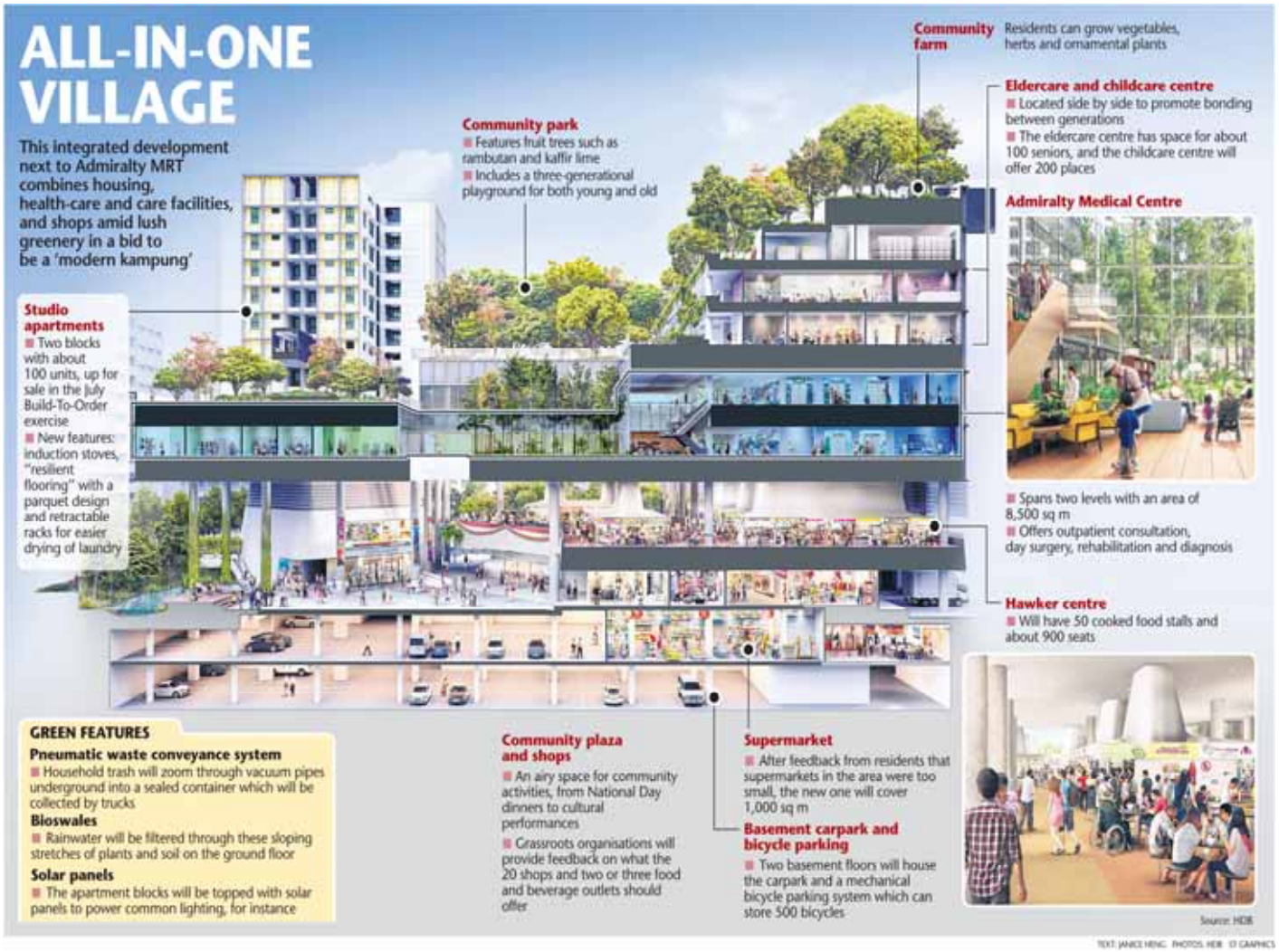
INSERT **3 hours**

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

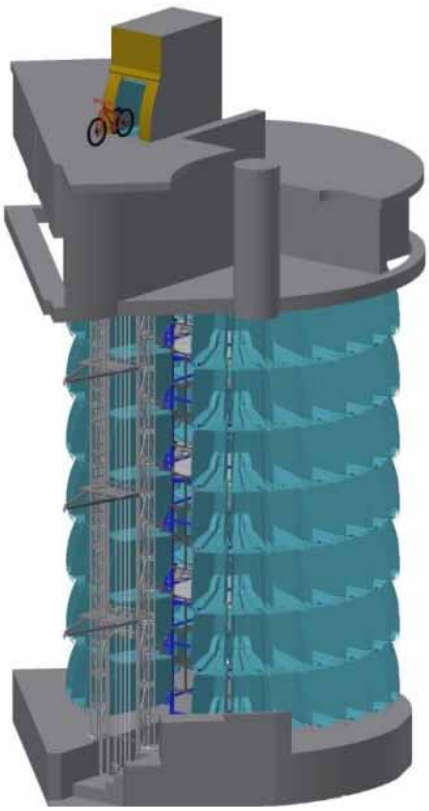
Resource 1 for Question 1
The all-in-one Kampung Admiralty includes two blocks of Housing Board studio apartments, centres for medicine, childcare and eldercare, and shops



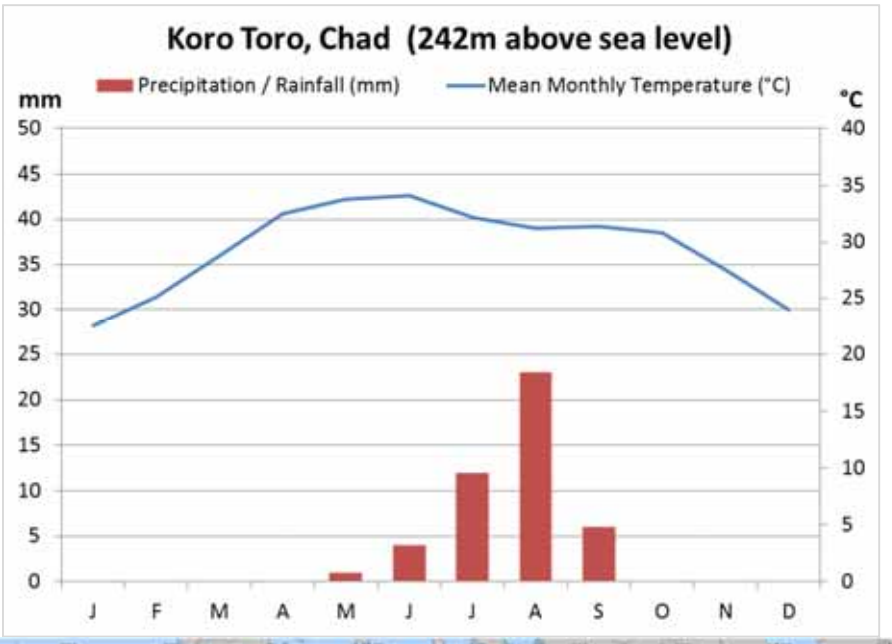
Resource 2 for Question 1
The location of Kampung Admiralty

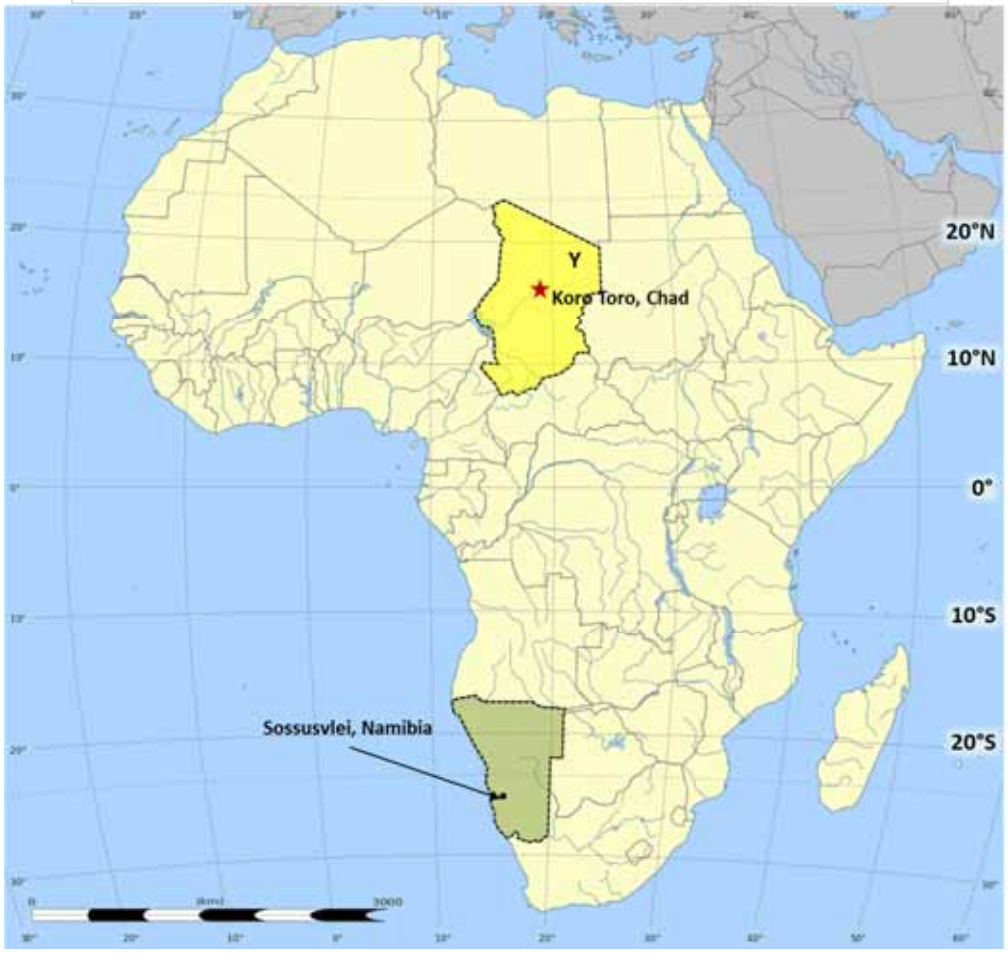
Resource 3 for Question 1
The integration of facilities at Kampung Admiralty

Resource 4 for Question 1
Automated Bicycle Parking System



Resource 5 for Question 2
Climograph and Map of Koro Toro, Chad

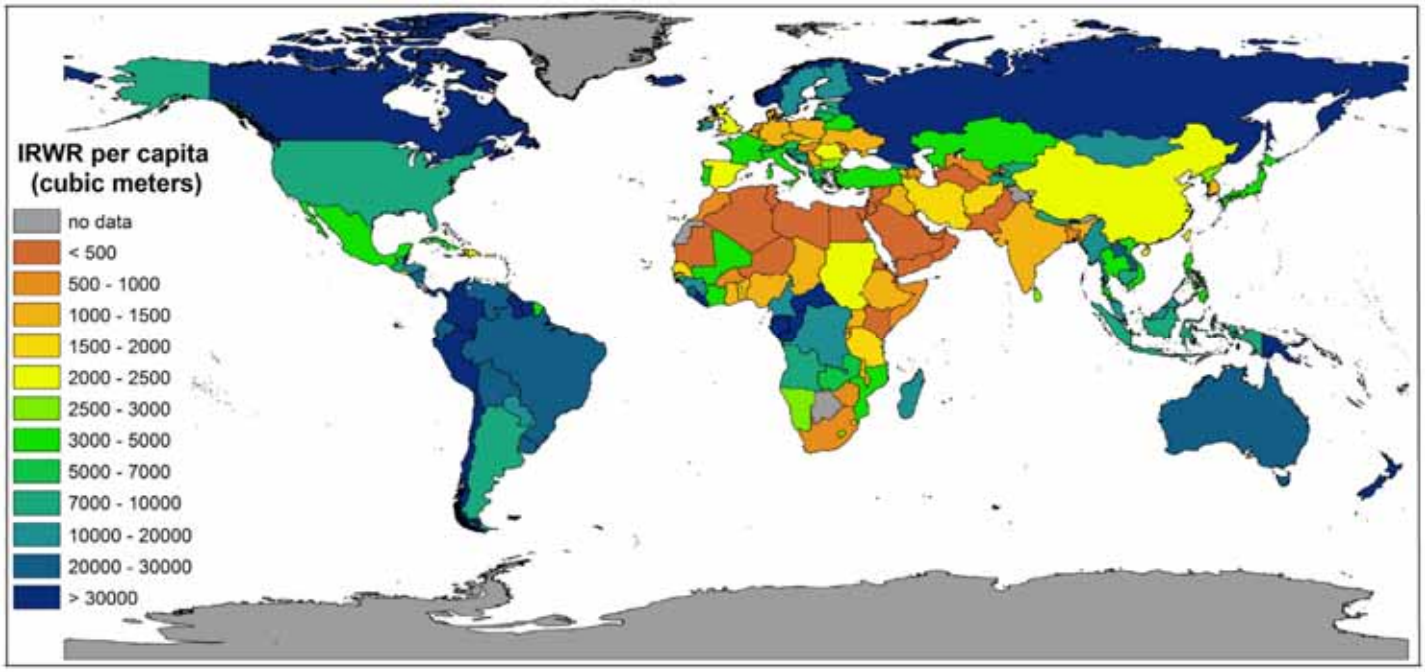




Resource 6 for Question 2
Close up Satellite Image of the Area Marked 'Y'

Resource 7 for Question 2
Sossusvlei, a Clay Pan in the Namib Desert

Resource 8 for Question 3
World map of internal renewable water resources (IRWR) per country in 2012



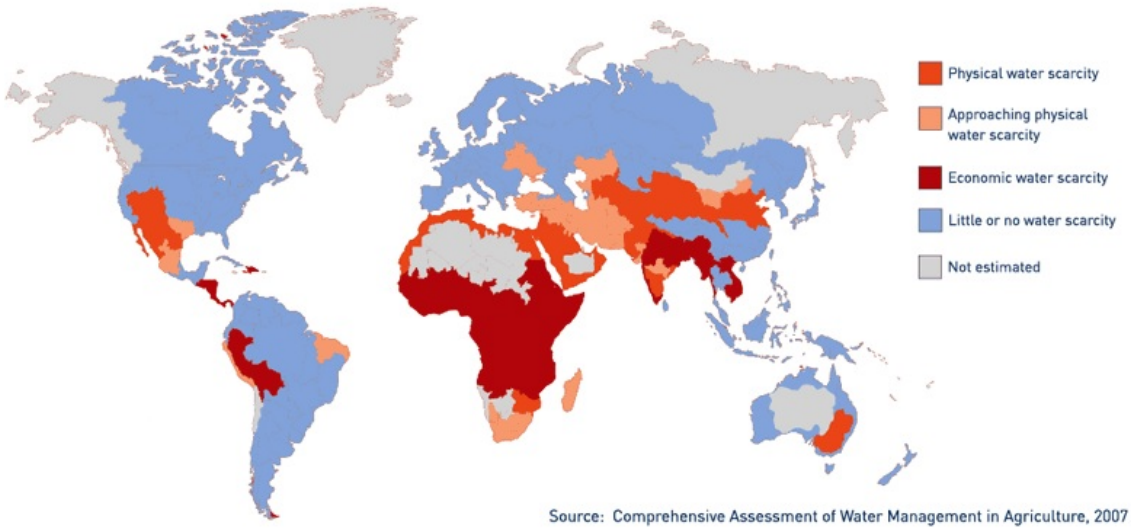
Resource 9 for Question 3
Areas of physical and economic water scarcity

Physical water scarcity water resources development is approaching or has exceeded sustainable limits). More than 75% of the river flows are withdrawn for agriculture, industry, and domestic purposes (accounting for recycling of return flows). This definition—relating water availability to water demand—implies that dry areas are not necessarily water scarce.

Approaching physical water scarcity. More than 60% of river flows are withdrawn. These basins will experience physical water scarcity in the near future.

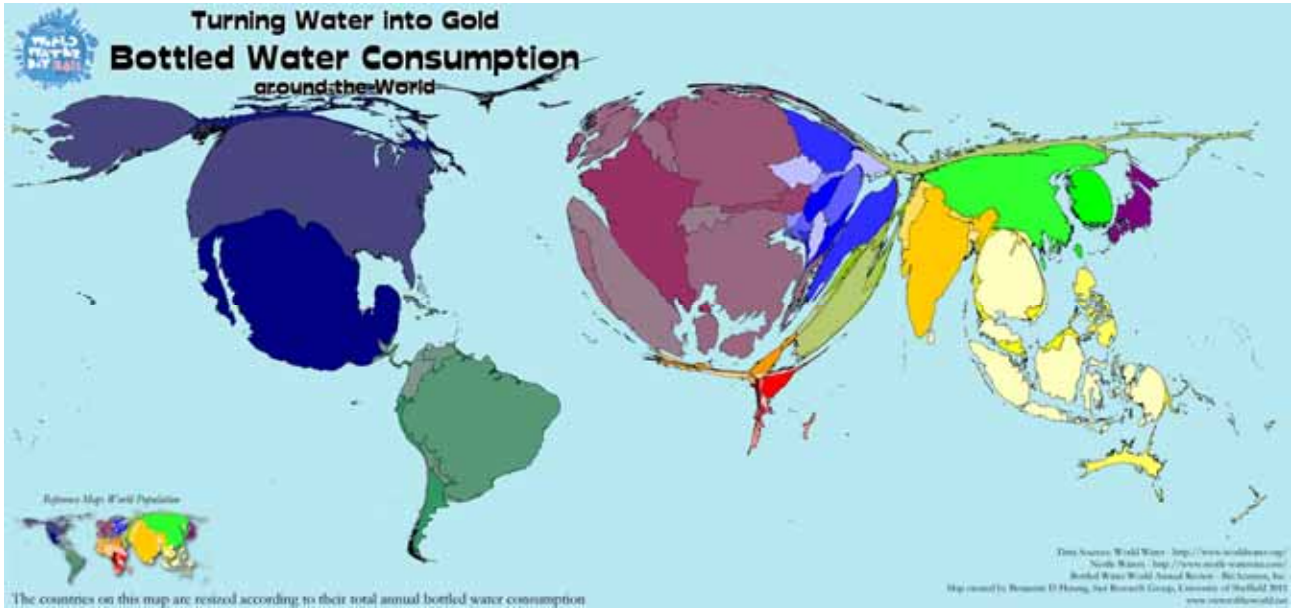
Economic water scarcity (human, institutional, and financial capital limit access to water even though water in nature is available locally to meet human demands). Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.

Little or no water scarcity. Abundant water resources relative to use, with less than 25% of water from rivers withdrawn for human purposes.

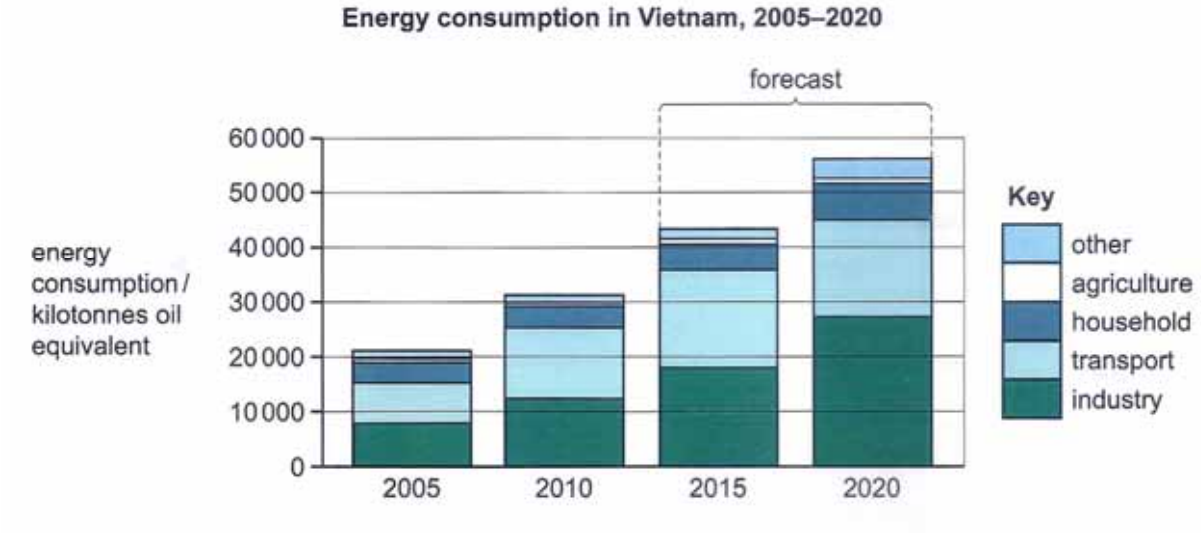


Source: Comprehensive Assessment of Water Management in Agriculture, 2007

Resource 10 for Question 3
Global Bottled Water Consumption

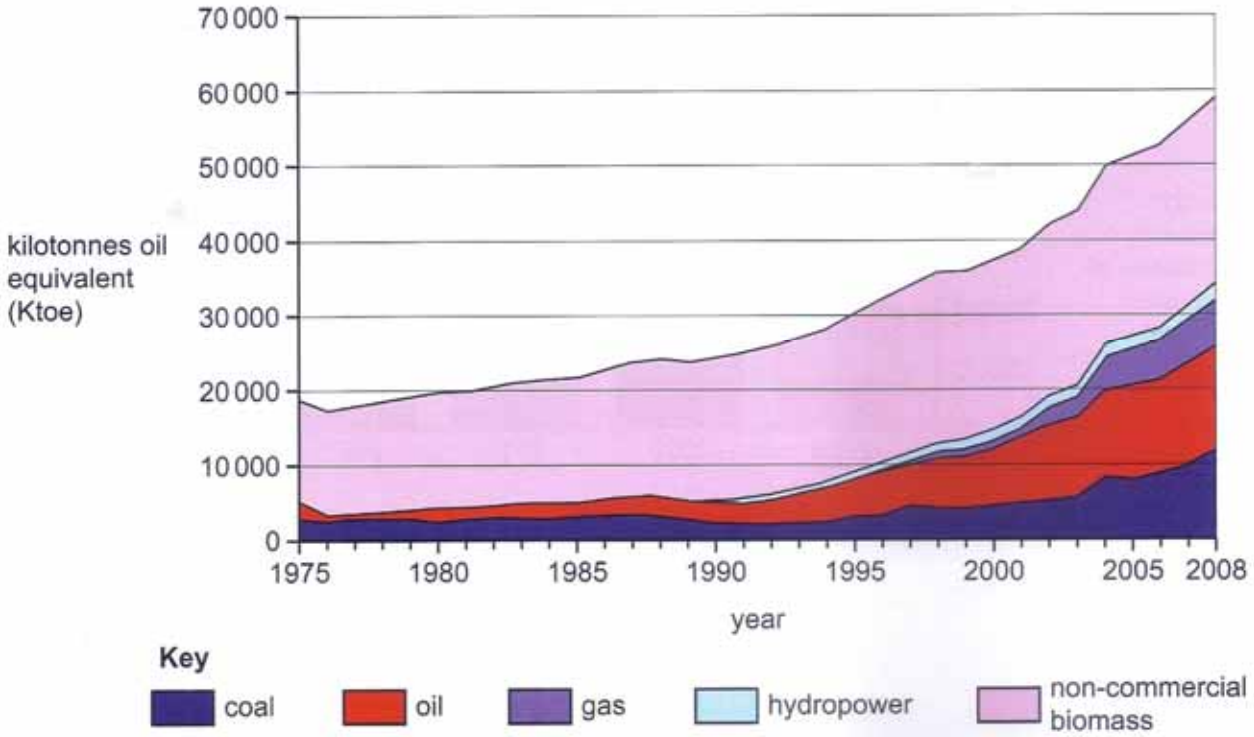


Resource 11 for Question 4



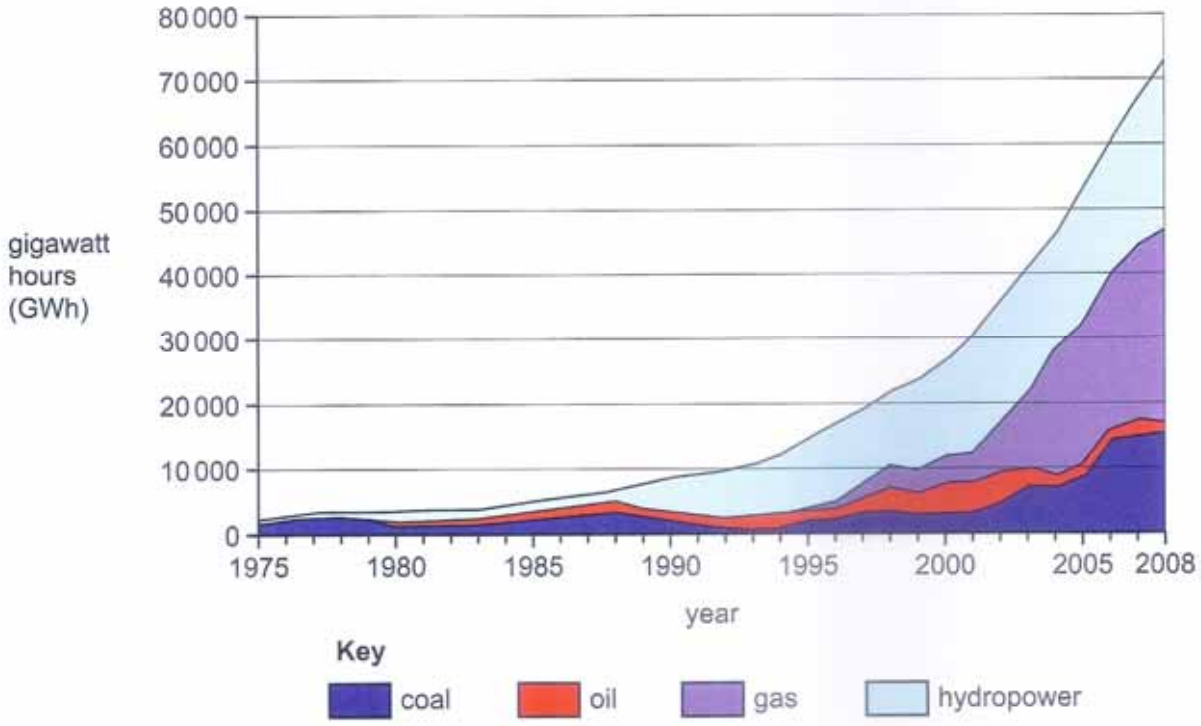
Resource 12 for Question 4

Total primary energy supply in Vietnam, 1975–2008



Resource 13 for Question 4

Electricity generation in Vietnam by fuel type, 1975–2008



Resource 14 for Question 3

Potential for growing Jatropha in Vietnam

One promising source of energy to meet the growing needs of Vietnam is biofuels. Oil from the seeds of the Jatropha plant can be processed to produce biodiesel which is equal in quality to fossil fuel. Jatropha is not considered a threat to food security because it can be grown on steep land which is not used for food production. By 2015, 150 000 tonnes of biodiesel could be produced, rising to over 1 million tonnes by 2020.

region	Jatropha crop potential	
Northern Mountains	Moderate soil fertility Other crops unsuitable	Large-scale Jatropha suitable
Central North	Poor soil fertility No other competing crops	Large-scale Jatropha suitable
Central South	Poor soil fertility No other competing crops	Large-scale Jatropha suitable
Central Highlands	Fertile soils Other crops for food and commodities can grow well	Possible to develop Jatropha on a medium-scale
South East	Fertile soils Other crops for food and commodities can grow well	Some small-scale Jatropha possible