

**TEMASEK JUNIOR COLLEGE
PRELIMINARY EXAMINATION 2018**

**GEOGRAPHY
Higher 2**

9751/02

Paper 2

3 HOURS

Additional Materials:

**Resource Booklet
World Outline Map**

READ THESE INSTRUCTIONS FIRST

Write your Centre number, index number, name and CG on all the work you hand in.

Begin the answer to each question on a fresh sheet of paper.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use highlighters, glue or correction fluid.

Answer **all** 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 securely together.

The number of marks is given in brackets [] at the end of each question or part question.

You should spend time according to marks allocated to questions.

All resources referred to in the question paper are in the Resource Booklet.

This document consists of 6 printed pages



SECTION A

Answer the question below.

The question carries 25 marks.

Theme 4: Geographical Investigation

- 1** Sungei Kadut Industrial Estate is located in northwestern Singapore known for its furniture making and the manufacturing of automobile parts. It is located in close proximity to the Choa Chu Kang housing estate. A group of five junior college students were tasked to carry out a geography fieldwork exercise at the Sungei Kadut Industrial Estate to investigate the impact of these industries on the environment.

The students decided to conduct pH and turbidity tests along the Pang Sua river to determine the water quality within the industrial estate. Both pH and turbidity are significant measures of water quality, whereby pH measures how alkali or acidic the river is, while turbidity measures the concentration of particulate matter found in the river. Both the pH and turbidity are in turn affected by the nature of the effluence entering the river from the surrounding catchment area.

The students chose five locations that were accessible by road for their data collection. As a group, the students moved from site to site over the span of three hours on a Saturday morning to conduct their study.

The equipment used by the students included:

- White container for the water sample with Secchi disk sticker adhered to the base of the container (to measure turbidity)
- 5 10ml test tubes
- 10 pH test kit tablets
- Indicator chart (to match turbidity and pH values)
- Latex Gloves

After the tests were completed, the data were compiled and analysed by the students so that conclusions could be made about the impact of the Sungei Kadut Industrial Estate on the environment.

Study Resources 1 and 2. Resource 1 is a map of the area around Sungei Kadut Industrial Estate and shows the five locations where the students collected their data at. Resource 2 shows the procedure undertaken by the students at each sample site to measure pH and turbidity along the Pang Sua River.

- (a) Design a recording sheet that the students may use to collate their data collected across the different sites marked out in Resource 1. [3]
- (b) With reference to Resources 1 and 2, explain the limitations pertaining to the planning and data collection of the investigation. Suggest how these limitations can be overcome. [7]
- (c) Suggest how the students can mitigate the potential risks that may arise when undertaking this investigation. [3]
- (d) Explain why the group's data may differ if they had conducted their investigation after a heavy thunderstorm. [4]
- (e) Suggest how the group of students can extend their investigation to examine the impact of Sungei Kadut Industrial Estate on local communities. [8]

SECTION B

Answer the question below.

The question carries 25 marks.

Theme 1: Tropical Environments

Climate Characteristics and Physical Processes in Australia

- 2** Resource 3 shows the climograph of Cairns, Australia. Resource 4 shows the global average sea surface temperatures (SST) anomalies between 11 October 2015 and 7 November 2015. Resource 5 shows various physical processes that influence the climate of Australia. Resource 6 shows the effects of Tropical Cyclone Yasi on a town in Cairns in 2011.
- (a) With reference to Resource 3, briefly describe the climograph of Cairns. [2]
- (b) With the aid of a diagram and Resource 4, explain how the change in average sea surface temperatures in the Pacific Ocean between 11 October 2015 and 7 November 2015 could affect the weather conditions in Eastern Australia. [6]
- (c) Compare the tracks of Tropical Cyclones George and Yasi shown in Resource 5. [3]
- (d) Suggest strategies that could be used to minimise the effects of flooding arising from the tropical cyclone shown in Resource 6. [5]
- (e) With reference to the resources provided and your own knowledge, how far do you agree that the ITCZ is primarily responsible to explain the climate of Cairns? [9]

SECTION C

Answer the question below.

The question carries 25 marks.

Theme 2: Development, Economy and Environment

Global Production Network of Semiconductors

- 3** Resource 7 shows the network connections and profits earned by countries in producing manufactured goods between 2000 and 2011. The size of the circle shows the profit earned for a country. The thickness of the line shows the intensity of network connections between countries. Resource 8 traces the path of production of a semiconductor. Semiconductors, also known as microchips, are the 'brains' of all modern electronics and drive the digital economy. They are critical to the function of a range of products from everyday consumer electronics like laptops and mobile phones, to sophisticated equipment in economic sectors like aerospace and finance. Resource 9 shows the spatial organisation of six major semiconductor transnational corporations in 2016.
- (a) Describe the changes in the pattern of network connections from 2000 to 2011 shown in Resource 7. [3]
- (b) Identify the change in Mexico's profits in manufactured goods between 2000 and 2011 shown in Resource 7 and suggest reasons for this change. [6]
- (c) Describe the spatial distribution of the production circuit of the semiconductor shown in Resource 8. [3]
- (d) With reference to Resources 8 and 9, explain how the organisation of the semiconductor industry has benefitted USA. [4]
- (e) With reference to the resources provided, how far do you agree that USA is the most dominant player in the global semiconductor industry? [9]

SECTION D

Answer the question below.

The question carries 25 marks.

Theme 3: Sustainable Development

Issues of Urban Sustainability in Nairobi, Kenya

- 4** Nairobi is the capital and largest city of Kenya. With a population of 3.5 million residents, it is one of the fastest growing cities in Africa at a rate of 6 percent annually. More than half of the population in Nairobi live in slums. Resource 10 is a photograph showing changes in an urban area in Nairobi, Kenya between 1950 and 2010. Resource 11 is an excerpt from a news article on traffic conditions in Nairobi. Resource 12 shows a town plan of Dandora, which is a suburb in the eastern part of Nairobi. The resource also shows the location of Dandora in Nairobi.
- (a) With reference to Resource 10, compare the changes in the urban area between 1950 and 2010. [4]
- (b) State **three** ways in which Nairobi might be considered unsustainable using evidence from Resource 11. [3]
- (c) With reference to Resource 11 and your own knowledge, account for the traffic conditions in Nairobi. [6]
- (d) With reference to Resource 12, explain why Dandora may be an attractive location for slum settlements. [6]
- (e) With the aid of examples, suggest **three** reasons why the waste management strategy shown in Resource 12 is a poor solution to Nairobi's waste problems. [6]

END OF PAPER

**TEMASEK JUNIOR COLLEGE
PRELIMINARY EXAMINATION 2018**

**GEOGRAPHY
Higher 2**

9751/02

Paper 2

3 hours

RESOURCE BOOKLET

READ THESE INSTRUCTIONS FIRST

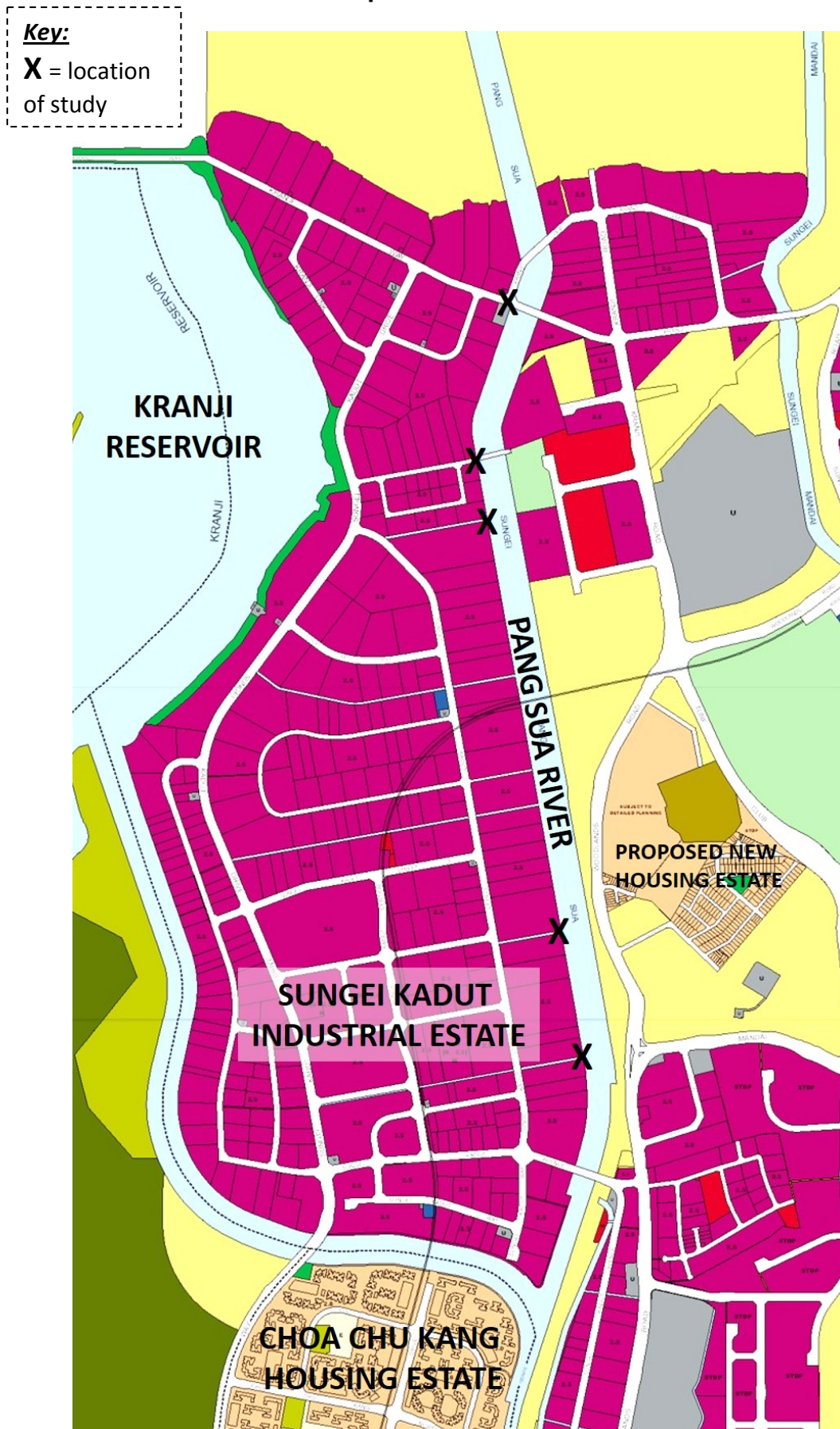
**This resource booklet contains the resources referred to in
the questions as well as the World Outline Maps**

This document consists of 10 printed pages



Resource 1 for Question 1

Map of fieldwork site



Resource 2 for Question 1

Data collection procedure undertaken by students to measure pH and turbidity of Pang Sua River

Steps 3.1-3.3:
Measuring pH

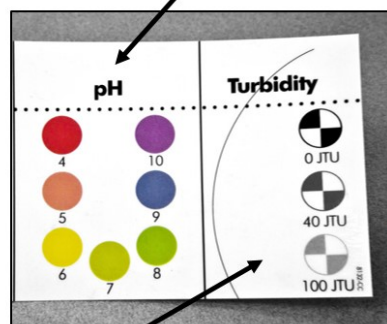
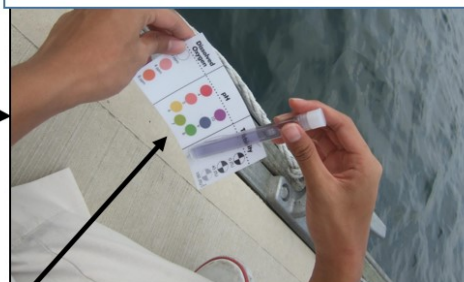
Step 1. Draw water from the river using a container.



Step 3.1 Pour water from container into a test tube. Add pH tablet into tube and shake well.



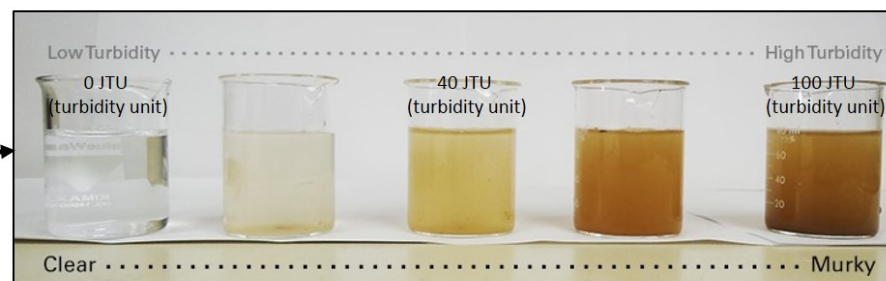
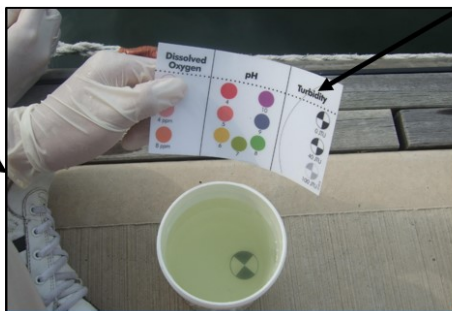
Step 3.2 After 1 min, match the colour in test tube to the indicator chart below.



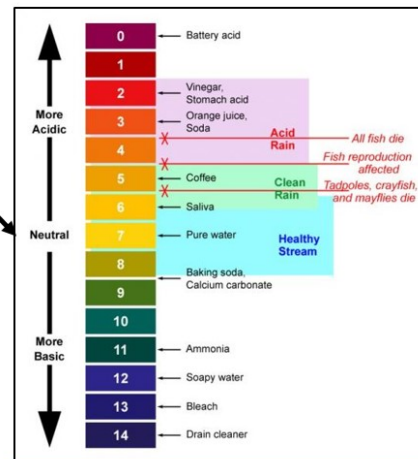
Indicator chart (for reference)

Steps 2.1-2.2:
Measuring turbidity

Step 2.1. Observe the turbidity value that matches the indicator chart.



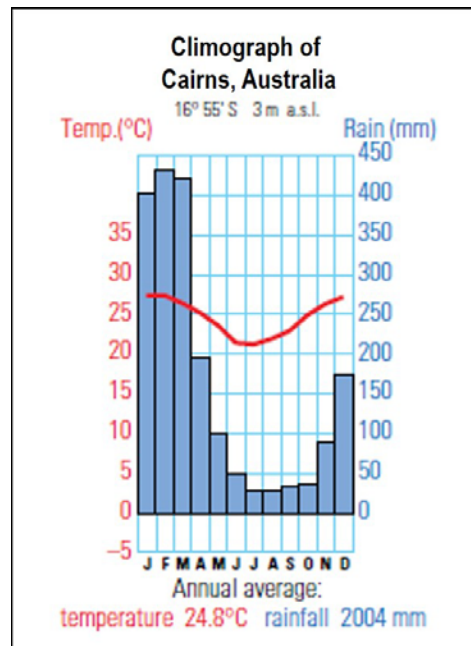
Step 2.2 Result will give you an indication of turbidity of river as follows.



Step 3.3 Result will give you an indication of pH in river as follows.

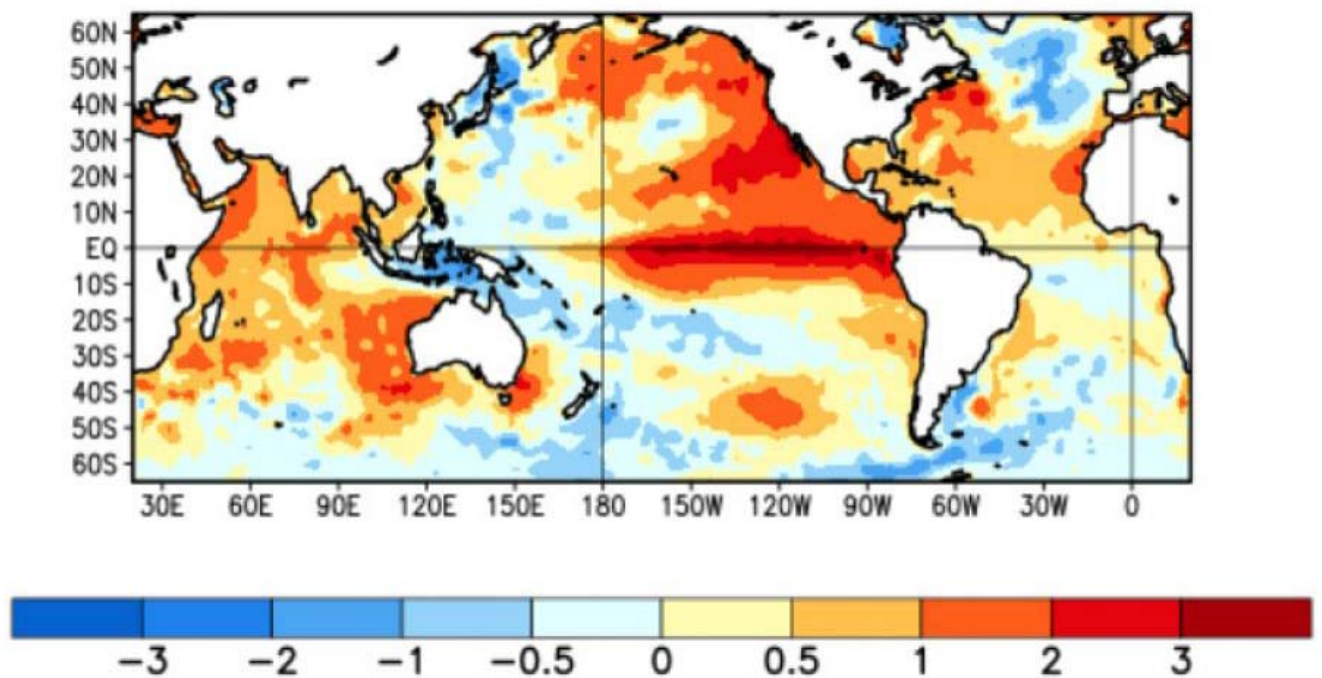
Resource 3 for Question 2

Climograph of Cairns, Australia



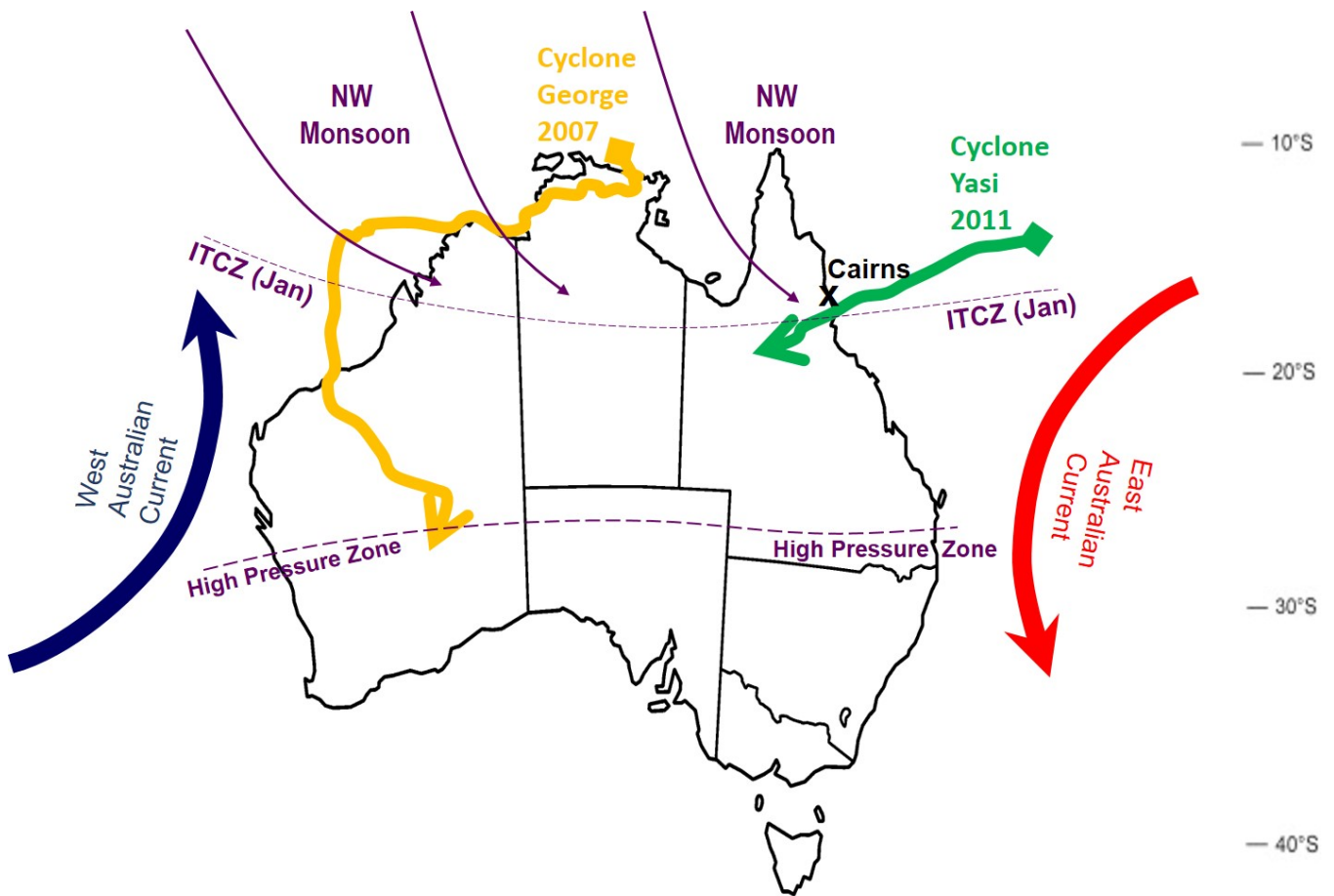
Resource 4 for Question 2

Global average sea surface temperatures (SST) anomalies between 11 October 2015 and 7 November 2015



Resource 5 for Question 2

Physical processes influencing the climate of Australia



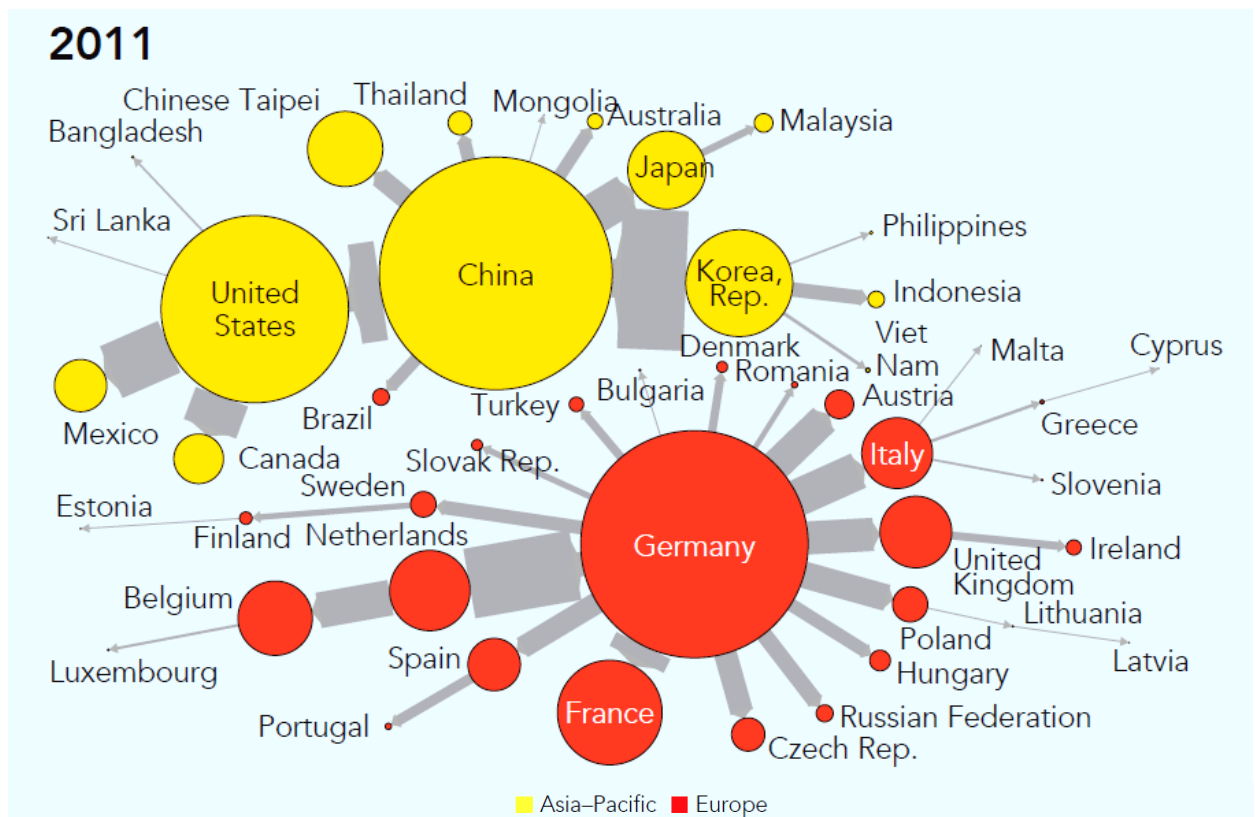
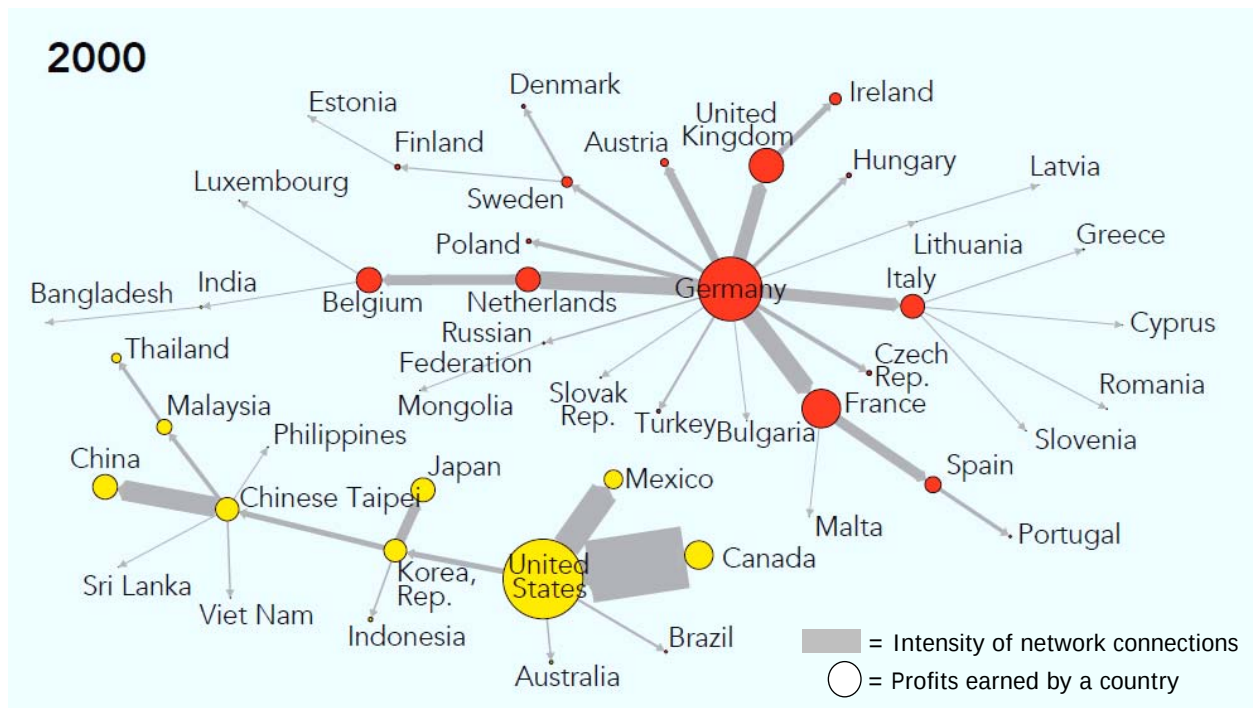
Resource 6 for Question 2

Effects of Tropical Cyclone Yasi on a town in Cairns in 2011



Resource 7 for Question 3

Network connections and profits earned by countries in producing manufactured goods between 2000 and 2011



Source: Author's calculation based on Xiao and others' 2017 method and data from Asian Development Bank Inter-Country Input-Output Tables.

Resource 8 for Question 3

Map of a semiconductor's production network



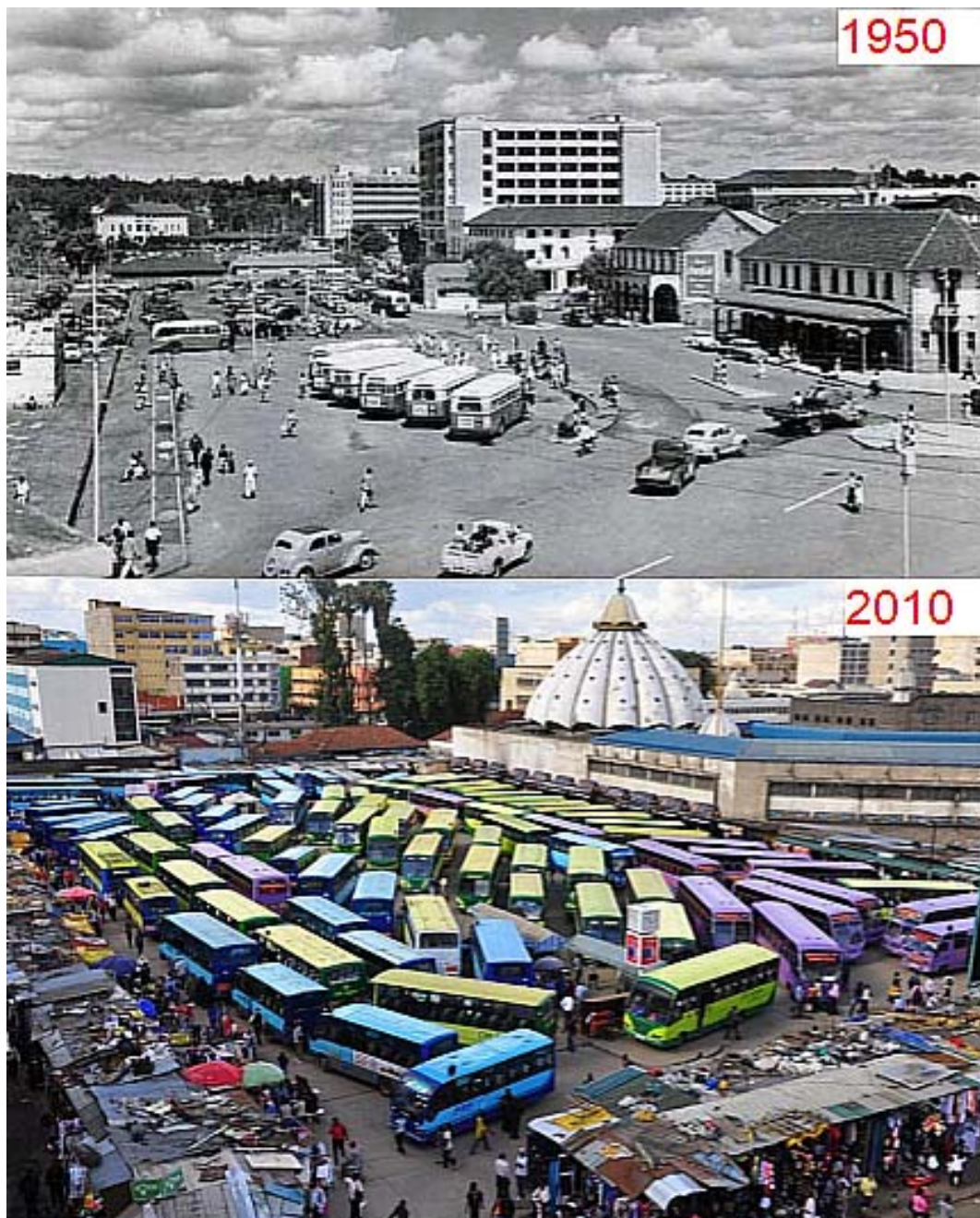
Resource 9 for Question 3

Spatial organisation of six major semiconductor transnational corporations in 2016



Resource 10 for Question 4

Urban change in Nairobi, Kenya between 1950 and 2010



Resource 11 for Question 4

An excerpt from a news article on traffic conditions in Nairobi, Kenya

Nairobi has been ranked the second-worst city in the world on traffic congestion. On average, Nairobians spend 62.44 minutes in traffic while Kolkatans spend an average of 68.86, Mumbai 60.11, Jakarta 56.98 and Manila 56.77 minutes.

Frederick Karanja, the Nairobi County chief officer for roads and public works, said the volume of cars has contributed to the endless traffic jams in the city. Mr Karanja said lack of a proper and organised public transport system in the city has increased the number of personal vehicles. The nature of Nairobi's roads is also to blame, with the designs a major contributor to jams. Mr Karanja also blamed *boda boda** operators and taxis parking haphazardly along roads for the traffic mess.

It is expected that the congestion leads to an estimated 58 million shillings a day of lost productivity in the city, and as many as 13,000 people killed in road accidents a year. People exposed to the daily hassles of traffic jams also suffer from health problems as the air quality exceeds the World Health Organisation's limits. These health problems include heart disease, asthma, obesity, aging and gastrointestinal problems, among many others.

**Boda bodas* are bicycle and motorcycle taxis commonly found in East Africa.

Resource 12 for Question 4

Town plan of Dandora in East Nairobi

