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Introduction

This package is the second of a series of curriculum support materials produced by the Personal, Social and Humanities Education Section of the Curriculum Development Institute for the revised CDC Syllabus for Geography (Secondary 1-3). It aims at providing teachers with examples of adopting different teaching strategies in the teaching of junior secondary Geography. The teaching strategies included in this package are by no means exhaustive. Teachers should modify the worksheets to suit the need, interest and ability of their students.

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Planning, Environment and Lands Bureau
Survey and Mapping Office, Lands Department

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Collapsing slopes!
Introduction:

The Geography curriculum for Secondary One to Three prepared by the Hong Kong Curriculum Development Council adopts the problems and issue-based enquiry approach. This approach is concerned with the study of current issues and problems, which may be of local, regional, national or global scales, from a geographical point of view. In their studies, students should be encouraged to engage in questioning and enquiry which will lead them towards the statement and application of generalizations and principles.

In driving an effective learning, there is a close relationship between adopting issue-enquiry approach and thinking process. The following example is extracted from the junior geography syllabus in order to illustrate how to train the thinking skills of students by issue-enquiry approach in Geography. The worksheets included in the following example put the emphasis on student-centred learning activities. The key role of teachers should be a facilitator for learning instead of merely a transmitter of knowledge. Teachers should encourage students to collect relevant information by themselves, or let students carry out analysis and reorganization after providing materials with initial processing. Assistance should not be given until difficulties raised. Teachers should remind or guide them, bearing in mind that students are able to find out answers or conclusions. After the completion of exercises by students, teachers should make a conclusion and point out the mistakes and missing parts, followed by correct answers and ways for further improvement. It should be noted that the one and only one way to train students’ analytical power is to provide adequate opportunities for them to think and analyze under guidance from teachers.

XX Daily

There were several serious landslides in Hong Kong under the rainstorm yesterday. At about 10 a.m., sands in ton measures slipped down from the slope beside the bus terminal at Cheung Shan Estate. A woman just getting off from a bus was buried alive and later proved dead.

The situation was even worse in Lantau. The Hong Kong Observatory recorded 500 mm rain up to 1 a.m. early this morning. Major highways at Lantau were blocked by several landslides, paralyzing the transportation on the island.

Two water pipes in Cheung Chau were damaged by landslides, resulting in a limited supply of tap water.
Please answer the following questions after reading the above news clippings carefully:
* Those inside the brackets are the training of thinking skills for questions concerned

1. Identify the natural disaster mentioned in the news clippings. *(identification of topic—landslides)*

2. Make the location of Tsuen Wan, Lantau Island and Cheung Chau on the Hong Kong outline map on next page.

3. In which season does the rainstorm mentioned above usually occur in HK? *(Reorganization of knowledge and experience)*

4. Collect news clippings and relevant information of this natural disaster happened in Hong Kong in recent years, then find out the common places of weather and on-site conditions (e.g. vegetation, relief and human activities etc.) in the occurrence of each of this natural disaster. *(Organization and classification of the collected data, and then analysis and comparison)*

5. List the major reasons leading to this natural disaster with reference to the data collected in question 4. *(Integration of data and deduction)*

6. Observe the premises built on or beside slopes in the community where you live (or nearby community). Did the landlord or management company take any measures to prevent the occurrence of the above-mentioned natural disaster? If yes, please record them down by drawing or photo-taking. *(Identification of required data)*

7. Reorganize and classify the data collected in question 6 with your group members. Collect more information on the prevention of the above natural disaster in libraries and related government departments (such as the Civil Engineering Department). Prepare a simple report for all the collected data and present it on class. *(Organization and classification of collected data, and preparation of a report by integration and deduction)*

8. Discuss with your group members why Hong Kong is still frequently under the threat of the above natural disaster? What serious results will be brought by this natural disaster? *(Analysis of problems and evaluation on the effectiveness of remedies)*

9. In an individual basis, what can we do to prevent the occurrence of the above natural disaster? Why are there so many people not willing to take preventive measures or why do they ignore the importance of such measures? *(Analysis of problem and critical thinking)*
Figure 1: Hong Kong Outline Map
Cognitive map and effective thinking way

In order to enable students capable of effective thinking and decision-making, teachers should help students develop the ability to structure and organize concepts. Drawing of cognitive map is one of the effective tools to train their abilities in this direction. As this map turns the thinking process into images, more abstract and hidden information could be reflected in a more concrete form. With the aid of cognitive map, students can understand the relationship between facts and concepts better. Thus, new information and past experience and knowledge learnt can be correlated more easily. Besides, concepts could be explained more precisely.

The following is an example of a cognitive map which helps decision-making. Its major function is to visualize the decision process and important factors. Students, therefore could organize their way of thinking more systematically and make a more appropriate decision. Worksheet 2 and Worksheet 3 require students to make decision with the help of the cognitive map for a dilemmatic situation under the discussion topic after field study and group discussion.
Field observation and report on the land utilization of Hong Kong urban slopes

Teaching objectives:
Through field observation, students could understand the utilization of slopes in urban Hong Kong and learn that Hong Kong is a hilly city, that many slopes in the urban areas have been fully utilized. Moreover, students can express their personal views on whether hillslope development should be continued in Hong Kong.

Field sites:
The teacher can find some slopes built with many buildings around the school area. A suggested field study site is the built-up area along Kotewall Road in the Mid-Levels of Hong Kong Island.

Things to bring:
1. Map
2. Camera
3. Color and black pencils
4. File board

Procedures:
(1) Divide the class into ten groups with 4 members each.
(2) Explain the aim and task of this site visit before getting off.
(3) Instruct students to take photos on crowded establishments on the slope when arrive at the site.
(4) Ask students to draw a sketch map showing the establishments on the slope and indicate different land uses by different colours. For example, use red to represent commercial land use and yellow for residential.
(5) Calculate the gradient of the site from a topographic map with contours.
(6) After returning to classroom, conduct a class discussion (refer to worksheet 3):
   "Should hillslope development be continued in Hong Kong?"
Draw a simple sketch on the establishments on the slope. Indicate different land uses with different colors and add a legend.

Legend:
The class is divided into small groups and discuss "Should hillslope development be continued in Hong Kong?" Using chart 1 as the basis of discussion, reorganize and summarise the opinions of the group and present them in class.

With a large population but a limited land supply, the demand for land in Hong Kong, in particular the urban land, is great. However, as Hong Kong is hilly and has limited flat land, the development of slopes can alleviate the problem of land shortage. Many slopes in Hong Kong, nevertheless, are rather steep and the weather in Hong Kong is rainy and humid. Thus, slope development faces a high risk of landslide.

<table>
<thead>
<tr>
<th>Develop slopes in Hong Kong:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros: 1. 2. 3. 4.</td>
<td>Cons: 1. 2. 3. 4.</td>
<td></td>
</tr>
<tr>
<td>Other alternatives:</td>
<td>Pros:</td>
<td>Cons:</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decide ways of increasing urban land supply:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasons:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart 1
Teaching Objectives:

Through the game "Where Am I?", students should be able to:
1. Understand major activities found on hillslopes in China and other parts of the world.
2. Be aware of the impact of relief on human activities.
3. Identify the locations of highlands in different countries after completing simple map exercises.

Through the group project, students should be able to:
1. Use the Internet to collect information on how people of different countries utilize highlands.
2. Collect and present information on major activities found on hillslopes in China and other parts of the world.
3. Learn to co-operate with one another.

Regulations for the game:
(1) Divide the class into 6 groups.
(2) Ask a representative from each group to pick one country card.
(3) Each group answers questions raised by other groups. The questions should be restricted to the location, climate and relief of the country.
(4) Answers can only be Yes or No without any other information.
(5) Members of other groups try to guess which country the card shows.
(6) 2 marks will be deducted for each incorrect guess.
(7) Correct guess will bring 10 marks.
(8) When someone guesses the name of the country shown in the card, the representative holding the Country Card reads aloud the information written in the card so as to let the class know how people in that country utilize slopes.
(9) The group gaining the highest mark wins.
Peru
The Andes occupy most of the area of Peru. Half of the Peruvian population is Highland Indian. Their livelihood mainly relies on nomadic herding. The high and rugged relief there makes farming difficult. These Indian herders can only keep llamas, alpacas and sheep which feed on poor pastures.

Bolivia (Bolivian Plateau)
Indians of the Bolivia are subsistent farmers. They have low living standard even after very hard work. Their farms are very small and not very productive. Their main farm products are maize, barley and potatoes.

Switzerland
60% of its land is mountainous. The beautiful scenery of its high mountains attracts tourists and helps the development of tourism.
Also, in regions around the beautiful Alps, the traditional "transhumance" is adopted to keep a large number of dairy cattle providing fresh milk and meat.

China (Sichuan province)
China is a huge country with plenty of resources. Its farmland mainly locates in the East. The Sichuan Province is densely populated and is surrounded by mountains. In order to increase the area of cultivated land, terraces are used to grow rice and vegetable.

Sweden
It is a very cold country with some of its land located inside the Arctic Circle. Much of its land are mountains which are not suitable for farming. Its climate however suits the growth of coniferous forest which is good for the production of wood and paper.

Japan
Japan is a mountainous country which lies on the active volcanic zone. With the fascinating Mount Fuji which is the sign of Japan and the blooming Japanese cherry, Japan attracts many tourists from all over the world to its mountains for holidays.
How people in other places utilize slopes:

**Peru**
Outline the Andes on the map and shade it in brown.

**Bolivia (Bolivian Plateau)**
Outline the Bolivian Plateau on the map and shade it in brown.

**Switzerland**
Outline the Alps on the map and shade it in brown.

**China**
Outline the location of Sichuan province and shade it in green.

**Sweden**
Outline the mountain ranges on the map and shade it in brown.

**Japan**
Outline the mountain ranges on the map and shade it in brown.
Teaching objectives:
Through this group projects, students should be able to –
1. Use the Internet to collect information on how different countries utilize highlands.
2. Collect and present information on the use of hillslopes in China and in other countries of the world.
3. Learn to co-operate with other people.

Theme: Slope Utilization

Duration: 3 weeks
Procedures:

1. Group the class same as the game, each group is required to study the country of the "Country Card" which they have drawn. The contents of the projects are suggested as follows:
   - Where is the country?
   - Draw a sketch map to show the main geographical features of that country? (Both man-made features and natural features)
   - How do people of that country utilize slopes?
   - How do people living in the mountainous regions adapt to the natural environment?
   - Should people there develop hillslopes?
   - What are the impact of relief on human activities?
   - Any other relevant materials

2. The teacher explains the objectives of the project and suggested procedures for the study:

   (1) **The first stage - Information Collection (1 week)**
   Information can be collected from newspapers, magazines, books, the Internet, computer softwares, TV programmes or interviews.

   (2) **The second stage - Information Compilation (1 week)**
   The teacher gives advice on the materials collected by the students. Afterwards, students need to compile and analyse the information systematically.

   (3) **The third stage - Project Completion (1 week)**
   Students complete the project in not more than 10 pages (including pictures).
Introduction:

Desert is a relatively young landscape on Earth. In this topic, teachers should guide students to study the location and unique landscapes of deserts, the impact of human activities on arid landscape as well as the causes and preventive measures for desertification.
In this chapter, students should be able to master the following:

Knowledge/concepts —
(1) Location and spreading of deserts.
(2) Features of desert landscape.
(3) Causes of desertification.
(4) Human activities in desert environment.
(5) Impact of desertification.
(6) Measures combating desertification.

Skills —
(1) Collection of photos.
(2) Identification of the unique desert landscape from photos.
(3) Analysis of flow charts to understand how natural and human factors leading to the desertification.

Values/attitude —
(1) Appreciate the beauty of the nature.
(2) Concern for the necessity in maintaining the quality of desert resource system.
(3) Realize that a place can be damaged or improved by natural and human factors.
(4) Concern for the suffering of people in other regions.

---

Map 1

Desertification

Existing Desert
Risk of desertification

Taming the Spreading Deserts
Map exercise

Map - DESERTIFICATION

Questions -
1. What is desertification?
2. In which continents can deserts be found?
3. Which continent has the largest desert?
4. Which desert is closest to the place you live?
5. In the atlas, find out Sahel and mark it on the map.
6. In the atlas, find out the deserts in China and mark them on Map 1.
7. Deserts are now spreading. Which countries are threatened by desertification?

Activities -
1. Look for a desert photo from newspaper or magazine, then cut and paste it on the space provided below. You can also download a photo from the Internet.
2. State why you think that it is a desert.

Taming the Spreading Deserts
Climatic change

- Global warming, increased temperature, increased evaporation, increased condensation

- Decreased rainfall, increased aridity

- Less rain

- Dried river

- Plants wither

Increased grazing

- Great increase in grazing

- Over-grazing

- Decrease in vegetation cover

Increased population

- Great demand for wood for cooking, fuel and construction

- Farmer's changed their traditional farming methods

- Lumbering

- Over-cultivation

- Decrease in vegetation cover

Decrease in vegetation cover → rain and wind attack on soil → evaporation of huge amount of soil water → increased soil erosion.

Desertification

Figure 2
Refer to Figure 3 and answer the following questions:

1. List 3 major causes of desertification.

2. Explain the relationship between the decrease in vegetation cover and soil erosion.

3. Explain the relationship between soil erosion and desertification.

4. List 5 countries affected by desertification. Are these countries more developed or less developed?

5. What are the consequences of desertification on the economy and the living standard of the countries affected?

6. What can we do to combat the spreading of deserts?
Introduction:

Desertification of farmland is getting more severe. Infertile and semi-arid regions account for one-fourth of the total land surface of the earth. If the situation keeps on deteriorating, global food supply and people's lives in poor regions would be threatened. Although 100 countries signed the Desertification Convention in 1994, it is still not very optimistic to have the problem of desertification solved.

The Rio Earth Summit urged governments of different countries to contribute to the "Global Environment Facilities" Fund so as to provide capital for projects on global environmental issues.

First proposition: Less developed countries urged for the establishment of international funds and blamed more developed countries for not allotting enough money

Less developed countries expressed grievances that richer countries did not keep their promise of subsidising the global project of avoiding the change of farmland into deserts. News on mean subsidy from new allocation of funds lead to the anger of many representatives from less developed countries. Many representatives of the less developed countries were angry over the news of limited amount of funds allocated.

Discussion questions:
1. Should more developed countries increase their subsidies on the project of avoiding the changing of arable land into deserts?
<table>
<thead>
<tr>
<th><strong>Positive</strong></th>
<th><strong>Negative</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Secretary of the Environmental Department in India said, &quot;Donor countries seemed only care for war and peace issues instead of projects on development aids. We must understand that the threat of deteriorating environment brought to the earth and civilized communities is no less than war.&quot;</td>
<td>Present aid is sufficient. It is the question of whether the governments concerned utilize the fund effectively and correctly.</td>
</tr>
<tr>
<td>Desertification is a global problem which would lead to the shortage of food. More developed countries should not shoulder off their responsibilities.</td>
<td>More developed countries have been producing more food than enough. It is not necessary to import food from less developed countries.</td>
</tr>
<tr>
<td>The major reason for desertification was the extensive commercial farming introduced by Western countries during colonial periods.</td>
<td>Desertification was not a serious problem in colonial periods. The problem worsens because local governments are corrupted.</td>
</tr>
<tr>
<td>Assisting less developed countries to solve desertification, in a long run, could help more developed countries to open new markets.</td>
<td>There are numerous problems in less developed countries. It is not realistic to expect them to be new markets.</td>
</tr>
<tr>
<td>In view of the trend of globalization, we should help one another.</td>
<td>Increased subsidy will only encourage the local people to be become more reliance on foreign aid and unwilling to solve problems by themselves.</td>
</tr>
</tbody>
</table>

2. Should desertification be viewed as a global issue? How can international co-operation help to solve the problem of desertification?
Second proposition: Local non-governmental organizations criticized that modernization destroys ecosystems.

Local non-governmental organizations in the less developed countries criticized their governments for being incapable and seriously corrupted. Therefore, foreign aid could not reduce the rate of desertification. These organizations also claimed that many governments of less developed countries considered the building of a HEP plant or an expressway was moving towards "modernization", ignoring its disastrous impact on the local ecology which caused extensive deforestation, severe loss of water and soil and the worsening of desertification problem.

On the other hand, governments of less developed countries pointed out that environmental problems could only be tackled effectively with a well-established infrastructure. If the infrastructure in rural areas was not good enough, farmers would adopt environmentally destructive farming methods in order to maintain their livings. Only improved infrastructure could upgrade rural economy, education and living standard, then the work on environmental protection could be successful. Nobody would care whether the environment was damaged when food was still a problem.

Discussion question:
How to balance the dilemma between large scale construction and environmental conservation in the less developed countries?
The Unstable Earth
Introduction:

In recent years, many earthquakes and volcanic eruptions have occurred. It is necessary for students to concern about the major geographical issues in the world. Apart from knowing the distribution of global earthquakes and volcanic belts, an understanding of man's response to these natural activities is also vital. Students should be aware of the constraints and difficulties posed by the natural environment.

Teaching objectives:

- Students should be able to acquire the following concepts and knowledge:
  1. Distribution of earthquakes.
  2. Distribution of the active volcanic belts.
  3. The spatial association between earthquakes and active volcanic belts.
  4. The hazardous effects of earthquakes and active volcanic belts.
  5. Human response and modification of the environment.

- Students should be able to master the following learning skills:
  1. Draw distribution map.
  2. Search the location of active earthquakes and volcanic belts.

- Students should be able to develop the following values and attitudes:
  1. Recognise the effects of value judgements on decision-making.
  2. Be aware of the environmental limitations and problems.
Active earthquakes & volcanic belts in the world

The following table shows the occurrence of major earthquakes in recent years:

<table>
<thead>
<tr>
<th>M / Y</th>
<th>Location</th>
<th>Magnitude (Richter scale)</th>
<th>Number of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 / 95</td>
<td>Greece</td>
<td>6.2</td>
<td>17</td>
</tr>
<tr>
<td>5 / 95</td>
<td>Russia</td>
<td>7.5</td>
<td>2,000</td>
</tr>
<tr>
<td>1 / 95</td>
<td>Kobe, Japan</td>
<td>7.2</td>
<td>5,500</td>
</tr>
<tr>
<td>10/94</td>
<td>Hokkaido offshore, Japan</td>
<td>8.2</td>
<td>16</td>
</tr>
<tr>
<td>8 / 94</td>
<td>Algeria</td>
<td>5.6</td>
<td>150</td>
</tr>
<tr>
<td>2 / 94</td>
<td>Indonesia</td>
<td>6.5</td>
<td>37</td>
</tr>
<tr>
<td>1 / 94</td>
<td>Indonesia</td>
<td>6.8</td>
<td>7</td>
</tr>
<tr>
<td>1 / 94</td>
<td>Los Angeles, the USA</td>
<td>6.6</td>
<td>57</td>
</tr>
<tr>
<td>9 / 93</td>
<td>India</td>
<td>6.4</td>
<td>9,800</td>
</tr>
<tr>
<td>7 / 93</td>
<td>Okujiri-shima, Japan</td>
<td>7.8</td>
<td>158</td>
</tr>
<tr>
<td>12 / 92</td>
<td>Indonesia</td>
<td>6.8</td>
<td>1,912</td>
</tr>
<tr>
<td>6 / 92</td>
<td>California, the USA</td>
<td>7.3</td>
<td>1</td>
</tr>
<tr>
<td>4 / 92</td>
<td>California, the USA</td>
<td>6.9</td>
<td>0</td>
</tr>
<tr>
<td>3 / 92</td>
<td>Turkey</td>
<td>6.8</td>
<td>1,000</td>
</tr>
<tr>
<td>2 / 91</td>
<td>Pakistan</td>
<td>6.8</td>
<td>1,200</td>
</tr>
<tr>
<td>7 / 90</td>
<td>Philippines</td>
<td>7.7</td>
<td>1,621</td>
</tr>
<tr>
<td>6 / 90</td>
<td>Iran</td>
<td>7.7</td>
<td>50,000</td>
</tr>
<tr>
<td>12/88</td>
<td>Armenia</td>
<td>6.9</td>
<td>25,000</td>
</tr>
<tr>
<td>9 / 85</td>
<td>Mexico</td>
<td>8.1</td>
<td>9,500</td>
</tr>
</tbody>
</table>

Table 1
Use DOTS to show the distribution of the above earthquakes on the world map.

Figure 1

Figure 2

Plate boundaries

Directions of plate movements

It is thought that the earth’s crust is made up of pieces or plates of crust with boundaries between them. These plates vary in size and shape and are moving in different directions. Some are moving apart, some are clashing whilst others are sliding along each other. These movements are usually very slow but sometimes they can take place much more quickly causing earthquakes near the plate margins.
With the help of the index of your atlas, find the correct locations of the following volcanoes. Mark on the world map by using triangular symbol \( \triangle \) and the number (e.g., 1, 2, 3, …) representing the volcano.

<table>
<thead>
<tr>
<th>Number</th>
<th>Major volcanoes in the world</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mt. St. Helens (U.S.A., North America)</td>
</tr>
<tr>
<td>2</td>
<td>Popocatepeti (Mexico, Central America)</td>
</tr>
<tr>
<td>3</td>
<td>Paricutin (Mexico, Central America)</td>
</tr>
<tr>
<td>4</td>
<td>Cotopaxi (Ecuador, South America)</td>
</tr>
<tr>
<td>5</td>
<td>Mont Pelee (Atlantic Ocean, offshore of Central America)</td>
</tr>
<tr>
<td>6</td>
<td>Mauna Loa (Central Pacific Ocean)</td>
</tr>
<tr>
<td>7</td>
<td>Fujiyama (Japan, Asia)</td>
</tr>
<tr>
<td>8</td>
<td>Mt. Mayon (Philippines, Asia)</td>
</tr>
<tr>
<td>9</td>
<td>Kilimanjaro (Indonesia, Asia)</td>
</tr>
<tr>
<td>10</td>
<td>Vesuvius (Italy, Europe)</td>
</tr>
<tr>
<td>11</td>
<td>Stromboli (Italy, Europe)</td>
</tr>
<tr>
<td>12</td>
<td>Kilimanjaro (Tanzania, Africa)</td>
</tr>
</tbody>
</table>

Questions:
1. (a) With reference to Figure 1, state the relationship between the distribution of the active earthquakes and volcanic belts.

   (b) Photocopy Figure 2 on a piece of transparency, then overlay it on Figure 1. State the relationship between the distribution of tectonic plates and the distribution of earthquakes and volcanoes.

2. What are the effects of earthquakes and volcanic eruptions?
   (Teachers can instruct students to collect information for the answers, e.g., Find the relevant writing and pictures from books, magazines, TV news, and the Internet).

3. Give reasons for deciding whether the following two sentences are "true" or "false".
   (a) "It is a rare phenomenon for the occurrence of earthquakes and volcanic eruptions".
   (b) "Few people live near the earthquakes and volcanic belts".

4. Is it wise to live in the unstable zones? Why?
Case Study - Kansai Earthquake of Japan

Date of earthquake: 17 Jan, 1995
Location: Kobe, located at the southwestern part of Honshu, Japan
Population: 1.4 million
Duration of the quake: 20 seconds
Magnitude: 7.2 on the Richter scale
Number of deaths: 5,500
Effects of the earthquake:

1. More than 100 thousands houses collapsed and 900 thousands families suffered from terminated electricity supply.
2. Tsunamis damaged many coastal constructions.
3. Fire damaged many constructions and houses.
4. Land at around 100 kilometres from the city of Kobe was affected.
5. More than 500 minor quakes.
6. One of Japan's most important ports was seriously destroyed.
7. Transportation was paralyzed with ten trains derailed.
8. Drinking water was cut.
9. Communication network was cut, adding more difficulty in rescue work.

Discussion:
The Kansai earthquake brought serious destructions to its residents. If you were one of these residents:
(1) How would you reconstruct this beautiful port with other residents?
(2) What measures would you take to minimize the disastrous effects brought by the earthquake?
Earthquakes occur in Japan in this century

Date / Place / Magnitude / Death Toll

1993 Okushiri-to/7.8/230

1993 Kushiro/7.8/2

1964 Nigata/7.5/26

1948 Fukui/7.1/3895

1923 Tokyo/Yokohama/7.9/142807

From the above map,
1. Why does Japan often suffer from earthquakes?
2. Why is the number of deaths not in a direct proportion to the magnitude of earthquakes?
If there were an Earthquake in Tokyo

Seismologists predicted that a great earthquake would occur in Tokyo again very soon. The time span for recurrence of such a great earthquake is every 70 years. The last great quake occurred in 1923.

"Tokyo Daily" stated in its headline that, "If an earthquake measures 7.2 on the Richter scale, 68,000 people will be killed or injured." To be sure, it must be a great disaster if an earthquake occurs in a metropolitan city with a population of about 30 million.

Tokyo is located at an active earthquake belt. There were 1.4 million deaths and 2 million people homeless in the last earthquake.

(Adapted from Ming Pao Daily News)

Use your imagination to describe the situation of "If there were an earthquake in Tokyo" in about 100 words:

If there were an earthquake in Tokyo......
Farming the Wrong Way?
How we farm?

What is a farm?

Draw a PICTURE to express your idea of a farm.

What are the characteristics of the farm you have drawn?


Farming the Wrong Way?
1. Please draw a sketch diagram to outline the following three rural land uses:
   (1) Farmland
   (2) Rural settlements
   (3) Road network
2. Describe the distribution of farmland and rural settlements.


3. The farming type shown in the photo is ________________________
   The characteristics of such farming pattern are as follows:
   (1) Land area ________________________
   (2) Agricultural production ________________________
   (3) Major agricultural product ________________________
   (4) Agricultural technology adopted ________________________
   (5) Constraints faced in farming ________________________

4. Why is this farming type adopted?


5. In which places of Hong Kong can you find such land uses?


Farming the Wrong Way?
Introduction:
As the population of Hong Kong is ever-increasing, there is great demand for land. This results in a drastic decline in farming activities and the number of farms. The visit aims at increasing students’ knowledge on the declining farming activities in Hong Kong. Students can understand the farmers’ livelihood and are able to distinguish and learn the different urban and rural landscapes.

Teaching objectives:

Students should be able to:
(1) Learn the basic interview techniques.
(2) Understand the characteristics of Hong Kong farming activities.
(3) Strengthen students’ perception on a farming landscape.
(4) Compare the extensive farming in Australia and the intensive farming in China.

Suggested sites:
(1) Ho Chung and Ba Heung, Sai Kung
(2) Fanling
(3) Tai Tong, Yuen Long
(4) Sheung Shui

Things to bring:
(1) Map: large scale landuse map
(2) Camera
(3) File board
(4) Notebook and pencil
(5) Student card

Procedures:
(1) Divide the class into 6 groups of about 7 members each.
(2) Each group brings a camera.
(3) On the way, each group takes photos of the farming landscape.
(4) Groups will be dispatched into different farmlands to carry out interviews, if possible, try to avoid interviewing the same farmer for more than one time.
(5) Students have to record the interview in details.
(6) Students try to write down their feelings of the visit and the interviews.
(7) Each group will hand in a report which contains photos, interview records and their feelings on the visit.
A Farm Visit

Name of the farm: ____________________
Location: ____________________
Date: ____________________
Name of interviewer: ____________________
(Please prepare a camera for taking photos)

Record of the interview

1. Area of the farmland: _______ acre
2. Number of farmers: _______
3. Farmer's working hour per day: _______ hours
4. Are crops grown? _______ (Please fill in the following table if the answer is "yes".)

<table>
<thead>
<tr>
<th>Which crops are grown?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the area of arable land?</td>
</tr>
<tr>
<td>How many harvest in a year?</td>
</tr>
<tr>
<td>Annual output?</td>
</tr>
<tr>
<td>Which method of irrigation is used?</td>
</tr>
<tr>
<td>What other farming technology has been used?</td>
</tr>
<tr>
<td>What are the major farming difficulties?</td>
</tr>
<tr>
<td>How to market the farm products?</td>
</tr>
</tbody>
</table>
5. Are animals kept? ________ (Please fill in the following table if the answer is "yes").

<table>
<thead>
<tr>
<th>Which animals are kept?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the area occupied by it?</td>
</tr>
<tr>
<td>How many animals are kept?</td>
</tr>
<tr>
<td>How long does it take to rear the animals before selling them?</td>
</tr>
<tr>
<td>What are the difficulties faced in rearing animals?</td>
</tr>
</tbody>
</table>

6. Is scientific farming method used? ________

(Please fill in the following table if the answer is "yes").

<table>
<thead>
<tr>
<th>Which scientific farming methods are used?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the limitations?</td>
</tr>
<tr>
<td>What are the negative effects?</td>
</tr>
</tbody>
</table>

7. How do you feel about this visit?

________________________

________________________

________________________
A comparison of the farming methods used by the Chinese and Australian farmers.

Students should collect:
(1) Photo - Extensive farming in Australia
(2) Maps - Farms in Hong Kong and in Australia

Activities-
Draw a sketch for the photo of the extensive farm in Australia.
Compare the farming methods between Hong Kong and Australia.

Compare-

<table>
<thead>
<tr>
<th></th>
<th>Farm in Hong Kong</th>
<th>Farm in Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>Number of farmers - person</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>per acre</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>Investment</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>(machinery or facilities)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>Agricultural production</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
<tr>
<td>Impacts on the environment</td>
<td>more / less*</td>
<td>more / less*</td>
</tr>
</tbody>
</table>

* Delete as inappropriate
How can scientific farming methods help?

Bulletin

Shrinkage of Asian farmland threatens global food supply

Some densely populated Asian countries have experienced shrinkage of farmland due to industrial development. This is a threat to the balance between global food demand and supply in the future. In Japan, the turning of agricultural land into non-agricultural use leads to a 52% decrease in farmland for crops. In South Korea and Taiwan, crops production dropped 31% and 19% respectively.

It should be noted that the increase in both population and income in turn raise the demand for crops, resulting in a reliance on imported crops. In Japan, 77% of crops are imported and the figures in South Korea and Taiwan are 68% and 74% respectively.

China and India are the two most densely populated countries in the world. They are now facing the same problem as Taiwan, Japan and South Korea.

Asia is probably the region where faces the most severe problem of losing agricultural land in the future. The reason is their fast industrialization and population growth.

The meaning of sustainable agriculture:

While fulfilling the demand for food, food production for future consumption will not be threatened. Fertile soil, clean water source, diversified living things as well as attractive landscape must be maintained. The damage to the natural environment should also be reduced to the minimum.

Discussion questions:

(1) What causes the continued shrinkage of farmland in Asian countries?

(2) What causes the increasing demand for cereal in these Asian countries?

(3) Why is Asia the possible region suffering most from losing farmland as compared with other regions in the world?

(4) Do you think the agricultural development in Asia nowadays can meet the requirement of sustainable agriculture?

(5) Try to suggest some measures to increase the supply of land and food in Asia.
Ecofarm

What is an ecofarm?
The operation of an ecofarm makes use of the principles of an ecosystem. It can fully utilize natural resources. It should be an operation free from waste and pollution.

Characteristics of an ecofarm:
(1) Use livestock manure as bait for fish and as fertilizers for fruit trees and vegetables.
(2) Balance the economic and environmental benefits.
(3) Convert the simple traditional monoculture into a diversified agriculture, which greatly increases economic benefits.

Structure of an ecofarm:
Develop an ecofarm in hillslope:
(1) Plant trees at hilltop for afforestation.
(2) Plant fruit trees and bamboo at the middle of the hill.
(3) Rear animals at foothill.
(4) Keep fishes in ponds from the hollow area of the hill.

Reference materials:
Newspaper clippings -
1. Reference 1 - "Hong Kong can use hills to develop ecofarm".
2. Reference 2 - Ecological Agriculture.

Suggested activities:
1. Build a model of an ecofarm.
2. Visit the Lion Nature Education Centre at Tslu Hang, Sai Kung.
Hong Kong can use hills to develop ecofarms

Owing to the Government's policy of new town development, pollution control and reliance on the imported agricultural products from Shenzhen and Guangdong, agriculture in Hong Kong is gradually declining. It is believed that farming will no longer exist in Hong Kong after several years. Some farmers have already given up farming which a few are still thinking of solutions to maintain farming activities. However, they are facing considerable difficulties. The biggest difficulty would be the inadequacy of arable land. It seems that the only way is to develop hillside for farming because it can solve the problem of land shortage as well as establishing ecofarm which is economically efficient.

Recently, I have visited an ecofarm in a mountainous region in Quijiang County, Guangdong Province. According to what I have seen, it is very suitable to develop this kind of farm in Hong Kong because it is both economic efficient and environment friendly. In the ecofarm, trees are planted at hilltop, fruit and bamboo are planted on hillside, livestock is reared at foothill and fish are kept in water pool.

The value of ecofarm, which can replace the traditional agricultural activity, is highly appreciated among scientific sector for its application of ecological principle, effective use of natural resources and pollution-free production means. For example, livestock manure is used as feed of fish and fertilizer. Therefore, agricultural waste can be reused and will not pollute the environment. Moreover, the traditional monoculture model thus changes to the diversified polyculture farming model, promoting greater economic benefits.

If Hong Kong can learn from this practice and establish ecofarms in suitable hilly region, it can assist the changing agricultural restructuring and solve the present unemployment problem of many farmers.
Ecological Agriculture

Ecological agriculture is a modern agricultural system developed from ecological perspective, which combines advanced scientific technology and modern management techniques. It aims at attaining high economic, ecological and social efficiency.

Ecological agriculture provides high quality agricultural products of great species variety and good yield but of fewer inputs. Besides, the environmental resources can be conserved, providing good ecological environment for human beings. Efficiently utilizing our limited resources, we can pursue economic development and protect the environment at the same time. Here are some of the major characteristics of ecological agriculture.

1) Compatibility: Ecological agriculture is a modern integrated farming system which incorporates the precious experience of traditional agriculture, contemporary technology and management skills.

2) Efficiency: Ecological agriculture enhances the rate of resources usage and labour productivity by utilizing resources reasonably and avoiding any unnecessary wastage during the farming process.

3) Sustainability: Ecological agriculture relies on the ecological principles. It not only increases the agricultural productivity but also emphasizes on the protection of the ecological environment. Therefore, it provides favourable conditions for agricultural sustainability.
Common agricultural activities in China
and
their characteristics

Teaching objectives:
(1) With Chinese folk songs appreciation, students are expected to
   (i) understand common agricultural activities in China and their characteristics.
   (ii) appreciate the real lives and feelings of Chinese farmers.
(2) Let students distinguish between intensive farming and extensive farming.
(3) Let students understand the distribution of the different types of agriculture in China.

Teaching period:
1 lesson

Teaching materials:
(1) Folk song cassette tapes and lyrics
(2) Worksheet
(3) Maps of China - climate, relief

Teaching procedures:
(1) Play cassette tapes of Chinese folk songs.
(2) Listen to the tape once;
(3) Distribute worksheets and let students listen to the tape again.
(4) Finish questions 1-3 of the worksheets.
(5) Finish question 4 of the exercise by referring to the map of China.
(6) Conclude by summarizing the main points of this topic.
民謠一：洪湖水，浪打浪
洪湖水呀，浪呀麼浪打浪啊，洪湖岸邊是呀麼是家鄉啊，清早船兒去呀去撒網，晚上回來魚滿倉，遍地野鴨和菱藕，秋收滿畈稻穀香，人人都說天堂美，怎比我洪湖魚米鄉。

民謠二：月光光
月光光，照地堂，蝦仔你乖乖睡床，聽朝阿媽要起身插秧嘿，阿爸騎牛徑上山崗嘿，蝦仔你快快高長大嘿，幫手阿爸去耕牛羊嘿。
月光光，照漁塘，蝦仔你乖乖睡床，聽朝阿媽要插魚蝦嘿，阿媽縫渔網要織到天光嘿，蝦仔你快快高長大嘿，划艇撒網更在行。
月光光，照地堂，年卅晚，摘蕉椰，五穀豐登堆滿倉嘿，老老嫩嫩真洋洋嘿，蝦仔你快的咪埋眼瞓，一覺睡到大天光嘿，哦……。

民謠三：五哥放羊
正月格裡正月正，正月那十五掛上紅燈，紅燈那個掛在哎來門外，單那等我五那個哥他上工來，哎喲哎喲喲哎喲來哎喲喲，單那等我五那個哥他上工來。
六月格裡二十三，五哥他放羊在草灘，身披那個蓑衣他，手裡拿著傘，懷來中又抱上那個放羊的繩。
九月格裡秋風涼，五哥他放羊沒有衣裳，小妹妹我有件哎小來袴 Gives，哎來一改領那箇扣你裡邊兒穿上。
十一月三九天，五哥放羊真是可憐，刮風那個吹雪哎常來在外，不耐落西那箇山他才回家。
十二月一年滿，五哥那算帳轉回家園，有朝那個一日哎天來睜眼，我來與我五哥那個哥哥哎把婚完。
(1) *Find the types of agriculture from evidence mentioned in the folk songs.*

Types of agriculture: animal rearing, rice cultivation, fishing, fish-rearing.

<table>
<thead>
<tr>
<th>Type of agriculture</th>
<th>Evidence</th>
</tr>
</thead>
</table>
| 清早船兒去呀去撒網，晚上回來魚滿倉聽朝 | 秋收滿畈稻穀香
亞媽要捕魚蝦囉，阿嬤織網要織到天光哦， |
蝦仔你快高長大囉，划艇撒網更在行。 |
| 聽朝亞媽要趕插秧囉 |
| 五穀豐登堆滿倉囉 |
| 月光光，照漁塘 |
| 幫手阿爺去睇牛併上山崗 |
| 五哥那放羊在草灘 |
| 五哥他放羊沒有衣裳 |
| 五哥放羊真是可憐 |

Agricultural activity at that place is ________ farming.

(2) *Finish the following table according to the lyrics of folk song 2:*

<table>
<thead>
<tr>
<th>Character</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>阿媽</td>
<td>插秧；__________</td>
</tr>
<tr>
<td>阿嬤</td>
<td>織網</td>
</tr>
<tr>
<td>阿爺</td>
<td>睇牛（在山崗上）</td>
</tr>
<tr>
<td>阿爸</td>
<td>插秧；捕魚蝦；其他工作 — 翻鬆泥土；播種；</td>
</tr>
<tr>
<td></td>
<td>除草；施肥；灌溉；收割……</td>
</tr>
<tr>
<td>蝦仔（現在）</td>
<td>年紀太小，尚未__________</td>
</tr>
<tr>
<td>蝦仔（長大後）</td>
<td>幫手阿爺去睇__________；</td>
</tr>
<tr>
<td></td>
<td>划艇__________</td>
</tr>
</tbody>
</table>
(3) According to the answers of question 2, distinguish the kind of agricultural activity the songs refer to.

<table>
<thead>
<tr>
<th></th>
<th>Type A: Intensive farming</th>
<th>Type B: Extensive farming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of labor:</td>
<td>8 (including landlord, his wife, his 4 sons and 4 daughters)</td>
<td>4 (including landlord, his 18-year-old son and 2 employees)</td>
</tr>
<tr>
<td>Area of farmland:</td>
<td>0.6 hectare</td>
<td>410 hectares</td>
</tr>
<tr>
<td>Area of field:</td>
<td>0.05-0.08 hectare</td>
<td>8-12 hectares</td>
</tr>
<tr>
<td>Energy supply:</td>
<td>80% from human and animals</td>
<td>10% from human and animals</td>
</tr>
<tr>
<td></td>
<td>20% from machinery</td>
<td>90% from machinery</td>
</tr>
<tr>
<td>Land use pattern:</td>
<td>(% to area of farmland)</td>
<td>(% to area of farmland)</td>
</tr>
<tr>
<td></td>
<td>Rice 50%</td>
<td>Sheep raising 45%</td>
</tr>
<tr>
<td></td>
<td>Peanuts 10%</td>
<td>Wheat 35%</td>
</tr>
<tr>
<td></td>
<td>Crop rotation 10%</td>
<td>Grass 10%</td>
</tr>
<tr>
<td></td>
<td>Vegetables 10%</td>
<td>Fallow 10%</td>
</tr>
<tr>
<td></td>
<td>Sugar cane 10%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poultry 5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other crops 5%</td>
<td></td>
</tr>
</tbody>
</table>

Agricultural activity at that place is _________________ farming.

(4) The agricultural activities mentioned in the 3 folk songs could be found in provinces like _________________ and _________________, or regions like _________________ in China.
Too Much Water!
Introduction:

Flooding has always been both a good friend and a terrible foe to human beings. Farmers in China, on one hand, are in great need of a lot of fresh water and thick layer of alluvium for their crops, but on the other hand, have been suffering from the catastrophic impact of flooding for centuries. In 1998, the catastrophic flooding along the Chang Jiang has brought about great loss of lives and property. The floods have affected one-fifth of the mainland population in which 5.6 million homes had been destroyed. Transport in Central China was nearly immobilized. In this unit, students will study the causes and impacts of flooding. Human responses to flooding will also be examined in details. Last but not least, students in Hong Kong should show concern for a better environment and offer help to victims of disaster whenever possible.

Teaching objectives:

Through the study of this unit, students should be able to acquire the following

Concepts/knowledge —

1. The operation of water cycle.
2. Natural causes of flooding.
3. The location of the Chang Jiang.
5. Impacts of Chang Jiang flooding.

Skills —

1. Locate places on a map.
2. Calculate the length of a river.
3. Calculate the total area of a river basin.
4. Identify watershed from map.
5. Describe the impacts of flooding from photographs.
6. Discuss the loss and hazards caused by flooding.
7. Assess the role of human activities in causing flooding in Central China.

Values / Attitude —

1. Identify with the fact that human activities have significant impacts on the natural environment.
2. Show sympathy to the sufferings of those flood victims and be ready to offer help to those in need.
1. Water cycle is the movement or circulation of water on the earth.
   The process is shown in the diagram below.

![Diagram of the water cycle]

**Figure 1**

**Match the correct captions from the following list:**

a. Water evaporates from rivers and lakes.
b. Some water percolates down into the underground rock layers.
c. Water evaporates from the oceans.
d. Surface runoff to the oceans.
e. Water vapour cools down and condenses into clouds.
f. Water transpired by plants.
g. Underground water is finally returned to the oceans.
h. Precipitation to the earth as rain or snow.
2. Refer to figure 1 and answer the following questions:

"Every ten thousand acre of woodland can store 1 million cubic metres of water. Trees can hold soil tightly by their roots."

If most of the trees along the upper course of the river basin have been cut:

- Water transpired by plants *increases / decreases.
- The bare land no longer covered by vegetation is *more / less exposed to wind and rain attack.
- The total volume of rain water reaches the middle and the lower courses *increases / decreases.
- The total amount of soil reaches the middle and the lower courses *increases / decreases.
- The capacity of river to store flood water *increases / decreases.
- The chance of flooding at the middle and lower courses *increases / decreases.

* Delete as inappropriate

Exercise 2

**LOOK** Issue Identification

Here are three photographs taken in China in the August of 1998. Look at them carefully and answer the following questions.

1. What kind of natural hazard is shown in the photographs?
2. Do photograph 2 show a rural or urban landscape? Give evidence.
3. What are the people doing in photograph 3?
4. Based on the photographs and map 4, briefly describe the damage caused by the hazard.
The peasant evacuated with his sole property—The aged cow. (Ming Pao Daily News 8.8.98)

The flood water rose to the height of the 2nd floor. (Ming Pao Daily News 8.8.98)

農民拖著唯一的資產——老黃牛撤離 (明報 8.8.98)

洪水已淹至樓房二樓高度 (明報 8.8.98)

The Liberal Army and flood-fighters in Jiujiang Shi were filling. The embankments with sands bags, in an effort to prevent the attack of the 4th flood peak.
(Apply Daily News 11.8.98)

大批解放軍及抗洪人員，在九江市堤圍加緊堆放沙包以防第四個洪峰沖擊該市。
(蘋果日報11.8.98)

最嚴重三省災情示意圖

(Ming Pao Daily News 8.8.98)
Exercise 3

A. Where is Chang Jiang?
1. With the help of an atlas, identify from Map 1 the provinces through which Chang Jiang flow through.

2. Calculate the total length of Chang Jiang. Show the steps of calculation.

3. Find out the following information about Chang Jiang.
   a. The origin
   b. The total length of the river
   c. The total area of the basin

Scale: 1:35000000

Map 1
B. Read the following news report carefully and answer the following questions.

China Evening Post 10 August, 1998

Officials in Hubei destroyed the secondary dykes along the Chang Jiang yesterday in an attempt to protect the seven million people in the provincial capital, Wuhan, from the flood. Dykes were blown up in Jianli county, 150 km upstream from Wuhan, when about 50,000 residents had been evacuated. However, the water continued to climb higher. Wuhan was still threatened by the flood. It is a major commercial and industrial centre, and an important transport hub, with nearly 7.2 million people. Therefore, thousands of soldiers and unemployed workers have been sent to Wuhan to repair dykes and embankments most at risk.

The highway leading to the airport was partially flooded last Sunday. Water traffic within Wuhan’s cities and between Wuhan and centres like Shanghai has come to a halt. The floods have also affected 21.5 million hectares of farmland and destroyed 4.7 million hectares of crops, the government announced. Many factories and homes were flooded to first-floor ceiling while many policemen patrolled the flooded city streets in boats. As production in some factories stopped and equipment damaged, the floods have brought about great economic loss. More than 2,000 people have died of rain-induced rock fall and mudslides, while some were missing. Fears of mass sickness were now growing. “The hygiene is poor because both the water and the environment are polluted,” an official said.

1. Why did the Chinese Government have to safeguard Wuhan but not Jiangxi? Do you think it is fair?

2. What are the impacts of the flood to the local people?

3. Describe the TWO methods adopted by the Chinese Government to reduce the flood impacts on Wuhan.
C. Below is an interview with a Chinese environmental expert, Professor Chan about the huge flood in Chang Jiang, 1998. Read it carefully and answer the following questions.

Reporter: Hello, Prof. Chan. I would like to ask you some questions concerning the catastrophic flood in Chang Jiang.

Prof. Chan: Sure.

Reporter: This is the worst flood in Chang Jiang since 1954. Why?

Prof. Chan: Since July, heavy rains in Central China have brought a lot of water to Chang Jiang, adding great pressure to the lower course of the river.

Reporter: Why are there floods in Chang Jiang almost every year?

Prof. Chan: Apart from natural causes, human misbehavior is another important factor causing these catastrophic floods. Both the serious indiscriminate deforestation at the upper course and the decrease in the size of lakes along the river reduce the storage capacity of the river, so "light rainfall can cause a big disaster".

Reporter: How does deforestation lead to flooding?

Prof. Chan: Vegetation is like a green reservoir where every ten thousand acre of woodland can store 1 million cubic metres of water. However, large areas of woodland at the upper course of Chang Jiang have been severely logged because of the economic development. The lack of trees meant more and more soil was washed into the river, causing heavy sedimentation. The raised river bed will also reduce the flood-storage capacity.

Reporter: You mentioned that the size of the lakes is decreasing. Why?

Prof. Chan: Since 1940s, eight major lakes along Chang Jiang, such as Tai Hu, Dong Ting Hu and Bo Yang Hu have decreased in size by 33.3% because people reclaimed farmland from the lakes. So the flood-storage capacity is reduced.

Reporter: Chinese people have been facing the hazard of flooding for a long time. Why can't we solve the problem?

Prof. Chan: It depends on a number of factors. First, the Chinese have put more emphasis on the economic development, ignoring the environment for the last two decades. Woodland is seriously deforested to provide land for industrial and economic development. Second, there are some certain administrative problems such as ineffective use of the central funding. Money is used for economic purpose rather than dyke defence.

1. In what season did the flood occur? Why?
2. How does economic development lead to deforestation?
3. Why did Prof. Chan say that the rainfall was not the highest in history but the water level had broken the past record?
4. Name THREE human activities that contribute to the flood.
5. How do lakes help prevent flooding?
6. Do you think the Nature is the only factor to blame?
7. Why the Chinese Government cannot control the flood effectively?
Exercise 4

Below is a real story of a family living in Hubei Province at the time of the huge flood in 1998.

Rising water, sinking hopes

The rising water level of Chang Jiang scared the people in Hubei Province. Mr. Rao, 49 years old, a retired technician had to evacuate from his home near the Wuhan dyke. He, his wife and his son shared a small secondary school classroom with other three families. The youth and the elderly had to sleep on the floor with their clothes hanged on ropes in the middle of the room. Stoves occupied the corners while electric fans tried to cool the high temperature of up to 38 degrees Celsius.

"Here is not as good as our home, but at least we have a place to live" said Mr. Rao. "It is safer here than on the dyke, if a breach occurs, we are all doomed" he added. No matter how uncomfortable is the present living environment, it is still better than their flooded home. When asked about his fear, Mr. Rao answered with an worrying face, "We fear that the flood water will spread over here, if so, we have nowhere to go."

They rowed a small boat to look for their lost property. Now, Mr. Rao only hoped that the water would soon retreat, so they could go home.

1. Why were Mr. Rao and his family full of fear? Briefly describe their present living conditions.
2. How do you feel about the experience of Mr. Rao?
3. What can we do in Hong Kong if we want to help those victims in the Hubei Province?
The Three Gorges Project at Chang Jiang

Teaching objectives:

1. Let students understand what "multi-purpose water scheme" is.
2. Let students analyze the pros and cons of "multi-purpose water scheme."
3. Let students think about the man-land relationship with the topic of the "Three Gorges Project."
4. Let students collect more data on Chang Jiang from atlas.

Teaching period:
2 lessons

Teaching materials:

1. Video tape: "Going through the Three Gorges" (走三峡)
2. Atlas
3. Reference material 1: "Multi-purpose water scheme"
4. Reference material 2: "The most controversial Three Gorges Project at Chang Jiang"

Teaching procedures:

1. Distribute reference material 1 to students and explain what "multi-purpose water scheme" is.
2. Play the video tape and introduce the Three Gorges Project.
3. Distribute reference material 2 to let students understand and analyze the pros and cons of "Multi-purpose water scheme."
4. Ask students to voice their opinions towards the Three Gorges Project.
5. Ask students to vote whether launch the Three Gorges Project or not and find out their wills towards the Project.
"Multi-purpose water scheme"

Objectives: Flood prevention
Drought prevention
Hydroelectricity plant
Navigation development
Tourism development
Development of fisheries

Pros: Increase agricultural output
Increase farmland area
Promote industrial development in rural area
Prevent soil erosion
Decrease sand content in rivers
Stabilize farm production per acre
Increase farmers' living standard
Control river flow (reduce the possibilities of flood and drought)
Increase navigation capacity of rivers
The Three Gorges of Chang Jiang are located in the middle and upper courses of Chang Jiang, namely Xilingxia, Wuxia and Qutangxia. These three gorges totally measure 200 km, crossing 18 countries in Sichuan and 2 countries in Hubei. The following table shows the various opinions on whether the Three Gorges Project at Chang Jiang should be launched.

**Summary of the big eight controversies on the Three Gorges Project:**

<table>
<thead>
<tr>
<th>Reasons for launching</th>
<th>Reasons against launching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td>Require too much investment, construction, time and migration. After construction, sills will block navigation and increase flood hazards at the upper course. Ecological balance will be greatly upset if the Three Gorges Project suffers from dam failure.</td>
</tr>
<tr>
<td>Privileged geographical location with good rock foundation at dam area. It is effective for flood prevention, electricity generation and navigation at Chang Jiang.</td>
<td></td>
</tr>
<tr>
<td><strong>Flood prevention</strong></td>
<td>The Three Gorges Project can only control the flooding of Chang Jiang at the upper course but not the numerous tributaries at the middle and lower courses. Wuhan, is the key city for flood prevention at Chang Jiang. The project fails to lower the water level, nor raise flood capacity there. It is also helpless in flood prevention of Jiangxi and Anhui at the lower course.</td>
</tr>
<tr>
<td>The project will have key control on flood prevention for the middle and lower courses of Chang Jiang. If the project is not carried out, the Jing dam may fail to withstand great flood, contributing to nearly a million casualties.</td>
<td></td>
</tr>
<tr>
<td>Table Title</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
<tr>
<td><strong>Electricity</strong></td>
<td>Major water resources at Chang Jiang lies on the southwestern part with only a few on the eastern area. In the drainage area, coal resource is also limited. Locating at the end of the Chang Jiang Valley, the Three Gorges generate hydro-electric power. They are crucial power supply to Central and Eastern China. When the construction is completed, the pressure of coal production and transportation can be alleviated.</td>
</tr>
<tr>
<td><strong>Sands</strong></td>
<td>Chang Jiang contains less sand than Huang He. Despite of the serious loss of water and soil resulting from deforesting and slope development at the upper course, sands of Chang Jiang does not change much. Most of them can be discharged.</td>
</tr>
<tr>
<td><strong>Migration</strong></td>
<td>Migration can be completed within 20 years after the commencement of construction. A compensation of 11.1 billion is given for clearance and self-support. When in operation, 3 cents for each unit of electricity will be levied for problems arising from migration as well as to raise a fund for the treasury. People from countries and cities are willing to move and welcome earlier development, so that they can get rid of poverty and become rich.</td>
</tr>
<tr>
<td></td>
<td>Three Gorges Project requires long construction period. It cannot generate electricity until twelve years after commencement of construction, and another twenty years later for its full operation. It cannot solve the present severe electricity shortage of the region. It is now important to have some subsidiary hydro-electric plants built at smaller scale, with shorter construction period and better return. The construction of thermal electricity plants at various places can also fulfill electricity demand of the whole region for development. Without the above measures the overall national economic development will suffer from great negative effects.</td>
</tr>
<tr>
<td></td>
<td>Chang Jiang ranked four in the world in terms of its sand content. As the Three Gorges reservoir keep water at the expense of sands, severe deposition resulted at the end of the reservoir may hinder navigation and raise the water level at Chongqing, further intensify the flood disaster at Sichuan.</td>
</tr>
<tr>
<td></td>
<td>A migration at such a great scale is unprecedented locally and internationally. On the two banks of the Three Gorges reservoir, there are slopes with over-population problem. With exploited development, its food supply is not self-support. If a population of more than a million have to be accommodated, it will certainly be overcrowded for the environment. The provision of giant migration compensation might be welcomed, but numerous problems will arise in actual movement.</td>
</tr>
<tr>
<td>Ecology</td>
<td>Despite the large storage for the Three Gorges reservoir, it is not so when compared to the stream volume of Chang Jiang. Since the reservoir locates in a valley, its impact on ecology is not significant. Hydro-electricity is clean which can minimize pollution generated from thermal electricity. The flooded antiques and remnants can be moved and redeveloped. There is insignificant impact on climate, water quality, water temperature and river ecology of the region. Dam is not located on an earthquake zone, thus there is no earthquake threat. Once the land resources are destroyed by flood, it is irreversible, as the flooded region is most fertile land. When more flat farmland and cities are damaged by flood, further development and exploitation will be carried out at hills and mountainous area. If so, vegetation will suffer much, together with a great loss of water and soil. Therefore, major cultural remnants located below the level of 180 meters will be lost. Further towering on reservoir up to 100 meters can trigger off earthquake.</td>
</tr>
<tr>
<td>Technology</td>
<td>The project gives rise to some major technology that exceed the present state and international level. For example, the unit volume of water turbogenerator unit, the gross weight of the vertical ship lift and the strength of the concrete machinery. Some major technologies have far exceeded the State or even international level. Any accident happened at one of the five continuous ship gates will hinder the operation of the whole line. The Ministry of Navigation thus has much worries. Since the volume of the vertical ship lift is too large, it is better to undergo an interim test on the hydro-electric plant which is still under construction, so that the possibility of building such a big ship lift can be estimated.</td>
</tr>
<tr>
<td>Investment</td>
<td>Apart from the national investment, capitals should be gathered from various sources, including (1) utilize foreign capital, issue bonds on the Three Gorges Project; (2) issue bonds on the Three Gorges Project within China; (3) re-invest profit gained from the generation of electricity of the Three Gorges into the construction of the project. The Three Gorges Project involved an investment of 36 billion with a long construction period and long keeping of a huge capital. Many industries such as energy, transportation and raw materials, as well as other businesses like education and scientific research all need funds, it seems that the State is unable to support such a huge project for the Three Gorges.</td>
</tr>
</tbody>
</table>
Too Many
and Too Few
Introduction:

Population Geography aims at helping students to understand the man-land relationship. Students should be able to have a clear picture of the natural and human attributes for that particular place when explaining the population problem there. This topic provides students an opportunity to reorganize their knowledge on China for the study on its population problems.

Teaching objectives:

Through this topic, teachers should arouse students’ concern on the following –

1. China’s population growth pattern.
2. China’s ability to support its large population.
3. Problems of over-population.
4. China’s population distribution pattern.
5. Reasons for uneven population distribution in China.
7. Measures adopted by the Chinese government in response to the uneven population distribution.
8. Relationship between population and economic development.

Students should be able to –

1. Draw line graphs to show population growth.
2. Investigate the problem of over-population in China through a debate. Students can also acquire the skills of debate.
3. Use overlapping maps to study the relationship between topography, climate and population distribution.

Students can develop the following values and attitudes –

1. Identify with the fact that population problem is an important issue of China.
2. Concern the relationship between population growth and the application of resources.
3. Be aware of fallacies in population issues.
Refer to Table 1
Questions:
1. Draw a line graph to show the population growth of China.
2. What is the pattern for population growth in China?
3. China now has a population of __________ billion.
4. What is overpopulation?
5. Is China overpopulated?

Discussion: "Our country can support so many people."
Exercise 2

Maps of China

(1) Topography
(2) Climate
(3) Agriculture

Transparencies Overlapping with:
(4) Transparency of population distribution, showing their distribution relationship.

Questions:
1. What is the population distribution of coastal and inland cities in China?
2. Why is China's population distribution like this?
3. "75% of China's population lived on 20% of its land while 80% of land supported 25% population." What problems will be brought by this population distribution?
Comparison on natural population growth in China.

Bulletin

There is a great difference of birth rates in various regions in China. Birth rate in the northwest, southwest and southern regions are higher than in the northeast, northern China, eastern China and central southern provinces.

Major reasons for the higher birth rates are:
(1) Family planning is not common in regions with minority races until recently. Birth control policy is comparatively looser.
(2) Economy in remote regions is less developed. The conditions of medical hygiene are more primitive.
(3) People living in the inland regions are less adaptable to concept of birth control than those living along the coast.
(4) Some provinces have faster economic growth, but their population control does not correspond to their economic development, e.g. Guangdong and Hainan provinces.

Refer to the Bulletin Questions:

1. What causes the high figure in natural population growth in the northwest, southwest and southern parts of China when compared to the average level of the whole country?
2. List out the possible measures to solve problems of uneven population distribution.
3. Do you think the Chinese government should be responsible for maintaining an even population distribution?

Table comparing the Birth Rates in China

<table>
<thead>
<tr>
<th></th>
<th>High birth rate regions</th>
<th>National average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>20%</td>
<td>17%</td>
</tr>
<tr>
<td>One-child rate</td>
<td>50%</td>
<td>62.75%</td>
</tr>
<tr>
<td>Many-child rate</td>
<td>30%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>
Refer to Table 2

Questions:

1. Draw a line graph to show world population growth.
2. What is the pattern of world population growth?
3. What problems will be brought by such a growth pattern?

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>1600</td>
</tr>
<tr>
<td>1960</td>
<td>3000</td>
</tr>
<tr>
<td>1975</td>
<td>3900</td>
</tr>
<tr>
<td>1995</td>
<td>5700</td>
</tr>
<tr>
<td>2000</td>
<td>6500</td>
</tr>
</tbody>
</table>
Countries with the highest population

Most populated countries (million)

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1218.0</td>
</tr>
<tr>
<td>India</td>
<td>914.0</td>
</tr>
<tr>
<td>USA</td>
<td>260.8</td>
</tr>
<tr>
<td>Indonesia</td>
<td>199.7</td>
</tr>
<tr>
<td>Brazil</td>
<td>155.3</td>
</tr>
</tbody>
</table>

Table 3

Report from the World Bank

World population will increase one fold by the year 2030.

Population growth is particularly high in less developed countries, about 70% of population growth can be found in the poorest countries.

In a regional scale, in the next 35 years, Africa will experience the largest population growth, followed by Central and South America, Asia, the Atlantic, North America and Europe.

High birth rate and longer lifespan are the two major reasons for population increase.
Refer to the newspaper cutting and Table 3.
Questions:

1. According to the level of economic development, which type of countries has the faster population growth?
2. Color in red on continents with the largest population growth in the coming 35 years on the world map.
3. What are the two major reasons for population increase?
Discussion:

Experts believe that neither technology nor natural resources can support a large population.

"Only having more well-educated females and raising their status could be the basic law to fight against population increase." Do you agree?

The world gets 170 more people in every minute. Basic law to fight against population increase: rising female's social status.

At present, there are 5.6 billion people in the world. According to the rate of 170 people more in every minute, the world population will reach 12.5 billion by 2050. Experts believe that neither technology nor natural resources can support such a large population. Only having more well-educated females and raising their status could be the basic law to fight against population increase.

There is significant result in Asian regions where the birth rate has been dropped drastically. For example, in Thailand, the birth rate for every woman dropped from 6.4 to 2.2 at present. However, the figure remains at 6.4 on average at Kenya, Botswana and Zimbabwe in Africa. The figure even climbs to 7.3 in Mali. Fortunately, many anti-family planning countries, such as the Muslim Iran and Catholic Peru, begin to support related projects now.
Introduction -

China has a quarter of the world's population. The one-child policy has a significant impact on the growth of Chinese population but gives rise to other problems at the same time.

Teaching objectives -

Through this topic, teachers should arouse students concern on the following –

(1) China’s population policy.
(2) Factors controlling the population in China.
(3) Reasons for the ageing population in China.
(4) Measures adopted by the Chinese government in response to the population problems.

Students should be able to –

(1) Interpret population pyramid showing the changing age structure.
(2) Analyze population problem from a histogram.
(3) Discuss the issue on "one-child policy".

Students can develop the following values and attitudes –

(1) Identify with the fact that population problem is an important issue of China.
(2) Be aware of the relationship between population growth and resources.
China's population policy and its effects

Ways to solve population problems -
1. Mass population redistribution reduces regional imbalance. Young people are encouraged to migrate from east to west.
2. Adopt intensive farming and privatization to increase productivity.
3. Support the Chinese population by income from the non-farming sectors.

Problems with the one-child policy -
1. Ageing population.
   There is sharp increase in the share of elderly as a percentage of total population. Fertility decline lowers the share of proportion of young people in a population.
2. There will be potential limitation in labour supply, particularly in the cities.
   As time moves on, the only child in single-child family has to take care of the parents and the grandparents, forming the 4-2-1 family pattern.
4. Heavy burden for China to take care of elderly people.
5. Gender imbalance.
   Majority of the aborted fetuses are female.
1. Refer to Figure 1. Describe the changes of the age structures in the successive population pyramids.

![Population structure, 1953-1995](image)

2. What are the reasons for the changing age structures as shown in the above population pyramids? What is the policy adopted by the Chinese authorities?
3. Refer to Figure 2. What is the problem caused by China’s population policy?

![Population aged 60 and over, 1990-2050](image)

**Points for Discussion -**

1. Do you think the one-child policy should be adopted in China? Why?
2. Wu Cangping fights for better provision for the elderly:

   "The old people, having made great contributions to the country, should live a decent life in their later years. It is high time for the government to look into the problem"

   (interview in the China Daily, 7 May 1996)

What are the foreseeable difficulties faced by the Chinese government in solving the ageing problem?
中國的主要地形
七月平均氣溫

溫度（攝氏度）

- >28
- 20-28
- 12-20
- <20

1: 23,000,000