

# Managing Our Land Instructions and Answers for Teachers

- Venue: Flower Dome
- Estimated duration to complete all questions: 1 hr

### Level / Subject:

- Lower Secondary (Geography): Managing the Changing Environment

### Learning Objectives:

- Discuss and explain the reasons for land constraint
- Suggest methods to address the rising demand for land
- Evaluate the effectiveness of different responses to increase land supply



### **ACTIVITY 1: The Demand for Land (30 min)**

(a) At the South American Garden (Flower Dome), you will find a plant that is affected by deforestation, a devastating effect of the rising demand for land. It is also threatened by illegal logging for its timber, which is hardy and of excellent quality. What is its name?

**Answer: Monkey Puzzle Tree.**

**Photo reference for teachers:**



(b) Read more about the plant identified in 1(a) and the threats to the habitats in this region. Why is conservation vital?

**Answers:**

About half of the vascular plants found in this region (Central Chile) are endemic i.e. they grow naturally nowhere else in the world. The logging of the Monkey Puzzle Tree and all other unique plants here will lead to a loss of the animals that depend on these plants for food and shelter. Their pollinators are also likely to dwindle and die out. This leads to an eventual loss of the biodiversity in this region.

(c) Locate the Olive Trees at the Olive Grove and Mediterranean Garden (Flower Dome). This very useful tree is a key crop found in plantations spread across the entire Mediterranean Basin. Land in the Mediterranean Basin is highly sought-after due to the favourable climate, coastal location and agricultural productiveness. Read more about the demand for land, at the Mediterranean Garden.

Land constraint is an issue in many countries across the world. What are the reasons for it? List and explain them in the space here.

**Answers:**

**Limited Land** - There is inadequate habitable land on Earth, where only 10% of the Earth's surface is liveable

**Population Growth** - The total world population is estimated to be 7.4 billion as of February 2016. With the increase in population comes the demand for land for housing and agriculture. Land is also required to build schools, hospitals and recreation spaces for the people.

**Urbanisation** - To provide employment for the increasing population, countries invest more in economic development. This means that more land is required to expand urban areas to include more residential, industrial and commercial spaces. Land is also cleared to make way for roads and airports to improve the transport system.

### **ACTIVITY 2: Increasing Land (30 min)**

As land is limited, Man has to be creative in maximising its use, or even "creating" more land. Did you know that where you are standing now was once the sea? Land reclamation is one of the ways Singapore deals with our land constraint.

What are other methods of increasing land supply or creatively using spaces? Discuss with a partner and list at least three for each category in the table here. Present your answers to the class and discuss the effectiveness of each method.

Answers:

S/N	Category	Method(s)
1	Residential, Commercial and Industrial	<p>a) Forest clearance (deforestation) to make way for more buildings;</p> <p>b) Maximise or restore existing land e.g. restoration of existing derelict land, or re-plan and reconstruct land to maximise use;</p> <p>c) Mixed land use e.g. build residences above schools, hospitals and commercial spaces; build parks and recreation spaces in residential and commercial buildings; designate different uses for the same space during the day and night such as a carpark in the day, and vegetable and seafood wholesaler at night;</p> <p>d) Construct more high-rise, high density buildings;</p>
2	Agriculture	<p>a) Forest clearance (deforestation) to make way for plantations;</p> <p>b) Irrigation and application of fertilisers to restore and reuse derelict land;</p> <p>c) Have smaller scale, sustainable plantations and educate the public to reduce food wastage;</p> <p>d) Vertical planting;</p> <p>e) Soil-less e.g. hydroponics, and aeroponics;</p> <p>f) Roof-top planting on residential, commercial and industrial buildings.</p>
3	Recreation / Tourism	<p>a) Forest clearance (deforestation) to make way for attractions and recreation spaces;</p> <p>b) Eco-tourism – enjoy and support without destroying;</p> <p>c) Conservation of nature reserves – enjoy and protect.</p>
4	Transport	<p>a) Forest clearance (deforestation) to build roads;</p> <p>b) Road diversion to go around nature reserves;</p> <p>c) Build with minimal disruption – build underground tunnels or overhead bridges and flyovers;</p> <p>d) Manage road use e.g. encourage the use of public transport, manage the number of vehicles with taxes and parking fees;</p> <p>e) Integrate work and residential buildings in the same area to reduce the need for travelling.</p>

Given above is an example of possible answers. Other answers are acceptable if students provide well-thought out reasoning. Teachers may also share plausible answers for the purpose of general knowledge.

### Notes to Teacher:

For more on *Managing the Changing Environment*, check out these Secondary School programmes:

- Building Singapore (land supply)
- Home Today, Gone Tomorrow (global warming)

Please refer to our website for more details.