Cambridge O Level

GEOGRAPHY	2230/01
Paper 1 Geographical Themes	May/June 2022
MARK SCHEME	
Maximum Mark: 75	

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1: Marks must be awarded in line with: • the specific content of the mark scheme or the generic level descriptors for the question • the specific skills defined in the mark scheme or in the generic level descriptors for the question • the standard of response required by a candidate as exemplified by the standardisation scripts.
GENERIC MARKING PRINCIPLE 2: Marks awarded are always **whole marks** (not half marks, or other fractions).
GENERIC MARKING PRINCIPLE 3: Marks must be awarded **positively**: • marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate • marks are awarded when candidates clearly demonstrate what they know and can do • marks are not deducted for errors • marks are not deducted for omissions • answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
GENERIC MARKING PRINCIPLE 4: Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

2230/01 (Geographical Themes) – Levels of Response Marking

Using the principle of 'best-fit' and the level descriptors:
- decide which level best describes the overall quality of the response
- annotate the script at the end of the response with the level annotation
- award a mark for the relative position of the response within that level

Level	Marks	Descriptors
Level 3	**6–7**	Responses at this level: • demonstrate a good knowledge and understanding of the content • use detailed example(s) which are relevant and integrated effectively • make a clear argument using well-reasoned judgements • provide a clear conclusion / decision
Level 2	**3–5**	Responses at this level: • demonstrate a sound knowledge and understanding of the content • use example(s) which are relevant and have some detail • make an argument using some reasoned judgements • provide a basic conclusion / decision
Level 1	**1–2**	Responses at this level: • demonstrate a basic knowledge and understanding of the content • use example(s) which are generic or in name only • make an attempt at a basic argument • provide a yes / no statement
Level 0	**0**	No creditable response

Theme 1: Population and settlement

Answer **one** question from this theme.

EITHER

Question	Answer	Marks	Guidance
1(a)(i)	**Define the term _birth rate_.** Number of (live) births/number of babies/people born Per 1000 people per year	2	
1(a)(ii)	**Suggest reasons why the birth rate remains high in many LICs (low income countries).** Lack of birth control/family planning/cannot afford contraception Lack of education about family planning/birth control Religion does not allow birth control/abortion Tradition/culture to have large families High infant mortality rates Fewer opportunities for women/less education for women/women stay at home Early marriage Having more sons is seen as an indication of higher family status Children to work on the land/source of income Look after parents in old age No policies regarding number of children	5	Tradition = 0
1(b)(i)	**Study Fig. 1.1, which shows a population pyramid for Brunei in 2018.** **State the total number of children in the 0–4 age group.** 37 000/19 000 males + 18 000 females	1	Must have thousands

Question	Answer	Marks	Guidance
1(b)(ii)	**Which age group has the highest total population in Brunei?** 30–34	1	
1(b)(iii)	**State whether Brunei is likely to have an ageing population in the future. Give evidence from Fig. 1.1 to support your answer.** <u>Yes</u> A lot of people in the economically active age group that will move through the pyramid 0-4 age group expanding again so more people to move through the pyramid <u>No</u> These people might not progress through the pyramid as they could emigrate	2	Reserve mark for stating yes/no/to a certain extent and then the supporting reason
1(c)(i)	**Study Fig. 1.2 (Insert), which shows a settlement in a rural area in an MIC (middle income country).** **Describe the features of the settlement shown in Fig. 1.2.** Low density housing area Houses close together Dirt tracks/sandy roads Unsecure houses/lack of security Houses made of wood/corrugated iron/zinc/plastic/cardboard Poorly constructed/unstable/poor foundations Small houses/single storey Small/no windows Outside toilets Rubbish/litter/land pollution Vegetation present/scattered	3	Hill in background = 0 Any negatives = 0

Question	Answer	Marks	Guidance
1(c)(ii)	**For urban areas, describe the effects of counter-urbanisation.** Population declines Wealthy families move out of the cities Those who remain cannot afford to move Businesses/shops move out Businesses/shops that remain struggle to stay open/close down Derelict buildings/empty buildings Crime increased/neglect/graffiti/vandalism	4	Answer must only focus on the urban area

Question	Answer	Marks	Guidance
1(d)	**For <u>one</u> named country, describe the policy used to control the rate of population growth. How effective was this policy in controlling the population growth?** **Content Guide** <u>Answers are likely to refer to:</u> <u>'One-child policy' in China</u> Incentives to have one child Penalties for having more than one child Advertising campaigns Pressure from the community <u>'Three or more policy' in Singapore</u> Cash for having children Tax relief Campaigns <u>More developed answers are likely to refer to:</u> <u>'One-child policy' in China</u> Couples receive 5% to 10% salary increase Free education for the child Priority housing Certificate of honour for single child parents Educational posters are used to encourage couples to be responsible citizens by having one child Women were forced to undergo abortions and sterilisation if reported by the community Contraceptives are made widely available and affordable Success: Prevented 300–400 million births/Average growth rate fell from 1.07% to 0.57%/More successful in urban areas Unsuccessful: Gender imbalance/Social problems – self-centred children/Ageing population	7	This will depend upon the policy chosen. Some form of evaluation – successful/unsuccessful/partially successful – is required. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

Question	Answer	Marks	Guidance
1(d)	<u>'Three or more policy' in Singapore</u> S$4 000 for first and second child and S$6 000 for third and fourth child Tax relief given for up to four children Priority in housing and education Media campaigns to promote marriage and childbearing Government sponsored matchmaking through the Social Development Network to encourage and help single people meet prospective partners Success: In the first few years the number of births increased from 43 616 to 49 402 Unsuccessful: Increase not sustained/Dropped to below 40 000 births per year/Fertility rate remains at 1.4		

OR

Question	Answer	Marks	Guidance
2(a)(i)	**Define the term *quality of life.*** Measurement of the overall well-being of the people Includes social and economic well-being	**2**	
2(a)(ii)	**Name the index that uses life expectancy, education and income to measure the level of development of a country.** Human Development Index/HDI	**1**	

Question	Answer	Marks	Guidance
2(b)(i)	**Study Fig. 2.1 (Insert), which shows mean years of schooling in 2017.** **Describe the distribution of countries with 3–6 years of schooling shown in Fig. 2.1.** Continents of Africa and Asia One exception in Oceania Scattered distribution Africa: north-west/west African coast/south-east coast/east coast Asia: linear distribution/from NW to SE	3	No names for individual countries
2(b)(ii)	**Explain why education is so important in improving the quality of life of people in a country.** Provides people with choices/provides people with knowledge and information People can make informed decisions which affect their future and well-being People with education usually produce more farm output/use more advanced farming techniques to increase output People can contribute to the secondary and tertiary sectors/improve GNP/get jobs Money is spent on health/education/transport services Strong relationship between education and population growth/population growth rate declines Educated mothers make informed decisions about nutrition, medical and health assistance and infant mortality rate falls Country does not face the consequences of overpopulation	4	Allow development marks

Question	Answer	Marks	Guidance
2(b)(iii)	**Apart from education, suggest other strategies that could be used to improve the quality of life in LICs (low income countries).** Eradicate extreme poverty and hunger/better food supply Promote gender equality and empower women Reduce child mortality Improve maternal health Combat HIV/AIDS/Malaria/other diseases Ensure environmental sustainability/reduce deforestation/provide clean drinking water Develop a global partnership for development/reduce debt/encourage fair trade products	3	
2(c)	**Study Fig. 2.2 (Insert), which shows an urban area in the UK.** **Name the land use zone shown in Fig. 2.2. Give reasons for your answer.** Central Business District (CBD) (Reserve) Tall buildings/multi-storey Old buildings (oldest part of the city) Buildings closely packed together Shops/banks can be seen Little housing/except perhaps apartments above buildings Lots of pedestrians Taxis	5	Reserve 1 mark for CBD

Question	Answer	Marks	Guidance
2(d)	**With reference to examples, describe the problems associated with urban growth in HICs (high income countries). How effective have strategies for overcoming problems in urban areas in HICs been?** **Content Guide** Answers are likely to refer to: Air pollution Traffic congestion Accidents/safety Housing shortages Increase public transport Build more homes Pollution laws More developed answers are likely to refer to: High traffic volume with the majority being private cars result in a very high level of air pollution Severe traffic congestion can lead to more air pollution as cars are standing still Housing supply cannot keep up with the increasing demand Increased flooding as more green areas are removed and replaced by concrete/tarmac Congestion charges have been successful in reducing traffic entering central areas Revenues from congestion charges can be used for public transport improvements Restrict traffic in central areas and encourage pedestrians which results in less air pollution Ring roads/bypasses result in less traffic travelling through urban areas Strict laws regarding pollution levels by industry	7	This will depend on the urban area chosen but it must be an urban area in an HIC. An evaluation on the effectiveness of strategies used must be included. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

Theme 2: The natural environment

Answer **one** question from this theme.

EITHER

Question	Answer	Marks	Guidance
3(a)	**From Fig. 3.1, identify <u>two</u> types of river erosion.** Abrasion Attrition	2	
3(b)(i)	**Study Fig. 3.2, which shows a cross-section of a meander.** **Does Y in Fig. 3.2 represent the outside of the meander or the inside of the meander?** Outside	1	
3(b)(ii)	**Describe how the river and river bank features change as you move from X to Y in Fig. 3.2.** Deeper Velocity increases/gets faster Erosional features occur/river cliff/overhang Depositional features no longer occur/no beach of materials	3	Processes alone = 0
3(b)(iii)	**Suggest <u>one</u> reason to explain the difference in velocity between X and Y in Fig. 3.2.** Less friction with bed/sides so water flows faster as river is deeper More friction with bed/sides so water flows slower as river is shallower	1	No mark for description/mark is for the explanation

Question	Answer	Marks	Guidance
3(c)	**Study Fig. 3.3, which shows a human activity in a forested area.** **Name the human activity taking place in Fig. 3.3 and explain how this can result in increased flooding in an area.** Deforestation/tree felling (Reserve) Less interception/less trees to absorb water/less trees to block water More runoff/overland flow Fewer tree roots to take up the water More sedimentation in rivers Less space in the river channel Trees are replaced by concrete/tarmac Infiltration rates are reduced	5	Reserve 1 mark for the named process
3(d)(i)	**Explain how flooding can have an impact on the following:** **A economy** **B transport** **C health of the population.** Economy Loss of income as businesses are closed Less tourism in the area Cost of repair by insurance companies Government must spend money on flood defences Transport Airports closed Roads blocked/damaged Buses/trains cancelled/delayed Unable to get to school/work/cannot drive Damage to vehicles	6	Reserve 1 mark for each part

Question	Answer	Marks	Guidance
3(d)(i)	<u>Health of the population</u> Dirty water/lack of clean water Named disease, e.g. cholera Illness/death Stress/anxiety Food supplies maybe destroyed		
3(d)(ii)	**With reference to <u>one</u> major river flooding event, describe the management strategies used to reduce the impact of flooding on the people and the environment. How effective have these strategies been?** **Content Guide** <u>Answers are likely to refer to:</u> Plant trees Changing the river channel Changing the catchment area Limit urbanisation Build drainage channels Flood preparedness <u>More developed answers are likely to refer to:</u> Straightening the channel causes the river to flow faster Deepening the channel by dredging to remove earth from the river bed Changing the course of the river and lining it with concrete surfaces makes the river flow faster Build artificial levees/embankments to increase the height of the channel	7	This will depend on the flooding event chosen. Reference must be made to the strategies chosen and an evaluation of these strategies is essential for full marks. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

Question	Answer	Marks	Guidance
3(d)(ii)	Dams control the amount of water flowing into rivers Planting trees increases interception and reduces runoff Reduce the amount of urbanisation allowed to take place Set land aside as overflow areas Modern technology allows the prediction of flooding and early warnings Education so people know what to do before and after a flood		

OR

Question	Answer	Marks	Guidance
4(a)	**Describe the differences between continental crust and oceanic crust.** Continental crust Land/forms the continents Lighter Older Granite rocks Thicker (35–40 km) Oceanic crust Sea/forms the ocean floors Heavier/denser Younger Basalt rocks Thinner (7–10 km)	2	Two separate sentences can be credited without a direct comparison – e.g. Continental crust has granite rocks. Oceanic crust has basalt rocks.
4(b)(i)	**Study Fig. 4.1, which shows a plate boundary.** **Name the type of plate boundary shown in Fig. 4.1** Destructive/convergent	1	

Question	Answer	Marks	Guidance
4(b)(ii)	**Explain how volcanoes are formed at the plate boundary shown in Fig. 4.1.** Two plates moving together/towards each other/collide Due to convection currents (in the mantle) Oceanic plate is denser/continental plate is lighter Oceanic plate is forced under the continental plate/subduction Sinks into the mantle Friction between the plates generates heat that melts the rock Sinking plate melts (to become magma) Magma rises (to the Earth's surface) Lava solidifies and accumulates	**4**	
4(b)(iii)	**Describe the long-term impacts on the people and the economy of an area resulting from a volcanic eruption.** Negative long-term impacts Injuries Trauma of dealing with the death of family members/friends Loss of jobs/decline in economy/tourism Loss of food supply Loss of land/property/homes Lack of clean water Lack of sanitation Lack of education/healthcare facilities Damage to roads/airports/railways/communications Cost/time to rebuild Out-migration of the population as worried it could happen again Positive long-term impacts Fertile soil (good for agriculture) Tourism (jobs/income) Geothermal power	**3**	Can be positive or negative

Question	Answer	Marks	Guidance
4(c)(i)	**Study Fig. 4.2 (Insert), which shows an area in Southern India affected by a tsunami.** **What is a tsunami?** A huge/large wave caused by an underwater earthquake/plate movement under the water	1	Need both ideas to get the mark
4(c)(ii)	**Describe the damage caused by a tsunami shown in Fig. 4.2.** Flooding Homes destroyed/damage to buildings/loss of property Boat washed up Vegetation/trees fallen Rubbish/garbage/debris left behind Telegraph poles/telephone/communication/electricity cables are taken down	3	It must be linked to what can be seen on the photograph Farmland = 0 Roads = 0
4(d)(i)	**Study Fig. 4.3, which shows global deaths resulting from earthquakes from 2000 to 2015.** **Describe the overall pattern shown in Fig. 4.3.** Fluctuating pattern/extremes/highs and lows/large variations in the number of earthquakes per year/not stable	1	

Question	Answer	Marks	Guidance
4(d)(ii)	**Suggest reasons for the pattern shown in Fig. 4.3.** Some countries are more prepared/emergency plans in place More education on how to respond to earthquakes/drills in place Earthquake proof buildings Earthquake occurs in LICs Variation of strength on the Richter scale Population density near to earthquakes will vary Time of earthquake Depth of the focus will vary Type of soil Secondary effects such as tsunamis may cause more deaths	3	Lack of education = 0

Question	Answer	Marks	Guidance
4(e)	**With reference to an earthquake that you have studied, describe the impact on the people living in the area. To what extent were the people prepared for an earthquake in this area?** **Content Guide** Answers are likely to refer to: Plate movement People died People injured Buildings collapsed Loss of power Less people hurt if earthquake was predicted More developed answers are likely to refer to: The earthquake was caused by faulting as the Pacific Plate slid past the North American Plate 2 deaths due to collapsed buildings 40 injuries in the town of Paso Robles 40 buildings were severely damaged at Paso Robles Closure of the airport as cracks were found in the runway Loss of power to around 10 000 homes and businesses Houses were earthquake proof so could withstand earthquakes – deep foundations/strong foundations/pyramid shape/cross bracing/shatterproof glass Less high-rise buildings were built People were prepared as they had carried out earthquake drills so knew to go under tables People were prepared as they were educated in school and in the workplace about how to behave during and after an earthquake There were planned evacuation routes in place Areas of open space had been left near houses so people could gather there	7	The response will depend on the earthquake example chosen. There must be reference to the impact on the people and an evaluation for full marks. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

Question	Answer	Marks	Guidance
4(e)	Emergency services and search and rescue teams were trained Emergency supplies of food/water and first aid were available Land use zoning had been carried out Tsunami walls/warning systems and alarms were in place		

Theme 3: Economic development

Answer **one** question from this theme.

EITHER

Question	Answer	Marks	Guidance
5(a)	**Explain the growth of global tourism.** More disposable income Paid annual holidays so people have more time to travel Better education and people want to explore new destinations Diverse attractions so people travel to experience these More tourist facilities so there are enough restaurants/hotels Accessibility means travelling to these destinations is much easier/faster Advertising/social media makes it much easier for people to book holidays Ageing populations in HICs: retired and active ageing populations with disposable income and available leisure time Relatively cheaper (in terms of disposable income) air fares Visiting family abroad Growth of medical tourism	5	Allow development marks
5(b)	**Study Fig. 5.1, which shows a sign attached to a building located on a small tourist island.** **Suggest reasons for the sign shown in Fig. 5.1.** Tourists are welcome as they bring money to the area To encourage tourists to take care of the area/environment/not cause damage Not to litter To think that their actions will have consequences for the residents This is the home of many people Perhaps there have been problems in the past To respect their culture/respect the people/behave appropriately	2	No direct lifting

Question	Answer	Marks	Guidance
5(c)(i)	**Study Fig. 5.2, which shows information about air travel to Brunei in 2010 and 2018.** **Calculate the increase in the number of tourists arriving by air in Brunei from 2010 to 2018.** 63 800	1	Exact figure needed – no tolerance
5(c)(ii)	**Suggest one impact that increased air travel might have on the environment of Brunei.** Air pollution Noise pollution Interfere with migrating birds Habitats destroyed as there is a need to build more runways/terminals	1	
5(d)(i)	**Study Fig. 5.3, which shows locations in Brunei visited by tourists in 2018.** **Name the location that received the most visitors in 2018, as shown in Fig. 5.3.** Jerudong Park Playground	1	
5(d)(ii)	**Name one example of a natural attraction and one example of a cultural attraction shown in Fig. 5.3.** Natural attractions Ulu Temburong National Park Cultural attractions Royal Regalia Museum Brunei History Centre Gallery	2	1 mark for natural attraction and 1 mark for cultural attraction

Question	Answer	Marks	Guidance
5(e)	**Explain how the following can be used to promote tourism in Brunei:** **A trade shows** **B familiarisation trips** **C Royal Brunei Airlines.** Trade shows Hosting trade shows is an opportunity to showcase Brunei as a cultural and natural tourist destination Participating in trade shows allows partnerships to develop with other governments and private sector agencies To increase co-operation between tourist facilities, government, external operators to meet and put together workable packages to sell to consumers/tourists Aimed at raising awareness of Brunei in the country that the trade show takes place/showing the different locations of Brunei Familiarisation trips Travel agents from other countries are welcomed to Brunei to learn about the food/culture and food These travel agents are then confident in promoting Brunei as a tourist destination in their own country Royal Brunei Airlines Accessibility and getting people to Brunei is very important The national airline of Brunei Air connections to various parts of the world Travel can be fast/convenient/comfortable Can offer discounts or promotions to potential tourists making it cheaper to arrive in Brunei and could link with hotels/other accommodation to offer 'package' holidays to tourists	6	Reserve 1 mark for each part

Question	Answer	Marks	Guidance
5(f)	**With reference to a tourist area in Brunei, describe the strategies used to control the impact of tourism on the people and the environment. How effective have these strategies been?** **Content Guide** Answers are likely to refer to: Maintaining trails Enacting laws Increasing awareness Eco-developments More developed answers are likely to refer to: The Forestry Department has carefully maintained the trails in the recreational parks Footpath erosion can occur if the paths are not well managed Boardwalks protect the ground vegetation and prevent soil erosion In protecting and conserving the valuable species of flora and fauna in the conservation areas, laws are passed in Brunei Nature Camp/World Forestry Day are aimed at providing education for the public and advice on sustainability Include the local people and prevent exploitation of their culture Access to the Temburong National Park is present only by boat Construction is kept to a minimum to prevent disruption to the natural environment	7	This will depend on the area chosen but it must be a specific area in Brunei and not the country in general. An evaluation of how effective these strategies have been is essential for full marks. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

OR

Question	Answer	Marks	Guidance
6(a)	**Describe the difference between renewable and non-renewable energy.** Renewable energy is energy that can be replenished as they form quickly/non-renewable energy takes a very long time to form such as millions of years	1	No mark for examples – mark is for the difference and not a definition
6(b)(i)	**Explain the factors influencing the siting of a nuclear power station.** Availability of water for cooling purposes So often close to coastal locations Geological stable area Not prone to earthquakes/landslides Land available for storage of waste Waste is radioactive Large area to expand in future Flat land for ease of construction Areas of low population density for safety Risk of nuclear meltdown Easy access to a grid Need large capacity as large quantity of electricity Must be accessible by road/rail/river/sea For raw material/workers/waste materials removed	5	
6(b)(ii)	**Study Fig. 6.1 (Insert), which shows how electricity was produced in Germany from 2009 to 2019.** **Calculate the overall change in the production of nuclear power between 2009 and 2019.** 10 GW decrease/20 GW – 10 GW	1	Need decrease and units

Question	Answer	Marks	Guidance
6(b)(iii)	**Describe how natural gas changed between 2009 and 2019, as shown in Fig. 6.1.** Overall increase 5 GW (increase)/25 GW to 30 GW Increase in 2009–2018 (dates within) Decrease in 2018–2019	2	
6(b)(iv)	**Suggest reasons for the increase of wind power from 2009 to 2019.** Renewable source of energy Does not emit greenhouse gases Can replace oil/gas/coal/fossil fuels Low running costs as input is free Source of income for farmers who install wind turbines on their land Developments of offshore wind farms Do not have to rely on imports of fossil fuels Price of fossil fuels can fluctuate so more stability with wind power More advanced technology More expertise	4	
6(c)	**State two different sources of greenhouse gases.** Burning fossil fuels Fossil fuel powered power stations generating electricity Deforestation Volcanic eruptions Farming animals/rice fields Exhaust emissions from motor vehicles	2	Vehicles/cars = 0

Question	Answer	Marks	Guidance
6(d)	**Study Fig. 6.2, which shows some impacts of global warming.** **With the help of Fig. 6.2, suggest the effects of global warming on the land.** Temperature increases Increased risk of flooding Increased risk of river flooding due to glaciers melting/snow melt Increased rainfall Damage to habitats/polar bears Reduced snow cover Melting glaciers/Antarctic ice Changes in weather patterns Droughts/desertification in drier regions Changes what can be grown/some plants cannot survive	3	Sea level rise = 0
6(e)	**The Tenaga Suria Brunei solar power plant could bring many benefits to the society and economy of Brunei. Describe these benefits and evaluate how important the solar power plant is in developing alternative energy in Brunei.** **Content Guide** <u>Answers are likely to refer to:</u> Provides power to households Provides jobs Cleaner air for the society Less reliance on fossil fuels Visitors to the plant	7	There must be clear reference to the benefits of the power plant to the society and economy of Brunei. An evaluation of the importance of the plant in developing alternative energy is also essential for full marks. **Levels marking** Please ensure that you refer to the Levels of response marking section at the front of the mark scheme before marking this question.

Question	Answer	Marks	Guidance
6(e)	<u>More developed answers are likely to refer to:</u> Jobs provided in construction/research during the 3-year project period Support to renewable energy development which is clean and environmentally friendly Reduces the country's dependence on fossil fuels for electricity generation Increased awareness on renewable energy, especially amongst those groups of students/individuals who visit the plant Farm covers 12 000 m^2 with 9234 pieces of solar panels and is capable of providing power to 200 households The farm is expected to save 340 000 litres of crude oil It is expected to reduce 960 tonnes of carbon dioxide emission annually This is equivalent to the carbon dioxide absorption power of 260 hectares of forest It has been called the largest demonstration solar farm in Southeast Asia as it is being used by scientists for research purposes It did cost \$20 million It is not enough to significantly reduce the reliance on fossil fuels but it is a starting point		