12th International Geography Olympiad

Tver, Russia

11–17 August 2015

Written Response Test

Question and Answer Booklet

Do NOT open the Booklet before instructed to do so by a supervisor.

Name: ..... **Team:** .....

Student number: .....

Instructions for Students

1. Fill in your name, team and iGeo student number on the front page of this Question and Answer Booklet.

2. Fill in your iGeo student number in the boxes on top of the pages in this Booklet.

3. This test consists of 6 Sections.

4. The maximum total mark is 90.
   The mark for each question is given in the margin at the beginning of the question.
   There is a maximum of 15 marks for each Section.

5. Answer all questions in the spaces provided in this Booklet.

6. Check the backs of pages as questions are printed on both sides of a page.

7. There are blank pages which you can use as additional space for your notes. If you use these pages for answers, please label them clearly with the question number.

8. Where appropriate, please write sentences or phrases not single words.

9. Give only the required number of answers (reasons, examples, etc.).
   For instance, if the question asks for 2 reasons and you give more than 2, only the first 2 reasons will be marked.

10. The Resource Booklet contains Figures referred to in this Booklet.

11. You may use a calculator during the test.

12. Time: 180 minutes for students not educated in English,
    150 minutes for students educated in English.

13. Students not educated in English are allowed to use bilingual dictionaries during the test.

Good luck!

Student number:

Section A: Weathering

2m 1. Explain how **erosion** is different from **weathering**.

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4m 2. Study Resource Booklet Figure A1: Types of weathering.
For both photographs a and b, identify the **type** of weathering shown and explain the **processes** that lead to such an outcome.

Photograph a – type of weathering: .....

Processes: .....

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Photograph b – type of weathering: .....

Processes: .....

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2m 3. Account for 2 ways in which **biological** weathering can occur.

1: .....

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2: .....

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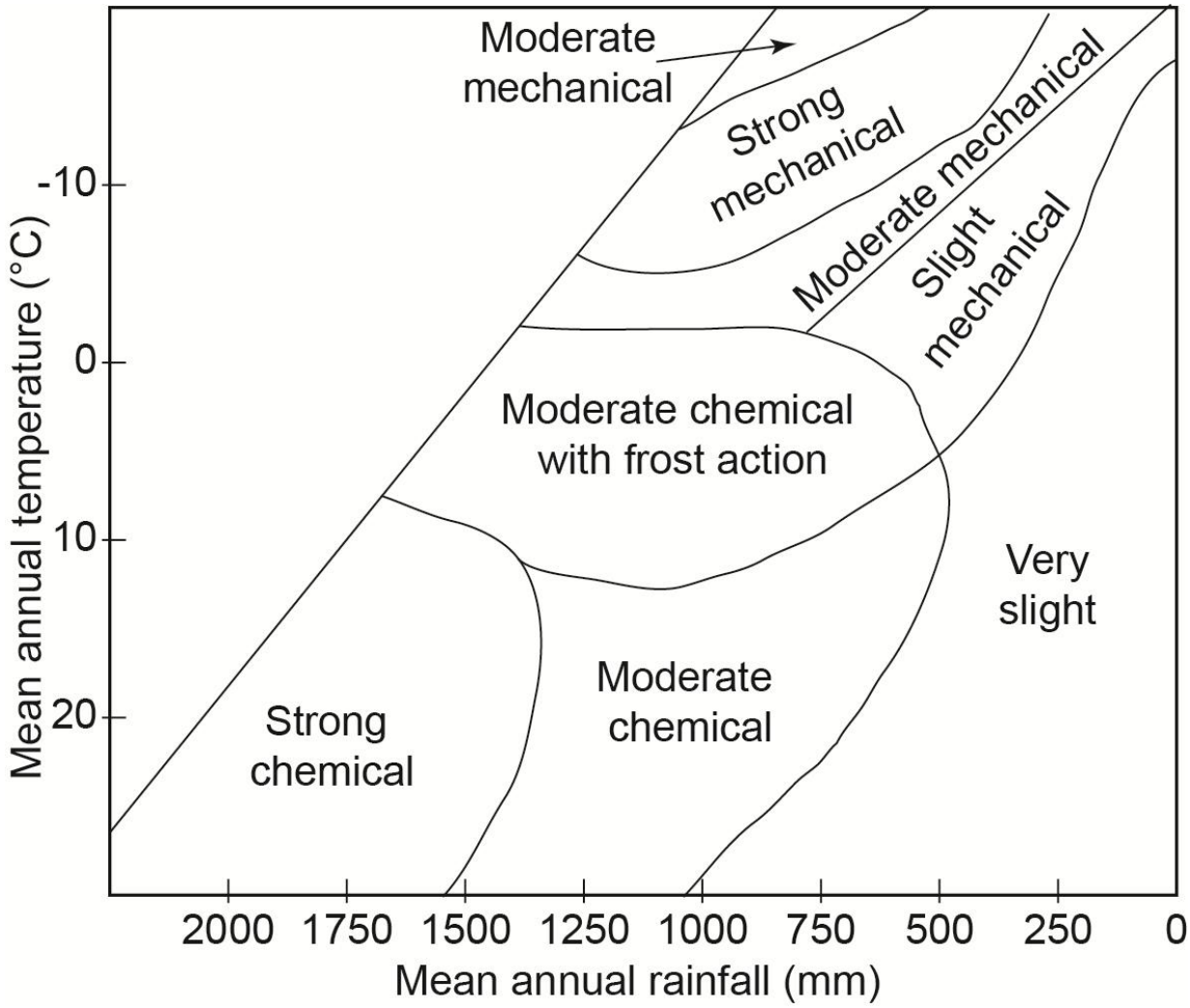
1m

4. Study **Peltier's weathering diagram** below.
   Determine (circle the right answer) whether the role of **chemical** weathering will increase if:
   a) Air temperature decreases and precipitation decreases,
   b) Air temperature decreases and precipitation increases,
   c) Air temperature increases and precipitation decreases,
   d) Air temperature increases and precipitation increases.



Peltier's weathering diagram: weathering regions of the world in relation to mean annual temperature and rainfall, after Peltier (1950) (http://www.slideshare.net/maliadamit/rock-and-weathering-booklet).

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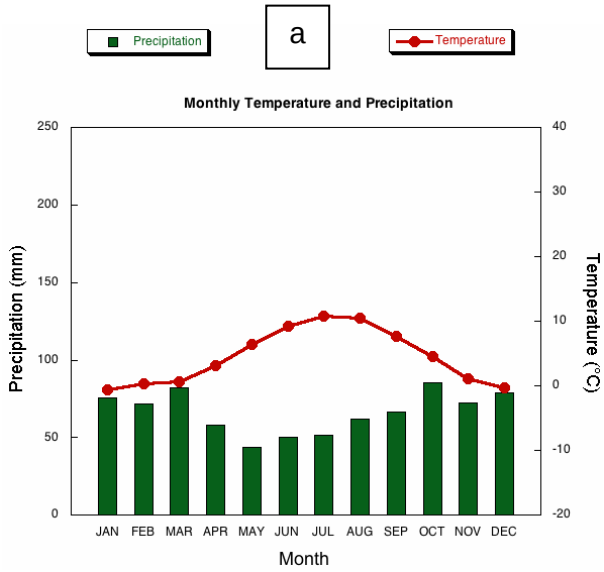
Student number:

4m

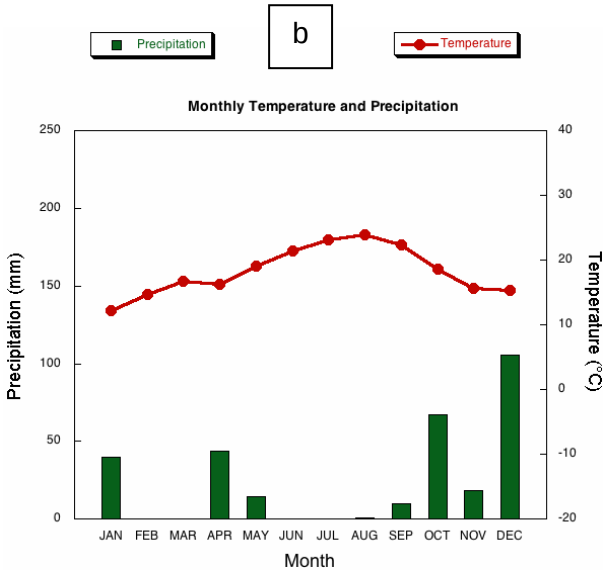
5. Study **climate graphs** a and b below.
   a) Match climate graphs a and b with the right city from the list below:
      - Cape Town (South Africa),
      - Casablanca (Morocco),
      - Kingston (Jamaica),
      - Kolkata (India),
      - Lima (Peru),
      - Reykjavík (Iceland).
   b) Use Peltier's weathering diagram above to identify the **dominant type of weathering** in these cities.

   Write your answers in the table below.

a



b



Climate graphs (http://drought.unl.edu/DroughtBasics/WhatisClimatology/ClimographsforSelectedInternationalCities.aspx).

Climate graph	City	Dominant type of weathering
a		
b		

2m

6. What other factors can affect the **rate** of weathering **apart from climate**?

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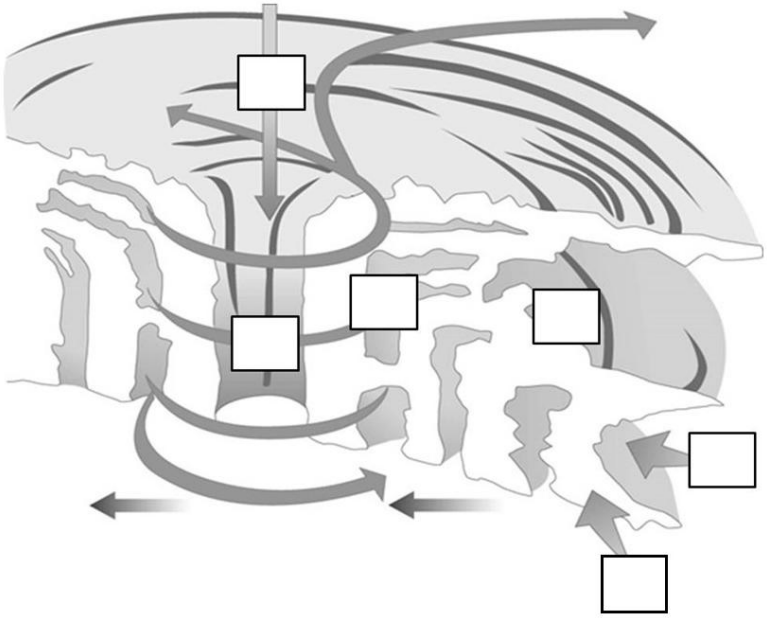
(you can use it for additional space for your notes or clearly marked answers if you wish).

Student number:

Section B: Tropical Storms

2m

1. Study the diagram below: **Cross-section of a tropical storm**.
   Label the diagram below using letters (A–F) for the following phrases:
   A – Warm, moist air drawn into the area of low pressure,
   B – Central eye where there is no cloud,
   C – Water vapour evaporated from the warm sea surface,
   D – Spiralling winds around the low pressure,
   E – Descending dry air drawn into the centre of the system,
   F – Bands of rain and thick cloud.



Cross-section of a tropical storm
(Miller, T. (ed.) 2009: Geography Teacher Guide. Heinemann).

2m

2. Study Resource Booklet Figure B1: Path of Cyclone Hudhud.
   Describe the **movement** of Cyclone Hudhud and its **changes in magnitude** between 9th and 13th October 2014.

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1m

3. Study Resource Booklet Figure B1: Path of Cyclone Hudhud.
   Give a reason for the **changes** in the **magnitude** of Cyclone Hudhud.

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2m

4. List the **features of the weather** you could measure at a **weather station** during the passage of a tropical cyclone.

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4m

5. Account for the **global distribution** of tropical cyclones/hurricanes.

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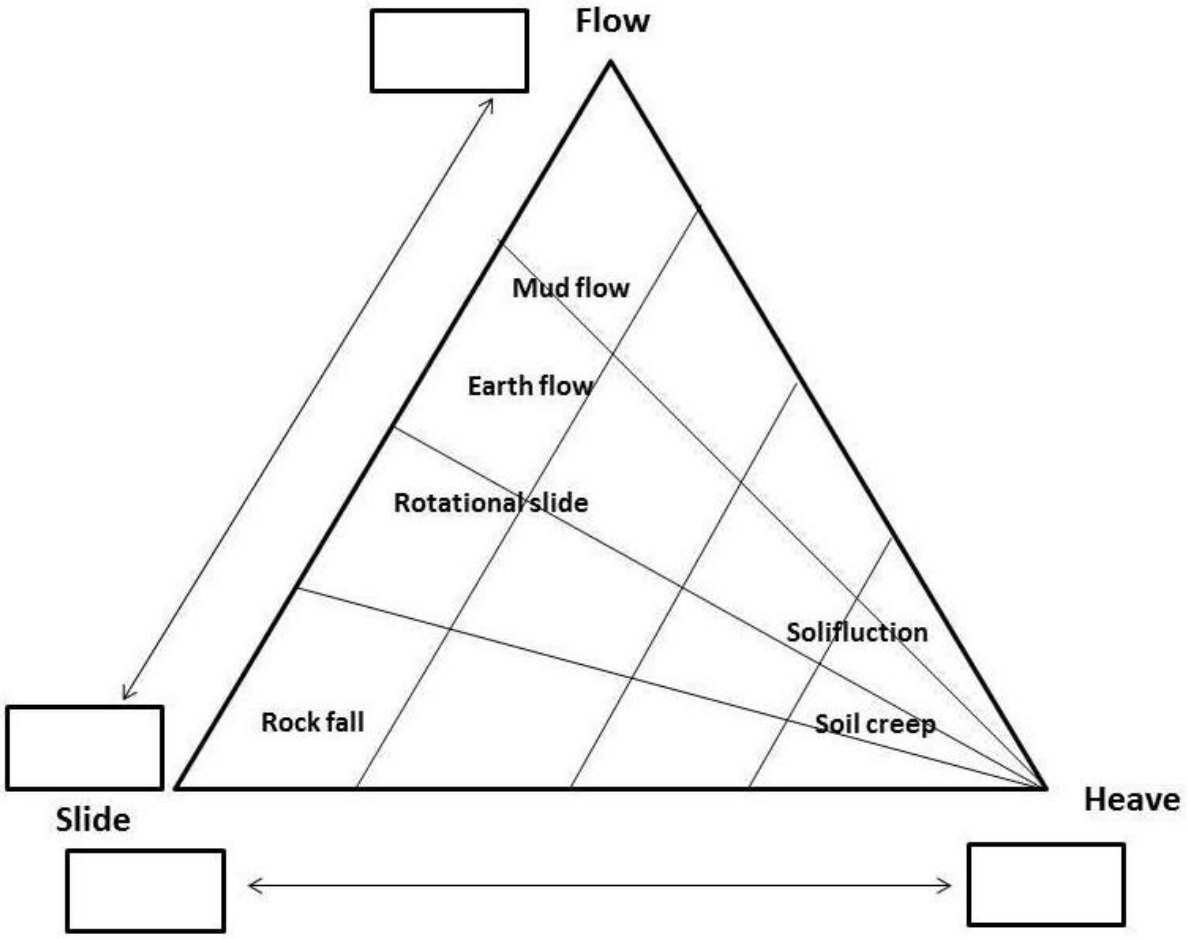
Student number:

1m

6. Study the diagram below: **Classification of mass movements**.
   Fill in the boxes in the diagram below using the following words: ‘dry’, ‘fast’, ‘slow’ and ‘wet’.



Classification of mass movements
(http://wmc.landfood.ubc.ca/webapp/media/IWM/watershed-science/sediment-cycles/Flow%20Diagram.png).

3m

7. Explain how **mud flows**, **earth flows** and **rotational slides** (see Classification of mass movements diagram above) can be possible **consequences** of tropical storms.

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(you can use it for additional space for your notes or clearly marked answers if you wish).

Student number:

Section C: Mapping Skills and Cold Environments

2m

1. Study Resource Booklet Figure C1: A photograph of an area of Iceland and Figure C2: A large-scale map of an area of Iceland.
   a) Mark with an **X** the position where the photographer was standing on the marked trail on the **black-and-white map below**.
   b) Draw an **arrow** to show the direction in which the photograph was taken on the **black-and-white map below**.

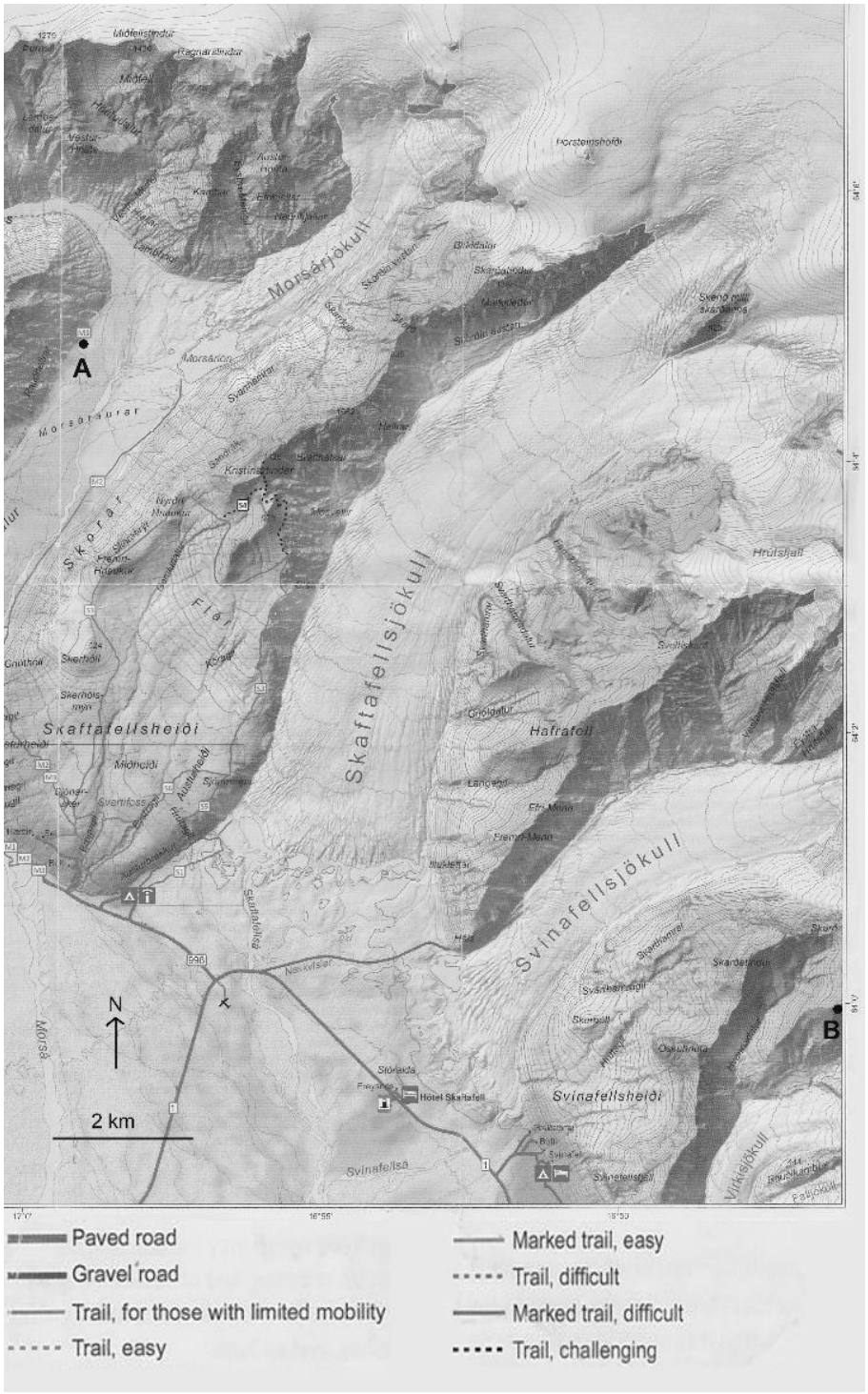

Figure C2: A large-scale map of an area of Iceland (Skaftafell).

2m

2. Study Resource Booklet Figure C2: A large-scale map of an area of Iceland.
Describe the **distribution** of the ice masses.

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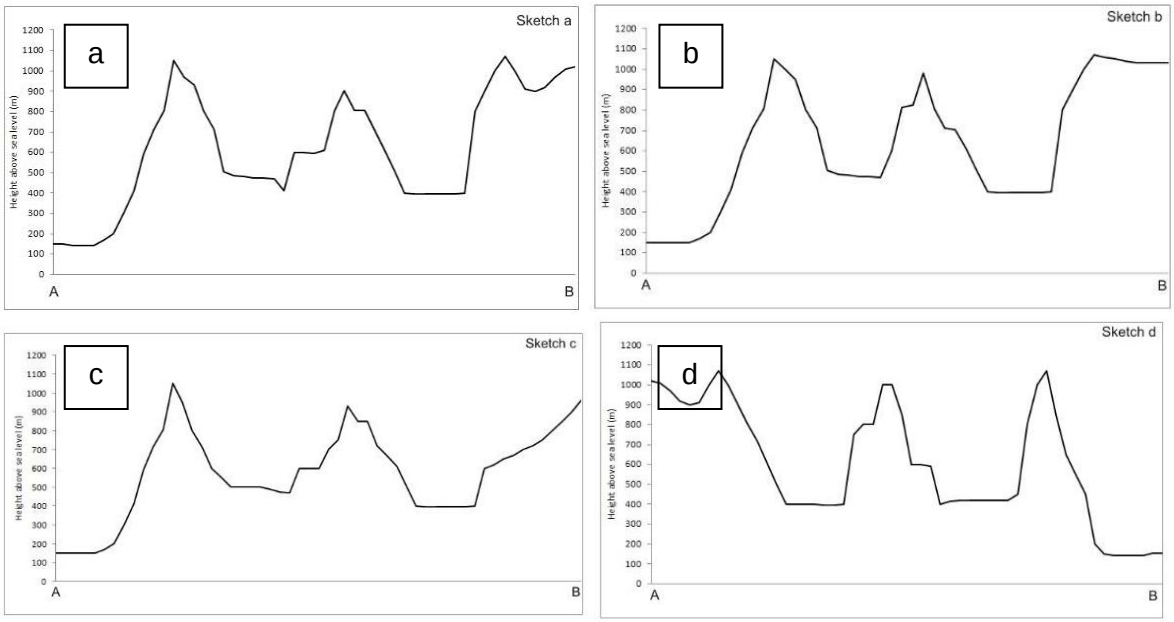
1m

3. Study Resource Booklet Figure C2: A large-scale map of an area of Iceland.
Which sketch **cross-section** below – a, b, c or d – best represents the shape of the land between points A and B?



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Student number:

1m

4. Study Resource Booklet Figure C3: A small-scale map of an area of Iceland.
Draw a rectangle to represent the area shown by the large-scale map (Figure C2) on the **black-and-white map below**.

Figure C3: A small-scale map of an area of Iceland
(Mál og menning).

This Section continues on the next page.

2m

5. Outline the ways in which **photographs** (e.g. Figure C1) and **maps** (e.g. Figures C2 and C3) can contribute to describing the characteristics of an area.

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3m

6. Explain how **climatic conditions** lead to the **formation** of ice masses.

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4m

7. Using your own knowledge, outline 2 ways in which cold environments can be used for **short term gains**.

1: .....

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2: .....

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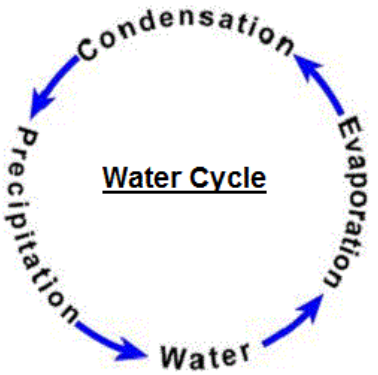
Student number:

Section D: Water Conflicts

2m

1. Study the diagram below: **A simplified diagram of the water cycle**.
   Outline 2 ways in which **human interference** in the water cycle can affect the **availability of water**.



A simplified diagram of the water cycle (ygraph.com).

1: .....

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2: .....

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1m

2. Study the table below: **Statistics of the 10 countries of the Nile Basin**.
Complete the **percentages** in column 6 (Share of water withdrawn from Nile (%)).

Statistics of the 10 countries of the Nile Basin
(Aquastats: FAO).

1	2	3		4	5	6	7		
Country	**Precipitation (mm)**	**Population (millions)**		**Urban population (%, 2014)**	**Total water withdrawn from Nile (million m^3)**	**Share of water withdrawn from Nile (%)**	**Withdrawal by use (%)**		
		2010	**2025 (predicted)**				**Agriculture**	**Domestic**	**Industry**
Sudan	250	33	58.4	34	26,935		97	2.6	0.4
Ethiopia	848	83	126.9	19	5,550		93.6	6	0.4
Egypt	51	78.7	97.3	43	68,000	62.8	86	8	6
Uganda	162	31.7	48.1	16	637		40	44.7	15
Burundi	1,274	7.1	10.1	12.1	288	0.3	77	17	0.6
Rwanda	1,212	8.1	15.8	18.9	150	0.1	68	24	8
Tanzania	1,071	52.3	70.9	26.4	5,184		89.4	10.2	0.5
Eritrea	384	4.3	8.7	20	582	0.5	94.5	5.3	0.2
Congo (DRC)	1,210	62.2	81.4	41	356	0.3	31.5	52.2	16.3
South Sudan	120	9.9	16.5	17	658	0.6	94.7	5	0.3
Total					**108,304**				

2m

3. Study the table above: Statistics of the 10 countries of the Nile Basin.
Draw a **diagram** in the space below, using the figures from column 6 to show how the **water withdrawn** from the Nile is **shared** between countries.

Student number:

2m

4. Study Resource Booklet Figure D1: A physical and political map of the Nile Basin and the table above: Statistics of the 10 countries of the Nile Basin.
Using them and your own knowledge, give 2 reasons why the **physical geography** of this area puts **water supply at risk** in this region.

1: .....

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2: .....

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4m

5. Study Resource Booklet Figure D1: A physical and political map of the Nile Basin and the table above: Statistics of the 10 countries of the Nile Basin.
Using them and your own knowledge, discuss the **threats to water security** arising from the **human geography** of the area.

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4m

6. Study Resource Booklet Figure D2: Grand Ethiopian Renaissance Dam and Figure D3: Solar panels provide electricity for villages in Egypt with no access to centralised power. They provide sustainable solutions for the supply of water, for example from groundwater sources.
Evaluate the effects of projects such as:
a) The Grand Ethiopian Renaissance Dam and
b) solar powered water pumps
on the **future provision of water** for Sudan and Egypt.

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Student number:

Section E: Living in Slums

3m

1. Study Resource Booklet Figure E1: Satellite image of Petare slum in Caracas, Venezuela, 2010.
Compare the features of land use of the Petare slum area with its surrounding area.

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3m

2. Study Resource Booklet Figure E2: Map showing urban land use in Madras (Chennai), India.
Explain why slum settlements are located at each of the sites A, B and C (marked on the map) within Madras (Chennai).

Site A: .....

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Site B: .....

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Site C: .....

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4m

3. Study Resource Booklet Figure E3: Socio-economic structure of the slum population in Madras (Chennai), India, 2006.
Identify 2 different **obstacles to achieving a higher standard of living** faced by slum dwellers in Chennai, India. For each obstacle, outline why it is a problem.

Obstacle 1: .....

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Obstacle 2: .....

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5m

4. The Tamil Nadu Slum Clearance Board aims to **clear all the slums** in Chennai and provide self-contained hygienic housing for slum dwellers. Discuss the **advantages** and **disadvantages** of this approach.

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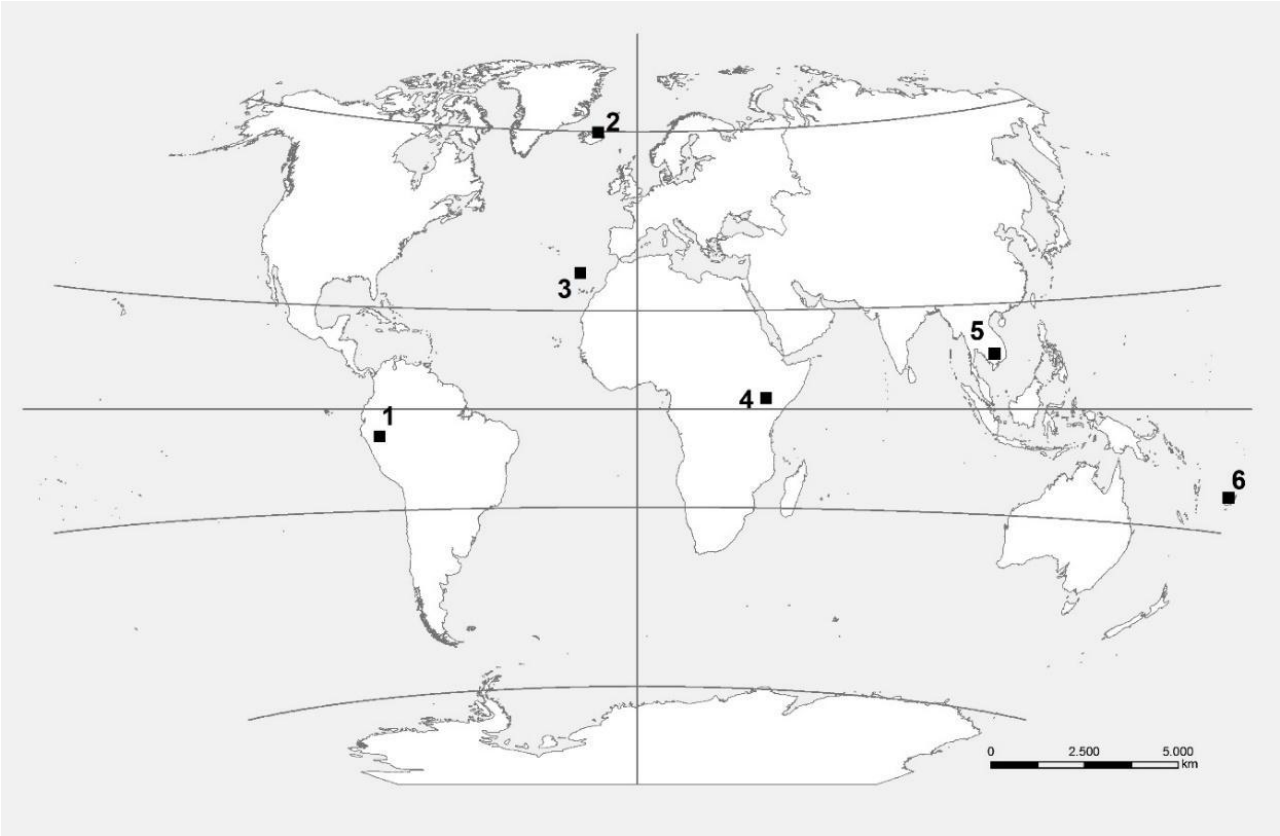
Student number:

Section F: Geography and Cultural Diversity

4m

1. Study Resource Booklet Figure F1: Traditional houses around the world (a–d).
   These traditional houses are **characteristic of which numbered locations** (■) marked on the world map below?
   Write your answers in the table below.



World map with numbered locations (■).

Traditional house	Location number
a	
b	
c	
d	

2m

2. Identify 4 factors that **influence** different types of traditional houses in particular locations around the world.

   1: .....

   2: .....

   3: .....

   4: .....

1m

3. Study Resource Booklet Figure F2: Map of South America's indigenous languages.
   Compare the **distribution** of the **native languages** in **Brazil** and in **Peru**.

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2m

4. Study Resource Booklet Figure F2: Map of South America's indigenous languages.
   Suggest **reasons for the different distributions**.

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2m

5. Suggest 2 ways in which a **local community** can preserve its **indigenous language(s)** and its **cultural heritage**.

   1: .....

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   2: .....

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4m

6. Discuss the ways in which globalisation **negatively** influences the **environments** and **cultures** of **traditional societies** around the world.

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end ■

12th International Geography Olympiad

Tver, Russia

11–17 August 2015

Written Response Test

Resource Booklet

Do NOT open the Booklet before instructed to do so by a supervisor.

Do NOT write any of your answers in this Booklet.

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Section A: Weathering

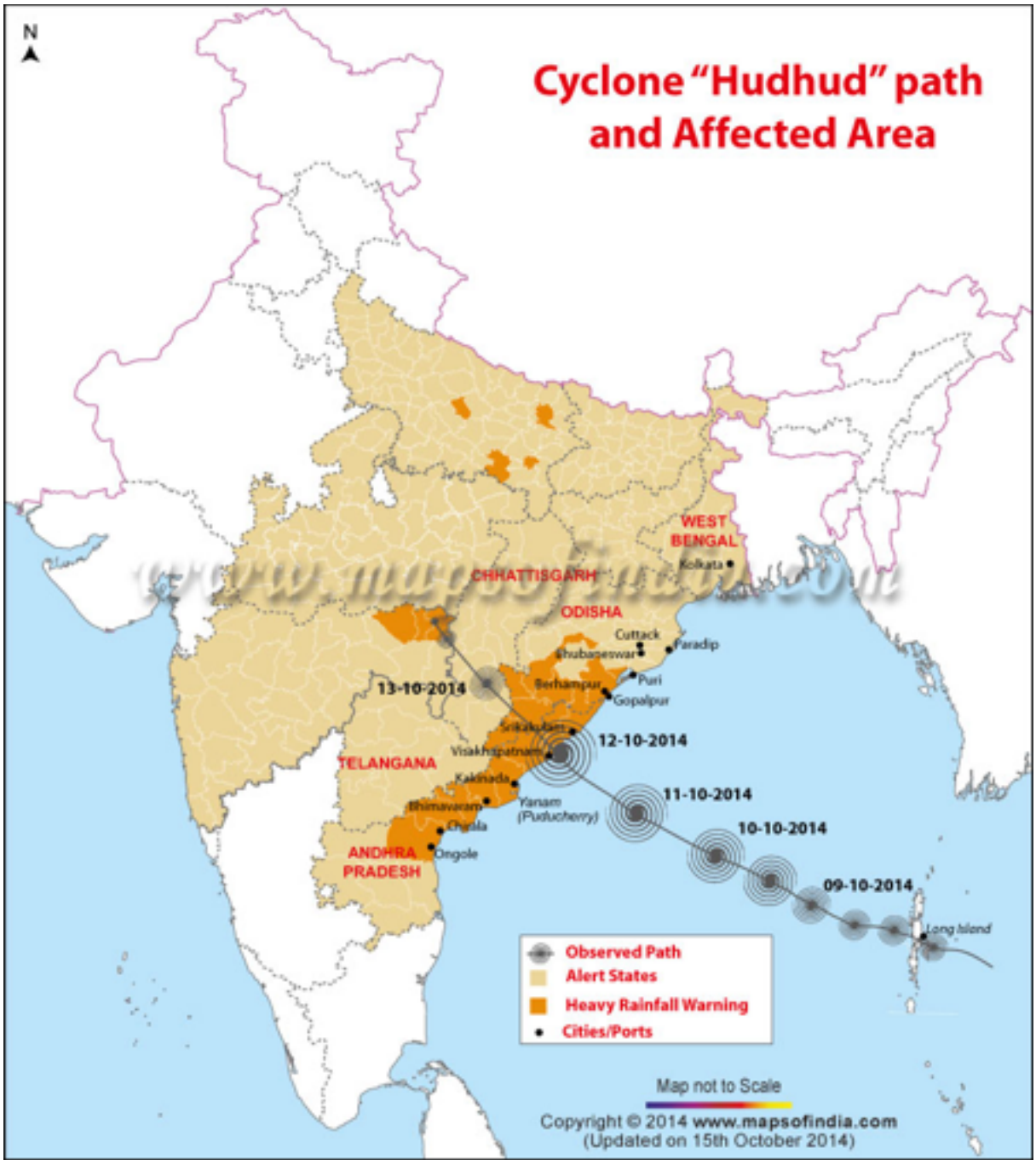
Figure A1: Types of weathering.

Photograph a
(http://www.geograph.org.uk/photo/3007965).

Photograph b

Section B: Tropical Storms

Figure B1: Path of Cyclone Hudhud
(http://images.mapsofindia.com/mapinnews/cyclone-hudhud.jpg).



Section C: Mapping Skills and Cold Environments

Figure C1: A photograph of an area of Iceland

Figure C2: A large-scale map of an area of Iceland (Skaftafell).

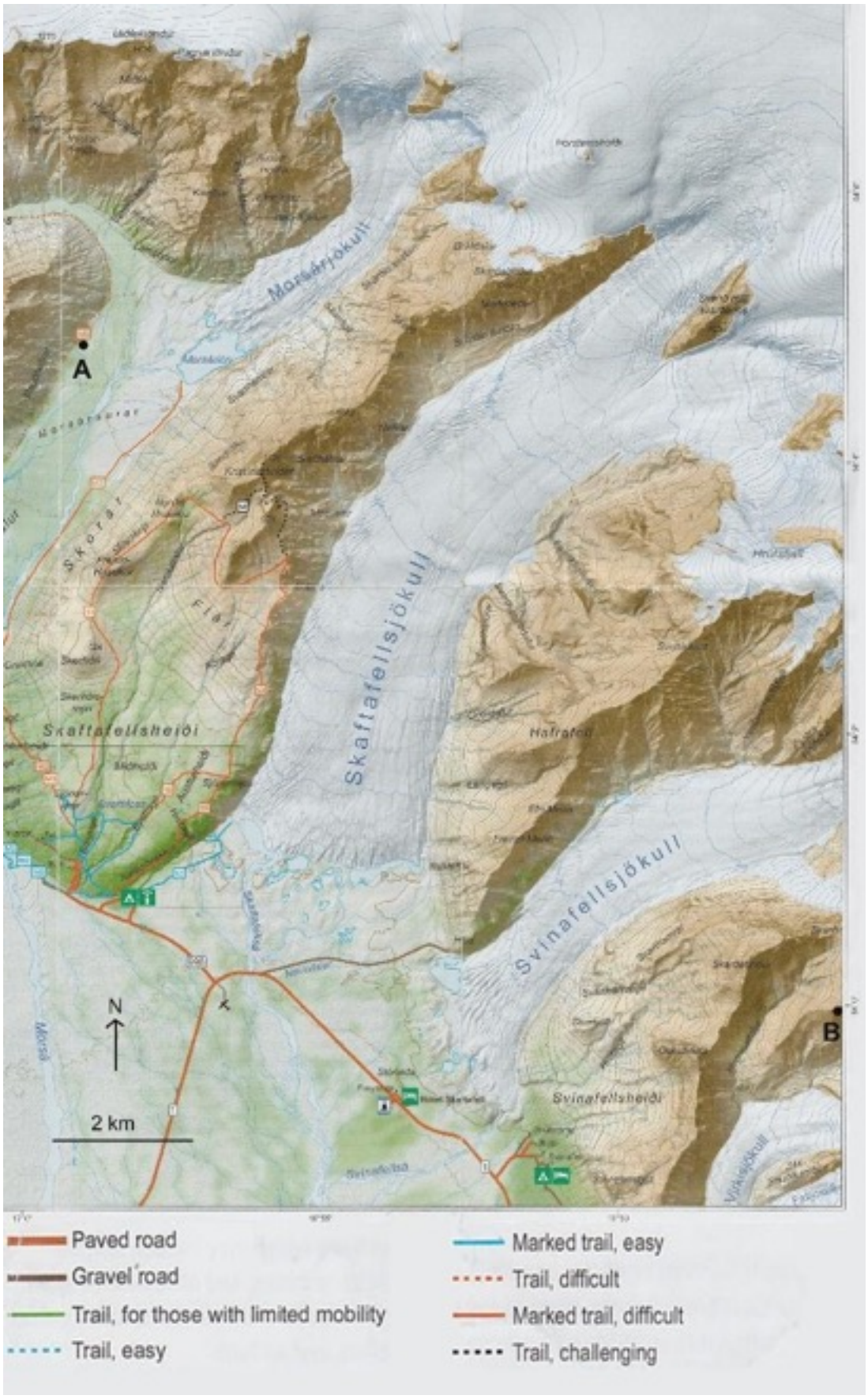


Figure C3: A small-scale map of an area of Iceland
(Mál og menning).

Section D: Water Conflicts

Figure D1: A physical and political map of the Nile Basin (adapted with ArcGIS 10.0).

Figure D2: Grand Ethiopian Renaissance Dam
(http://www.power-technology.com/projects/the-grand-renaissance-hydroelectric-project, http://e360.yale.edu/feature/on_the_river_nile_a_move_to_avert_a_conflict_over_water/2855).

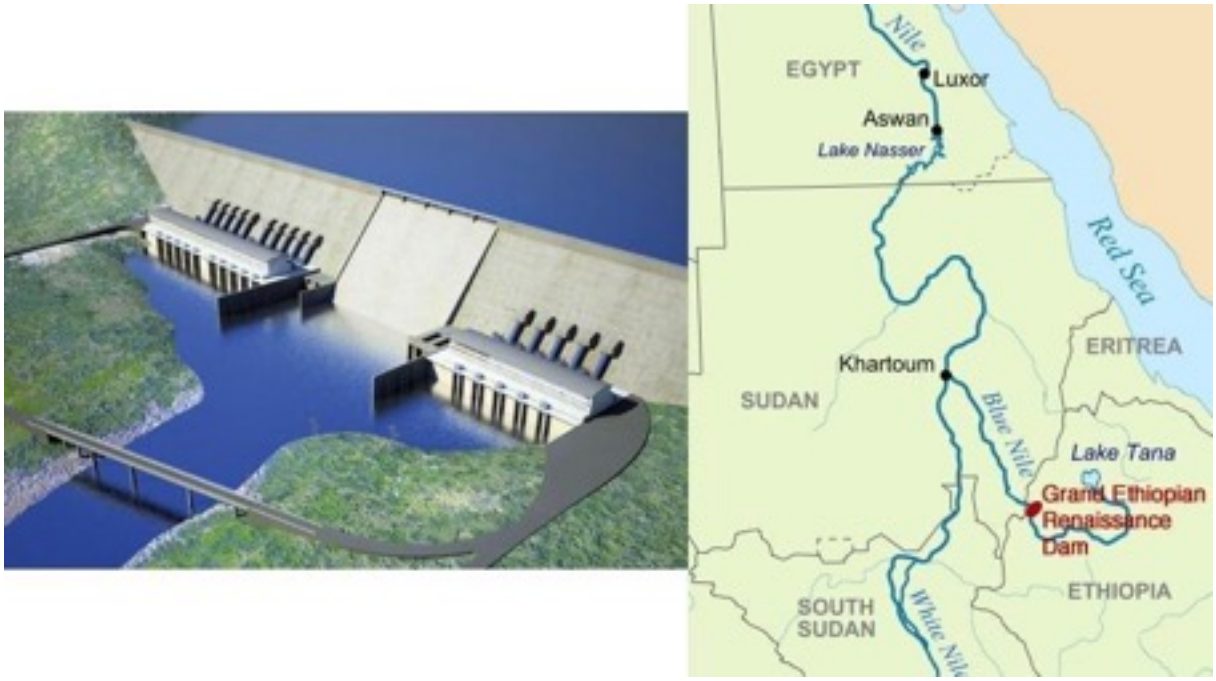


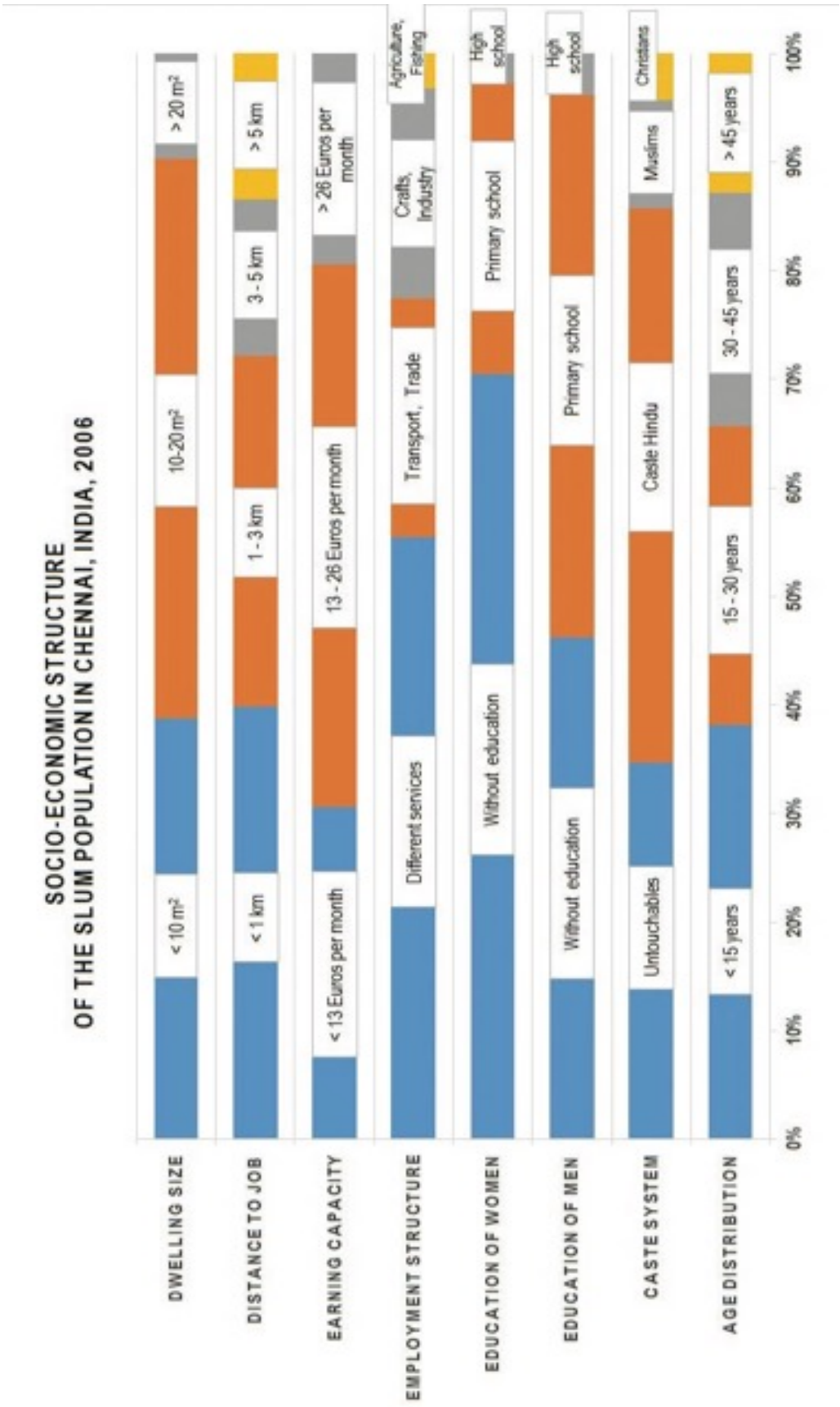
Figure D3: Solar panels provide electricity for villages in Egypt with no access to centralised power. They provide sustainable solutions for the supply of water, for example from groundwater sources
(http://www.dakakgroup.com/en/solar-products-egypt/solar-water-pump.htm).

Section E: Living in Slums

Figure E1: Satellite image of Petare slum in Caracas, Venezuela, 2010.

Figure E2: Map showing urban land use in Madras (Chennai), India (Diercke International Atlas).

Figure E3: Socio-economic structure of the slum population in Madras (Chennai), India, 2006 (UN-HABITAT).



Section F:

Figure F1: Traditional houses around the world (a–d).

Photograph a
(http://en.wikipedia.org).

Photograph b
(http://amazingezone.com).

Photograph c
(http://www.theluxuryspot.com).

Photograph d
(http://www.traveladventures.org).

Figure F2: Map of South America's indigenous languages
(http://www.languagesgulper.com/eng/Southmap.html).

end ■