Chapter 10=mass movement

Mass movement=is the downslope movement of lots of regolith due to gravity
Earthquake=is the sudden shaking of the earth's crust.
Consolidated=soil stuck together
unsolidated=soil is loosened.

Factors influencing mass movement

(1)gradient

Gradient means the steepness of a slope.if gradient is steep mass movement is fast eg mudslide.if slope is gentle then mass movement is slow eg soil creep.

Diagram=trees tilting etc

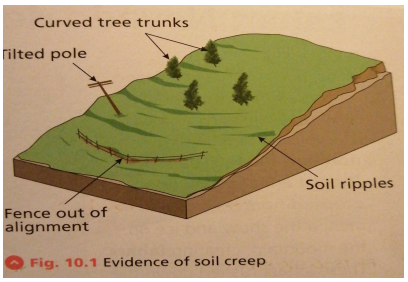

Fig. 10.1 Evidence of soil creep

(2)vegetation cover

In areas with lots of vegetation cover for eg grass,trees.mass movement is slow.the roots of vegetation holds soil in place.they blind the soil together and slows down mass movement.rainfall will not then wash the rain away and cause mudslides.people deforest trees because they want wood for furniture,firewood and paper.mass movement is fast for eg you've a lot of mudflows there's no roots to hold the soil together and that then washes the soil away.

(3)tectonic activity

An earthquake is a sudden shaking of the earth's crust at destructive plate boundaries when 2 plates collide or passive plate boundaries where 2 plates slide past each other.if they're in areas covered in mountains they will cause a rapid downslope movement of snow which causes a avalanche.volcanoes can also cause mass movement .lava mixes with ash hot magma causing a huge amount of melt water. That meltwater will then mix with the volcanic ash and

mud and then moves rapidly downslope then causes a lahar-which is a mudflow.they can move up to 80km/hr

(4)rainfall

Rain mixes with regolith which becomes a liquid and it moves faster.30% of regolith becomes a liquid.

Slow form of mass movement

Soil creep

•slowest form of mass movement
•occurs in areas of gentle slopes/gradient
•does not need rainfall (slow and dry type of mass movement)
•regolith loosened by weathering or burrowing animals and moves very slowly downslope due to gravity.
•effects of soil creep are fences,phones tilt slightly down the slope then you'll get ripples of soil forming terracettes.

Fast form of mass movement

(1)Bog Burst

•rapid type of mass movement
•mass of bog moves downslope after a period of heavy rainfall
•bog moves downslope and can block roads,knock down trees ,damage buildings etc.

(2)Mudflows

•rapid form of mass movement (100km/h)form on steep slopes
•occurs after periods of heavy rain
•rain mixes with mud and turns into liquid like constituency
•liquid mud/peat flows rapidly downslope and spread out when reaches flat land
•A scar left in landscape where mud or peat originated

(3)lahar

•fast and wt type of maws movement steep slopes
•wet mudflow heavy rain especially due to climate change this then causes cold season to get colder and wetter in winter and meltwater due to volcanoes
•water mixes with mud and silt and ash and becomes a river of mud that can move up to 80km/hr

(4)landslides

•rapid movement of regolith down to a steep slope that has become unstable
•causes of landslides include coastal erosion,deforestation and earthquakes.

(5)avalanches

•rapid form of mass movement of snow and ice downslope when weight of snow is too much for the slope to hold.

Effects of Bogbursts

(1)scar left in landscape
(2)crops on fields destroyed.

Effects of Lahar/Mudflow

(1)causes volcanoes
(2)removes vegetation-deforestation and rainfall
(3)kills people,animals and fish-death and destruction.eg Armero,south america •20,000 people died due to lahar/mudflows. •a river of mud covered down completely wiped out fish like trout/salmon. •infrastructure got destroyed like roads,railways,electricity pipes.in slowly developing countries it can take up to months or even years to repair that infrastructure people don't have clean water while in developed countries its faster.

How people respond to a natural disaster

Example-lahar eg colombia 1985.

Immediate response=

•rescue people by helicopter because rocks are blocked out and impassable
•medical aid and set up field hospitals .red cross will bandage the word and give painkillers
•get temporary camps,shelters,blankets and pillows.temporary water and food supplies.

Long term response=

•rebuilding houses-50 schools destroyed
•infrastructure rebuild and counselling replaced cost 8 billion dollars
•rain gauges in lahar source regions

How to prevent lahars

(1)bring seismologists someones whos able to study seismographs.

(2)monitor nearby water thermometers of any gases.

Describe any irish natural disaster

example=2003 bog burst derrybrien galway upland area

Causes of this bog burst

(1)they built wind farms on cutaway bogs NIMBY.removal all vegetation to build wind farms. wind farms build at the top of slope so wind comes faster.
(2)natural cause=very heavy rain for long periods of time rain is mixed with peat and turned into river like substance blocking off roads of to derrybrien.all water went to nearby rivers,nearby lakes,lake cutra to gorta.all peat went to lake.

Effect

Water treatment plants found it difficult to treat water 50% of fish died the rivers got polluted

Solve

Plant more trees in upland areas.

lubricant=makes something slippy.
wind=moving air.

Exam questions to learn

How can the removal of trees lead to a landslide

The removal of trees which is also known as deforestation causes landslides because the soil on the rock weakens on a slope when the trees are removed.the slope then becomes established by the tree removal.

Mudflow that occurs after a volcano when meltwater mixes with ash,soil and rock fragments

Lahar

2 measures to reduce or prevent mass movement

(1)plant more vegetation. Eg trees,grass.the roots of vegetation blind the soil together and slowdown mass movement.people could reduce rates of

overcropping and overgrazing.the soil wouldn't be exposed and regolith wouldn't move downslope due to gravity
(2) A second measure to stop or prevent mass movement is to stop building roads or quarrying in upland areas because that can make land unstable and then cause mass movement.By stopping doing that you can reduce mass movement.