

Point	Explain	Example						LC LIAZADDO					
Tsunamis	It is an unusually <u>large</u> sea which may be formed due to an explosive underwater <u>volcanic eruption</u> .	The <u>2004</u> <u>9.2</u> magnitude <u>North</u> <u>Sumatra</u> earthquake caused damages to coastal		widespread destruction at coastal areas when it			ACISC	/ 		IC HAZARDS	Extent of E	arthquake	
	voicariic eruptiori.	communities in <u>12</u>	countries.	sweeps inland.			Point		Explain	Exam	ple	Link	
	Sea level Speed (Km/h) 800 600 400 150 3 5 Sed/ments						Magnitude of Earthquake	It is the <u>amount of energy</u> released by earthquakes, measured using the <u>Richter Scale</u> . For <u>each increasing magnitude</u> on the Richter Scale, the impact of earthquake becomes <u>10 times greater</u> .		in <u>1960</u> , measure <u>agnitude</u> on high of <u>9.5</u> on the impact of The destruction	d at the record e Richter Scale. on impacted to the	ater magnitudes cause more ensive damage and destruction due ne release of more energy.	
	Seismic energy from an offshore earthquake forces out a mass of sea water 2 Starting height: < 1 m wave length: 100-150 km speed: 800 km/h						Population Density		affect <u>fewer</u> peo	Due to its <u>low</u> popopole than in the <u>Solomon Isla</u> <u>low</u> earthquake da	nds experience casu	er population density results in less alities and damages as there are people living in the affected area.	
	3 Shallower water → greater friction → slows the waves → increase in height 4 Point of impact on the coast → speed: 30-50 km/h height: 15 m						Level of Preparedness		includes having ed rescue worl on plans.	l conducts emerge	ncy drills on 1 can commemorate efficient	respond more quickly and ciently , thus managing the damage sed by earthquakes better .	
	5 Movement of sea floor \rightarrow causes a void \rightarrow water rushes to fill in \rightarrow water is then forced out again \rightarrow tsunami					์ Earthqua	Distance from Epicentre	the <u>stronger</u> <u>buildings</u> w	the shock waves, thus <u>more</u> damage during ll topple, causing <u>more</u> <u>earthquake</u> than		places <u>further</u> magnitudes, leading to more extensive		
Disruption of Service	Earthquake vibrations <u>snap pipes</u> and <u>break cables</u> , causing the outbreak of	in <u>1995</u> damaged	damaged pipes and water are d		rge area, supply of electricity, gas and disrupted, leading to a temporary decline			<u>extensive</u> da	<u>extensive</u> damages.			When earthquakes occur when most	
	<u>fires</u> .	transmission lines.	rthquake off the destabilised the bunt Huascarán, thus leading to a high death toll.		Occur	Time of Occurrence	in an earthq	people's <u>chance</u> uake by determ nd <u>what</u> they are	ining <u>where</u> earthquake occ midnight in the <u>s</u>	urred around peo Sun Moon lake like	people are sleeping , they will be more likely to be trapped, resulting in more		
Landslides	Earthquake vibrations <u>weaken slopes</u> of hills and mountains, resulting in landslides. When there is <u>heavy rainfall</u> , the soil becomes saturated, causing the mixed soil debris to flow down the slope.	In <u>1970</u> , an earthocoast of <u>Peru</u> des slopes of <u>Mount</u> triggering a massive				Type of Soil	Structures unconsolidat	built on <u>satu</u> ed sediments a tion, when t	Irated and are affected buildings had to	any houses and Satu be abandoned sedi	Saturated and unconsolidated sediments amplify seismic waves, resulting in greater earthquake		
Destruction of	Earthquakes can cause <u>widespread</u>	The earthquake <u>Japan</u> , in <u>2011</u> , for		There will be a severe shortage of housing while transportation is severely disrupted , leading to decreased accessibility. Large amounts of resources would have to be spent on repair works, putting a strain on the government's limited budget.				becomes <u>ur</u> flows like a <u>li</u>	<u>nstable</u> and sat <u>quid</u> .	turated soil earthquake.		ages.	
Properties and Infrastructure	destruction to many homes and <u>cracks</u> to form in roads and bridges.	of thousands of their homes, while were damaged.							Point	Explain	Example	Link	
Loss of Lives	earthquake zones can cause great destruction when an earthquake occurs,		necessary precautionary measures to minimise damage, there will be loss of lives when an			Volcanic Are	Volcanic Areas		Lava and ash from volcanic eruptions <u>break down</u> to form fertile volcanic soil, which are <u>rich</u> in minerals.	<u>Java</u> and <u>Bali</u>	in subsistence or commercial he farming to improve their		
Point	threatening the lives of those living there. Explain	powerful tsunamis.		earthquake occurs. Example Link					Precious Stones and	When the <u>upper</u> layers of volcanic rocks are <u>eroded</u> ,	i Kimberiev in Sou	th are high in demand due to	
Destruction 1	<u>Olcanic materials</u> such as lava and pyroclasts are released. The ongoing eruption of <u>Kilauea</u> in Volcanic materials ca					to widespread damages of lives of those living near			Minerals	precious stones and minerals can be <u>extracted</u> .	world's riche sources of diamond	est uses. Thus, people can mine	
by Volcanic Materials	 Low-silica lava moves <u>rapidly</u> and flows ove Volcanic bombs of <u>heated</u> rocks can fall in s 	Hawaii since 1983 has destroyed property and threaten the liminary homes and highways. volcanic areas.		ives of those living flear		sks		 Volcanic areas offer a variety of <u>activities</u> for 		Companies can profit from the tourism and create more			
Landslides and Lahars	 Due to the structural <u>collapse</u> of a volragments can fall from the volcano (landsli Landslides can generate flows of <u>wet</u> volca when pyroclasts mixes with water from me 	Landslides and lahars obstruct the causing floods. Roads may be blo hars.			and rescue		Tourism	 tourists to engage in, such as hiking and camping. People visit volcanic areas to learn more about their rich history. 	people visit the <u>rui</u> <u>of Pompeii</u> in <u>Italy</u> .	i employment opportunities			
Pollution	 Volcanic eruptions eject thick plumes of <u>ash</u> and release harmful <u>gases</u> such as sulfur dioxide. The <u>1010</u> eruption of <u>Eyjafjallajökull</u> in <u>Iceland</u> resulted in a <u>closure</u> of air space over much of <u>Europe</u> as ash particles posed a serious danger to aircraft engines and structures. Human activities are disru economy of the affected are volcanic areas will suffer problems.				, while people	living near		Geothermal Energy	Groundwater comes into contact with hot rocks beneath the surface → heats up → erupts as steam → drive turbines → produce electricity	Iceland are heated volcanic steam.	'		

RESPONSES TO EARTHQUAKES

Preparedness Measures

Example

Link

Limitations

Explain

Point

				Landı Regula		faction, where table.	In <u>California</u> , <u>USA</u> , all new building developments are not built across areas at risk of liquefaction.	This reduces t damages on th	the impact and nese areas.	It is <u>costly</u> for government compensate those have to move, and into place effection measure	to who d put ective	
			Infrastru	to <u>withstand</u> earthquake • Damping devices acture <u>absorbers</u> for some of energy released during a • Buildings with wide and	 Steel and reinforced concrete are able to withstand earthquakes better. Damping devices act as shock absorbers for some of the seismic energy released during an earthquake. Buildings with wide and heavy bases are less likely to collapse. 		damping device is talled in Taipei 101 in Constructing between which is made of earthquakes leaderete, and its indication is reinforced by metal bars.		This adds to the construction maintenance buildings.	ost of and of		
				Emerge	ency earthquake occurs. This inclu	People <u>practise</u> the steps to take when an earthquake occurs. This includes moving to safe locations and practising first aid.		This creates awareness among the population and reduces levels of panic during an event, minimising the number of casualities.		There is <u>insufficient</u> for evacuation earthquakes are dito to predict.	as	
			Monito and Wa	Earthquakes Monitoring and Warning Systems Earthquakes can be monitor Studying the history where earthquakes have earthquake-prone zones		Earthquake motion data is gathered from hundreds of observations stations installed on bridges and roads in Japan.	This allows the frequence and magnitude of earthquake to be predicted thus allowing more time for evacuation.		Earthquake sensor expensive to of install and use.			
Γ	Short-Te	erm Response	S	Tsuna Monito and Wa Syste	tsunamis by measuring temperature and pressure pe	and relaying	A network of pressure sensors, seismographs and deep ocean tsunami detectors are located in Hawaii, USA.	tsunamis to be	the path of e forecast , thus o re time for	The detectors are performed to giving false and when waves are high	h.	ong-Term Responses
	Point	Implementation	Successes		Limitations				Point	Implementation	Successes	Limitations
	Search and Rescue	People trapped under collapsed buildings are quickly located and freed.	der collapsed ildings are After the <u>2011</u> earthquak ickly located <u>Tōhoku, Japan</u> , sniffer dogs		Rescue workers only have a limited time of 72 hours to find trapped survivors. Without food and water, trapped people are unlikely to survive after 72 hours. Rescue workers had a limited time of 72 hours to rapidly search through two towns after the the 2011 earthquake in Tōhoku, Japan.				Rebuilding of Infrastructure	Infrastructure and amenities are <u>rebuilt</u> and <u>improved</u> upon after a disaster.	Authorities often develop stricter building codes to ensure infrastructure is restored at a higher safety level than before. After the 1995 earthquake in Kobe, Japan spent billions developing technology to build more earthquakeresistant buildings.	Earthquake-resistant buildings are not necessarily protected against tsunamis. In the coastal areas of Chile, when an earthquake struck, tsunamis massively damaged many earthquake-resistant buildings.
	Emergency, Food and Medical Supplies	The injured are treated and clean drinking water is provided to survivors to prevent dehydration and the spread of diseases.	The provision of immediately response to the region.	nue with nquake in d Cresent esponded	Medical supplies, food and water may not be sufficient and this may cause social unrest. After the 2010 earthquake in Haiti, looting and fighting broke out as people fought for food and medical supplies.				Provision of Health Care	Loss of loved ones after earthquakes cause long-term trauma, which are treated with long-term counselling.	Problems can be identified and addressed <u>early</u> . Health workers were deployed to <u>Christchurch, New Zealand</u> , after the <u>2011</u> earthquakes when problems of depression were identified.	Improving health options, such as restoring the resilience of people after an earthquake, can be very challenging. Many survivors of the 2010 earthquake in Haiti continue to lack access to basic necessities.