

WHAT DETERMINES THE IMPACT OF AN EARTHQUAKE?

- Population density: the more people there are the more deaths. For example the Indian earthquake in 2001 occurred in a densely populated area. It resulted in 20,000 deaths.
- Rural/Urban area: Rural areas have fewer people and fewer buildings so the size of the disaster is smaller.
- How prepared countries are: How ready a country is depends on how developed it is. Less economically developed countries (LEDC'S) have less time, money and expertise to prepare for hazards. More Economically Developed countries (MEDC'S) have more money to prepare however they cannot stop disasters happening, only limit the damage caused by them
- Distance from the epicentre: The closer a town or city is from the epicentre the more damage will be caused because of the strong seismic waves.
- Weather or season If an earthquake strikes an area in the winter those who survived the quake, but became homeless will probably get frost bite, hyperthermia or other illnesses caused by exposure to cold weather. If an earthquake occurs in a hot season people die at a much faster rate if they are trapped under rubble because they do not have any water. Also hygiene is a big issue, because it is warm and moist disease and bacteria can spread easily, making many people ill.
- Time of day If an earthquake strikes in the night, most people will be in their house and have the chance of being trapped there, however if the earthquake strikes during rush hour many people will be on trains, cars or other vehicles which could breakdown and trap people in.

The impact of earthquakes in LEDC'S is often more devastating and longer lasting than the impact of similar earthquakes in MEDC'S because of many reasons.

1. **In LEDC'S the building regulations are often forgotten and disregarded** when many people build houses and so they are made from cheap materials and on bad ground. Because the people in LEDC'S do not have much money many people try and cram themselves into rooms/houses with each other to prevent paying as much for their own house. This means that when an earthquake hits, the houses collapse easily



turning into rubble and creating a hazard for people. Also it will be hard to vacate the building as there are so many people in it, meaning many die from the houses collapsing on them or becoming trapped in the rubble. The collapsed rubble and material is liable to being set alight from broken cables and disease can be spread easily. In MEDC'S the houses are built well with strong materials and in most areas where the people are aware of possible earthquakes many taller buildings will be earthquake proof, preventing the likely hood of them collapsing. Also less people will live in each individual house and it will be easier for them to evacuate the building.

2. **In some LEDC'S plans on what to do if an earthquake happens are not formulated** so when they occur people get their priorities wrong and there are many delays on

dealing with fires, injured people etc...Because they don't know what to do. Also there are no experts there to assess the situation making it harder for the people to know what is happening. This means there is a lot of panic, and because people are unaware of what to do they may do stupid things like go into a collapsing building to find family, stand near walls etc... In MEDC'S plans are made and widely publicised, insuring everyone in the hazard zone is aware of it and know what to do if one should occur. Also there are practise days in some areas where people pretend there is an earthquake to reduce the amount of damage when one does occur. In LEDC'S not many people are aware and sure of what to do when an earthquake happens because no information has been given to them.

3. **In LEDC'S there is limited communication.** People live in shanty towns and with no proper access roads meaning the small amount of emergency services there are (Fire engines, ambulances) cannot get to where they are needed most. This means that many people trapped in rubble die because no-one can get to them in time. This also means that it is difficult for charities and organizations to bring in food, water, shelter etc... In MEDC'S if communication networks are down the plan made before hand insure they are top priority and so they are fixed quickly and efficiently. As well as this, the roads and bridges and railways are already built well and with strong materials so they do not break as easily.
4. **In LEDC'S water and power supplies are normally poor** and so when they break in the earthquake they are extremely difficult to fix as the government does not have the money to do so. This means that for a while after the earthquake water supplies will be very low and there will be no power to go around at all. As there was no plan there will be no issues that have been prioritised to fix first and so it will be very slow to get everything up and running again. In MEDC'S if there will always be a source of water available because the plans insure there are always supplies of food, water, blankets medicine etc. Around for the people. Also in some areas each house/family has a kit that has everything they need in if an earthquake does occur. In the LEDC'S governments do not have the money to keep supplies of necessities set aside let alone enough already for everyone.
5. **In LEDC'S they do not have enough money.** This means they cannot build earthquake proof houses or strong houses that will not collapse in the earthquake as they cannot afford it. The shortage of money also means they cannot research into ways of predicting earthquakes or afford a way of getting warnings across to people efficiently. As well as this once the earthquake has struck the government will not be able to afford all the things that need to be repaired i.e. water supplies, medicine. In MEDC'S the government can afford to repair most things and nearly all of the houses are insured. They usually have teams of scientist researching ways of prediction and families have minor prediction alarms, such as the quake alarm (explained above) which gives them a small amount of warning. LEDC'S have to rely on foreign aid which takes a while to get to them and in the time to get to them many people can die and diseases can be spread.
6. **In LEDC'S there are limited medical facilities** so many people die of injuries or disease due to dirty water supplies and poor living conditions. Most medical facilities would be full of people and there would be a long line of injured/dying people that need attending to and only a few medical staff to get to them all.

Overall I think the three main reasons on why earthquakes in LEDC'S are so devastating and have a longer lasting effect are firstly that governments do not devote resources or have the expertise to implement early warning systems and emergency plans in the event that there is an earthquake. Secondly LEDCs have large populations living often in overcrowded and badly built buildings. Finally they already struggle to pay for basic services so if an earthquake cause lots of damage it might take a very long time to get things up and running again.

The story of the Izmit earthquake has highlighted many factors that in retrospect could have helped to reduce the impact of the earthquake. Firstly, there is no magic solution to predicting earthquakes for the time being. However the areas of the world most vulnerable to earthquakes are well known. Turkey knows that it is located in an earthquake hazard zone and therefore they should make sure that they do everything they can to reduce the impact if and when one occurs. Things they should focus on include:

- 1) Being stricter on the regulation of buildings. Building should not be too tall and need to be able to withstand the shock. Many developed countries (for example Japan) have good designs for earthquake proof buildings. In the Izmit earthquake many houses collapsed because they were badly built and crammed full of people the Izmit government need to insure that all houses built are strong and could withstand a similar earthquake.
- 2) Ensuring that there are local action plans to help evacuate areas and deal with the immediate impact of an earthquake. These would include making sure that people know what to do to the minimize the risk and be able to cope (eg. Have a survival kit)
- 3) Avoid overcrowded houses to ensure that it is easy to evacuate buildings-
- 4) The government needs to allocate resources that they can draw on to help rebuild in the event of an earthquake and to ensure they have the equipment, expertise and supplies they would need to reduce the impact.
- 5) They should learn from other countries to find out how other places have successfully reduced the impact.