Nepal after the Earthquake

- The data is from April 2015 when a 7.8 magnitude earthquake with an epicenter in the Gorkha District of Nepal devastated the surrounding area.

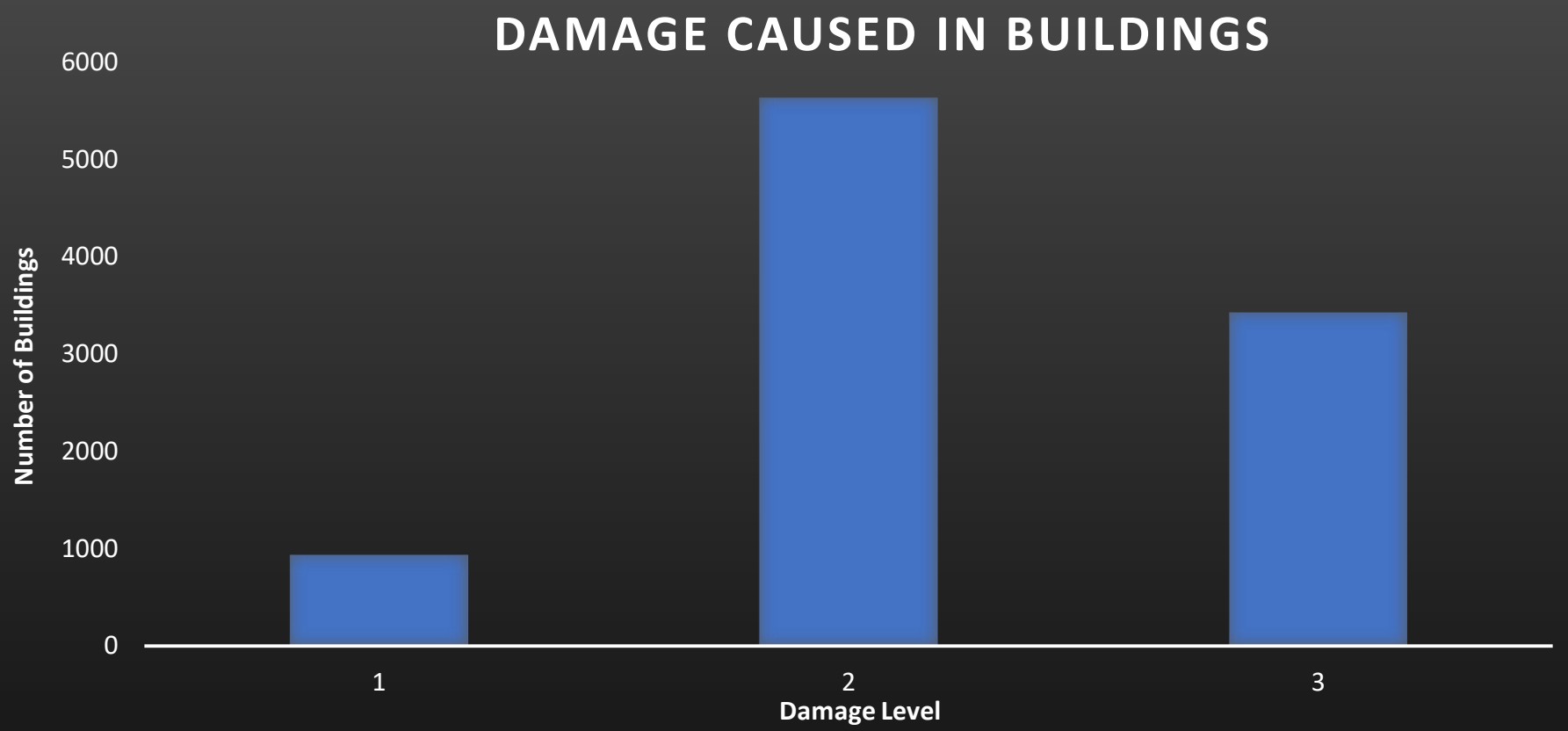
- The Central Bureau of Statistics of Nepal collected the largest post-disaster datasets ever collected, with information on earthquake impacts, household conditions, and socio-economic-demographic statistics.

- The objective is to analyze how well buildings resisted the earthquake, based on different criterias.

KEY QUESTIONS

- HOW MUCH DAMAGE DID THE EARTHQUAKE CAUSE?
- HOW DID DIFFERENT MATERIALS AND COMBINATIONS SURVIVE THE EARTHQUAKE?
- HOW DOES BUILDING AGE RELATE TO DAMAGE CAUSED?

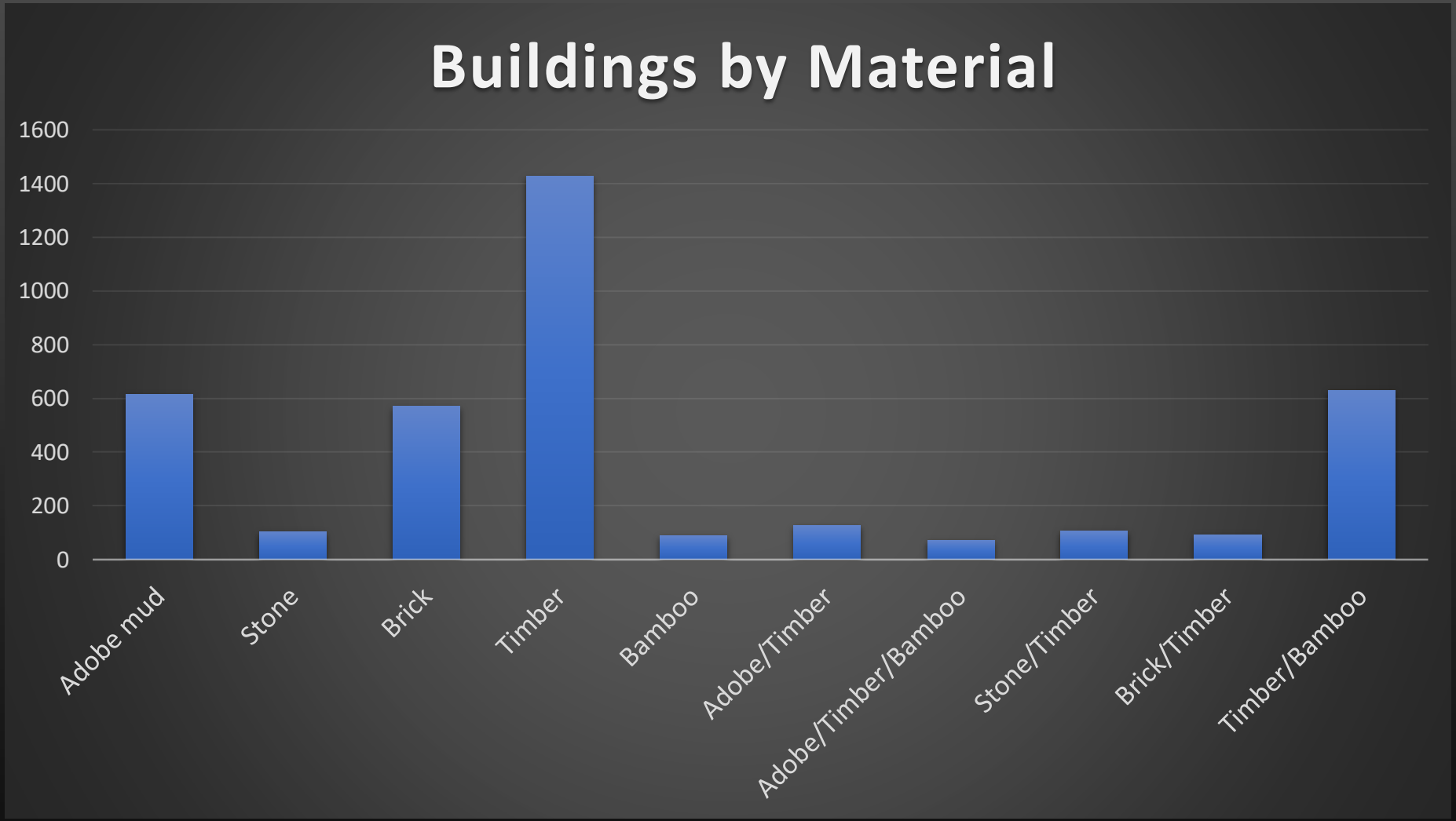
How much damage did the earthquake cause?



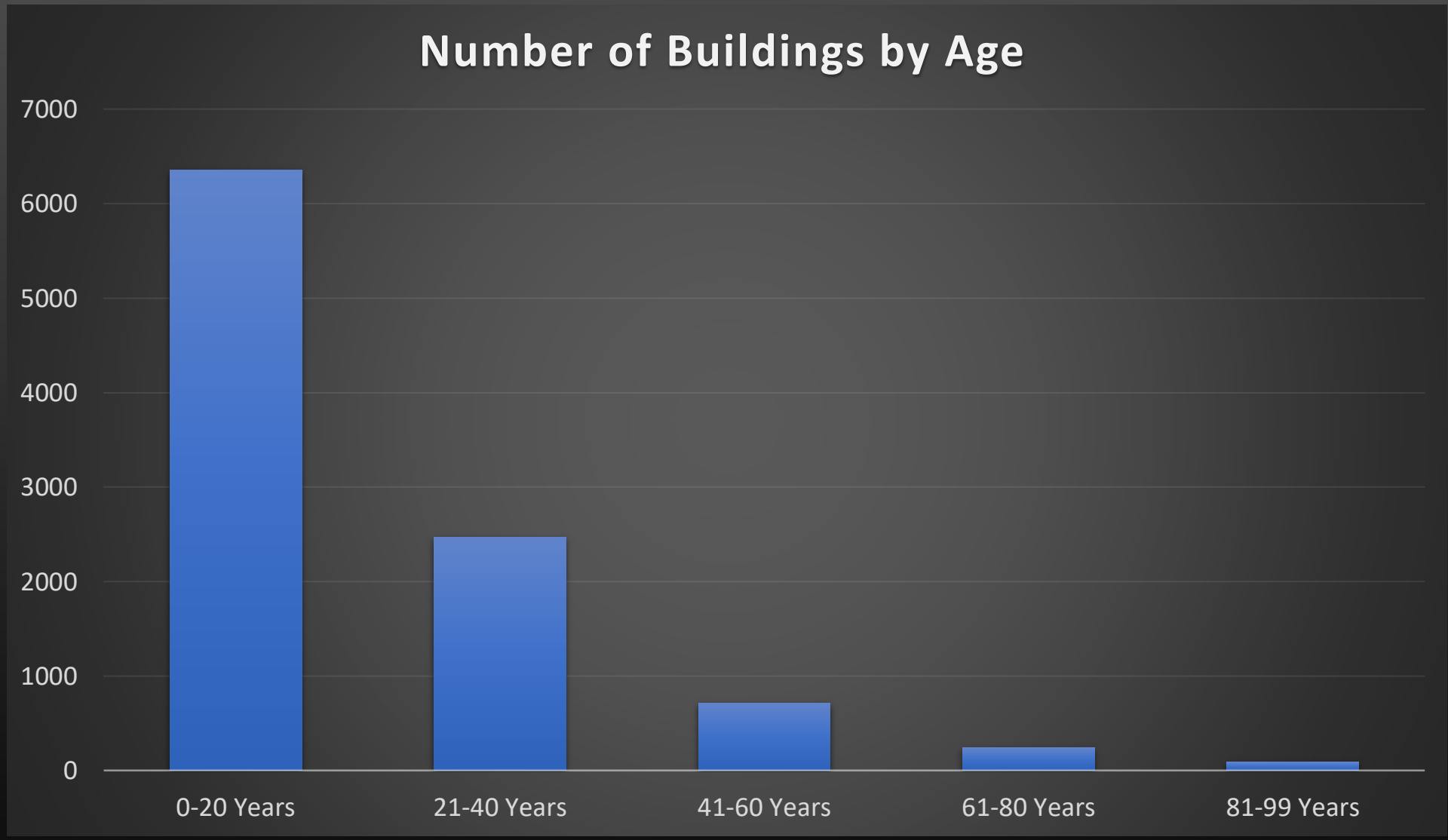
DAMAGE LEVEL

1= Low Damage
2= Medium amount of damage
3= Almost complete destruction

Earthquake caused big damages, most of the building (56,36%) suffered medium amount of damage, but also a lot of buildings (34,26%) were almost destroyed. Very few buildings (9,38%) suffered low damage.



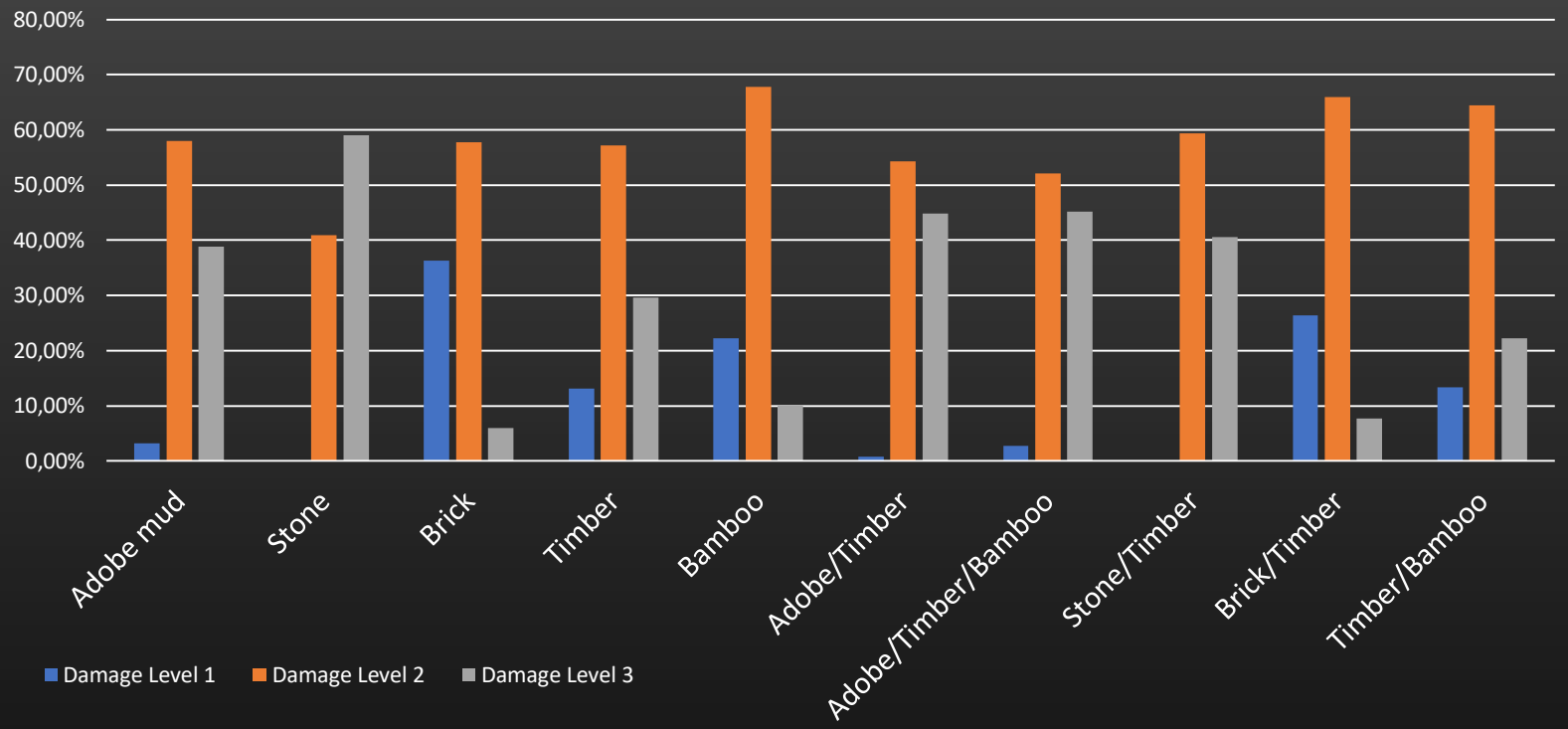
Timber is the material mostly used in buildings



63,53% of the buildings are less than 20 years.

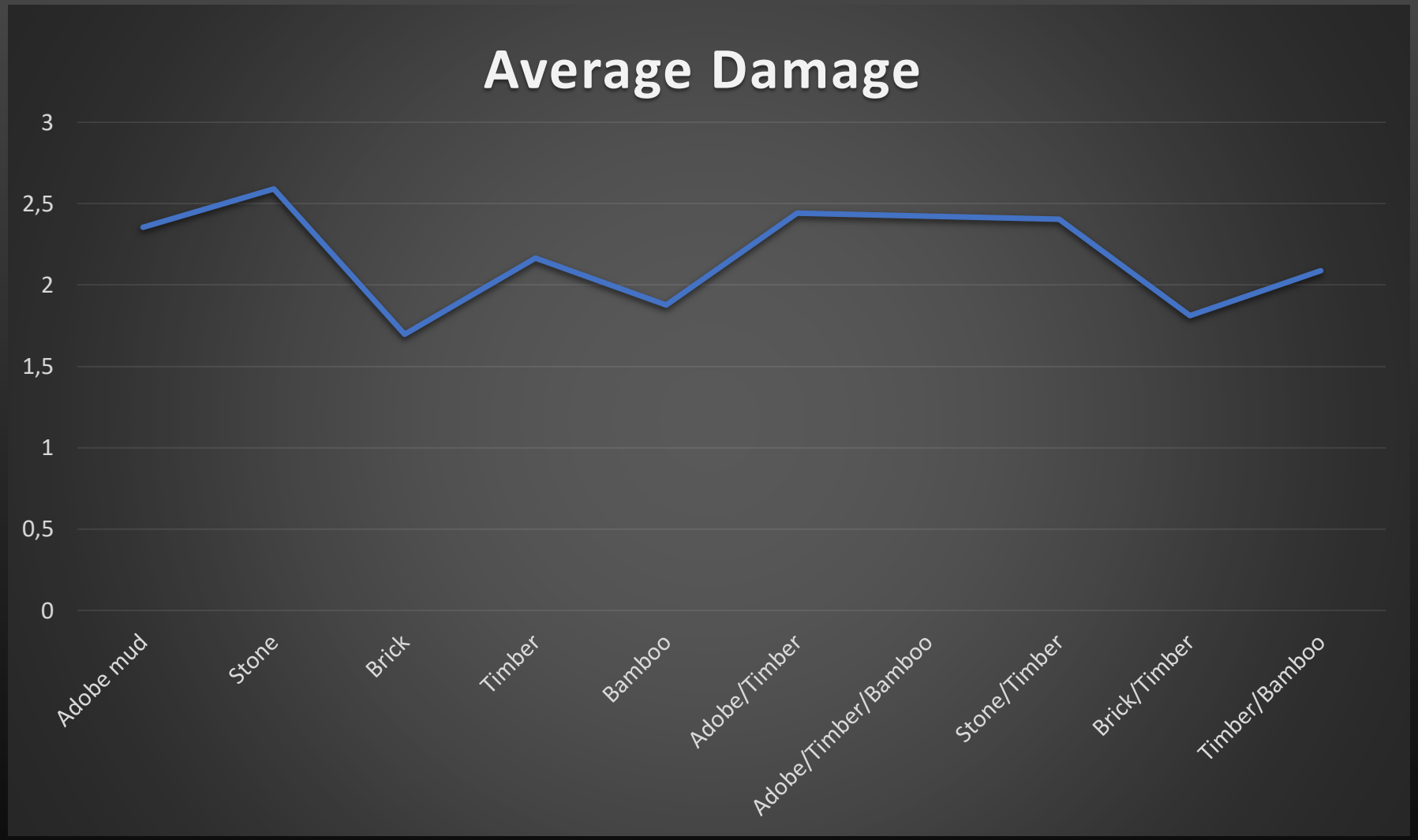
How different materials and combinations survived the earthquake?

Damage suffered by different Building Material



The material that appears to resist the earthquake more were bricks or material combined with bricks.

*Combination materials with less than 50 buildings have been remove
*Cement mortar brick is considered as brick



*Cement mortar brick is considered as brick

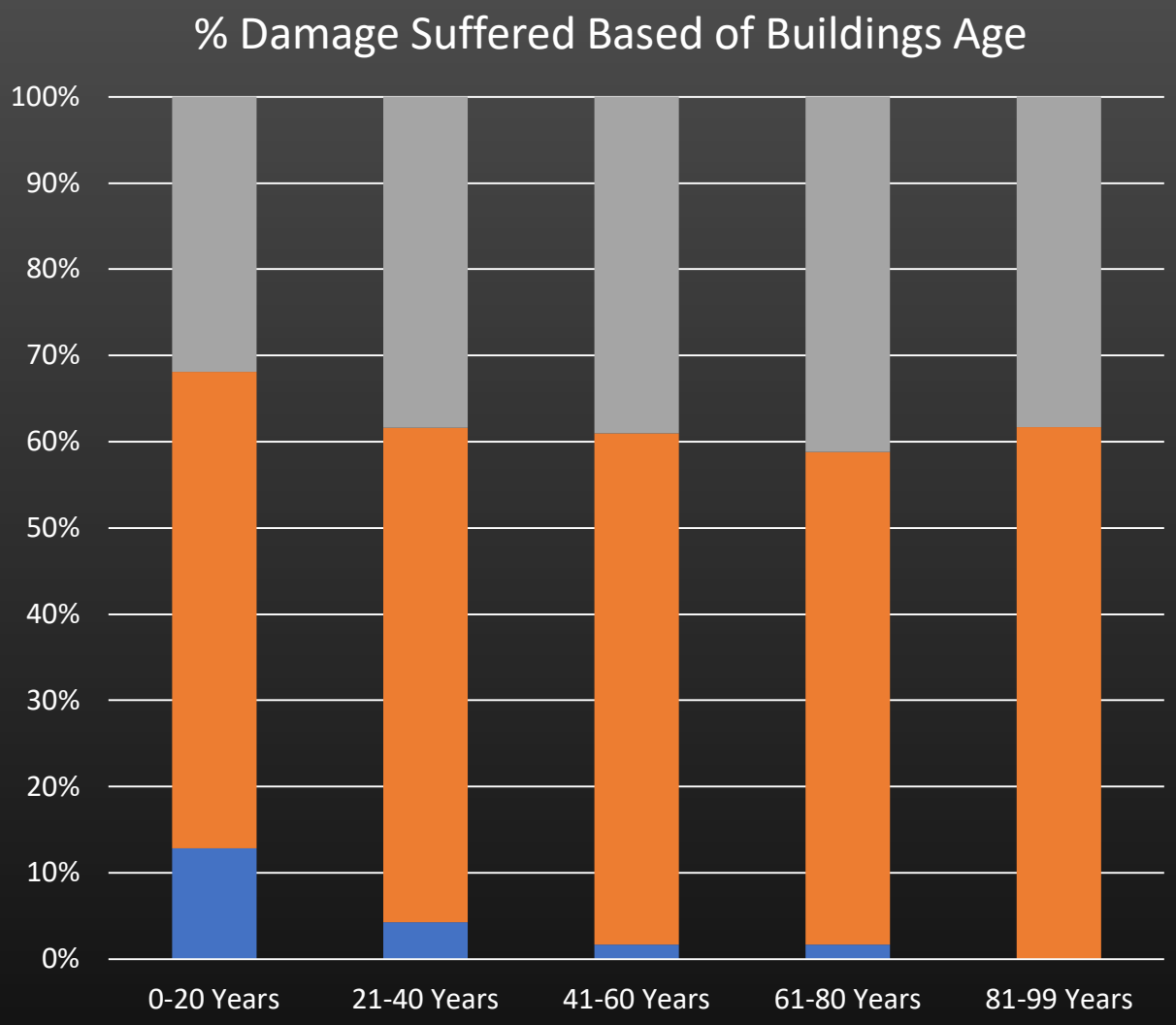
Avg. Dam. Having Brick	Std. Brick	Avg. Dam. Not Hav. Brick	Std. Non Brick	t	p - value
1,737931034	0,56837	2,288733154	0,845250595	-6,33852781	2,41979E-10

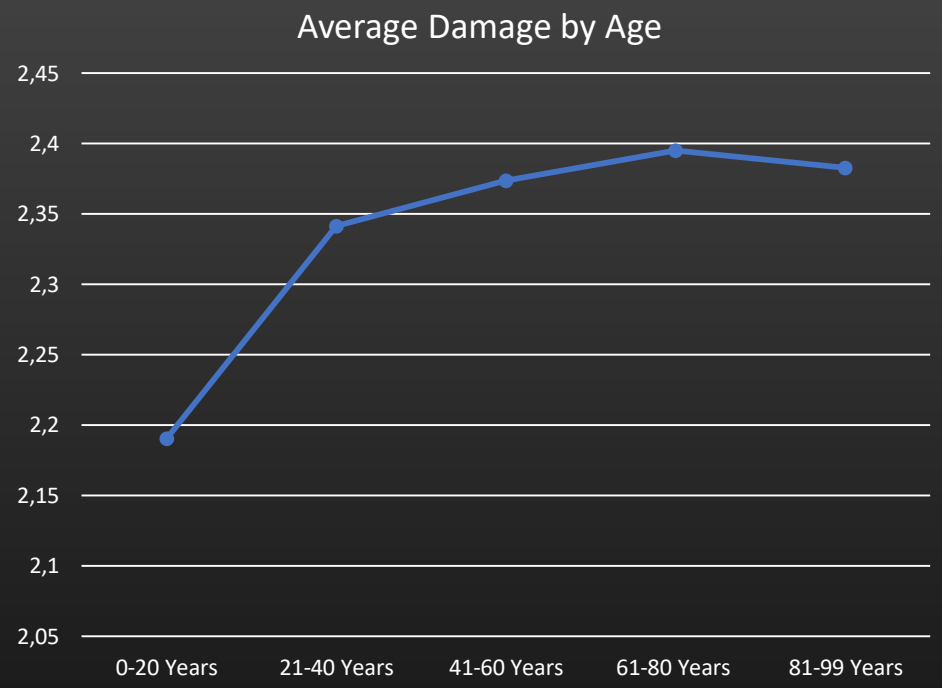
Buildings having bricks as material seems to suffer less damage.

Based on the t – test and the p - value, significant damage difference based on having bricks as materials used, has to be accepted.

*Cement mortar brick is considered as brick

How does buildings age related to damage caused?





It seems that new buildings resisted the earthquake a bit better. The mean varies from 2,19 (0-20 years) the lowest to 2,40 (61-80 years) the highest. The newest are the ones that experienced more level 1 damage and less level 3 damage.

Mean 0-20 Years	Mean > 20 Years	t	p - value
2,1905	2,3527	-9,9175	4,47699E-23

Based on t – test and p – value, age has an impact in damage suffered. New buildings suffered less damage in average.

SUMMARY

- The earthquake caused big damage in buildings. 56,36% suffered medium level of damage, while 34,26% were almost destroid.
- The materials used are related to level of damage suffered. Buildings having brick as material resisted the earthquake better.
- Age has influence to damage suffered. New buildings (under 20 years) suffered less damage in average.