



Supplement of

Organizing an Earthquake Learning Exhibition for transferring geoscience knowledge to the public: the example from Nepal

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This file contains

- Table S1
- Figures S1-S25
- Pre-exhibition survey form
- Post-exhibition survey form

Table S1: Summary of questions and corresponding calculated and tabulated chi-square values, p-values at 0.05 significance level. Single-entry option questions which asked for both prior and post exhibition surveys are only included here.

Q.N.	Questions	Observed χ^2 Value	Threshold χ^2 Value	p-value	Remarks
Q2	Did you feel the earthquake that happened in 2015 or/and in 2023?	7.21	3.84	0.0072	H_0 rejected
Q3	What do you believe is the cause of earthquakes?	11.05	9.49	0.02600	H_0 rejected
Q4	In the event of an earthquake of $Mw > 8$, what do you think could happen to you?	7.05	11.07	0.2169	H_0 accepted
Q5	How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime?	30.83	12.59	0.00002	H_0 rejected
Q6	Would your house resist a major ($Mw \geq 7$) earthquake?	29.0	5.99	0.00000054	H_0 rejected
Q7	Do all the members of your family know what to do and where to go during an earthquake?	4.92	5.99	0.0854	H_0 accepted
Q8	How do you plan on communicating with family/friends after a large earthquake?	0.16	5.99	0.923	H_0 accepted
Q9	What do you think the level of risk for an earthquake is in your city?	12.88	5.99	0.00156	H_0 rejected
Q10	The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?	1.92	3.84	0.165	H_0 accepted
Q11	Have you ever discussed the topic of earthquakes in school?	6.78	3.84	0.0092	H_0 rejected

Module index:

- M1: Plate Tectonics
- M2: Magnitude and Intensity
- M3: Why we can not predict earthquake
- M4: What to do before, during, after earthquake
- M5: BOSS model
- M6: Earthquake Artwork Competition
- M7: Liquefaction
- M8: Seismic Waves
- M9: Earthquake Game
- M10: Earthquake Emergency Bag (GO Bag)
- M11: Seismometer and Jumping Test
- M12: Earthquake Quiz Contest
- M13: Earthquake Awareness Song
- M14: Earthquake Evacuation Drills
- R1: Prior-Survey Room
- R2: First Aid Room
- R3: M14, Post-Survey Room

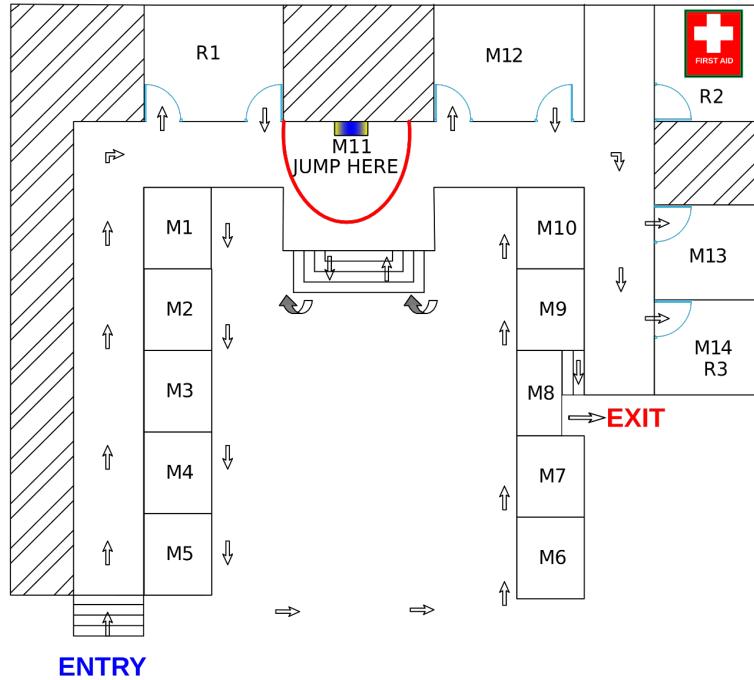


Figure S1: Exhibition Road Map plot.

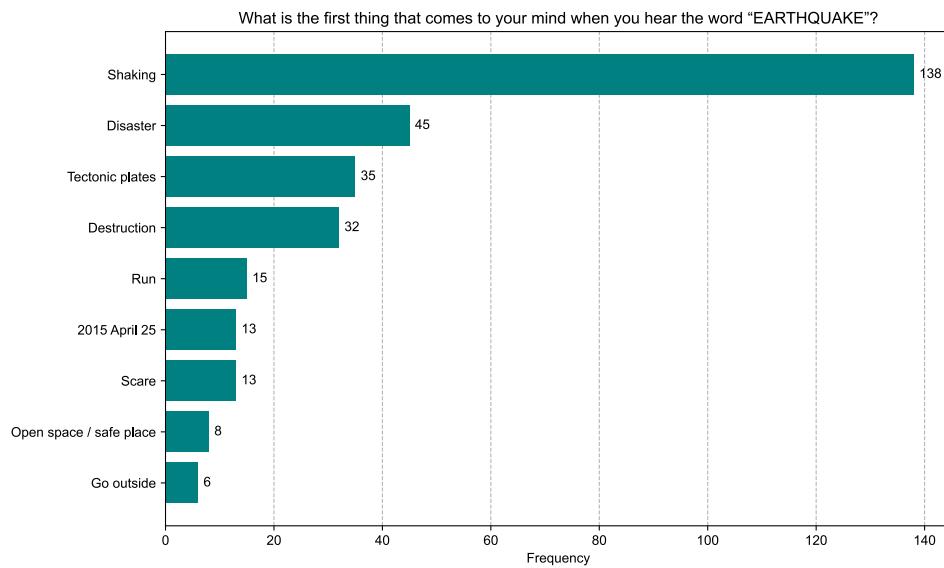


Figure S2: Student answers to what is the first thing that comes to their mind when they hear the word 'EARTHQUAKE' (question 1).

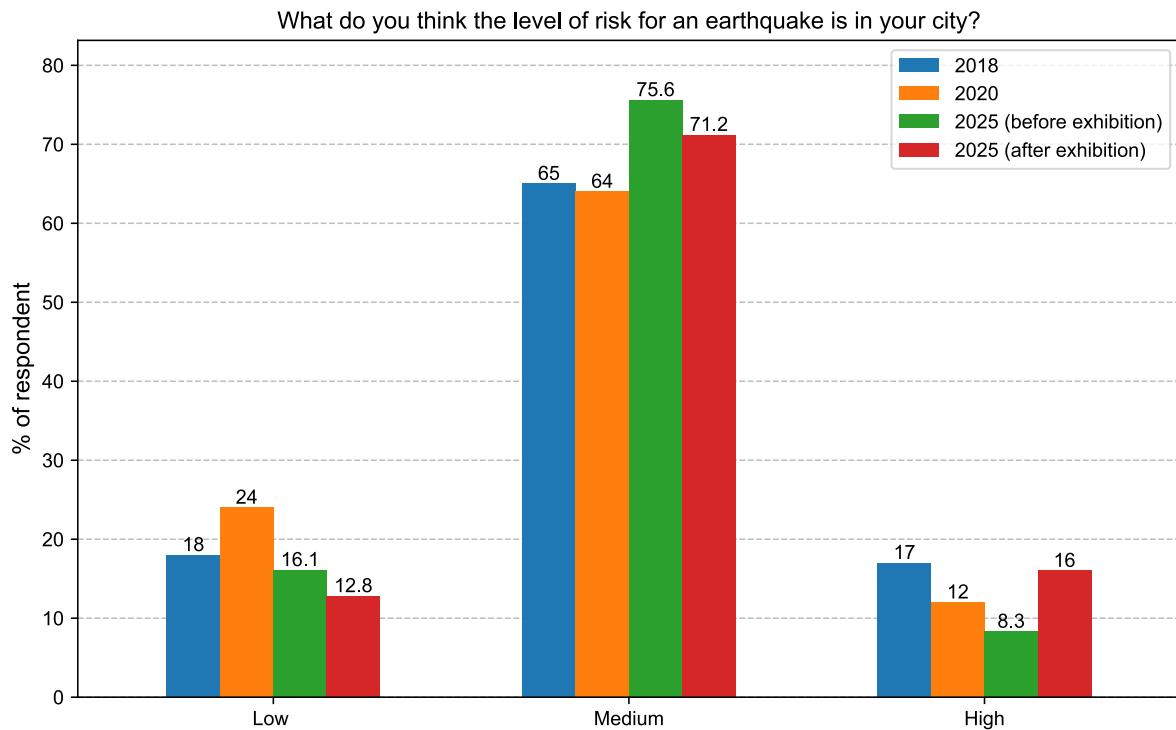


Figure S3: Students' earthquake risk perception before and after the exhibition (question 9). ($\chi^2=12.88$, p value = 0.00156; the change is significant). The answers from the 2018 and 2020 surveys are also plotted for comparison purposes.

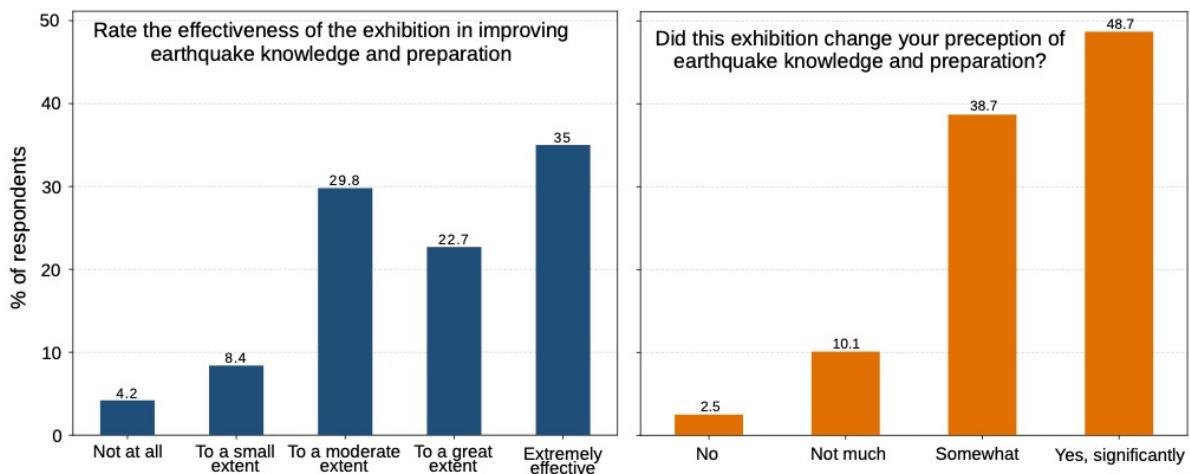


Figure S4: Impact of the exhibition. (left) Students' satisfaction statistics after the exhibition (question 18). (right) Students' change in perception regarding earthquake knowledge and preparedness (question 19).

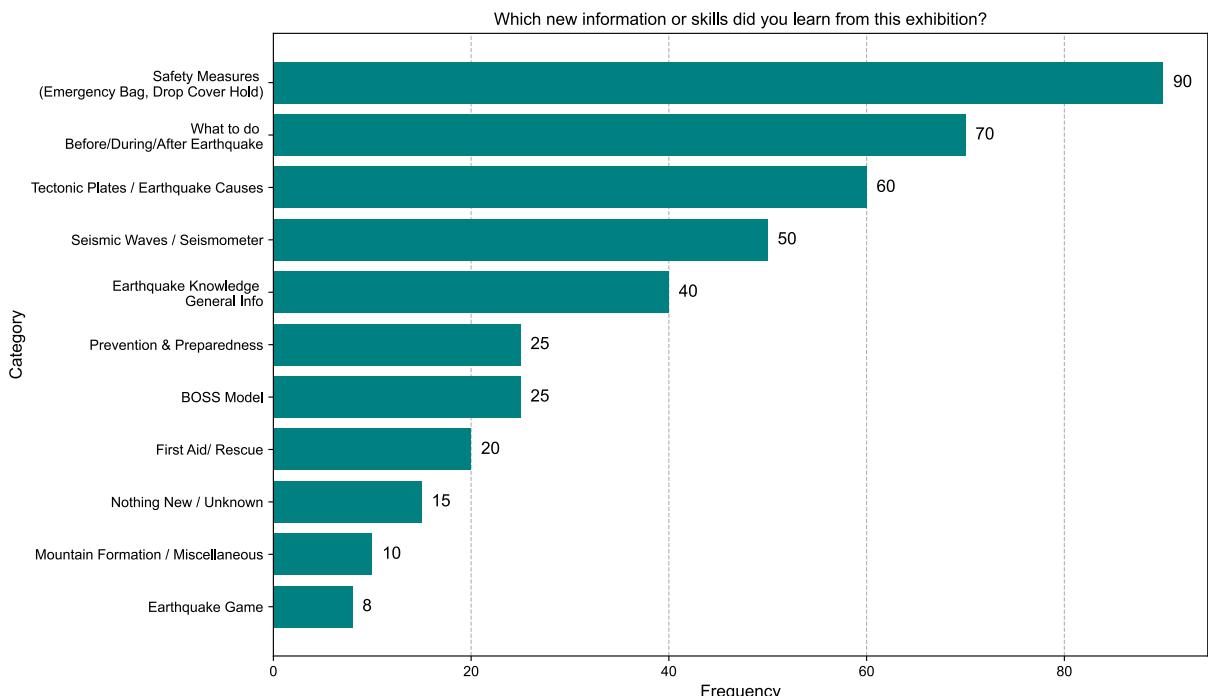


Figure S5: Students' answers about the new information learned from the exhibition (question 20).



Figure S6. Word cloud representing participants' spontaneous responses to question 1: "What is the first thing that comes to your mind when you hear the word 'EARTHQUAKE'?" The size of each word reflects its frequency of occurrence in the collected answers, highlighting the most common associations and perceptions among respondents.

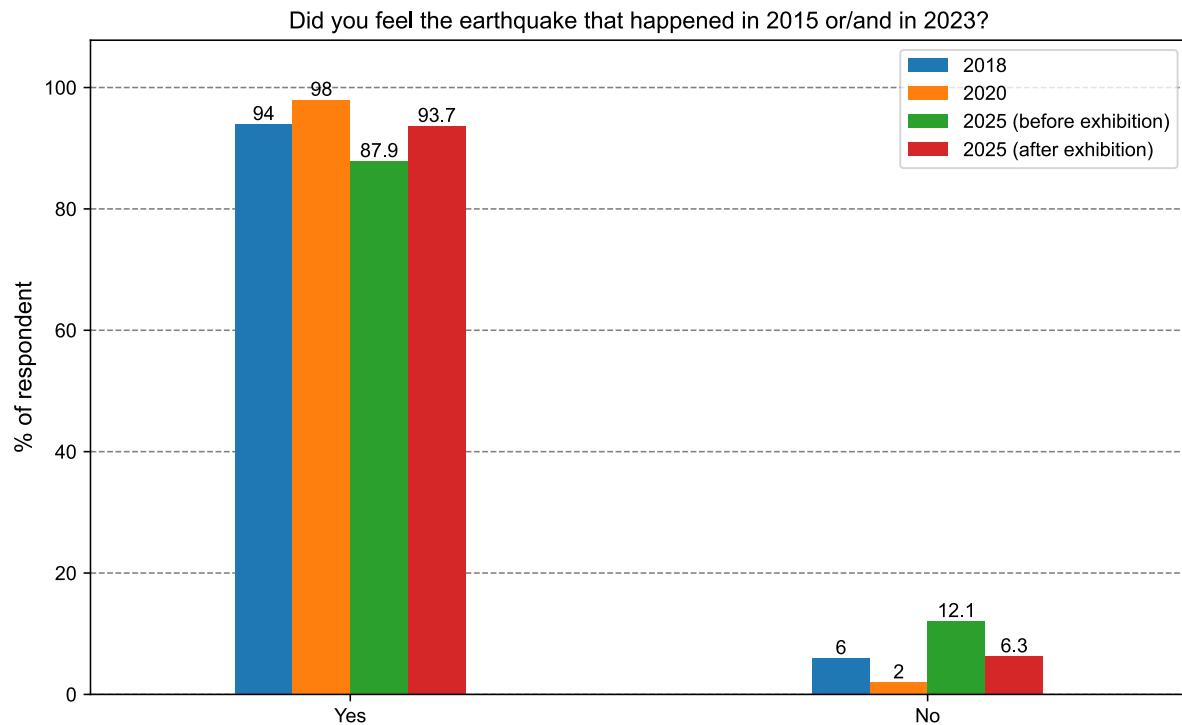


Figure S7. Responses to the question 2: *“Did you feel the earthquake that happened in 2015 and/or 2023?”* The plot shows the distribution of participants’ experiences, indicating the proportion of respondents who felt each earthquake or both.

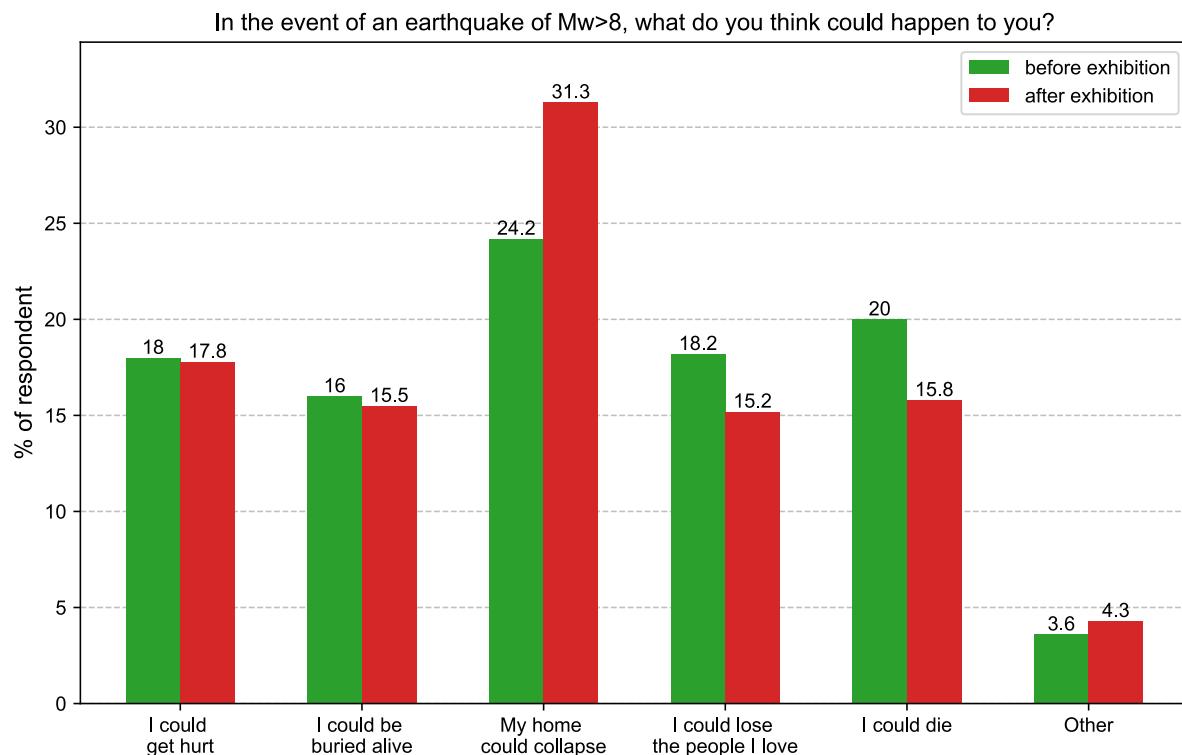


Figure S8. Distribution of participants’ responses to question 4: *“In the event of an earthquake of $Mw > 8$, what do you think could happen to you?”*

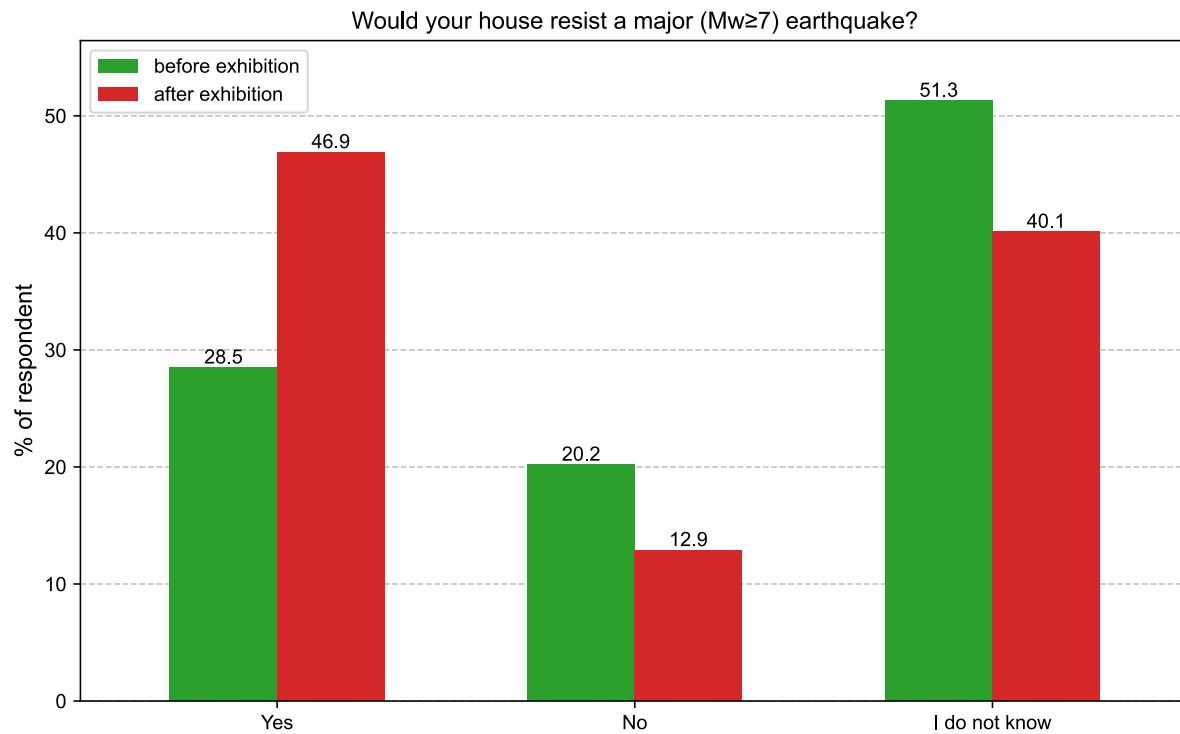


Figure S9. Distribution of participants' responses to question 6: "Would your house resist a major ($Mw \geq 7$) earthquake?"

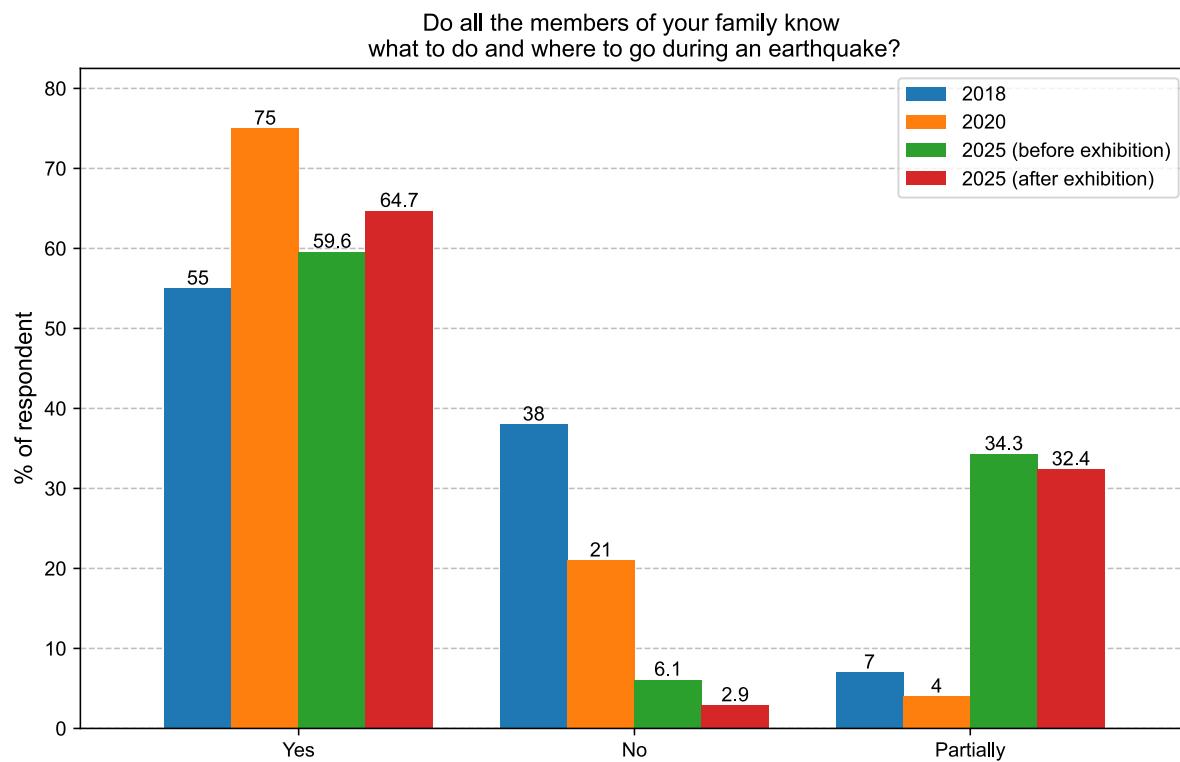


Figure S10. Distribution of participants' responses to question 7: "Do all the members of your family know what to do and where to go during an earthquake?"

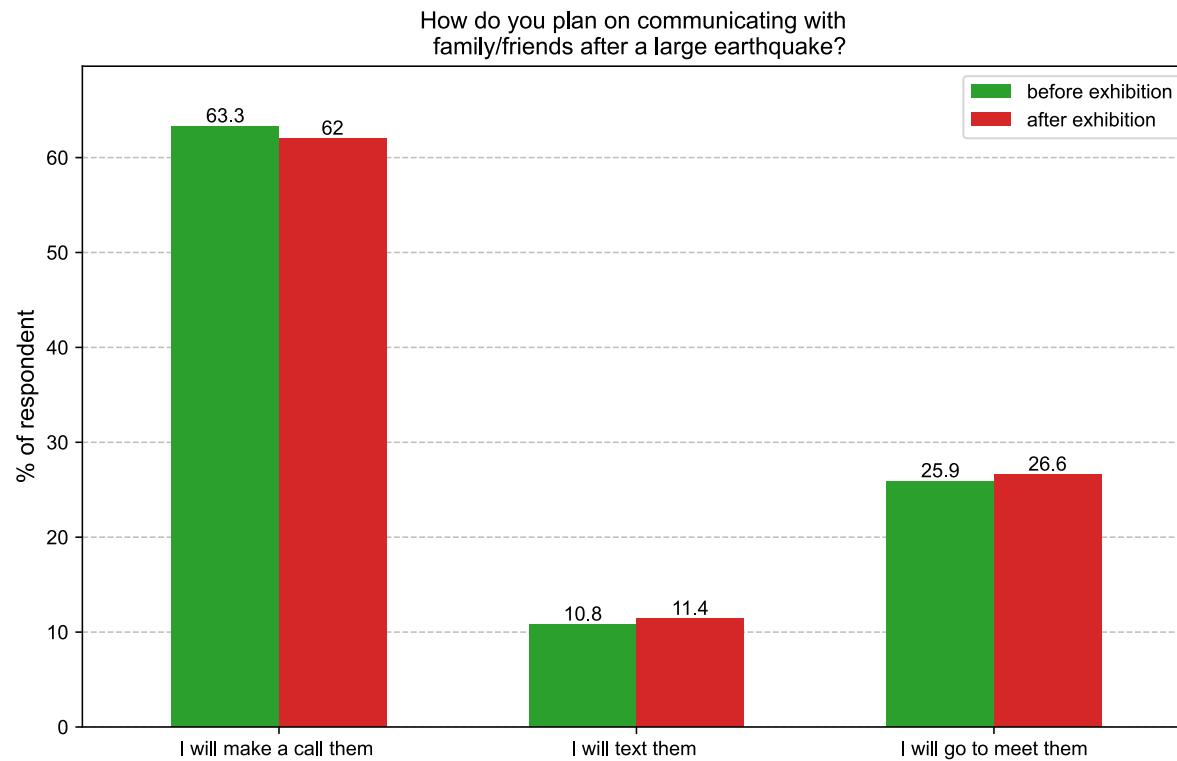


Figure S11. Distribution of participants' responses to question 8: “How do you plan on communicating with family/friends after a large earthquake?”

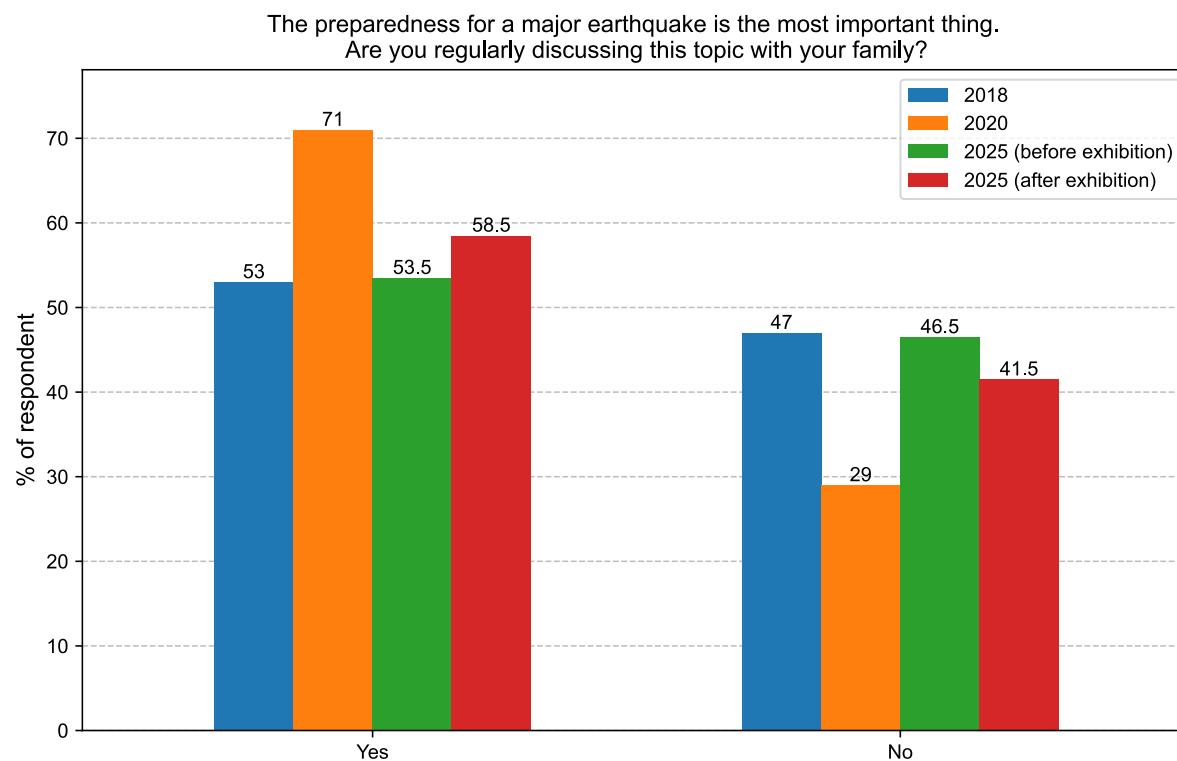


Figure S12. Distribution of participants' responses to question 10: “The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?”

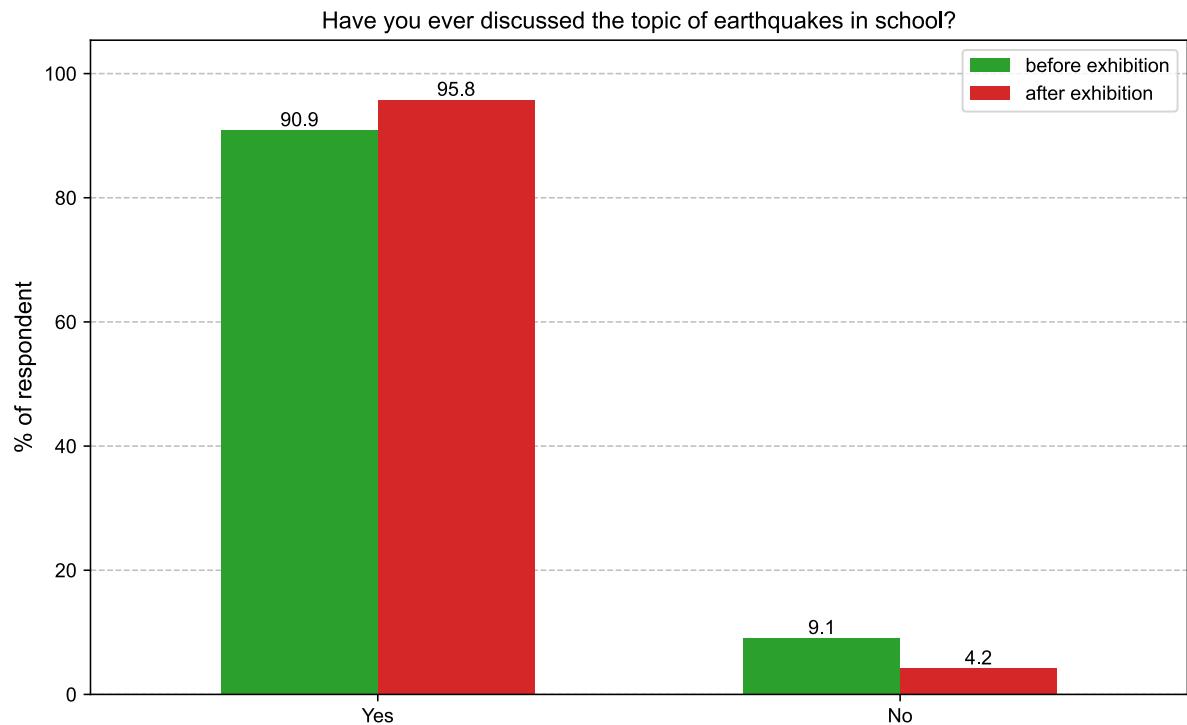


Figure S13. Distribution of participants' responses to question 11: “Have you ever discussed the topic of earthquake in school?”

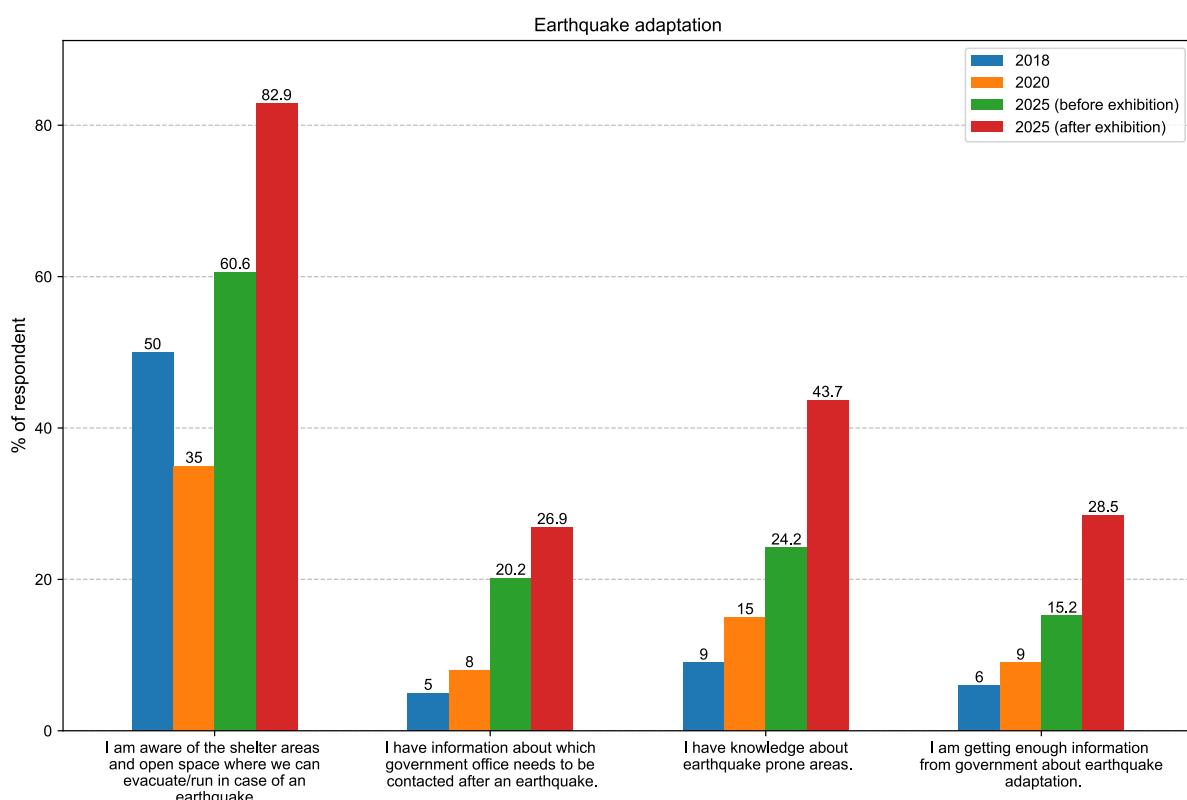


Figure S14. Distribution of participants' responses to question 14: “Earthquake adaptation”. Multiple answers are allowed for this question.

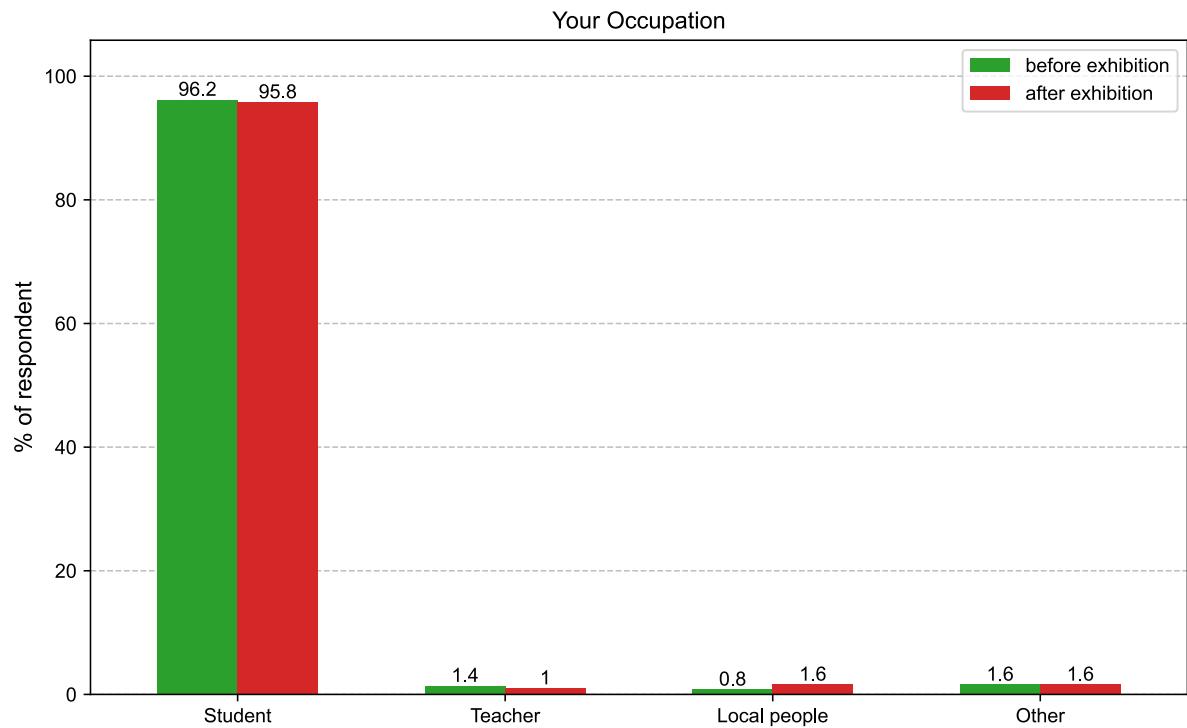


Figure S15. Plot of participants' statistics question 15: "Your Occupation".

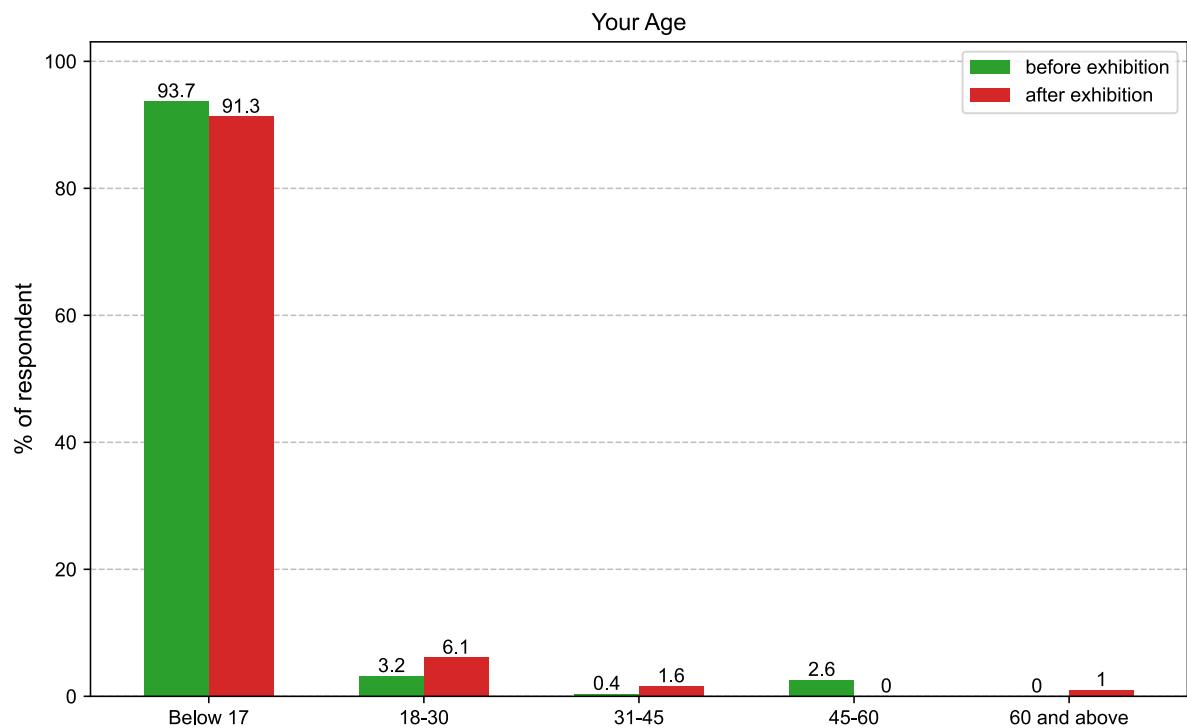


Figure S16. Plot of participants' statistics question 16: "Your Age".

What aspects of the exhibition did you find the most useful ?

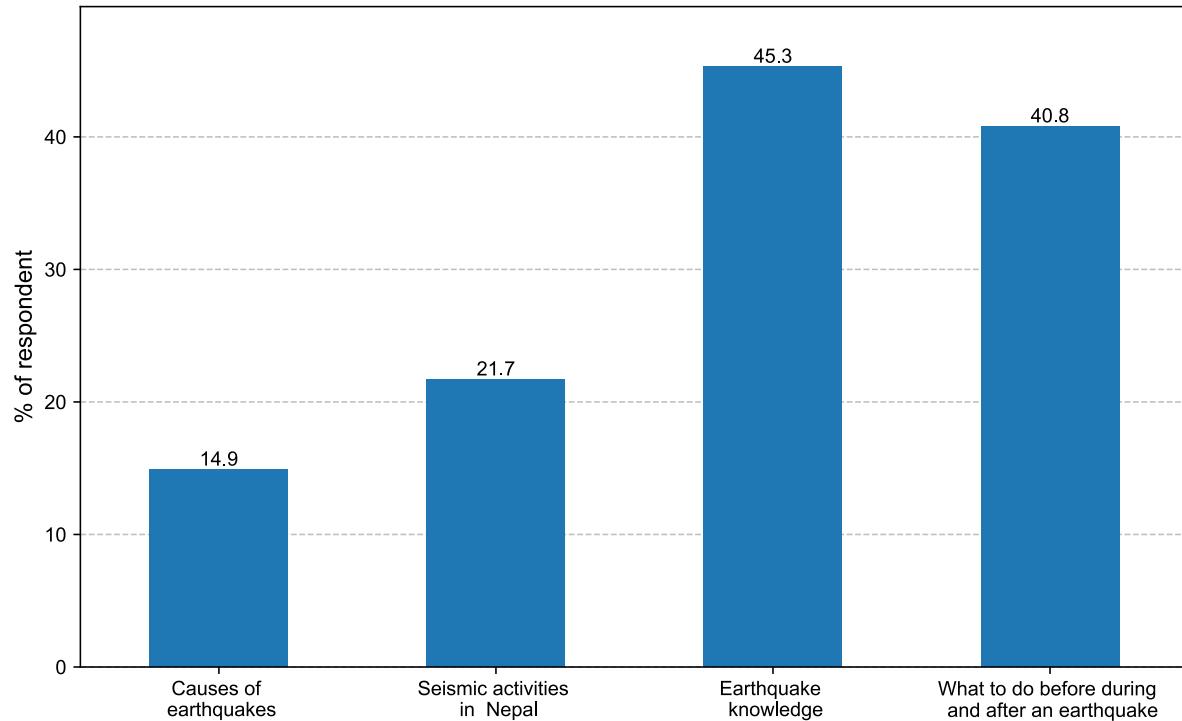


Figure S17. Participants' responses to question 17: "What aspects of the exhibition did you find the most useful?". Multiple answers are allowed for this question.



Figure S18: Word cloud plot of question 20: "Which new information or skills did you learn from this exhibition?"

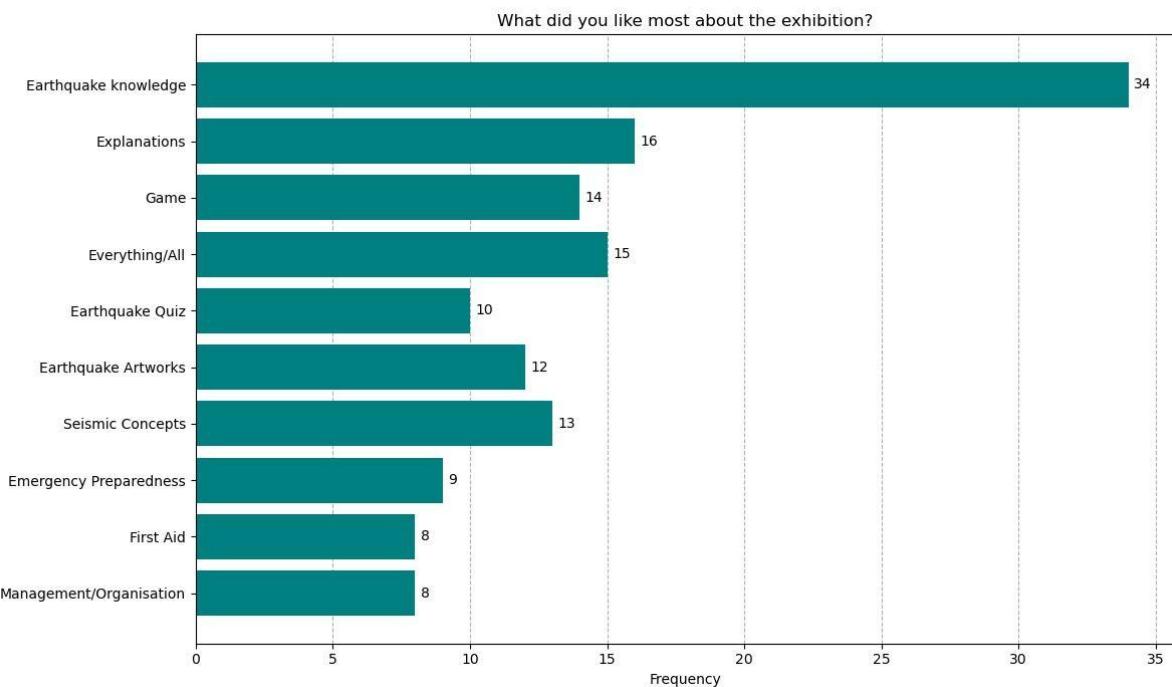
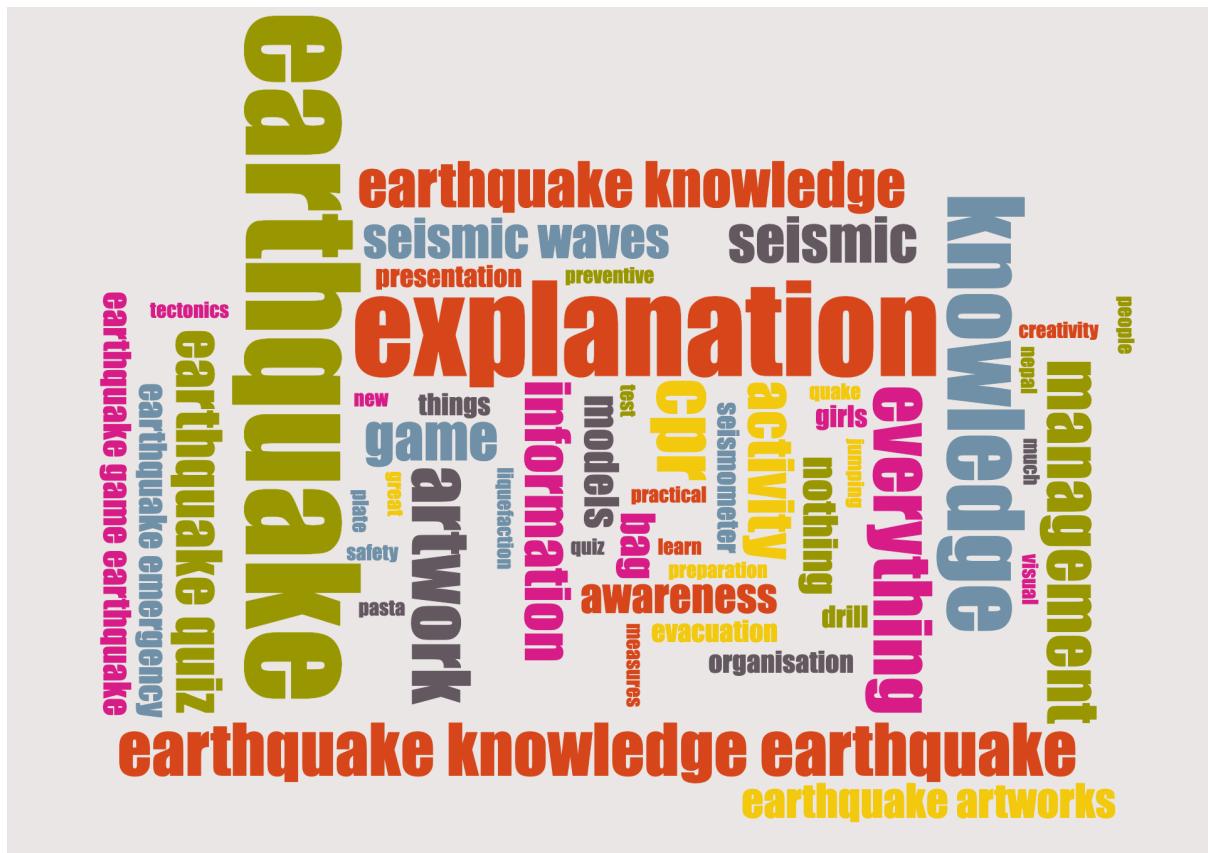


Figure S19: Word cloud (top) and frequency (bottom) plot of question 22: *“What did you like most about the exhibition?”*

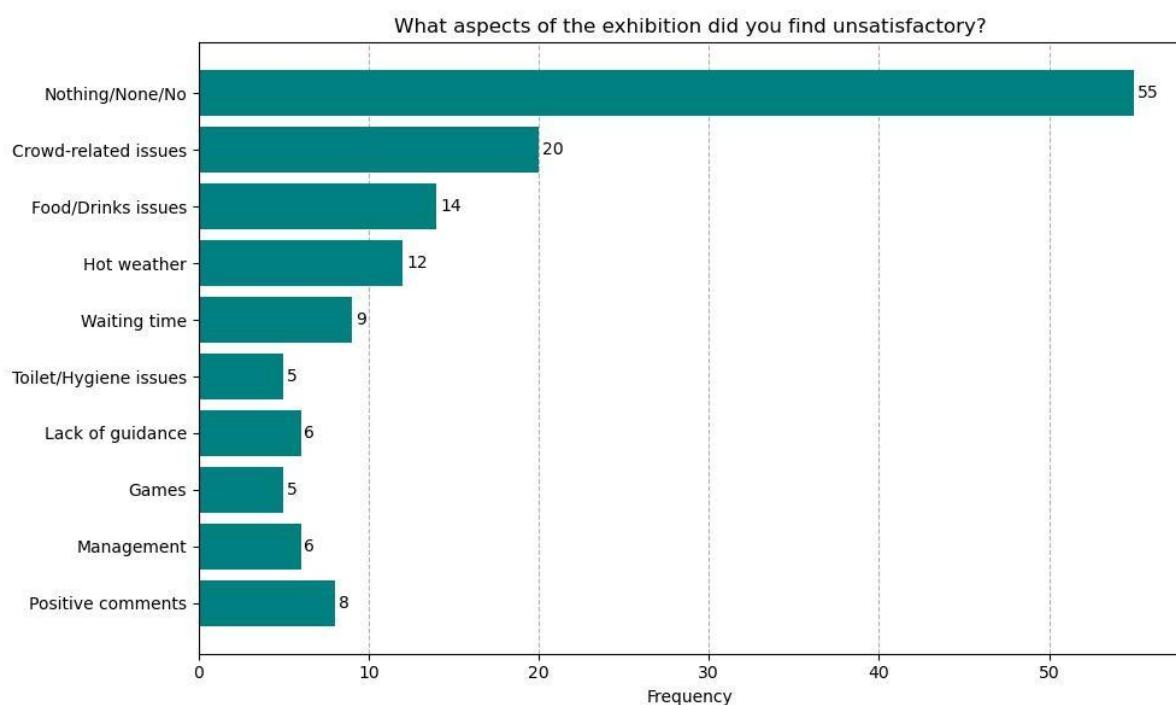


Figure S20: Word cloud (top) and frequency (bottom) plot of question 23: “*What aspects of the exhibition did you find unsatisfactory?*”

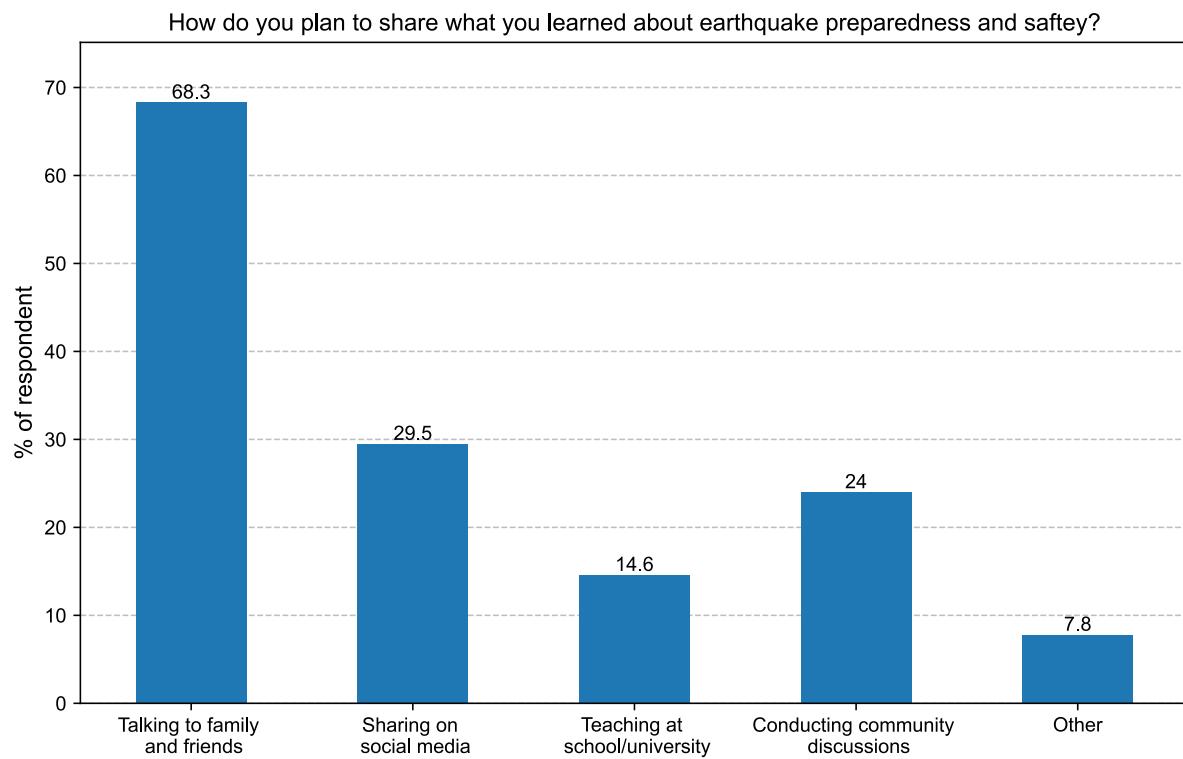


Figure S21. Participants' responses to question 26: *“How do you plan to share what you learned about earthquake preparedness and safety?”*. Multiple answers are allowed for this question.

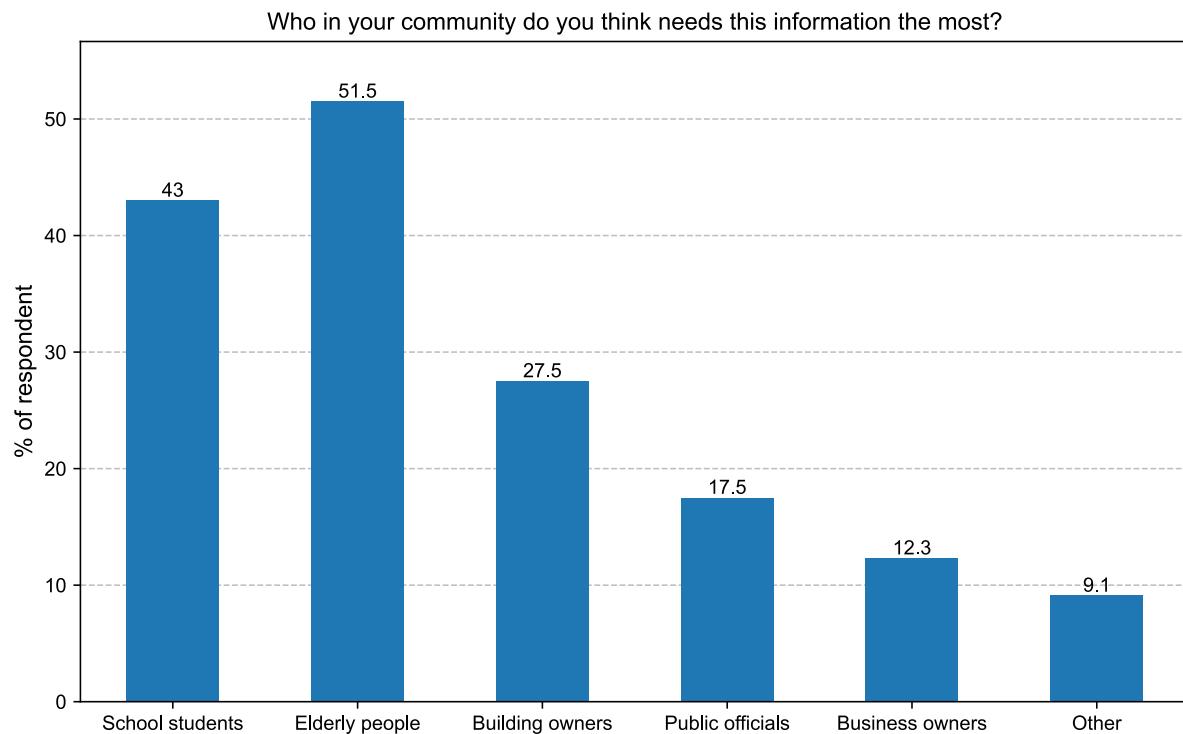


Figure S22. Participants' responses to question 27: *“How do you plan to share what you learned about earthquake preparedness and safety?”*. Multiple answers are allowed for this question.

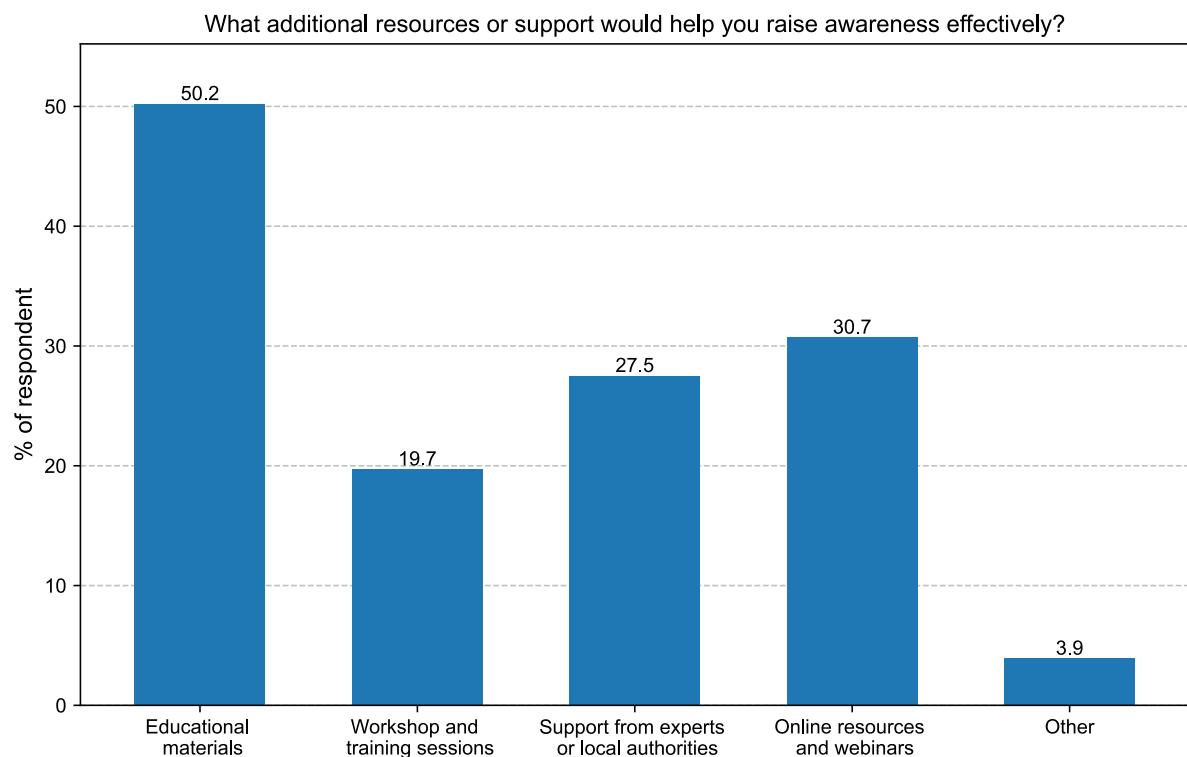


Figure S23. Participants' responses to question 28: “What additional resources or support would help you raise awareness effectively?”. Multiple answers are allowed for this question.

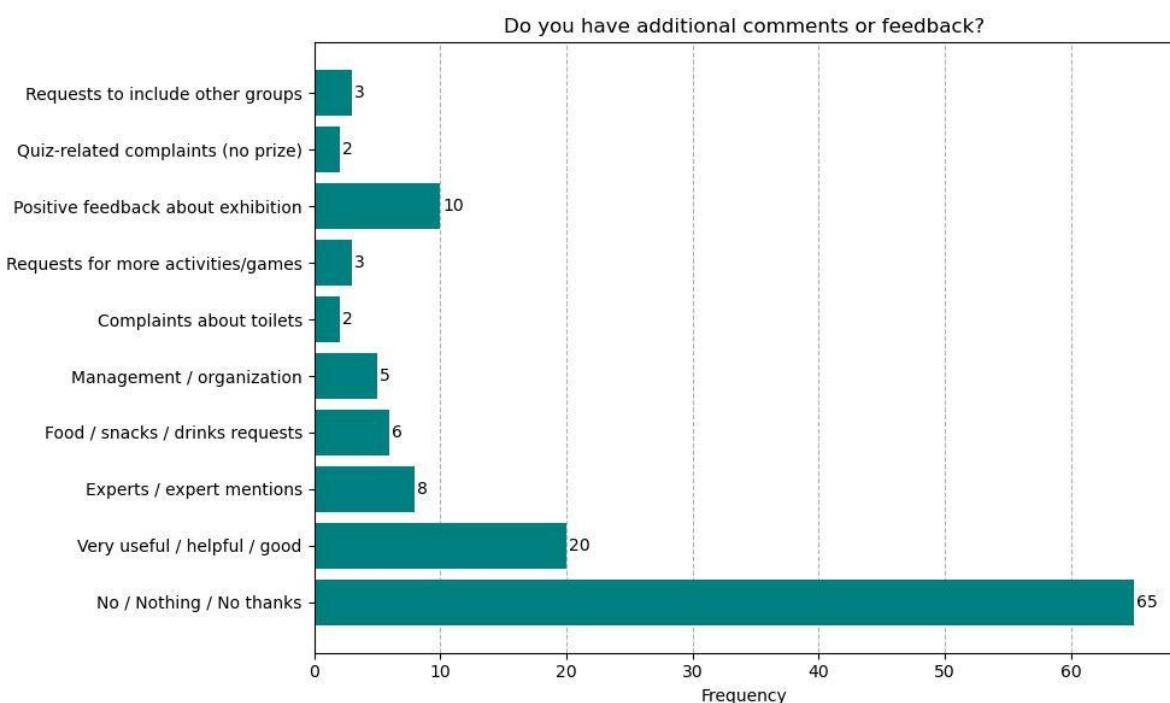


Figure S24: Word cloud (top) and frequency (bottom) plot of question 29: “Do you have additional comments or feedback?”

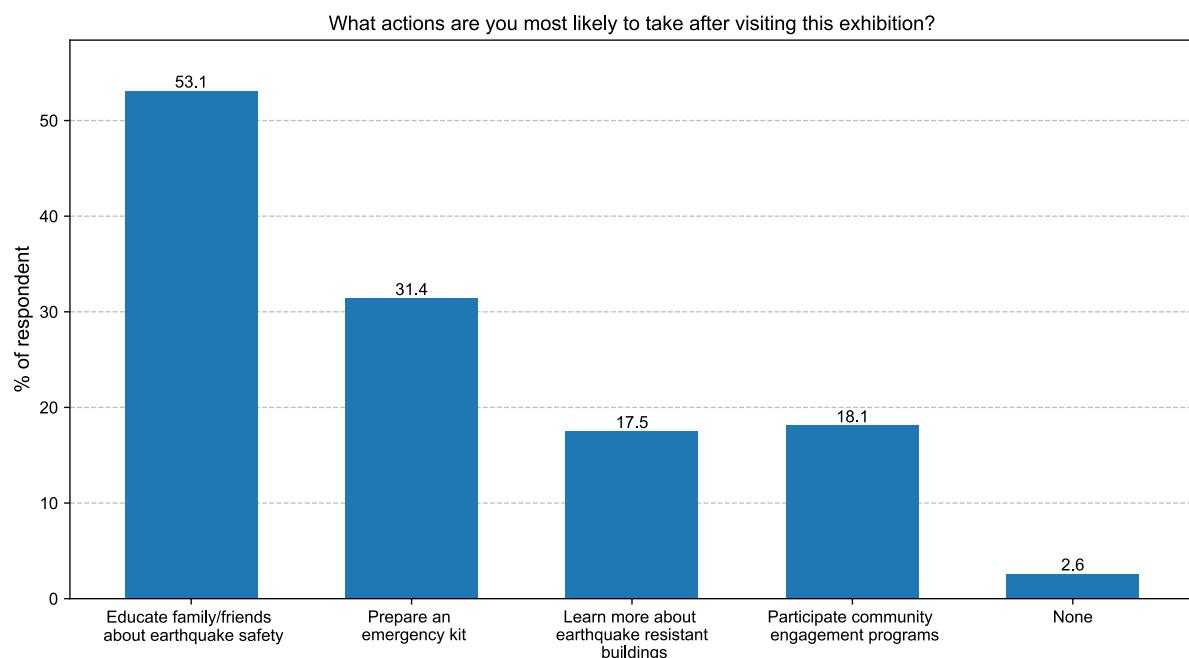


Figure S25: Participant's responses to question 31: "What actions are you most likely to take after visiting this exhibition?"

The goal of this survey is to understand local people's awareness regarding earthquakes and to further assess the impact of our program.

Survey: 1/2

Section 1: Visitor Information

1. What is the first thing that comes to your mind when you hear the word "EARTHQUAKE"? Without thinking too much, write down your first thought. "भूकम्प" भन्ने शब्द सुन्ने वित्तकै तपाईंको विचारमा के आउँदै ? तपाईंको पहिलो सोचाई लेख्नुहोस् ।

.....

2. Did you feel the earthquake that happened in 2015 or/and in 2023? वि.स. २०७२ वा २०८० सालमा गएको भूकम्प तपाईंले महशुस गर्नुभयो ?

Yes No

3. What do you believe is the cause of earthquakes? तपाईंको विचारमा भूकम्पको कारण के हुन सक्छ ?

Earth rotation पृथ्वीको घुमाई Tectonic plates' movement जमिनमूँजिको चालन सर्नु Underground energy पृथ्वीमित्रको शक्ति
 Earth carrying fish changes arm माद्धाले काध फेर्नु Other, please specify अन्य.....

4. In the event of an earthquake of $Mw > 8$, what do you think could happen to you? यदी $Mw > 8$ रेक्टर स्केल भन्दा माथीको भूकम्प आए तपाईंको अवस्था के हुन सक्छ ?

I could get hurt याईंते हुन सक्छु I could be buried alive जिउदै पुरिन सक्छु My home could collapse मेरो घर भत्किएको हुन सक्छ
 I could lose the people I love मलाई माया गर्ने मान्दै गुमाउन सक्छु I could die मृत्यु हुन सक्छ Other, अन्य

5. How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime? तपाईंले आफ्नो जीवनमा वि.स. २०७२ सालको भूकम्प भन्दा दूलो भूकम्प आउने सम्भावना कैसिको देखुहुन्छ ?

Impossible (0%) Very unlikely (10%) Unlikely (30%)
 Equally likely or unlikely (50%) Likely (70%) Most likely (90%) I don't know

6. Would your house resist a major ($Mw \geq 7$) earthquake? तपाईंको घरले विनाशकारी भूकम्प थेरन सक्छ ?

Yes No I don't know

7. Do all the members of your family know what to do and where to go during an earthquake? के तपाईंको परिवारको सदस्यलाई भूकम्पको समयमा के गर्ने र कहाँ जाने भन्ने कुरा थाहा छ ?

Yes थाहा छ No थाहा छैन Partially अलि अलि थाहा छ

8. How do you plan on communicating with your family/friends after a large earthquake? भूकम्पलगातै साथी परिवारसंग कसरी कुरा गर्नुहुन्छ ?

I will make a call them I will text them I will go to meet them

9. What do you think the level of risk for an earthquake is in your city? तपाईंको शहरमा भूकम्पको जोखिम कैसिको छ भन्ने ठान्हुहुन्छ ?

High धेरै Medium मध्यम Low थोरै

10. The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family? दूलो भूकम्पको पूर्व तयारी अति महत्वपूर्ण छ । के तपाईं यस विषयमा परिवारसंग नियमित छलफल गर्नुहुन्छ ?

Yes No

11. Have you ever discussed the topic of earthquakes in school? के तपाईंले कहिल्यै स्कूलमा भूकम्पको विषयमा छलफल गर्नुभएको छ ?

Yes No

12. Earthquake-related knowledge (Tick all that apply) भूकम्प सम्बन्धी ज्ञान

I know exactly when an earthquake will occur. मलाई भूकम्प कहिले आउँदै भन्ने दृश्यावकै थाहा छ ।
 I know earthquake cannot be prevented. भूकम्पको रोकथाम गर्न सकिन्दैन भन्ने कुरा मलाई थाहा छ ।
 I have participated in disaster risk education training or workshop. मैले विपद् व्यवस्थापन सम्बन्धी शिक्षा-तालिममा भाग लिएको छु ।

13. Earthquake preparedness (Tick all that apply) भूकम्पको तयारी

I think to come across an earthquake and remain alive depends on our luck. भूकम्पमा पर्नु र बाँच्नु हाम्रो भाग्यमा भरपर्दै ।
 I know it is important to share experiences and knowledge about earthquakes. भूकम्पको अनुभव ज्ञान बाँहनु महत्वपूर्ण छ भन्ने थाहा छ ।
 I know the government will provide enough facilities after an earthquake and we will not face problems to survive. भूकम्पको विपद् पछि सरकारले प्रस्तात सुविधा प्रदान गर्दै र हामीलाई बाच्न कुनै समस्या हुँदैन भन्ने कुरा मलाई थाहा छ ।
 I trust in the government's reconstruction activities after a disaster. भूकम्पपछि सरकारको पुनर्निर्माण गतिविधिहरूमा मलाई विश्वास छ ।
 It's important to talk about natural hazards with neighbors, friends and colleagues. भूकम्पको बारेमा छिसेकी र साथीभाईसंग छलफल गर्नुको महत्व मलाई थाहा छ ।

14. Earthquake adaptation (Tick all that apply) भूकम्प अनुकूलता

I am aware of the shelter areas and open space where you can evacuate/run in case of an earthquake. भूकम्पको बेलामा जान सार्काने खुल्ला सुरक्षित ठाउँ कहाँ छन् भन्ने कुरा मलाई थाहा छ ।
 I have information about which government office needs to be contacted after an earthquake. भूकम्पपछि कुन सुरकारी निकायसँग सम्पर्क गर्ने भन्ने कुरा मलाई थाहा छ ।
 I have knowledge about earthquake prone areas. मलाई भूकम्पिय जोखिमयुक्त क्षेत्रको बारेमा ज्ञान छ ।
 I am getting enough information from government about earthquake adaptation. मैले सरकारबाट भूकम्पसम्बन्धी प्रशस्त जानकारी पाईरहेको छु ।

15. Your Occupation: Student Teacher Local person Other.....

16. Your Age: १७ वर्षसम्म १८ देखि ३० वर्षसम्म ३१ देखि ४५ वर्षसम्म ४६ देखि ६० वर्षसम्म ६० वर्षभन्दा माथी

The goal of this survey is to understand local people's awareness regarding earthquakes and to further assess the impact of our program.
Survey: 2/2

Section 1: Visitor Information

- What is the first thing that comes to your mind when you hear the word "**EARTHQUAKE**"? Without thinking too much, write down your first thought. "भूकम्प" भन्ने शब्द सुने वित्तिकै तपाईंको दिमास्त्रमा के आउँदै ? तपाईंको पहिलो सोचाई लेख्नुहोस् ।
- Did you feel the earthquake that happened in 2015 or/and in 2023? वि.स. २०७२ वा २०८० सालमा गएको भूकम्प तपाईंले महशुस गर्नुभयो ?
 Yes No
- What do you believe is the cause of earthquakes? तपाईंको विचारमा भूकम्पको कारण के हुन सक्छ ?
 Earth rotation पृथ्वीको प्रमाण Tectonic plates' movement जमिनमुनिको चटान सर्नु Underground energy पृथ्वीमित्रको शक्ति
 Earth carrying fish changes arm माद्याले काष्ठ फेर्नु Other, please specify अन्य.....
- In the event of an earthquake of $Mw > 8$, what do you think could happen to you?
यदी द रेक्टर स्केल भन्दा माथीको भूकम्प आए तपाईंको अवस्था के हुन सक्छ ?
 I could get hurt घाउँते हुन सक्छ I could be buried alive जिउँदै पुरिन सक्छ My home could collapse मेरो घर भत्किएको हुन सक्छ
 I could lose the people I love मलाई माया गर्ने मान्द्ये गुमाउन सक्छ I could die मर्यू हुन सक्छ Other, अन्य
- How likely do you think it is that an earthquake larger than the Gorkha earthquake will occur in Nepal during your lifetime? तपाईंले आफ्नो जीवनमा वि.स. २०७२ सालको भूकम्प भन्दा दूसो भूकम्प आउने सम्भावना कतिको देख्नुहुन्छ ?
 Impossible (0%) Very unlikely (10%) Unlikely (30%)
 Equally likely or unlikely (50%) Likely (70%) Most likely (90%) I don't know
- Would your house resist a major ($Mw \geq 7$) earthquake? तपाईंको घरले विनाशकारी भूकम्प थेग्न सक्छ ?
 Yes No I don't know
- Do all the members of your family know what to do and where to go during an earthquake?
के तपाईंको परिवारको सदस्यालाई भूकम्पको समयमा के गर्ने र कहाँ जाने भन्ने कुरा थाहा छ ?
 Yes थाहा छ No थाहा छैन Partially अलि थाहा छ
- How do you plan on communicating with family/friends after a large earthquake? भूकम्पलगातै साथी र परिवारसंग कसरी कुरा गर्नुहुन्छ ?
 I will make a call them I will text them I will go to meet them
- What do you think the level of risk for an earthquake is in your city? तपाईंको शहरमा भूकम्पको जोखिम कतिको छ भन्ने ठान्हुहुन्छ ?
 High धेरै Medium मध्यम Low थोरै
- The preparedness for a major earthquake is the most important thing. Are you regularly discussing this topic with your family?
दूसो भूकम्पको पूर्व तयारी अंत महत्वपूर्ण छ । के तपाईं यस विषयमा परिवारसंग नियमित छलफल गर्नुहुन्छ ?
 Yes No
- Have you ever discussed the topic of earthquakes in school? के तपाईंले कहिन्त्यै स्कूलमा भूकम्पको विषयमा छलफल गर्नुभएको छ ?
 Yes No
- Earthquake-related knowledge (Tick all that apply) भूकम्प सम्बन्धी ज्ञान
 I know exactly when an earthquake will occur. मलाई भूकम्प कहिले आउँदै भन्ने दृश्यकै थाहा छ ।
 I know earthquake cannot be prevented. भूकम्पको रोकथाम गर्न सकिदैन भन्ने कुरा मलाई थाहा छ ।
 I have participated in disaster risk education training or workshop. मैले विपद व्यवस्थापन सम्बन्धी शिक्षा-तालिममा भाग लिएको छु ।
- Earthquake preparedness (Tick all that apply) भूकम्पको तयारी
 I think to come across an earthquake and remain alive depends on our luck. भूकम्पमा पर्नु र बाँच्नु हायो भाग्यमा भरपर्छ ।
 I know it is important to share experiences and knowledge about earthquakes. भूकम्प अनुभव र ज्ञान बाँच्नु महत्वपूर्ण छ भन्ने थाहा छ ।
 I know the government will provide enough facilities after an earthquake and we will not face problems to survive.
भूकम्पको विपद पछि सरकारले प्रस्तान सुविधा प्रदान गर्दै र हामीलाई बाच्न कुनै समस्या हुँदैन भन्ने कुरा मलाई थाहा छ ।
 I trust in the government's reconstruction activities after a disaster. भूकम्पपछि सरकारको पुनर्निर्माण गतिविधिहरूमा मलाई विश्वास छ ।
 It's important to talk about natural hazards with neighbours, friends and colleagues.
भूकम्पको बारेमा छिमेकी र साथीभाईसंग छलफल गर्नुको महत्व मलाई थाहा छु ।
- Earthquake adaptation (Tick all that apply) भूकम्प अनुकूलता
 I am aware of the shelter areas and open space where you can evacuate/run in case of an earthquake.
भूकम्पको बेलामा जान सकिने सुल्ला सुरक्षित ठाउँ कहाँ छन् भन्ने कुरा मलाई थाहा छ ।
 I have information about which government office needs to be contacted after an earthquake.
भूकम्पपछि कुन सुरकारी निकायसंग सम्पर्क गर्ने भन्ने कुरा मलाई थाहा छ ।
 I have knowledge about earthquake prone areas. मलाई भूकम्पिय जोखिमयुक्त क्षेत्रको बारेमा ज्ञान छ ।
 I am getting enough information from government about earthquake adaptation.
मैले सरकारबाट भूकम्पसम्बन्धी प्रशस्त जानकारी पाइरहेको छु ।

15. Your Occupation: Student Teacher Local person Other.....

16. Your Age: १७ वर्षसम्म १८ देखि ३० वर्षसम्म ३१ देखि ४५ वर्षसम्म ४६ देखि ६० वर्षसम्म ६० वर्षसम्म आधी

Section 2: Exhibition Experience प्रदर्शनी अनुभव

17. What aspects of the exhibition did you find most useful? (Select all that apply.) प्रदर्शनीको कुन पक्ष तपाईंलाई सबैभन्दा उपयोगी लाग्यो ?

- Causes of earthquakes Seismic activities in Nepal
- Earthquake knowledge What to do before, during, and after an earthquake

18. Rate the effectiveness of the exhibition in improving earthquake knowledge and preparation (1=Not at all, 5=Extremely effective): भूकम्पको ज्ञान र भूकम्प तयारीमा सुधार गर्ने प्रदर्शनीको प्रभावकारिताको मूल्याङ्कन गर्नुहोस् (१ = प्रभावकारी छैन, ५ = अत्यन्तै प्रभावकारी):

- 1 2 3 4 5

19. Did the exhibition change your perception of earthquake risks and preparedness?

के प्रदर्शनीले भूकम्प ज्ञानिका तपाईंको बारेमा तपाईंको सोचाई परिवर्तन गर्यो ?

- Yes, significantly Somewhat Not much No

20. Which new information or skills did you learn from this exhibition? यस प्रदर्शनीबाट तपाईंले कुन नयाँ कुरा थाहा पाउनुभयो ?

21. After attending the exhibition, do you feel more prepared to handle an earthquake?

प्रदर्शनीमा भाग लिएपछि तपाईं भूकम्पको सम्भावना गर्ने अफ तयार महाशुस गर्नुभयो ?

- Yes Somewhat No

22. What did you like most about the exhibition? प्रदर्शनीमा तपाईंलाई सबैभन्दा धेरै के मन पर्यो ?

23. What aspects of the exhibition did you find unsatisfactory? प्रदर्शनीको बारेमा तपाईंलाई के मन परेन ?

24. Would you recommend this exhibition to others? के तपाईं यो प्रदर्शनी अबलोकन गर्ने अरुलाई सिफारिश गर्नुहुन्दू ?

- Yes Maybe No

25. Will you share the earthquake knowledge you learned today with people in your community?

के तपाईं आज सिकेको भूकम्पसम्बन्धी ज्ञान समुदायमा बाइनुहुन्दू ?

- Yes, with many people (n>10) Yes, with some people (n>5) Yes, only with parent No at all

26. How do you plan to share what you learned about earthquake preparedness and safety? (Select all that apply.)

भूकम्पको तयारी र भूकम्प सुरक्षाको बारेमा सिकेका कुराहरू अरुलाई कसरी बताउनुहुन्दू ?

- Talking to family and friends Sharing on social media Teaching at school/university
- Conducting community discussions Other (please specify)

27. Who in your community do you think needs this information the most? (Select all that apply.)

तपाईंको समुदायमा कसलाई भूकम्पसम्बन्धी ज्ञानकारी सबैभन्दा बढी आवश्यक छ जस्तो लाग्दू ?

- School students Elderly people Homeowners/building owners
- Public officials Business owners Other (please specify)

28. What additional resources or support would help you raise awareness effectively?

भूकम्पसम्बन्धी चेनानासर बढाउन तपाईंलाई कुन थप शोतरै सहयोग गर्न्दू ?

- Educational materials (brochures, posters, videos) Workshops and training sessions
- Support from experts or local authorities Online resources and webinars Other.....

29. Do you have additional comment or feedback? प्रदर्शनीको बारेमा तपाईंसँग थप प्रतिक्रिया छ ?

30. After attending this exhibition, are you more likely to take steps for earthquake preparedness (e.g., creating an emergency plan, securing household items, spreading awareness)? यस प्रदर्शनीमा भाग लिएपछि तपाईंले भूकम्पको तयारीका लागि काम गर्नुहुन्दू ?

- Yes, definitely Maybe Not really No

31. What actions are you most likely to take after visiting this exhibition? यो प्रदर्शनीको भ्रमण पछि तपाईंले के गर्ने सम्मानना बढी छ ?

- Educate family/friends about earthquake safety Prepare an emergency kit
- Learn more about earthquake-resistant buildings Participate community awareness programs
- None Others, please specify: