**AGU Scientific Ethics: 10-Minute Challenge**

**About the 10-Minute Challenge**

The purpose of this exercise is to provide an active learning experience in a safe setting where ethical issues can be explored. This training will help participants be prepared to recognize and address ethical problems. By grappling with the sorts of ethical problems that arise regularly in professional life in this safe, non-threatening role-play setting, participants can think through the problem and gain some skills and tools to use should they ever encounter such a problem. We hope that by practicing these conversations you become better able to resist confusion and anxiety when questions of ethical research arise.

**Directions**

Each team will be given a Role-Play scenario based on a real-life ethical issue. The teams will be given 10 minutes to read their scenario and discuss the ethical issue that relates. In the discussion, please consider the following:

1. What are some of the issues that arise from this ethical dilemma?
2. What would you do to resolve the situation?
3. Who is potentially affected by this misconduct?
4. What are some of the rules and regulations that could be used to evaluate or resolve this dilemma?
5. What are some of the resources that you could refer to?
6. What are your options to move forward?
7. What are some takeaway lessons?

Keep in mind, there are no “right” answers in these role-play scenarios. There are no grades. These scenarios are based on real situations that real people encountered. After the role-play we will discuss the experience and the takeaways.

Challenge 1: Lessons from the Trial of the L’Aquila Seven

An earthquake swarm frightened the population of L’Aquila, central Italy, during April 2009. The Italian Civil Defense (ICD) responded by organizing a scientific review of the seismic hazard by the Italian Commission of Great Risks (CGR) in a gathering at L’Aquila. The head of the ICD was taped in a telephone conversation describing the purpose of this review as appeasement of the population. The ICD official in charge of the meeting gave a TV interview before the review took place, in which he made two literally fatal statements: (1) He advised that there was nothing to worry about, and one should go home and drink a glass of wine. (2) He claimed that the more small earthquakes the smaller the seismic hazard because energy was being released (a technically incorrect statement because the elastic energy released by small earthquakes is insignificant compared to that available for large ones). The minutes of the CGR meeting that followed the aforementioned announcements contained no incorrect statements. The seismologists present simply said that earthquake swarms are frequent in Italy and that the probability of a damaging main shock to follow was very small. After the scientific deliberation a second news conference was held by the official of the ICD to which the seismologists of the CGR were not invited and which was designed to calm the population. A few days later an M6.5earthquake killed 309 people. The relatives of the dead and injured felt betrayed and initiated court proceedings against the seven men who attended the deliberations of the CGR. All of the seven were handed the same sentence in the initial trial: 6 years in prison. Strangely, the court did not recognize that some of the men who attended the meeting of the CGR had no expertise regarding earthquake swarms (e.g. a civil engineer) and one convict was not a member of the CGR, he was simply ask to bring the newest data on seismicity to the meeting. In addition, some did not have the right to inform the public, a job claimed exclusively by the CGR. On appeal in November 2014, the six scientists of the CGR were acquitted, the ICD official who gave the interviews was convicted to 2 years in prison. Another appeal may follow because the relatives of victims are not satisfied with this verdict. What should the population have been told in the face of a rumbling Earth, but with an approximately 1% probability of a deadly earthquake to follow during the next month?

Issues

1. What possible misconduct issues are there?
2. What should the public be told to do, when historically M6.5 class earthquake have occurred?
3. Should the experts (seismologists) contradict the incorrect public statement by the Civil Defense (CDI) official, even though they were excluded from the press conference and their funding may depend in part on CDI agreement?

Rules and Regulations

1. Federal regulations on research integrity
2. In Italy, CDI claims sole authorization to communicate to the public issues of natural hazard and risk.

Questions

1. To what extent are scientists legally accountable for wrong predictions of natural catastrophes? (Comparison of this case with weather forecasts that may not warn people adequately)
2. To what extend are scientists morally obliged to assist the population that may be worried about a low probability disaster?

Resources

1. Scientists could offer a workshop for the public in the worried community. Resources needed are minimal.
2. After the conviction, scientists may appeal, as they have done successfully. However this is costly.

Options

1. Scientists can remain silent and let the public official handle interviews and communication and thus not risk loosing funding.
2. Scientists can arrange a workshop of their own with the public to explain as much as possible about basic facts and possible loss scenarios, but risk negative consequences.

Takeaway Lessons

1. We can no longer stay in the ivory tower, just doing our research. We must reach out and communicate what we know and what we do not know.
2. We must not only care for the public, but we must also be perceived to do so.
3. In regions of high seismic risk, the population should be told to prepare by installing an earthquake shelter in their homes to save their lives or that of their descendants.