

Supplementary Material -1

The content of the implementation

A five-week place-based SSI instruction focusing on gold mining was implemented as part of this course. This implementation included three phases: (1) pre-departure instruction, (2) field experience, and (3) post-field instruction. The details of the instruction are presented below:

Pre-departure instruction

Introducing the authentic issue at the very beginning of the course is an important point in place-based SSI instruction. The participants need to get familiar with the context and the controversial issue which will be discussed in the following week (Herman et al., 2018, 2020). Two weeks were spent on this phase. During these two weeks, participants had a chance to get familiar with the context. The researcher introduced the gold mining issue. First, reports about how gold is extracted and how a gold mine is operated were presented to the participants by using the General Directorate of Mineral Research and Exploration (MTA) Report (2016). Then, an article entitled 'How Gold Mines Destroy Sunflowers and Olive-Growing Fields?' by Robin (2022) published in a newspaper was presented along with local voices about operating in a gold mine where they live published in another article (Özberk, 2022). These articles and MTA Report helped PSSTs to get familiar with the viewpoints of various stakeholders. Small and big group discussions about different stakeholders' perspectives were held and they discussed gold mining and why gold mines should or shouldn't be operated in the areas where they live.

Field experience

Before the field trip, official permissions from the university, and gold mining company were received. Then a day-long field trip was conducted to the mining area. Before entering the area, all the security measures (providing guest cards, helmets, protective glasses, and vests to each participant) were handled. The field trip included two parts: theoretical and practical parts: The theoretical part included the steps summarized below:

The senior geology engineer, first, welcomed the visitors, and a lecture about the gold mining process in the area was presented. The lecture included information about the establishment and operation of the mine, and the company's investments such as a building in the university, and dialysis center in the district, and various donations to the schools around the district. The engineer also presented important certificates that the mining received such as 'Cyanide Cod' (an important certificate for safe management of cyanide). Then, a question-answer session was held. The senior engineer answered the environmental concerns raised by the participants. He presented geomembrane which is used to secure landfills and stabilize the ground by guaranteeing that cyanided water is contained. The practical part included a field trip to some sections of the mine. The participants visited the open-pit and leaching areas to understand how the gold is extracted from the ore. The visit helped participants to get immersed in how the area was changed. The participants were encouraged to ask multiple questions to the senior engineer about the gold extraction and cyanidation processes.

Post-field instruction

Post-field instruction lasted for two weeks. After getting first-hand experience with the gold mining process, the policy documents and videos prepared by the Provincial Representative of the Turkish Foundation for Combating Soil Erosion (TEMA) were introduced. TEMA was a major organization that held protests and ongoing legal cases against mines in Türkiye. The policy documents and videos are presented below:

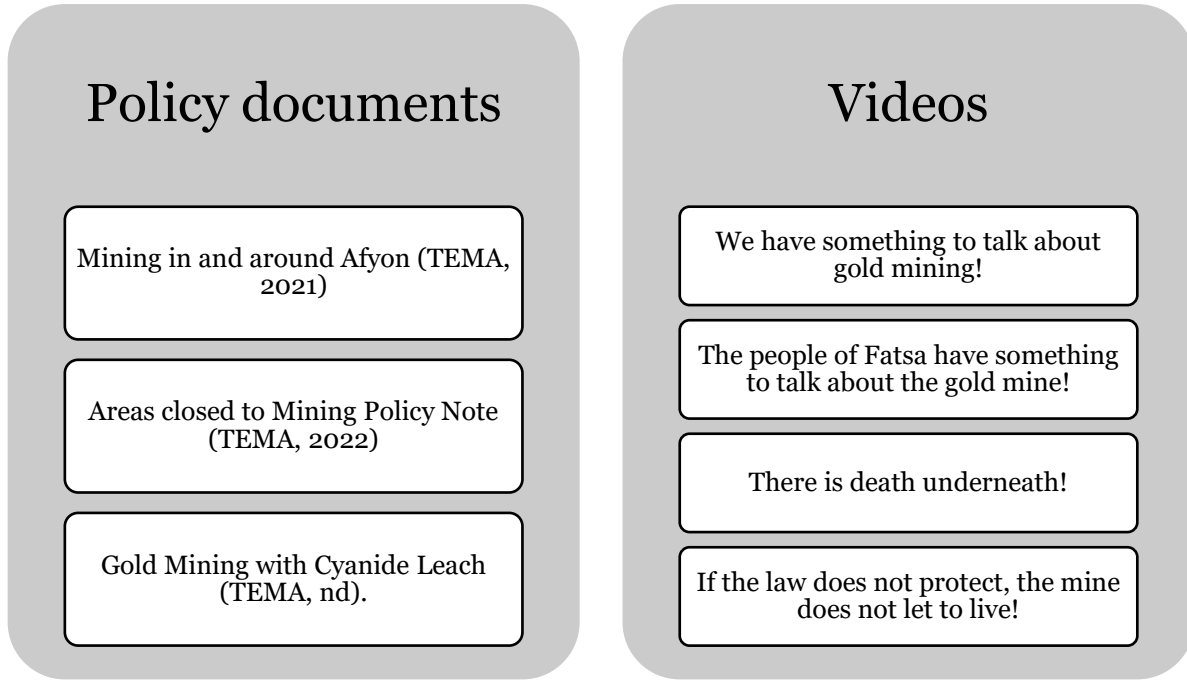


Figure 1: The policy documents and videos used during the post-field instruction

The PSSTs became familiar with different stakeholders' perspectives: Locals, mining company workers, a senior geology engineer who has been working in the company for more than 10 years, TEMA reports, and interviews with locals in the videos. Numerous interactions among the locals, the company, and the environment were identified. The PSSTs understood that gold mining using cyanide created an environmental SSI and that the opinions of various stakeholders were crucial in the resolution of this environmental SSI. Classroom discussions were held and the participants revisited their decisions on constructing and operating a mine where they live.

The documents and video links used in the instruction phases:

- Özberk, N. (2022). Anaakım ve alternatif medyada 'Çevresel değerlendirme dili': Kışladağı altın madeni örneği [‘Environmental valuation languages’ in the mainstream and alternative media: the case of Kışladağı gold mine]. *Kent ve Çevre Araştırmaları Dergisi*, 4(1), 36-59. <https://doi.org/10.48118/yykentcevre.1062319>
- Robin, A. (2022, 28th April). How gold mines destroy sunflowers and olive-growing fields? (in Turkish) <https://www.bbc.com/turkce/haberler-dunya-61257090>
- TEMA (2019). There is death underneath! <https://www.youtube.com/watch?v=ejjPv1NnHQk>
- TEMA (2020). The people of Fatsa have something to talk about the gold mine! <https://www.youtube.com/watch?v=KunkcZfSMvc>
- TEMA (2020). We have something to talk about gold mining! https://www.youtube.com/watch?v=5qdYFp_ZOXg
- TEMA (2021). Afyon ve çevresinde madencilik [Mining in and around Afyon]. <https://cdn-tema.mncdn.com/Uploads/Cms/afyon-ve-cevresinde-madencilik.pdf>
- TEMA (2022). If the law does not protect, the mine does not let to live! <https://www.youtube.com/watch?v=IlcHWyiFE1M>
- TEMA (2022). Madencilğe Kapalı Alanlar Politika Notu [Areas closed to Mining Policy Note]. https://cdn-tema.mncdn.com/Uploads/Cms/madencilige-kapali-alanlar-politika-notu_2.pdf
- TEMA (nd). Siyanür Liçi ile Altın Madenciligi [Gold Mining with Cyanide Leach]. <https://cdn-tema.mncdn.com/Uploads/Cms/siyanur-lic-i-altin-madenciligi.pdf>
- Ünal, İ.H.; Tuncel, S., Yoleri, B., & Arslan, M. (2016). Türkiye ve dünyada altın. [Gold in Türkiye and around world]. General Directorate of Mineral Research and Exploration (MTA). <https://www.mta.gov.tr/v3.0/sayfalar/bilgi-merkezi/maden-serisi/img/Altin.pdf>