# Climate Brewing | Mine Closures and Indigenous Peoples

**SUMMARY KEYWORDS**
Indigenous peoples, social responsibility, environmental impact, cultural connections, just transition, community engagement, climate justice, climate emergency.

**SPEAKERS**
Dr. Corrine Unger, Susan Oxley

**Susan Oxley** 00:29
Hi everyone. I'm Susan Oxley, your host today for the Project Zion Podcast, and I'm going to be leading us through an episode of Climate Brewing, which is the Project Zion series that deals with the causes and effects of our climate change and some environmental issues and the climate emergency that we find ourselves in today. Now I live in Seattle, Washington, but today I'm zooming with Karin Unger in Australia. Karin and I met years ago and we reconnected at the recent 2025 World Conference. I found out that in the intervening years, she's become Dr. Karin Unger, a research fellow at the University of Queensland in Brisbane, Australia, and an expert in the field of risk management and strategies. She was an earth scientist and worked in the mining industry and government before she got her PhD in organization and social science. She has an active curiosity, and she really enjoys doing a variety of things, which you can hear when I tell you what she's been doing. She's a key member of the Center for Social Responsibility in mining, an organization that takes on the daunting task of doing research on the relationships of justice and mutually beneficial cooperation between extraction companies and the local people whose lives are affected by the mining operations they engage in. She's on the board of the Victorian Government Mine Land Rehabilitation Authority, where three brown coal mines are looking toward the possibility of closing in the next decade. One of her other areas of work is in ISO standards. That is mining legacies and managing international standards for sustainable mining and mine closure. So, she is involved in a lot of things, and I'm sure there's things I don't know about yet. So, I'll let Corinne tell you about her work herself. Welcome to Climate Brewing, Corinne. I appreciate you taking your time out of your busy schedule to share with me today.

**Dr Corrine Unger** 02:44
So, thank you for that excellent introduction. Susan. I'm glad to be here,

**Susan Oxley** 02:51
Glad to have you. Well, tell me a little about about the work that you do for, let's start with the Center for Social Responsibility in mining. That sounds very interesting.

**Dr Corrine Unger** 03:02
Yeah. So I only joined them last year, so just tracking back a little when I did my PhD, I did it in the business school, and I worked in a post-doctoral position there for a while, and then just more recently, moved to the Center for Social Responsibility and mining, because in both places, it was using my social science skills and qualitative research capabilities that I developed through my PhD. So most recently, I've been studying the intersection between indigenous people and their legally recognized lands and abandoned mines. So, all around the world, we have abandoned mines that have not been properly closed and rehabilitated or reclaimed, which means that they can pollute the environment. They can leave dangerous shafts and structures and land forms that can collapse -- a whole range of

issues, but also social conflict, where communities may be dissatisfied with the condition of the land and it might be impacting their livelihoods, their farming or indigenous people, and wishing to maintain cultural connections to land and so on. So, in Australia, we have more than 50,000 abandoned mines, and in Queensland, more than [50,000?] Yes, so from very small to very large. So, please understand that a lot of these sites are small to medium, so they might be vertical shafts, piles of waste rock. Think about early gold brushes and the diggings and remnants of mining. Many of those sites are very old, so they're not all recent, but we can also have a modern mine that failed to close because of a sudden drop in commodity price. So, we see that with nickel, for example, at the moment, a number of mines that maybe halted and the company go into liquidation, and they don't have the wherewithal to properly complete their environmental commitments.

**Susan Oxley** 05:19
So, I need to ask a question here. Are these mostly the 50,000 that you've mentioned? That's a huge number, and I'm glad you clarified that it's small to medium to large. Are most of those, the rare mineral mines, or are most of those fossil fuel mines?

**Dr Corrine Unger** 05:41
Oh, it would be a mix of everything. And I would say that probably only a small portion are actually coal mines. Most of them would be metal mines. I'd say so gold. Gold mines open and close with the price, and sometimes they're abandoned nickel metal mines. And of course, most recently, there's interest in critical minerals for the green energy transition. So, some of these mines will get to start again if the value of the commodity, you know, is greater than the liabilities that exist on that, you know, from historic mining. So, it's a careful balancing act, but sometimes mines can have a second or third life where they start up again. Yeah. So, the ones that are listed as abandoned at the moment in Australia tend to be those that the government is now responsible for, because there's no clear ownership or line of responsibility back to the companies because of regulatory inadequacies. There isn't that chain of responsibility, though, that type of legislation is beginning to be introduced. Some of these institutional mechanisms already exist in like Canada and America, but Australia doesn't have very clear legislative mandate to chase up those companies and make them do the work, because once they've failed, it's like they just default to the state and the community, really. So, yeah, abandoned mines are a big problem, but they tend to be a bit of out of sight, out of mind, so most people are not aware of them. Yet, if you think about where our food is grown, where our cattle are grazing, and all of those activities, and where indigenous people have legally recognized rights to land, we have these pockmarked landscapes with historic workings and in, and in fewer cases, but they still exist. Large tailing stamps, which are the residues from mining, large waste rock dumps which are weathering when exposed to the elements. And so, in that weathering process, they can produce acid and metalliferous drainage, which then flows down the river and kills everything in its path. So, it really depends on the rainfall patterns, the climate and so on. As to and the geology and geochemistry, as to what is the exact problem of these abandoned mines and yeah, and otherwise, there's safety issues as well, where people could fall down shafts and die, and that has happened as well.

**Susan Oxley** 08:27
So what exactly does the Center for Social Responsibility and mining do?

**Dr Corrine Unger** 08:32
So, it has a very strong human rights and social interactions focus, so it's how how, how communities are impacted negatively as well as positively, because it looks at employment and other opportunities. So, it's really the whole range of interactions with communities around mining. It does have a particular focus on indigenous and peasant communities, where subsistence existences can be more affected than those that are not dependent on the land. So, land connected people are particularly affected by

mining. And when a new mine is to start up, there are these negotiations and so on that companies must engage in with those communities, depending on which country they're in and the laws of the land. But the research that goes on in the center is usually around these relationships, sometimes for industries, sometimes for NGOs. And most recently, I've been learning about, you know, Frontier Science. So, what is it about that frontier where mining goes into areas that have not been disturbed for mining before, where there's perhaps more disruption to the local communities than when you are in a region where there are already a lot of mines. But it's also that historic frontier, the legacy of the frontier and the, what is the future of that frontier. And yeah, so the research I've been doing is really just looking at one state within Australia. It's 15,000 abandoned mines. And our focus, that's Queensland, where I live. And our focus was on small to medium mines, because they are kind of neglected there. Nobody talks about them much. And so, we have federal laws that allow native type, native peoples to apply for recognition of land ownership and rights, and that Native Title process happens at the national level. And then there, when they are successful, they can take years, but when they're successful, that land is then recognized and they have certain rights. It doesn't mean they're exclusive rights all the time. They're overlapping rights with others. But what we discovered in this research paper, which is called, "Abandoned Mind Clusters and the Intersection with Indigenous Peoples Land Rights in Australia," is that there is really no process through the Native Title Act to actually assess the condition of the land. So, there is no, as part of this hand back process, nobody's actually saying, oh, what might be an impediment to indigenous use of their land? What might interfere with their cultural connection to the land? What might be a legacy of colonization that is lingering into the present and is a burden that we're passing on, in a way, to indigenous peoples? So, it's only a, when I say only, it's a spatial data analysis and an overlay of maps, mapped data, but we drill down into it, just to show how dense some of these small, like 1000s of them on a particular land claim. So we just drill down to say, to open up questions and open up a conversation. So it's like an initial paper.

**Susan Oxley** 12:00
Corrine, you do the research on these sites, usually for a specific corporation or an NGO or the government, right? And now you've written a paper that is based on all of these research. But the paper is an independent work. Is that correct?

**Dr Corrine Unger** 12:20
Yes, it is completely independent, and it is what I would call a desktop study. It's not a field study. So, this is like an initial exploratory study to see, well, what's going on if we look at the intersection of abandoned mines in indigenous people's land. And it was in that process that we realized how much, particularly in northern Queensland, how much these mines clustered around indigenous lands. And we just started to ask the questions about, well, how could policy and legislation in Queensland and Australia, for that matter, be strengthened around this, now we have this awareness that it's a really a blind spot, that we're handing back land that is damaged in some ways. On the one hand, you could have an assessment process that says this is the condition of the land when it's handed back, and that would be more transparent than having no information and no data. And you know, so the database that records all the abandoned mines is sort of over here in one place, and the process that looks at Native Title is somewhere else. And then cultural heritage experts will probe the history and the historic use of the land, and in attempts to verify the the connection between these people and their lands. But at no time, it seems from this study, that doesn't, it wasn't obvious that the conversation around the legacy impacts from mining come up in that conversation. They may, but it's really we're pointing to the next step, the next step of research would be to ask indigenous people, how are you affected by this? What would you like to see? How could this be done better for from a human, human rights perspective, to be more equitable and transparent,

**Susan Oxley** 14:17

Which is all part of the just transition that people talk about.

**Dr Corrine Unger** 14:21
So just transition is often very much confined to the transition from coal mining, coal fired power stations to alternative energy. So, it's like a subset of the whole, Yes, they have legacy issues, unless, yes, they are bound up in this closure process and transition. But the beauty of just transition is it took, say, the closure of a coal mine beyond its environmental and physical repair, you know, to repair and remediate a pit and the spoil piles from the overburden and removal of infrastructure and or power station, decommissioning a power station and ash dams and so on. So, there's that environmental, physical aspect of repair of the environment after and this, this is not taking account of the greenhouse gasses that were produced, or, you know that that's sort of another story. But if you look like, yeah, if you look locally at the physical impacts of these activities, then they have to be repaired and remediated. And, and so, the just transition took the discussion from one of environmental repair to one of social transition. How are these communities that were dependent on these activities -- the employees, the businesses, the local communities that suddenly faced with no income, no job, no livelihoods, and sometimes this goes back many generations. So, my understanding of just transition is one of ensuring that the local people do not bear the burden of these closures on behalf of the whole planet, if you know what I mean. So, in a planetary focus on improving and controlling greenhouse gas emissions, we're not putting the burden just on those people that are most affected.

**Susan Oxley** 16:28
Absolutely, yes.

**Dr Corrine Unger** 16:31
Yeah, so, I was going to just use the example of Rum Jungle mine in Australia, which was a historic uranium and copper mine mined by the government during one of the war years when they needed those materials for various purposes. This legacy site was sitting on indigenous people's lands, the Kungarakan and Warai people in the Northern Territory. It's located a few hours drive south of Darwin, at the capital of the Northern Territory.

**Susan Oxley** 17:05
Oh, yeah, this is where Darwin is sure,

**Dr Corrine Unger** 17:07
Yeah. And so, the Rum Jungle mine site, because it has already gone through one period of rehabilitation. So, in the 90s, the government got some funding. So the state, the Northern Territory Government, got some funding to do the work on behalf of the Australian Government. It's bit of an unusual case. And they put all of the waste materials that were spread all over the site, which were radiologically unsafe, as well as weathering and producing acid mine drainage. They put some, piled them up, and then put covers on them. So this, this work, was what you would call state of the art at the time. But the covers were quite thin, and this is a tropical environment, and so they eroded and weathered and water got in. So, they were designed to shed water so that water wouldn't go in. But gradually they deteriorate. And this is normal. Even for really good covers, they do need maintenance and checking. So, even if you had a cover that was two meters thick with clay and soil and rock, and you're growing plants on it, that would help to take the moisture back up and out, you can still have infiltration. So, you know, slopes to be designed, but that design has the concepts for rehabilitation of waste dumps has improved over time, and tailing stamps definitely has evolved. And so in the about, I think 2012 I think it was a new project was developed to try and revisit the rehabilitation and understand how it might be redone to properly contain these wastes that were still polluting the river. And, at this time, there was much more effort applied to engaging the traditional landowners, and that was, this

project was headed up by a project manager from the Northern Territory Government, and I was brought in as a consultant, and my role was to help develop the completion criteria and the framework for evaluating what success might look like here. And so, in that process, there was also an indigenous man who with background in policy, who was liaising with the indigenous people, and the project manager and myself to try and gather information. We also had face-to-face meetings with the indigenous landowners, and through that project, we all gained this kind of wonderful new insight into how they were connected to that place, why it was important to them, where the sacred sites were, what had been damaged by mining, and what they wanted to see in the remediation of the site, so which areas were important. Important to keep away from, and which areas are important to protect, and where else other you know, some of these waste dumps could be amalgamated or merged and on a different site to reduce their, both their cultural impacts as well as the environmental impacts, and have new covers constructed and vegetation established. So, in the process we, we had this, I have this completion criteria document that I'm just looking at the moment. Just brings back fond memories of this engagement process. To actually arrive at a, to arrive at some completion criteria that everyone's agreed on is amazing. It's like a consensus building process, but it's also a listening process. You have to listen very heavy. Yes, it was also, it's also one where scientific knowledge does not trump all knowledge, you know. So it means the scientific knowledge is brought in, but you're also listening and respecting traditional knowledge, local knowledge, cultural knowledge, and it comes together. It means we've got sort of in our pockets, we've got options and solutions, and we've got ways of resolving and optimizing designs, but at the same time, there are some practical constraints and needs that need to be met for the indigenous people to be able to reconnect with this country that they had no prior consent for this mining. So, they had no, so nowadays, with UN requirements of free prior and informed consent, that did not exist at the time. So, when the government came in and mined the indigenous people did not, they were not consulted, and they weren't engaged, and they did not give their approval. So, when you look back on the history of the site, the history comes forward in the project. And in fact, some of the very early meetings were just filled with conflict, and you can understand why, because for a very long time, these people had been overlooked, ignored and dismissed. Their needs were overlooked. So, it was extremely rewarding to be part of this process, even if it was conflict filled, they were having a voice. And so that was quite rewarding, and also over time, to see that conflict be resolved as they were heard. Such a powerful process. So, in the process of developing completion criteria, you have to have, you know, a broad objective that everyone's agreed on. And this was, you know, restoring Rum Jungle so that it can be freely accessed. And balance and harmony were the terms added in by the indigenous people. So having access was important. They didn't want it to be a big, fenced out property that they weren't allowed in, which was how it had been treated. And then they helped to define that, you know, restore biodiversity, resolve the land claim. They had a land claim on the that hadn't had been halted because of the condition of the land. They want to walk safely on country. They want to conduct ceremony. They want to access food and medicine. So, the action was to remediate the mine site with authentic consultation. And this was really important. It's not one way telling it's not just two way we give you info, you give us information. It's authentic consultation. And that was part of what was being defined during the process. And then how was success going to be measured. Well, there was water quality, radiological safety, contaminated land being cleaned up, re-vegetation, erosion, aspects, stopping, you know, minimizing erosion, water availability, biodiversity, capacity building. So, it's capacity building. in government to do these projects. They're really complex, as well as capacity building for the indigenous people to take over the land at the end of the project. They had a concept for a visitor center and tourism and Ranger guides. So, they had a document that they provided to us and Aunty Kath, who is an elder, and sadly, she's now died, but she was actively contributing her vision to the project, and it was inspiring. So, the integration of cultural values, access and ownership and ongoing involvement in post remediation, care, maintenance and monitoring, the indigenous people want to be involved in that care and monitoring into the long term. And that's why the rivers had been, done really well. So, and they even together, withdrew it, you know, as a kind of a process diagram, flowing over time, balance and harmony as an overriding goal and an aim, through the site management, the rehabilitation works, and ultimately land access.

**Susan Oxley** 25:09
So sounds like a wonderful project.

**Susan Oxley** 25:13
Yes, so, now they're having to implement it. So, that's, that's good. So, I mean, at the time we, it's a very, it's a very large project, so you just need to understand that people come and go and project manager has been changed, and so there's a bit of conflict every time that happens, because projects build relationships with people that are very important, and when those relationships are broken, it can be hard on everyone. But anyway, I'm optimistic that they will follow through on these actions, and they have to get environmental approval for all of these things as well. So, there's the, as I mentioned before, regulatory frameworks that aren't always that might be geared towards a new mine, but they don't know how to deal with an old, messy site that has to be taken forward to closure, like the legislation and the policy may not be fit for purpose. So [sure] it's, it's a learning process, but a very valuable one for other abandoned mines within Australia,

**Susan Oxley** 26:12
Corrine, I really, yeah, I really appreciate you sharing that whole saga with us that's really remarkable. I'm afraid we're going to have to close this podcast, but you have such a wealth of information, I think there's some other topics that we could explore in podcasts in the future. So, thank you very much. Do you have anything you'd like to say in conclusion?

**Dr Corrine Unger** 26:38
No, it's just important to note that these things are never solitary efforts. They're always done in teams. And so the beauty of some of the best projects have been the most supportive and wonderful multi-disciplinary teams. I think that I'd like to just acknowledge all the other participants, particularly when indigenous people have been willing to sit in difficult and uncomfortable spaces, to confront historic pain and trauma yet maintain hope for the future, like when you're part of that, it's a very, it's a privilege.

**Susan Oxley** 27:12
Thank you so much. I really appreciate that. I will say goodbye for now, and we'll look Forward to the next time.

**Dr Corrine Unger** 27:19
Thanks, Susan,

**Susan Oxley** 27:20
Thank you.