THE

Final Straw

A WEEKLY ANARCHIST SHOW

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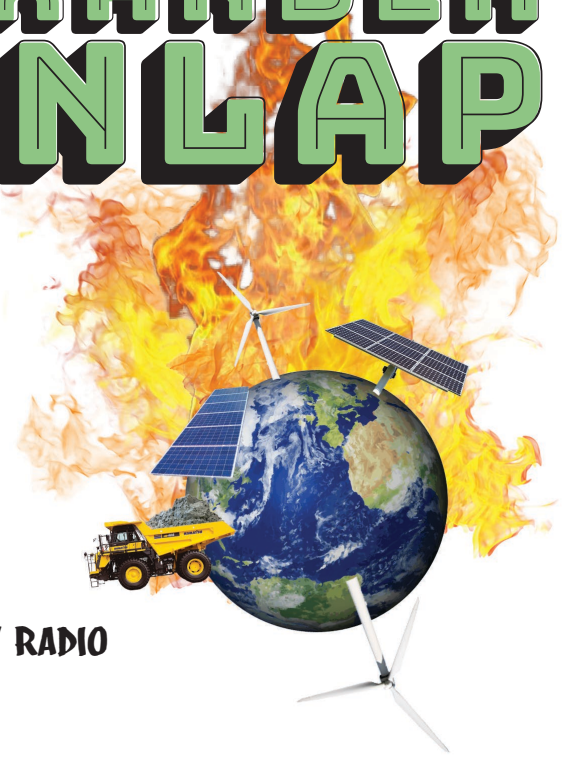
A TRUE(R) MEASURE OF RENEWABLE ENERGY WITH DR. ALEXANDER DUNLAP



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extractivism. Truly everyone, even the people who are part of these upper classes are a part of these police forces. Everyone has an interest in not being shitty and killing each other, and not destroying the ecosystems that give us life. What's the old saying, "Don't shit where you eat." It's very simple. As a species of modern industrial humans, we should not be doing this. We should be working to try to minimize this. It falls on the governments, it falls on these institutions. They're the ones that have been leading and enforcing this path of total destruction, or at least a severe degradation that's rather progressive at this point.

TFSR: Dr. Alexander, thank you very much for having this conversation. I really appreciate your work. That was the end of the questions that I had. I wonder if there's any other topics that I didn't ask about that you wanted to speak on here?

AD: No, I think I just rambled myself out. There's a lot of different areas and things that I've worked in that I'm sure there's always something to say. I just want to be worth as an academic resource, or just a resource to learn more about extractivisms, the EXALT initiative – The Global Extractivisms and Alternatives Initiative at the University of Helsinki. There's tons of interesting academic debates that are hosted and free online from so many great scholars, from so many different struggles and people around the world. That's something useful to give a shout-out. I appreciate this radio station, I greatly appreciate Sub.Media, all the land defenders, and people that are stepping up to do what they can to defend the things they care about. And everyone out there that's doing what they can to create space to ward off and mitigate the ecological climactic crisis and a social crisis that's been well in place for some time. Hopefully, we can enjoy this. Hopefully, we can make the best out of these things and have a good time, despite all this. Thank you so much. I love what the Final Straw is doing. Thanks for interviewing me. I appreciate it.

TFSR: It's my pleasure. There was one other resource that you'd mentioned elsewhere, that's Ecological Global Justice Map. Is that a thing?

AD: Yeah, another great academic resource people worth knowing about is *The Environmental Justice Atlas*, it's out of Barcelona. It's been around for at least 10 years or more. It is a participatory map charting all of the different types of conflicts around the world. There's many more to be added in there, but so far it's around 4000 conflicts, it's charted and it's really good. It's got some limitations. In terms of getting an overview and seeing different conflicts out there, it's a highly recommended resource, and greatly appreciate the people who've been putting it together over the years, even if I have my criticisms.

TSFR: Critical support. Cool. Yeah, thanks a lot.

This week, I spoke with Dr. Alexander Dunlap about a range of topics, such as Degrowth, green anarchism, the violence of extractivism, questions of the conception of renewable energy and resistance to ecocide. We covered a lot in this discussion and he's written a lot on a range of related topics. Check out his ResearchGate where many pdfs are available or searching his name on **AnarchistLibrary.Net**. If there's something at ResearchGate that isn't available for download, you can email Alexander and request access.

Twitter: @DrX_ADunlap

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Dr. Alexander Dunlap: I'm Dr. Alexander Dunlap. I'm a political ecologist at the Center for Development of the Environment at the University of Oslo. We'll keep it evasive. We'll keep it normal.

TFSR: Thanks for speaking, Dr. Alexander, could you tell us a bit about your areas of research and writing? What do they tend to cover? Where those studies have taken you in some of the relationships that you've built?

AD: In a couple of words, I work in environmental conflicts. That's my main focus. I have a whole history that led to this. I began my Ph.D. in Social Anthropology by working with Zapotec and Ikoot people who were fighting wind energy development in the Juchitán region of Oaxaca, Mexico. It was there, through networks and friends and people that I ended up in a highly combative village that was really drawing the line between total rejection, fighting for autonomy to reject the spread of wind turbines and specifically on the Barra de Santa Teresa, which was a long, highly biologically diverse area where the Pacific connects with lagoon, so it mixes with saltwater and freshwater. Some coastal ecologists say this sandbar took 10,000 years to form and they wanted to build 102 wind turbines on it. In general, that whole area has been hit super hard with wind turbines, about 2000 at this point. This was an area where people had risen up and picked up their machetes, slingshots, and shotguns, and formed their own *policía comunitaria* to fend this off. I've talked about this a lot. I have an entire book about this. That was the main area where I was educated about how serious wind energy development can be, especially towards people who highly value and are connected to the land and subsist from it. At that point, it was a big wake-up call about green capitalism and its implications. There's more to be said about that. I did a Ph.D. working in a conflict area, looking at various impacts of wind energy development on Zapotec and Ikoot people and anyone who lives in those areas.

The next area I worked was led by my friend Andrea Brock. We went down to the Hambach coal mine and investigated the RWE company. People might have heard about them again recently because of the Lützerath struggle. The Green Party betrayed everyone and sent the police in to displace them. We looked at the Hambach coal mine and we looked at RWE, and specifically, the strategies they were engaged in, what we call corporate counterinsurgency strategies to deactivate, pacify and marginalize support, hurt and break down the forest occupation there where people were living in the forest to prevent the destruction of it from this large world eating giant coal mine diggers.

Then after that, based on an invitation from a friend I was brought to the Valle de Tambo for the Tia Maria copper mine. What was really interesting about this mine is that the main company running it was Grupo Mexico, which was one of the biggest mining companies and infrastructure companies in Latin America. In order to power their mining operations in Mexico, they had their own wind park in the area I worked in Oaxaca and they own and have concessions over a good part

connection between counterinsurgency training grounds, and urban warfare centers that they're trying to destroy... They're trying to go in there and murder trees, they're trying to go in there and poison water and get it hooked on some weird chemicals that are going to poison more people. It's obviously disproportionately targeting people of color. It's because this is what the police do. This is what these infrastructures do. Domestic urban warfare centers have very serious consequences for everyone in those areas. They are going to be employing murderous counterinsurgency, and maybe even worse than murderous. These are techniques designed for torture and management and brutal ways that are going to be applied to the population when people disagree with what governments are doing, or disagree with what police departments are doing.

Same with Camp Grayling. To stop the capacity of the military to be killing, to be invading, to be colonizing other countries and places, engaging and reaffirming an imperial project is severely important. I hope that more people take an interest in these struggles and are doing what they can because right now from what I've seen there is immense repression, and preemptive repression going after the community organizing groups going over there, using crazy RICO law legislation. They're executing people who are doing non-violent tree-sits and things like this. These struggles are important and serious and are connecting these issues in many ways. Many of the other struggles I've worked in were fighting coal mines and trying to stop every other type of domination the best they can. Obviously, these things aren't perfect. The Hambach forest struggle was very good at recognizing the problem of low-carbon infrastructures and the problem of wind energy because the mines were being powered and surrounded by solar panels for public relations.

Speaking of Camp Grayling, one of the things people need to prepare for is how useful low-carbon technologies are for the military and mining companies. Low-carbon infrastructures are allowing mining companies to operate in areas in the Arctic and other areas in Australia difficult to get to because there isn't a grid infrastructure. Same with the military, they've been talking about this for some time, how units can operate in more distant areas because they will have different power sources and will be able to recharge through low-carbon infrastructure, small solar, or who knows what they're up to. This relates to a COIN term that I termed in that sustainable violence. This is the way that police forces and military forces are trying to employ low-carbon technologies to enact violent practices and to reaffirm the class and racial lines that the state has created. It's serious.

I am rambling on, but I would like to stress the intersection between policing and militarization is deeply implicated, with how it's destroying ecosystems, and all these struggles are deeply connected. The more that people can unify and understand the importance of ecologies for our health, and to heal each other, and the way that they're being killed, ultimately people in different class and ethnic interests can be organizing power to oppress their certain populations of people, going after every one to facilitate a system of capitalism and widespread and total

is doing great journalistic work and is a great researcher in general. Glad you mentioned her.

This edited volume *Enforcing Ecocide* that I did with Andrea Brock– Andrea and I have both worked for a while in environmental conflicts and have done a lot to apply the lens of counterinsurgency to really understand the techniques of repression, and how ultimately the police are a key mechanism to enforcing ecocide. Since we focus on this– it goes much further than that. It was when I was watching in Asheville, North Carolina, I believe it was during the George Floyd protests, where ultimately the police had done a preemptive raid on a support center with bottles of water and stuff to wash tear gas out of people's eyes, very caring, useful logistical tent to support people who are going to be brutalized by police. They raided the place with riot police, surrounded it, and you just see this video of them slashing water bottles and pouring fresh water into the gutter, and generating heaps of plastic. I was like, "Holy shit, the police are so not helpful!" and are one of the most degrading ecological forces in this world. Let's take that idea seriously.

It's a fact that the military is one of the most resource-intensive in every way, shape, or form monsters in this world that not only is requiring a ton of extraction but is actively promoting ecocide through dropping napalm cluster bombs, airstrikes, drones, you name it. The military and then the enormous Navy ships, that whole logistic is an ecological catastrophe. It is climate change, and people want to shame people for personal consumption and things like this. Go after the police and military! This is the thing we should really be having a conversation about. Or the data centers and the technophilia, that's really made huge wins with the rise of COVID. Obviously, there's the convenience associated with that.

But back on the topic and speaking to my chapter in the book, one of the things I want to argue in there is that literally every social, fucking racial conflict or anything like this is always going to be an ecological struggle, because the police couldn't even make the horror that they do, or at least they couldn't do it with the same technological prowess, they couldn't accomplish this job with the numbers that they have if they didn't have the cars, logistics, machinery and everything that goes into this. And in that chapter, I tried to think about and calculate how many fossil fuels are they using, and what type of metals go into these guns. How are they refined? But the main thing is that whenever there's a riot against police brutality and straight executions that they're performing in the streets, that's also an ecological problem. The police couldn't do that with the ease that they do and they couldn't manage protests the way they do without supply chains and brutal ecological degradation.

This is to say that the oppression of humans is deeply implicated in the destruction, contamination, poisoning, and degradation of rivers, trees, and every type of fucking ecosystem there is. Because without the supply chains, without the mining, without these things, you couldn't have this level of police violence and repression. That leads more to the second part of what you're saying, the importance of defending the Atlanta forest. And the struggles that are even further showing the

of Southwest Peru. Down there, they extracted copper until a strong movement began in 2009. People had risen up in a very serious way, declaring wildcat strike blockades and preventing the mining company from entering, which resulted in a severe state of emergency and political violence and state terrorism against the people trying to protect the agricultural area there. I did research there with a friend whose family was from there.

What was interesting is to look at the full web and supply chain. We see the operational impact of wind turbines and Oaxaca generating immense conflict, and immense socio-ecological problems. Now, where did these resources come from? From these new magical renewable machines that are going to save the world and mitigate climate change? When you go to copper mines and depending on the model, there are roughly six different types of generators, you're approximately going to need three tons of copper per wind turbine. Oftentimes more than that, if you're not using rare earth minerals, or if you're using less rare earth minerals, depending on the said direct drive or the different kinds of turbines. I got to see what's it like trying to open up a copper mine where people don't want it and fought severely. Still to this day, the mine has not been open and they have resisted for 15 years. This is good on them and impressive and it's come at a severe loss and attack.

After that, I was invited to France to look at a mega energy transformer in *Zone à Défendre* or what became a *Zone à Défendre*, a Zone to Defend *L'Amassada* that means "assembly" in Occitan, which is a regional language in southwest France. There it was very interesting because it was an enormous mega transformer that people were resisting for two reasons. One, it was going to further spread solar and wind projects, which had been growing rapidly in the area since 2004, when it was already an energy-self-sufficient region itself with hydroelectric projects. Then the second reason that made this a particularly interesting node to resist was that it is actually connecting to a transnational energy corridor through high-tension power lines, that you could actually trace through 400,000-volt lines down into Morocco in the Western Sahara region. If you don't know, the Western Sahara region is one of the "last official colonies of Africa" in terms of being under proper classical colonial subjugation by Morocco. This is actually a big controversy if one was able to locate if that energy is really being imported into Europe. However, this is very difficult given the way the energy is produced, it goes into the grid. I spent two years first looking at that site until L'Amassada was really suppressed and broken down by 200 riot police and two armored transport tanks and excavators. I've written a lot of stuff about this.

I did that and then traced all the conflicts related along those power lines, as far as I could, during COVID where eventually I couldn't get further south than Grenada, Spain. Then after that, I was invited to look at lithium mining in Portugal, which is where I am now, and have recently had a report and co-authored an article that came out about that. So boom, big mouthful, have been dedicating my life to land struggles and people trying to stop extraction.

TFSR: In that last answer, you touched on what I was gonna bring up as a next question. Governments, NGOs, and industries are promoting a renewable energy transition using wind farms, geothermal sources, and hydroelectric energy production, sometimes lumped in there is nuclear power as well. A lot of your work argues, basically, there's no such thing as renewable energy, only what you term "fossil fuel plus technologies"? Could you lay out this argument and give some more examples?

AD: I'd love to. In general, I would conceptualize a lot of my work as trying to prepare environmental movements for the violent repression that is coming for them. That's why, following Kristian Williams and other people, I applied the lens of counterinsurgency to rural and extractive conflicts. A part of this is also the label of greening and renewability, and clean energy like you're talking about. It was Zapotec and Ikoot people who showed me the serious detrimental reality that also was included in low-carbon infrastructural development. When I came back from there, I was talking to different environmentalists and climate justice groups, everyone would say, "Oh, fossil fuels, that's the bad guy, we will have the greenhouse," and it's where you can see it in the marketing everywhere. This comes from the 1973 oil crisis, where instead of actually talking about an energy crisis, they start talking about an energy transition. That's where this whole ethos and idea comes from. But you're watching environmental movements really stress this. A lot of this comes from the very real suppression by hydrocarbon companies for a long time trying to ignore how to actually transition away from this. There's the classic case of Jimmy Carter, he put some solar panels on the White House, and then Reagan came in and took them down. We have an endless amount of information now about Exxon-Mobil and all these other companies suppressing something they've known well since the 1970s, right?

That's the thing a lot of these companies did suppress this up until the 90s, or at least the late 90s and early 2000s. Many of them slowly switched over and said, "No, this is great. We need to actually start diversifying this de-carbonizing and participating with all these kinds of different environmental regulations." This changed their strategy to embrace and manage this and to ultimately diversify their product and create new kinds of companies. RWE, for example, who did the Hambach coal mine is not just responsible for consuming the Lützerath village, they have their own wind energy company. It's not just wind. It's also other low-carbon infrastructures that they parade about. There's actually a big issue with mining companies, right now, it's a huge trend to de-carbonize mining companies so they can call themselves green, sustainable, and so on. Going back to the original story back in 2015-2016, when I started talking a lot to the environmental movement, they just wanted to talk about fossil fuels. I said, "No, it's bigger than this, it's in the webs of oppression, and the energy production even is far more complex in terms of that, you can't just say, fossil fuels, we're gonna replace these with renewables."

For one, I don't even think it's renewable. Even the impact on the ground

that are fighting and where people are putting their life on the line to keep the trees and waters clean and to improve the social relationships and break down barriers between people.

TFSR: I think that's super important, I don't think that's off-track at all. The point of the exporting and invisibilizing of violence as a part of the nature of our economy, the nature of our technology. It's "The Ones Who Walk Away from Omelas" moment where, referencing Ursula Le Guin's story about this beautiful city where everything is balanced, everything is beautiful, everyone's healthy, and everyone's happy. At a certain age, every child is brought into this room where they witness someone who is, by the standards of society, mangled and tortured and left in this room alone and miserable. That sort of work that you and other folks that you've named, like Kristian Williams or Peter Gelderloos, are doing is to pull back that curtain and say, "Cool, it looks good for you over here but what about those [folks over there]?" When Elon Musk tweets that "we will coup whoever we want because we want that lithium at an affordable price or whatever." That's the mask coming off. That is how the world under capitalism operates. That work is super important. I'm really glad to be talking to you about that.

Another element of– I'm not gonna say less important in any way, but another element of the exportation of violence, or when you put into the calculations, how this extraction relies on enforcement. *Enforcing Ecocide* is one collection that you and Andrea Brock, who you mentioned before, collaborated on. This reminds me of the work of Dawn Paley. But is to talk about the actual material cost of that, if you were to do a fuller accounting of the cost of rare earth minerals coming out of the Democratic Republic of Congo, or copper coming out of Peru or Chile, might be a measure of what's the actual cost of enforcing the protection of these areas. How much energy goes into a tank or an armored personnel carrier, or the side arms that those narcos or mercs are carrying in this area to make sure that indigenous people get chased out of their home so that extraction can happen?

There are a couple of land occupation and defense projects on Turtle Island that we featured on the show, that have been trying to focus on the intersection of ecological devastation at the local level, as well as be in solidarity with people facing repression elsewhere. The two that I'm thinking of are Cop City and Camp Grayling which is blocking a military National Guard training facility in Michigan. I wonder if you could talk a little bit about that can confluence.

AD: I'd love to and I'd also like to take the time to give a shout-out to Dawn Paley, I think she does marvelous work, especially the *Drug War Capitalism* theory. She

The main goal of my work, or at least this strand of my work, has been to do everything I can to show and provide tools for environmental activists and people who are concerned about defending animals, and trees, and stopping the manufacturing of different infrastructures that are going to destroy and poison what gives us life. The thing is that we live on a planet. The nuclear disasters are really clear in showing that everything that happens on this planet is connected. If there's a nuclear disaster in Fukushima, if you're on the West Coast of the United States or elsewhere, you know that you had radioactive nuclei particles coming across the sea and air and people talk about taking iodine pills. Even with the nuclear testing and how those clouds in the Nevada desert and elsewhere and how the US military was testing nuclear weapons on their soldiers. But how that shifts? The same comes to the issue of low-carbon infrastructures.

I'm getting maybe getting off the topic a little bit, but a big thing right now is carbon accounting and how measurements are bounded. What this means is that people are rolling out electric vehicles right now, trying to be green, feel good, still be consumers, get good gas mileage, and use less petrol. But ultimately, it's exporting, and this is done through accounting. They're exporting all the crazy extractive supply chains I talked about earlier to the Global South. Because they're not actually accounting for the supply chains that literally are at the border, they stopped the accounting. The supply chains of these companies– And what's interesting about them, according to some 2017 sustainable supply chain textbooks, besides the first sentence saying there's no such thing as a sustainable supply chain. A lot of companies are only claiming 14% of their supply chains because they're subcontracting these things. When it comes to climate accounting and carbon footprint, they're not actually looking at what's happening outside these borders. So for example, Norway can talk about how they reduced emissions in the city. They're doing so well! Everyone's electric and rich, yeah, social democracy, and they're doing great! But the reality is, they're generating demand for insane mines, for insane chemical processes, and really promoting ecocide through electrification and de-carbonization. Ultimately, this is going to be racist on some level. This is going to crush into this in terms of how the Global South is being shamed for being ecologically destructive and falling low on the metrics when they're really just producing what's demanded and what global supply chains and colonialism have organized for the last century or two.

There's a lot of serious issues about all this but I'm getting off track. The main point is just to stress that a lot of my work is to show and to get into what's really going on and to support people who are engaged in land defense and struggle to be able to see what's going on and how it's working. So they can make– as a great liberal academic if they can make better and more informed choices about how they do it. That means for me to be teaching and showing the things that are often excluded from teaching curricula in terms of repressive violence, and also the struggles and what people are doing in those areas. That relates to what I'm hoping the deep study of degrowth will do in terms of recognizing, including the places

that I witnessed in Mexico, where are these metals and steel coming from? For years I was ignored and I'm like, no, but this is serious. Literally, we have to think about this. When I came back from Peru, it dawned on me after I was verbally assaulted by a climate justice activist who called me really depressed, mean, and bad-news and said whatever they could, even though I just came from a mining company making indirect threats at me and disturbing interviews of state violence. It was at that moment, the way to communicate this to environmental justice activists is to say, "low-carbon infrastructures, or so-called renewable energy, is fossil fuel plus," so they can actually understand the problem that it represents. They're fossil fuels in the sense that the entire supply chain and supply web of wind turbines, and solar hydroelectric dams, all operate on hydrocarbons and fossil fuels. That's from how you produce the machines to do the mining, how they're having the machines running on diesel and different things to do the mining, even though companies are now trying to electrify that, which is another can of worms. More extraction to make electric batteries and find lithium to now mine with electrified mining trucks and underground mining equipment. No matter how you go on, the chemical industries too, how do you make chemical industries? How do you produce these chemicals, and then they're leaching them into the different resources?

It goes on towards manufacturing, transportation, and also operation. Wind turbines need to be lubricated. It's been recorded in Oaxaca by me and many other researchers, I've witnessed how, if you actually look at any especially older wind turbines, you'll see what looks like dust, but it's actually oil splattering and leaking. It's not to really emphasize that, it's much lower compared to a lot of the systemic destruction. One has to really think about the level of extraction that goes on with this. That's the thing, just even one ton of aluminum, to produce this, you need four tons of bauxite ore, so that means you're going to be generating four tons of waste. For one ton of copper, you're going to be generating 110 tonnes of waste. Then when you get into rare earth elements, which are creating radioactive nuclei to create 1.4 tons of radioactive waste. 60 million liters of waste gas with hydrochloric acid, and then it creates 200,000 liters of acid-containing sewage. It's really severe. A lot of this comes from London Mining Watch, some of these numbers were verified with other kinds of studies. There are still even knowledge gaps, and even these numbers reduce a lot of things. I can go on, I can bore you with the horror of how much coal is used. Charcoal is instrumental in steel mining and melting steel. This is a big deal. Right now in Scandinavia, they're trying to use hydroelectric dams, they're still relying on this coal, even though they're trying not to.

The idea of "fossil fuel plus" is trying to communicate to environmental activists and people that you can't separate these energy systems. There's no such thing as this "fossil fuels – bad, renewable energy – good." They're all tied up in a similar supply chain. They're all tied up with similar capitalist imperatives of growth and profit maximization. It's a huge issue. That's not even getting to the plus part where at the time I tried to pitch the pluses in a positive way of extracting kinetic energy from the wind. Even that plus, I think there are real possibilities with

low carbon infrastructures, but certainly not in terms of how they're powering capitalist society. Not in terms of how they're powering constant expansion in mining and really these infrastructures that are extremely energy inefficient and not with the best interest of people in mind, which is a nice way to say it. "Fossil fuel plus" is a way to say that there's no such thing as renewable energy or renewable energy versus fossil fuels. "Fossil fuel plus" as a concept is really distressing to environmentalists that this struggle is bigger than just saying no to fossil fuels. There's so much more to say in terms of the reality of the placement of wind turbines. It's a long story and I'm rambling on a lot.

TFSR: Please go, talk about where they're put, talk about the changes in temperatures or the drying out of soil or impacts on birds or water displacement. Definitely, go into that.

AD: I'd love to. Oaxaca is a really good case to look at because it's an area where birds are migrating. It's the narrowest point between the Pacific and the Gulf of Mexico, there's a mountain range that generates very strong winds. There are also Zapotec and Ikoot people who live in the coastal Isthmus region, among others. And there's a lot of fresh water in that area. Ultimately, there became a "wind rush" in that area. Back in 2000, after a report that was sponsored by the USA, they generated a "wind rush" in that area. Some of it was embraced, and some of it contested, especially in the northern part. As soon as it started going towards the more fishing, lagoon, and ocean groups, they were like, "No, we didn't see the benefit sharing coming, it was uneven. Things were not what the marketing said, we are seeing impacts on the land. There's no way we're letting you get near the ocean and the lagoon." And so this generated insurrectionary upheaval in 2011-2016, and the struggle continues.

Because of the romantics and the marketing behind these things, we've got to remember common sense little kids stuff, when we look at these giant apparatuses of wind turbines, or fields of solar panels, that production to create those robots or that shiny steel comes from somewhere. For example, the concrete foundations, the harms of wind turbines, and any of these technologies come from the quantity that you're placing in the area, how you're placing them in the area, the movement, how much, and then it depends on the geography of what's there, what type of animals and different things like this. I'm forgetting another aspect of it. There are ways that you can responsibly use low-carbon infrastructures. The scale, that's the other aspect. How big they are, where they're placed, and how many replacements there are going to be is crucial in terms of how bad they're going to affect the ecology, the animals, and the people that live there.

Depending on geography, the foundations are 32 to 45 feet deep, depending on where they're placed. They're also 52 to 68 feet wide in diameter. That means that's been filled with concrete and reinforced steel, about 93% concrete, and the rest is steel with rebar. But in the Barra de Santa Teresa, we confirm that they had enormous foundations that were going in between 19 and 48 meters. Be-

a house, looking out the window, and are curious about it, but don't place themselves really within that conflict. I think it's important for academics– and you can be in these conflicts while you're researching them - but it's really important to place the gaze on the companies and the things that are hidden to show what the different kinds of elites, government administrations or companies are trying to hide, what they're trying to ignore. And ultimately, the bad deals they are trying to form to try to get people to engineer the deal so people sell out their environment, so they sell out their water for a certain amount of money, which they think is a lot of money. But in five years, they don't have any of that, when before they always have their subsistence and clean water. I think it's really important to investigate what people are trying not to investigate and to research that.

One of the things is there are really good critical works in academia that are having deep discussions about this. But for me, that's what is really important. What I tried to do is really tried to give case studies for people to understand how companies are operating in environmental conflicts, and this is why I've taken on the lens of counterinsurgency. It's rather basic, and it was back in Portland with Kristian Williams, he was the one who– I looked at him and I was like, wow, you're really taking this seriously, you're really looking at the tactics, and strategies of the police and how they're operating. I really liked this, and many people follow this work. Tom Nomad who has spoken on here has also done great work on this. I was applying this lens to environmental conflicts to understand what is going on, and it was rather productive. It really helps you in academia to cut to the point. I've coined the term "the political ecology of counterinsurgency" as a study, to talk about these things. It's trying to look at how are people being pacified. It's asking this question, given all the talk about climate change and environmental disaster and climate youth marches. Then how come these mines are still opening? How come it's progressing? How come there are still pipelines? How come people are still either actively or passively submitting to these things, and the people who are resisting – what's happening to them?

The lens of counterinsurgency is very logical, marketing and security budgets are some of the largest companies in terms of public funds, they absorb tons of public– at least on the security, the so-called security side. So meaning policing, military, and often private security/paramilitary sources, and again, the line between paramilitaries and police is always pretty funny in terms of what distinguishes that or so-called professionalism. What is actually undermining these people's ability to protect their land, to protect what gives them life, to protect their social fabric? Follow the money. The lens of counterinsurgency I've always found rather useful in terms of cross-checking them with military and police manuals. They're doing all these psychological operations that are associated with marketing and public relations. They're applying all these same techniques that they're also talking about in military manuals as PSYOPs, and it's very interesting how marketing agencies and the military are circulating and trading knowledge about these things. You can see how this works.

en't doing themselves favors by living in this weird psychosis of gated communities, insecurity, and protecting what they have. Just look at the rates of pharmaceuticals and suicides. That's a whole other topic.

It's important to understand. In matters of degrowth, it's questionable, some of its roots and economics and policy need to be looked at very carefully from the Global North. Those aspects shouldn't be used. Actually critically reflect on the really abhorent... and discuss energy-intensive infrastructures that are not creating good social spaces, and are creating weird exclusions, exacerbating different class and racist operations that are being lived in Peru or wherever in Latin America. Again, one of the big values in degrowth is to say, "Hey, we got to get serious about this and really question how we're living and changing this."

TFSR: You use the term socio-ecological, and I read that as being not only the "live the environment that lives around us," but also our living inside of it.

AD: Yeah, it is to stress that we can't talk about the ecological without talking about the social. That's to say, you can't talk about ecology without talking about colonialism, racism, or even class issues in terms of how these are all deeply interconnected. I attempt to not separate these things by saying socio-ecological.

TFSR: That makes sense. The narrative of what you might call socio-ecological resistance is often framed around climate marches, lobbying, summits, and Earth Days. I know that there's been radical resistance on Turtle Island to ecocide from capital, state, and settler goons. And this goes back to the first white feet that set down on this continent. But it feels like there's been a ramping up in the last decade of participation in radical resistance here. From resistance to pipelines crossing lands at the standing of Standing Rock Sioux, and Wet'suwet'en peoples, to the solidarity of shutting down settler infrastructure to the growing practice of land occupations, like Weelaunee in South Atlanta. The scope appears to also be actively linked to other struggles, like ZAD, No TAV and Hambach, and more recently Lützerath. In some ways, it reminds me of what I've read about the heady days of the anti-roads movement in the UK or the rise of the second generation of Earth First in the so-called US.

Could you talk a bit about the resistance that you've been seeing? And how do you see your work complementing the resisting of damaging infrastructure projects?

AD: A lot of this is a bit of an ethical position in terms of being an academic. I think we don't need more graduate or Ph.D. students going and trying to investigate the resistance, "what is it to be resisting?" This is a symptom of people who aren't already resisting themselves, who are viewing these conflicts from inside of

cause it's surrounded by salt water, it had fresh water in the middle and sand with vegetation. And the other thing was they were drilling to look at wind turbine stuff, but they're also looking for natural gas and other resources to mine, just to stress again the connection between extractive industries. The concrete foundations are enormous. The amount of steel that you need per megawatt is somewhere between 107 and 132 tons. The glass carbon composites which you can't recycle, there's some Bloomberg article about how they're just dumping them in landfills. Wind turbines only live between 25 and 35 years. With retrofitting parts you can extend their life to 45 years. Their lifespan is a big issue of how companies are taking advantage of small towns. People want to make it big, developed, and make new schools, politicians are trying to pack their pockets with money, but they're not actually negotiating decommissioning. A lot of those costs get dropped on the city that can't afford it. They didn't negotiate for it, and they spent the money after 35-45 years, that's another big issue.

Aluminum, depending on the model, is between 500 to 1600 tonnes per gigawatt. Copper, as I said, the median is 2.1 tonnes or could be up to 5 tonnes per megawatt of copper. Dysprosium, a type of rare earth. There are different kinds of hybrid and direct drive turbines, no matter what every wind turbine is going to have some aspects of rare earth metals in it, which is important whether it's for the connections to hold up the towers, or for resins that they're making, so they're splicing the metals of the towers with rare earth so they don't rust as much. Usually, the wind turbines at sea are actually going to be the direct drive turbines that are going to have per gigawatt 17 tonnes of rare earth metals, which is insane. Right now in Europe, 95% of that is coming from China.

Another huge issue connecting different struggles is actually balsa wood for the Blake composites, which is related to deforestation in the Amazon. Larry Loman has been great at calling this out and working with people down in Ecuador on this. I can go on for hours with this but I think there's this mineral composition, which I spoke about before. The turbines, f you have fresh water in there, they're gonna have to pump it out, they're gonna have to put chemicals in it to stabilize and create the foundations. Before you can even go in there, you need to do habitat clearance to be able to make the roads. If there are roads that exist, you're gonna have to widen and compact them. If there are roads that don't exist, you're gonna have to make them. But either way, you're contacting and widening the soil to bring in heavy machinery, then you're digging big foundations, you're pouring concrete in them. All this has severe socio-ecological impacts. The ecology is clear, it is actually going to prevent the drainage and create flooding in those areas.

In addition to having wind turbines that are going to be there, [once the turbine is installed] into the ground, it is going to be dispersing the wind in that area. If you're a Zapotec farmer who deeply values his culture, the land, and the production of tortillas without using machines and you want to resist these projects, but your neighbors are selling out, you're going to be having wind turbines near you watching them drip oil, have your cows eat it, and also into your water

wells. Then experiencing extreme drying and extreme flooding in these areas, depending on the season. And what's really interesting in the case of Oaxaca and this area in the Isthmus, is that there have been roughly 2000 or more wind turbines in the area. Some people are saying this, you can say it's conjecture, but there's been severe drought, but now there's a lack of freshwater draining into the lagoon superior, which is now changing salinity in the area where people are fishing.

This is an addition to the typical stuff people should know about in terms of how many birds they kill. And then there's the political violence and the social aspect is actually changing and preventing people from subsisting. That's why the book Renewing Destruction which came out of this work and Oaxaca, the last chapter is actually looking at how wind energy development is continuing a process of genocide and ecocide in this area, to break people's means of subsistence, to force them into the dominant culture and enter migration routes within Mexico to become an urban landless worker. Then, as we know, also go to the United States for a better opportunity. They're having a displacing effect, preventing people from subsisting and degrading the ecology to force people into these migration routes. Sorry, that's a big windfall. Maybe you should ask me some more questions about that. I can go on all day with some of the harms and I've worked in many sites and seen these in France and Mexico.

TFSR: I think that's super helpful. I'm glad that you could lay that out. I don't want you to necessarily break down more technologies and the problems with them. You are just expanding on what the problems are with this one specific type and the questions of what are we not talking about in terms of this: you can apply that same approach towards any of the other so-called alternative sources of renewable or low-carbon or whatever energies. That framework is what is lacking in a critical approach to this.

The only other question I want to ask in relation to that specifically is, I don't think you addressed where the energy is going, is it actually going back into the communities where this infrastructure is being built? Are they suddenly getting electricity where they didn't before? Is a hospital getting it?

AD: Oh, this is capitalism, of course not. The typical thing that I tell people is to conceive of low-carbon infrastructural development, there are five phases. There's raw material extraction, and land contracting. The things I talked about were the mining and supply chains. Land contracting, how is this land even accessible? Are the companies getting it? Are they making nice contract deals? Are they unequal or are they engaging in blatantly racist practices and using language to get better contracts? Or do they have pistoleros or gunmen going there and intimidating people? How's the land contracted?

The third is the immediate ecological, social, and economic impacts from the operation of these things and where they are. Fourth is energy use. This is the

ment on "Green is the Color of Money". But it's really hard to take those aspects seriously when they're using old data. And then, of course, the way that they're emphasizing– I mean, they don't emphasize it, but it's there. They're clear in terms of what they're saying. But I think for people to remember this, no matter what, consumption is always the bigger problem. Consumption is going to dictate how much is being destroyed. The easy statistic is approximately along the lines of, one person from the US is 15 people in the Global South in terms of material per person, maybe it's even 24, something like this. And one person from France is eight down somewhere in the Global South. There's always a problem with statistics and numbers. The idea is that we want to de-grow the Global North. That's a big debate in degrowth, in terms of, "don't tell us how to live down here, you're reproducing colonial dynamics within degrowth by doing this."

I'll say more to that, but to really stick to this population thing, the population question is always such a huge problem. I think one important way to remember it and to think about it was what Michel Foucault said in the History of Sexuality was the political economy of population. And it is to remember that states organize and try to construct rapid populations, so people could become the Wealth of Nations, they are the power, they are the energy to work in industry and go to war, which Emma Goldman and many other anarchist and socialist feminists have called out, the way that they are being turned into factories for capitalist production. This creation of population as a problem, we have to look back to the state, we have to look back at how people and also ecosystems are treated as resources, as laborites, as timber, or some type of fodder for war.

And then on top of this, the next issue is that, usually, when the population question comes up, it is coded to always be looking to the Global South, always be looking to pass off some racist agenda. Maybe there might be genuine concerns about this for people, but it's locked into a discourse that is tied up with sterilizing black and indigenous people in the United States. It's tied up with fascistic ideas. And it's super concerning. Whenever the population question comes up, there really needs to be work done in critical reflection that this isn't just ultimately some racist ploy, which I think you're getting at.

To bring it back to the degrowth topic... That film was horrible like this. It also really didn't show the ardent resistance from people, especially in Latin America, Africa, and Southeast Asia who are fighting all these different low-carbon infrastructure projects and – like I keep mentioning – were the first to raise the red flags about them. In terms of degrowth, was very funny, as you had different Latin American scholars saying, "all this is colonial, we need to grow in the Global South or Latin America, and you de-grow up there," but I'm thinking of Arturo Escobar, who has been rather clear on this topic. I believe it was in a case for the degrowth book launch. He was very clear. He was like, "We don't need more middle-class gated communities in Latin America, or anywhere. This reproduction of colonial, high-energy, and material-intensive lifestyles is not good for the planet, or people themselves." I would suggest, especially in line with social war theory, the rich ar-

themselves and how to care for each other, learn how to engage in forest gardening, and what can we do to improve our relationships, what can we do among each other, but also with animals and trees, how can we improve forest quality, water quality, and so on. I think this is the game, and how can we do this in an anti-authoritarian way is the goal that we should be trying to get to from our different positions, capabilities, and desires.

TFSR: I want to talk a little bit more about what that resistance has looked like and your impressions of it, but while we're on the topic of degrowth, in 2019, there was a film that covered a lot of similar critiques of renewable energy. It's called The Planet of the Humans, and Michael Moore was one of the producers of it and it definitely stirred some pots. It was not only focused on questions about the reality of renewable energies, the inputs, and how you sunset these technologies. How do you clean up what's left behind by them? The film focused a lot on *The Population Bomb*, this neo-Malthusian book that came out in the 1970s that was basically claiming that the main reason that we're having ecological crises along with all these social crises, is because there's too many people. That approach ignores the varieties and ways that people and peoples live in their environments, as well as the different levels of technology, energy consumption, and waste that different kinds of people engage in. This is a thing, I think that some people hearing the term "degrowth", they're going to think, "aha, we need to cut back on population, because more people means more waste, and what if the rest of the former third world each gets a car or whatever?"

I wonder if you could take a moment to approach this question and the Eurocentric, ableist, and colonial-like mindset that some people approach the idea of degrowth?

AD: Yeah, I got you. I'm familiar with that film. In fact, I wrote in Mexico and the Houston Chronicle an op-ed about it with a co-author, and also a longer version on the *Undisciplined Environments* blog, which is a great resource. I can start with the positives.

There's two points in that film. I think you've covered the negatives very well. I'll speak to some of those. The two things that we got to give love to that film on is, they're raising important issues about low carbon infrastructures – one. I think they could have done it better. I think the format of how they presented it could have been improved, a lot of the numbers and studies, for some reason, are very old from 2013, even though they came out in 2019. But hey, they're raising a good point there.

Also, another painfully important point is the problem and role of NGOs, and large environmental NGOs and how they're pacifying movements and selling out, and selling out movements. Good job, great points. I might say on that second point, I think Sub.Media did a better job with the END:CIV film with their seg-

real Green Deal-Breaker, in the sense of this isn't for encouraging low consumption, becoming responsible for our energy use, and taking back our power. This is for transnational capital, large industries, and in the case of Oaxaca, which is a particularly illuminating one, there's two thousand wind turbines, most of it is owned and energy-propelling, Walmart is a huge player in one of the biggest employers in Mexico. They're doing everything they can to say that Walmart is on clean and green energy. It's because they're getting it from this area, the energy is being exported. The big concrete companies, industrial construction company Cemex, they've got shares in these wind parks and are powering these things. There's two, Grupo Mexico and Penolas. Between the two of them, they have three wind parks of approximately 30 wind turbines that are powering their operation. I can't tell if it goes directly to mine or if it's just their office buildings. But this is serious. You have wind companies powering your wind turbines powering more mining. You got Heineken, they were on the project that people rose up and fought and won. But they moved that to a different area. Grupo Bimbo, junk fast food, low-quality Twinkie-style foods, and white bread. You name it. Ultimately, it's big companies. This is serious. The fifth side is decommissioning, which is where these go after 35-40 years. And there are serious problems with actually the recyclability and how this has been used. As I mentioned with carbon composites, they're just putting them in landfills. Recycling for rare earth minerals is very low at this point, even though they're highly valuable and extremely mineral, energy, and material-intensive in the sense of how much toxic waste that's produced from getting a certain amount. But it's really severe.

And it's not just Oaxaca that does this. In France or the other places I've worked, these aren't for powering those areas, usually, those areas and rural places are rather self-sufficient in what already exists. It is usually going in exporting to large consumer industrial areas or cities. A lot of the energy from Oaxaca was going to Guatemala and Belize. Also, I read it in 2009, in the USAID report was also to California. But the same goes in France, in the area where people were fighting the transformer and the other wind projects in the area, it was to go to Toulouse, Montpellier, and those cities. A lot of this raises the question of how to compose and transform cities, and to get serious about degrowth initiatives in those places.

TFSR: Since you just said it, a buzzword in the academic world of ecological studies these days is just that, it's degrowth. To me, this feels like it's got the seeds of a course of action against colonial capitalist drive that does such violence that you've been describing on the world and its inhabitants. It's so focused on extraction, processing, the concentration of wealth and concentration of poison and poverty, and just constant expansion.

Can you talk a little bit about degrowth? Are the term and the framing useful in your view? And what can it offer and is it being applied well or misapplied currently?

AD: I'd love to. In one sense, if I wasn't dedicating a lot of my time in academia, I'm not sure how relevant degrowth would be for me, if I was already someone who was on an on-the-ground struggle, already very clearly being like, "capitalism can't expand, we have to protect this forest, we have to stop these mines, we have to stop these pipelines". In that sense, you're already there, you're already in struggle, and you already know that this has to stop.

But if you are in academia, and if you are someone circulating around universities, and if you are trying to organize to think and make a more policy-oriented change, then degrowth is actually rather important, in terms of it being a broad front that is saying "we need to reduce material and energy use" or throughput, as they say. But it's openly saying that we can't keep growing. We need to challenge the myth of green growth and eco-modernism and get serious about ecological, social, and climate crises. To stop this and try to transform this. Obviously, there's a lot of heat and attacks against degrowth. "Oh, you just want economic crisis, you want to destroy society" and all this. No, degrowth is intended to be a planned, safe, and equal reduction of material, it is a precautionary measure to stop and to begin addressing not only just the ecological and climate crisis and the extractive realities behind capitalism, but also the racism and sexism, and I think, to a lesser degree, I'm not sure how much they actually engage with queer research... But there is this real concerted effort to figure out how to localize, how to close the sights of production and consumption, to eliminate line loss and more high-tension power lines. In this degrowth is super important. It's a much bigger and highly popular phenomenon in Europe. A lot of it's because a lot of people know things are messed up. If you just look out the window, and you look at how everything is being constructed, where these materials come from. Why are all the trees around concrete enclosures? Why do we all live in enclosures in this certain way that all look oddly like hospitals and/or nicer versions of prisons, or weird suburban model villages, then you know there's something wrong. In Europe, this has been big, and it's attracted a lot of students. degrowth comes from ecological economics, in terms of challenging economics, economic growth and being a more honest economics.

That said, is there such thing as honest economist that sits in their chairs and makes these models and thinks they can control the world through different reductive categories? I remain highly suspicious, to put it nicely. This leads to some of the problems with degrowth because it's very policy-oriented and comes from ecological economics, it tends to be rather disconnected from on-the-ground struggles, specifically from anarchist or autonomous and different kinds of indigenous fighters. Maybe that's the thing because where degrowth comes from in more recent history, it comes out of the anti-globalization movement. On one side, degrowth was "back to the land," self-sufficiency, eco-construction, and bike critical mass, and it was these kinds of prefigurative practices, which are very important. At the same time, as anyone who was around at that time, there's an overlap among some people, but there tended to be this, I don't know how to say this nicely, but there tended to be this prefigurative "Oh, we can be happy, friendly." But on the other

side, there's a lot of people and I think rightfully so they're like, "We're here to crash this meeting and we're here to destroy and cause as much economic damage as we can to these companies and to protest this World Trade Organization, IMF, you name it. These things are not okay." So there's maybe always been this combative practice divide from this prefigurative divide. It's very important to put them together and obviously, I'm referencing black bloc tactics in the anti-globalization movement. It seemed they were the ones that combined it, even though those sides of protests would go for it.

I think that this divide that you can see in people that are understandably scared of combative practice. There's always been a little bit of a divide, one that I've never felt comfortable with. This reproduces itself within degrowth, especially in the way that, for example, how the Hambach struggle, or *No Muy Alta Tensión Línea*, "No high-tension power lines" (No MAT) struggle in Catalonia, or even the ZAD struggle at least in its earlier days has been ignored in degrowth. My contention is to stress the importance of recognizing the "de" in degrowth. And that is to recognize that the disruptive capacities are important to forest defense, anti-pipeline, and mining. These are really important components that are crucial, and this maybe goes back to an anarchist contention. Where it's like, "That's great, your prefigurative struggle is good, these are nice." But meanwhile, this system consumes, expands, and it's destroying everything around us. It might make more sense to stop the capacity of this system from reproducing itself and taking more. That will be contributing greatly to the reduction of destruction, and the expansion of energy and material use.

I think this is a thing. I just say to summarize it, since I'm getting off track a bit, is to say that there are great things in degrowth. It is actually trying to address serious problems with capitalism that I think are difficult to really go at, to challenge it. It's doing that and there's a lot of popularity, there's a lot going on behind it. It can definitely improve on supporting people who are in prison, and people who are on the frontlines. Not just frontlines NGOs are talking about, "front liners", but people who are really in permanent conflict, trying to stop the spread of this thing in a real way. I think there's ways that degrowth can deeply improve on supporting and acknowledging struggles, like the No TAV movement in Italy, *Zone à Défendre*, the Hambach forest, and so many others, instead of referencing the same struggles. I've identified that combative action is more acceptable outside Europe than actually acknowledging where it is, even in your own backyard, which is maybe common of academia.

There can be improvement there. I really hope that since a lot of degrowth people are trying to engage in policy that they will work to make space for combative land defenders, that they will fight terrorism trumped-up charges [as in the struggle against Cop City], and be able to restore people's right to resist without facing horrible trumped-up charges. Really, as my position is everyone where they are to do what they can to create more unmediated space. So people can actually begin to literally take back their power and energy generation, learn how to defend