

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

Adelyn: Hi Chris! Thank you again for taking the time to let me interview today. I just wanted to confirm that you give your consent to have the recordings and transcripts of this interview in all formats submitted to the UChicago Library and that the University of Chicago owns the recording and the transcripts.

Chris: Yes. No problem.

Adelyn: Awesome. Thank you very much again. And just to start us off, I would love to learn more about you and your background so could you tell me a little bit about yourself?

Chris: I'm born and raised in the United States, born in Hawaii and grew up in the Seattle area and I currently work in the Washington DC area. My family is originally from Southeast Asia and I've lived in Southeast Asia for about 8 years up until just about a couple years ago. My background was first in the United States military serving in the US Air Force and then I worked for a government in the Washington DC area helping to evaluate technologies for the US government and then, later on, went into a commercial company to help them expand internationally. And now I do technology and film investing.

Adelyn: Awesome. Thank you. In this interview, I'm trying to understand the different ways in which people consume and produce energy. In the first part of this interview, I would like to ask questions pertaining to your daily life. So where do you do your grocery shopping?

Chris: Primarily, Costco and another warehouse called BJ's are primary places for groceries. And the local grocery store, which is the closest one which is called Giant.

Adelyn: What type of food do you typically buy in the supermarket?

Chris: We tend to buy quite a bit of vegetables that are common at Asian grocery stores like bok choy, kai lan, yu choy. And we steam or pan fry them in like a sauce depending on how we feel. Being somewhat health and environmentally conscious, we are trying to reduce the amount of meat we consume overall and have been removing meat from at least one meal a day which is similar to something a group...I forgot their name... in Hong Kong was advocating for in cutting meat out of your diet for one day a week or one meal a day. In general I'm avoiding processed meat and cured meats too. We also buy a lot of granola and Chobani yogurt from Costco or BJ's, the other warehouse store, On average, we often have... I mean most meals in a given week are vegetarian. We still eat meat and enjoy it, but we are active in trying to reduce the amount we consume for both the sake of our health and because of the impact of meat production on the environment.

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

Adelyn: What are the main factors you take into account when buying for your daily needs?

Chris: Primarily, probably price point. Although, to be honest, I would say price is assumed to be less expensive at Costco and BJ's, at the warehouse stores. I honestly don't check the prices all that often at the places I go to. And then the times I go to Giant it's because it is the most convenient as it happens to be just there.

Adelyn: Are there factors that you consider but not necessarily decision-making factors such as Fair Trade or the country of origin of your produce?

Chris: Honestly, no. I don't think the majority of produce do I actually look at origins or whatnot. When I did live in Southeast Asia before, that's when I probably looked at the origins of produce a lot more. There are times when a lot of Chinese produce would come in with heavy on the pesticides and that sort of stuff. And sometimes it actually bothered me and so I would specifically look for things that were grown in Malaysia instead of in China. Actually maybe quite a while back when I lived in the same area, I did ...specifically stop going to the Asian markets because some of their fruits were from China as well and I actually had an allergic reaction to them at one time. That would be the only time where I probably would shy away from that.

Adelyn: Oh wow. I'm sorry about that. Where exactly did you live in Southeast Asia?

Chris: I lived in Singapore for about 8 years but would travel quite a bit around quite a few of the countries in Southeast Asia, but I lived in Singapore.

Adelyn: Oh nice. In Singapore, did you notice the grocery stores typically stocking more local produce, more Asian, or Southeast Asian produce, instead of imported from, let's say, the United States?

Chris: There are multiple types of supermarkets or grocery stores in Singapore. There are ones that do kind of target imported produce but it tends to be from Australia and New Zealand, ...less so from the United States, it's just too far to ship a head of lettuce, doesn't make sense price point wise. The majority of the produce tends to come from Southeast Asia, ...primarily Malaysia when you're in Singapore. We also get a lot of stuff from China, certain produce, and from Australia and New Zealand, there are different supermarkets for different places.

Adelyn: Okay, cool. What about the groceries stores you go to here, are they mainly US products or are many of the products from overseas?

Chris: I think a lot of the products, well, I know some of the fruits, for instance, or whatnot are from Central America and Mexico, fruits-wise. I don't actually look

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

that closely, I know I think bananas are from Guatemala or whatever else. I don't look that closely, just some of the things I've noticed.

Adelyn: Do you think - have you ever considered how far your food has traveled in terms of food miles or is that not really something that is a concern or a thought?

Chris: I have looked at it before and I've thought about it before but I've thought about it from a different perspective. As a tech investor, I've looked at different regions in the world. One of the products of a company I've looked at in the past is basically vertical farming, indoor farming. In the Middle East, their produce has to travel a very far distance and it's all cold chain because it is so hot out there. So the carbon footprint of any piece of food, especially a heavy piece of produce like a tomato, becomes a very very high carbon intensive product. So I looked at startups that were specifically trying to grow tomatoes in greenhouses in the Middle East, I've looked at aquaculture in the Middle East, for the same concept of trying to reduce overall cold chain or supporting that.

When I'm in the US, I guess I tend to make assumptions, and maybe now just realizing some of those assumptions may not be right, but I tend to assume that there is a lot more efficiency in the United States because there is so much more competition. Whereas in the Middle East and a lot of different countries, there isn't really competition because there are regulated monopolies in certain sectors or duopolies, so they can be less efficient and pass the price on to the consumer. Whereas in the US, if you were to buy one piece of produce, it can come from a half dozen or a dozen different places and that will drive down the price, so the idea of if something had a very long logistics train and it was a low-cost piece of produce, becomes a little bit hard to justify that, I guess, so I tend to assume that things are, on average, a little more efficient.

Adelyn: That is really interesting. Thank you for sharing. So in discussing the cold chain, and you mentioned hydroponics and aquaculture, what are your thoughts on how efficient those systems are from the production, the production of those systems to the actual production of the products, the produce or the aquaculture? Could you talk a little bit about your thoughts on that?

Chris: Sure. I think one aspect is a little bit of that price point aspect. So when you have a startup that is building a whole new type of aquaculture or you know indoor farming sort of concept, it has to be price competitive with the current alternatives out there. It has to be able to beat that price or better quality wise, but ideally both, we, you know, globally are facing obviously some pretty challenging things in the fisheries all around the world are being massively depleted so increasing farmed fish and aquaculture I see that as a generally positive globally, so as long as they can compete price point wise. I find that a very interesting business because now you are helping reduce some of the drag on fisheries globally and being able to

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

produce something at a price competitive perspective. And same with produce. They wouldn't grow it inside, if it wasn't, if it didn't make sense economically, is the thought process from the business investment standpoint. So we always have to look at how prices compare in the store. Usually, that means that you compete with the organic pricings in the supermarket as opposed to the non-organic pricing so people who are willing to pay a little more for the organic and if you can do that, you can be at the same price point then it is interesting.

Adelyn: Thank you. So, shifting from that slightly, it sounds like you've traveled all around the world and lived in the US and internationally as well, would love to know if you have ever considered your carbon footprint or your energy consumption in relation to daily life and also in relation to traveling.

Chris: I have. I think one of the interesting things was... I think... I thought about it previously when Greta Thunberg talked about all these people flying in on private jets into the World Economic Forum to talk about the environment and how hypocritical that was, made me think about it even more... I think it was interesting. I think it is always good to reflect on ourselves and our lifestyles and how we impact, you know, everything, including the world.

I do think that it is good to try to be as light footprint as possible but at the same time, there are certain things that are very important to have face-to-face interaction with. I think a teleconference, Zoom call, is fantastic but it is still hard to build relationships and trust, necessarily just through Zoom calls. Sometimes, you know, you do need to share a coffee or a bite with somebody and it builds relationships. So I do think that sometimes you do need to travel.

Do I look at how much carbon my plane is putting out? I do actually, sometimes, thanks to Google Flights because it is one of the easier things that lets you see how much the carbon impact is. But if I'm perfectly honest, I don't think I've ever chosen a flight solely because of the carbon footprint. I think it just makes me feel better when I see that my flight is a lower carbon footprint than another flight. But that usually translates to being on a newer plane.

Adelyn: Have you ever bought a carbon offset whenever you're flying?

Chris: I've never bought a carbon offset myself... I think it is an interesting practice... I would like to see the concept maybe go forward but I think there are other ways where it is already priced in. So the concept of when people purchase that I tend to think that it is more trying to buy guilt and those tend to be more profit margins for some of those organizations then it is actually offsetting my carbon. I would say that it is better to put that money towards investment into companies that are actually offsetting the carbon not to just pay an airline that is already spending that to spend more money on their R&D to reduce their carbon footprint. They

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

already have to do that anyways, so me putting money into that isn't really going to help. It would be better to put my money into other things to help the environment.

Adelyn: You've traveled a lot and been to many places around the world. What have you noticed that is similar or different about the energy consumption of different places you've visited or lived in?

Chris: So I grew up in the Greater Seattle area, which naturally makes me a tree hugger. I was born in Hawaii, we also care about the environment a whole bunch. I've also spent time in LA, in London, in New York. I bring up those three cities because I don't think there is almost any concern for the environment in those three cities.

You'll have somebody that will say they care about something but they'll leave their lights on. In New York, the streets are piled with mountains and mountains of garbage because everything is disposable and ends up in landfills in New Jersey. I think there is a massively different reaction to the environment in all those different places...

Singapore I think takes it in a different kind of direction... it's partly due to the difference in politics, the government will actually recommend to their citizens what people should do to be good citizens. And a lot of foreigners like to joke about it or make fun of it... Like on the train, this is when you should give up your seat to other people. This is how you should cover your mouth when you're coughing or if you know have a cold or something like that. And it's funny but it tends those things seem to, I mean not growing up in it myself, but it seems to actually work. Those individuals tend to be really good, for lack of better words, community citizens.

Whereas in the US, we tend to love our individual freedoms and so it kind of comes to every city is a little bit different from how people treat the environment or the community. I think a lot of people treat it as long as my house is good it's OK if there's trash elsewhere, you know, people don't really look at community I think as often, unfortunately.

Adelyn: Interesting. I like how you brought up cities versus other places that you've lived in like Seattle area or Hawaii. Do you think there's a big difference between metropolitan cities and let's say suburban or rural living in terms of energy consumption?

Chris: One of the startups that I talked quite a bit with that went through - I'm a mentor for this organization called the Unreasonable Group and they help focus on climate tech sort of startups and one of the companies is solely focused on energy but from the built infrastructure standpoint. They like to look at how to make

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

HVAC more efficient and a whole home's energy envelope more efficient. That founder lives in New York City and he could talk you know for hours about how that is so much more energy efficient than being rural or suburban. The concept is that you could fit so many more people in a dense way in a New York tower or in a New York building and that becomes a lot more energy efficient by far and so basically he gave me the answer to your question before you even asked it. He's done the studies on these things over and over again and you know being densely packed can be a lot more energy efficient. One, you don't have to do as much distribution, you can enclose one envelope from the outer shell of overall buildings so you have less leaking from a heat perspective. So I can definitely see his perspective. And then even the idea of all the energy it takes to remove municipal waste,... overall energy... It is an interesting concept that different people very bluntly just like different qualities of life and some people - I think maybe, sorry here's the flip side of that, my point is: if you're in New York City and you're in downtown and you live downtown close to your office and you're doing that all year round do you also take a vacation to Bora Bora? And what's the energy impact of that? How many of those vacations do you take? And then if you lived in the suburbs, I have some friends living in some very nice garden suburbs in New Jersey and they kind of already are a little bit less stressed and they have that kind of you know reprieve of nature around them and they don't necessarily take those same type of vacations. That's an interesting concept but - I'm sorry I'm just ranting but, I think the concept of energy where you live comes down to what you want.

Adelyn: Don't worry, the rants are good. And so when you are traveling though, what type of food do you tend to eat? Do you eat the sort of the classical American diet, what we often think of as American food or do you tend to eat local cuisines?

Chris: I tend to eat the local cuisines but I really enjoy traveling and have been lucky enough to have traveled quite a bit in my life and always kind of enjoyed eating whatever was there. I lived in Germany for a few years as well and I basically forgot what Asian food even tasted like because there's not nearly as many Asian restaurants in Germany so end up being a lot more German and Italian food and those sorts of things and then when I moved back I rarely have German cuisine anymore even though I do enjoy it so tend to eat local but not from an energy standpoint more from a cultural and experience standpoint.

Adelyn: That makes sense. I don't think people tend to think too much about the energy that goes into producing their food. When you are thinking of the American diet, what do you think of?

Chris: Oh that's an interesting question. I mean I'm an ABC so American born Chinese Singaporean so I think I've grown up with - I mean the - I guess the staples right? The burgers and hot dogs sort of thing. But I think there are lots of American

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

adaptations to lots of different foods that would be considered ethnic so I do think that is an interesting aspect of what is American. I mean is a steak American or is a steak French German? I don't really know. Or maybe Australian? I think that there's a lot of blending now but I guess the burgers and hot dogs is maybe one aspect of it.

Adelyn: Okay cool. Isn't the hamburger originated from Germany, from Hamburg?

Chris: I think that's true. You know when you're living overseas and you feel like you have to have that American diet all the time it is it could be very expensive. In fact, in the military and even when I worked for the government, we would have what's called per diem when we were traveling. And so you get a certain amount of money per day and that's to compensate for the type of food that you would get in the US, which is kind of funny. So if you are traveling to Europe or Asia or wherever else, and you don't mind eating local food that might be very inexpensive and tastes fantastic, the government still pays you for what it would cost to get a steak in the evening which might cost a lot more in that city. So you get to actually make a little bit extra money from it when you're in the government because you can keep the per diem and still enjoy local food, kind of a funny concept.

Adelyn: That's really interesting actually and do you think a lot of people stationed overseas tend to stick to the American diet or do they tend to adapt to local cuisines?

Chris: I think a lot of adapt. I think two stories stick out in your head a lot, You hear about an American that grew up in Kansas, Iowa, you know, middle of the country, sort of thing, and getting stationed in Korea and really really enjoying you know kimchi and whatever else. But you also hear about stories where an American traveled over to, you know, fill in the blank country, and you know only would eat at McDonald's, so it becomes kind of an interesting thing where I think both stories stick out in your head a lot... I can tell you that when I lived in Germany, I lived there for three years with the military, my friends and I, we would all eat local. I don't think I ate at McDonald's ever, except when I went to Russia but that was just for a funny sort of concept. But for the most part, when we're in Germany, we always ate German food or Italian food or whatever else.

Adelyn: Great, thank you. My next question sort of shifts a little bit away from the travel but more about living in the different countries and cities that you have. Have you noticed anything - like has anything ever stood out to you about the different types of infrastructure in the different places you visited or lived?

Chris: In Germany, I lived in a very small town right off the military base. In the US military, especially the US Air Force, we use more energy than you know many

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

businesses, even some countries, just because jet fuel consists of a lot of energy. We're flying training missions all the time. In the military, we train and train and practice and practice all the time which takes up a lot of resources and energy so that's pretty extensive. As I was starting to leave that base at that time over the next quite a few years that base that I was at Rammstein in Germany became it was always a hub but it became even more of a European hub for the US and NATO military so it just became more and more built up they added more infrastructure, a lot more runways, fuel, shopping, housing. This small little rural village out in the, you know, this is not a big city. The base and the presence of the military people all around made it into a huge city and that infrastructure that was built up was all for all of that, so it's interesting to see how that infrastructure did build up from that perspective.

In Singapore, I think is a whole different level, in the sense of it's absolutely just world-class. One of the examples of the infrastructure in Singapore is when the TV show Westworld wanted to show the future to America they shot it in Singapore. They didn't change any scenes. They didn't do anything else. They literally just shot it at the other building that was like diagonal from where I lived. Singapore's infrastructure is second to none in this world. It's pretty impressive. No building is older than 30 years old. Everything is beautiful and very well maintained. The entire city is pretty much spotless. People joke about it because you can't chew gum. You can chew gum but they don't sell it. You can't spit it out or you'll get fined. Those type of like we talked about earlier the community precedents out there allows it to be clean. The government builds up high-quality infrastructure continuously right from - I'm going to screw up the time frame but I think it was in the maybe the 80s when the Changi airport was getting a green light from Lee Kuan Yew, the founder of Singapore, put in a lot of political capital as it was not known at that time if Singapore really would be an Asian regional hub. He said we need to have a world-class airport to make Singapore a world-class city slash country so he put a lot of political capital to build Changi airport. It's all the way on the eastern edge of the island so much so they actually built into the water for all of Changi airport. And it really has become a world-class airport and all the roads that go there are beautiful highway roads that have gorgeous tree line that you drive the entire way from city center. And all of that was built out infrastructure that the country had developed. They also have one of the major natural gas refineries for Southeast Asia. All infrastructure that was built out throughout that entire time which is very impressive to see how forward-leaning and forward thinking the country's government is and can be.

Adelyn: That's really interesting. What are your thoughts about infrastructure and politics? Is it always that politics needs to push infrastructure forward or can private businesses sort of lead development?

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

Chris: Actually the different countries I've lived have shown that both can happen. They can have different speeds though, and they can happen at different efficiencies. So the example I just mentioned was definitely a political thing from a government pushing that infrastructure, but commercial contractors that eventually built it out.

In other places, we're seeing more and more public private partnerships so we're seeing things like private equity companies or firms will finance a road, a toll road, and in that toll road, the government will give them the permitting for that. So I live in Washington DC right now it's actually a really good example of that. A private company funded the building of a toll road all the way past from basically an area called Tysons Corner out to the airport, Dulles airport, but in exchange for allowing this private company to charge tolls to all these citizens going out in that direction, they also had to do with free lanes of travel to the airport. So that's an interesting kind of combination of public-private partnership where it was absolutely economically beneficial for the company to build that out and even build out infrastructure for the general public.

I think that's really interesting... where you're also seeing more and more private, solely private things. Actually back to the military aspect when you see military bases close down sometimes that infrastructure is sold out to developers. If you look at - one of the good examples would be the Washington DC Navy Yards. That's a former U.S. Navy base but that was sold at auction to a developer and that is now one of the cool happening spots in southeast DC. I'll be having lunch there, later on, this week. So it's a really nice area and that's all, you know, economically beneficial developer standpoint.

Hudson Yards is another example of that in New York where it used to be an MTA housing parking station for the trains and developers said we'll come in we'll still give you a parking space for the trains but we're going to develop this entire part of the West side of Manhattan and going to build all this out even though nobody likes it out here and we're going to make this one of the nicest parts of all Manhattan and they have which is pretty impressive.

Adelyn: That's all really really cool. Have you ever witnessed any controversial infrastructure projects?

Chris: Controversial...umm...you look at the Three Gorges Dam in China right? They had to flood cities and flood towns and villages and relocate people away from their homes and those people had no say in what was happening. The government just made it happen. That's not me trying to sound bad.

We have eminent domain here in the United States as well, and one of my homes, a home of mine, in the greater Seattle area, they're putting in a new light rail system in that area and some of our neighbors their homes got purchased from

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

them because the light rail will be going through those properties. And they didn't have a choice they had to sell out. In theory, was at a decent price but not everybody would have wanted to sell. So I think those all become controversial. You see protests about any type of those type of infrastructure going in all the time because some people don't want to train stop in their neighborhood, some people want to train stop in their neighborhood. So I think it can always get controversial.

DC, another example of that is, if you look at Washington DC and you look at the entire metro map of Washington DC one of the most glaring things that's missing is a stop in Georgetown. And that's only because the residents of Georgetown when the metro is being built out did not want a metro station there. It was too controversial at the time. It was because they thought that metro system stop would bring people that they did not want their fair town there, which is kind of hilarious that think they would all really like the metro station now.

Adelyn: Thank you for sharing. That's all been really really interesting. We're almost at the end of our interview I just wanted to ask if there's anything else I think I should know that I haven't asked about.

Chris: About energy or infrastructure?

Adelyn: Any of it, yes.

Chris: I think energy is probably going to be one of the most important things that we need to improve on as a global society over the next 20-30 years. I think it's pretty clear the war, in the war in Ukraine right now, is showing how even countries that were trying to get off of coal have gone right back to coal how certain countries have gotten into cheaper natural gas even though they want to be on renewables. And all of that I think emphasizes is that we're not there yet to be completely renewable and it's going to be kind of a mixed bag for a while and how we can accelerate that and accelerate some of those technologies is going to be one of the most important things to try to help us stay between, you know, below too much emissions. I think we're going to blow past our you know 1.5 to 2 degree targets for global warming. But where can we keep it to and are there ways to reverse it? How do we get clean energy? So it'll be interesting to see how everybody from those dense cities you know get energy... I think will be very different than some of the smaller towns and we'll have to see about energy infrastructure generation to transmission to storage.

Adelyn: Great. Well actually on that, that's actually one of the topics that we've discussed quite a bit in class would love to know your opinions on the energy transition. If it's feasible, if it's not feasible, and I guess these grand infrastructure projects for renewable energy how can they actually be created or built?

Adelyn Gunawan

Energy in World Civilizations II

Professor Elizabeth (Liz) Chatterjee

Final Assignment: Oral History Project Transcript

Chris: Yeah I mean I think when you get to infrastructure you need to have basically purchase agreements in my opinion right so for a private company to do a very large energy generation or transmission either one of those two those type of infrastructure builds means that you have to have a pretty large purchase agreement and a set purchase price or at least a premium over a generation cost price so with that that is still a private company negotiating with the public entity usually so the public utility and or a government that's actually take that off and that I think works when you have governments with at least pretty big budgets to be able to do that and that's going to be more of a commercial transaction but still with the government purchase order, I think, in less populated areas.

I think some governments are going to need to spend some of their political capital to actually mandate certain approaches because they won't be necessarily the most economical approach because the infrastructure what I mean by that right is let's say a \$100 million plant in New York City generating for that many people that much energy consumption if you have a little bit of a premium payback you're going to be paid back pretty soon within the time frame that investors want to see a return on their capital if you have that same \$100 million plant or let's say even half the size of it because maybe that's the minimum sizing effect \$50 million but you're going to some small town the payback becomes too long of a cycle for investors to actually be along for that ride. So in those type of settings I think you need to have the local municipalities basically mandating a changeover or federal level but there needs to be also mandate for the change of growth of those instead of solely relying the commercial forces so it's different types of economic conditions drive both.

Adelyn: Sounds good. I know we're almost at time and you have another meeting after this but I just want to say thank you again. This has been really interesting for me.

Chris: Happy to chat.

Adelyn: Have a great rest of your night.

Chris: You as well.