Interview with Nils Markusson
By Victoria Vigot and Camille Lethuc
Sciences Po Paris, 2014
Date: February 12, 2014.

1. Could you please tell us more about your research background and about yourself ?

Absolutely, I started off in engineering a long time ago and I got my undergraduate degree in engineering. I worked for the Swedish government for a while and then I have been trained as a social scientist. I am still interested in technology so I have been training in innovation studies as well as science and technology studies. I have been doing my work on the base relationship between technology and Environment and my PhD was about cleaner technology investment in a chemicals and dairy company. I looked at how engineers and environmental staff were working together and how environmental concerns were taken into account or not in these kinds of projects. After that I have done a new five years about carbon capture and storage technology looking at different kinds of issues around that, innovation processes as lock in problems for example. And in the last two years, for now, I have been doing some work on geoengineering as well, not specifically on ocean iron fertilization I have to say but more broadly geoengineering and I have primarily be looking into understanding, framing some discourse around geoengineering.

2. What are the different approaches to geoengineering?

Something like this, yes. What does interest me is how this notion of geoengineering connects together very different technologies as you know; and how that comes to be, why is that and who made this up and how is that construction made. And of course, the boundaries are not so clear and not so fixed. This is dynamic and this is blurred and fuzzy and also strategic and controversial. Different doctors are using terms like geoengineering or climate engineering etc. in different ways and partly for strategic political reasons to draw different kinds of boundaries so this is sort of one of the dimensions of the discourse around geoengineering that I am interested in.

3. Could you state your position on ocean fertilization in just a few words?

I am skeptical. I think we do not know that it works, I think it is potentially quite disruptive and could have a big negative impact on an open ocean system.

4. Would you define yourself as part of the skeptics?

Yes. I do not think we should ban research on it. I think we can safely and meaningfully do some research. But yes, I am skeptical.

5. What is your level of involvement, your relationship with the broad public, public opinion, how active would you be? Would you engage in activism against ocean fertilization?

No I have not. I have also not done much so far in terms of, let's call it, dissemination, taking my research out to the public. At least for one reason, is that I have not done so much research yet. I published one paper so far so there is not so very much.

6. When did you become interested in ocean fertilization and what triggered your interest?

I have never had ocean fertilization as a specific interest. For me, it is part of a bigger thing that is geoengineering. So the question is perhaps how did I become interested in geoengineering. I was doing quite a lot of work on carbon capture and storage earlier which is a similar thing in a

way. It is a technical fix to an environmental problem. But also, which has come through as a sort of cycle of attention; it was talked about since the 1970s, I think it is the earliest time in history when anyone talked about something similar or recognizable as CCS.

And then, maybe around 2009, there was some sort of breakthrough, and a few years after that was some sort of climax or peak in interest for CCS and then it kinds of ran into quite a lot of problems in terms of getting fundings, in terms of growing amount of criticism against this. Also partly because Climate Change negotiations were having so much trouble and without that sort of policy driver, CCS does not produce any goods you can sell so it is difficult proposition if based unto stormed policy.

So I think that I, and quite a few other people I know, sort of migrated in a sense to a new area of technology and geoengineering was, at the same time, sort of rising on the agenda, on all research agenda's list, partly as a response to the problems with policy, the whole climate policy that was focused on mitigation. It was an alternative because they were not progressing very well, there was not any international agreement, not many policies and geoengineering, as a thing, positioned itself as a response to this situation.

So it was an obvious step to make to geoengineering. And I think quite a lot of people in the fields of social scientists and some natural scientists as well have made that sort of transition. Of course there is also an overlap in terms of biomass, so it could be thought as a kind of symbiotic technology but that is a different argument I think. I would add one thing here: I am thinking quite a lot these days about technical fixes and as they work as social phenomena. I am sort of feeling this is sort of a pull. It is very easy to go deeper and deeper into in these sorts of technical fixes. I think about it as a whole, I am sort of stuck in a hole and it is easy to go deeper and deeper into this, because there is money, there is opportunity, there is research funding, there is attention. For me, it is an easy direction for my career. I would like to get out of this hole in some ways. It is an interesting place; but, in terms of the ethics of it, it is also debatable. And also debatable as, as a social scientist, I do not know how much I can be critical, how much of an impact I can have.

7. You were speaking about CCS before. You said it was part of same concept with OF. Do you have the same position, the same opinion about CCS? If there are differences, how do you explain this. How do you explain that some people can see CCS as something possible, feasible, less harmful than OF,and that OF can be presented as an impending disaster sometimes?

There are differences and similarities. The similarity is I think this character as a technical fix. It is something we do instead of changing consumption, behaviours or changing other parts of the production of goods and services that we use. In that sense, both are about technical fixes. But they are very different in many ways. One of the very worrying thing about OF is that we are intervening in an open system which has not got any sort of boundaries containment.

You could argue that if you inject CO2 into the ground, there is no box, no fixed container, it is also slightly open ended, an open system. But still, the mobility of the gas is so restricted. An ocean which is swirling around is obviously much more... you can have a widespread impact after the release. I think there is a big difference there in terms of open versus closed systems. As you sort of implied, CCS is a slow thing, it doesn't have the same rapid effect that some kinds

of GE can have. Perhaps, OIF can be quite quick as well but I'm not sure about the time restrains there.

8. Regarding the ethics argument, do you think it could be different in the case of CCS and OF? You said it was an ethical problem mainly because it implies not changing our ways of consumption and not reducing our emissions because it is kind of a trick not to reduce them further. Is the ethical problem as acute with CCS? Because there is not as direct or rapid impact on the biodiversity, for example.

CCS is less problematic for these reasons but I think also... I'm a bit self conscious here. I see CCS as something reasonable, as something almost practical and almost doable. I am not that set against CCS. Sometimes, technical fixes work, at least to some extent. They usually create new problems and they are only partial solutions to the problem. But sometimes you have to be pragmatic and do it. I am not saying this is a crazy idea. There is a gradation there. But I am also quite conscious that I am looking at this from where I am, how I have been in this sort of culture for some time.

9. With OF, the issue of uncertainty would be more problematic?

Yes. I think there is a difference again. If we make another contrast between OIF and some of these stratospheric surface injection technologies, one of the problems with stratospheric stuffs is that it is very difficult to see how you can really make experiments and scaling up in a reliable and safe manner. I think maybe this problem in not so bad with OIF. I can see maybe how you could do experiments on different kinds of scales on marines as you go along without exposing the entire planet in one go. So maybe, there is also some new answers there between different kinds of GE in terms of uncertainties and risks.

10. You are mostly against it, right? To you, what would be the first and most important argument that balances out all the pro arguments?

The main argument would be that we are meddling with, we are trying to design, to take control over large open natural systems. And it is very difficult to see whether we would have enough knowledge and the right governance structure in place to ever do that in a safe manner.

11. Some people will want do it in the end. Who should have a say in this, who would have a responsibility, who would have the right to act? Should the general public be involved?

Very good question. It comes to what I was saying about upscaling. If you can start in a small scale and know something about the boundaries for the experiment and about the activity you are doing. That would limit the problem you are talking about, who is responsible and who should be involved. But ultimately, it becomes... you know the pacific ocean? Who is responsible for the Pacific ocean ? To be honest, this is part of the problem of climate change. Someone needs to do something right? But to say it's impossible, it is too simple of an answer.

12. Will it be possible to arrange a system like this, like we are doing for Climate

Change, we are finding responsible actors?

It is difficult to know what you are doing when it comes to OIF. I think the governance problem is different. Do I think it's possible? Yes, it might be. I'm not sure about the kind of institutions it would be. Can we do it? Yes, I think I want to believe in humanity to be able to do this. If you look at something like the ozone, the Montreal Protocol, we have managed to do relatively complicated things for the environment in a collaborative fashion before and we can do this again.

13. Do you think that the general public should be involved when talking about responsibility and rights to act? Because it is a very little known issue for the general public for now.

I have mixed feeling about this one. On the one hand, if this is a shared problem, everyone should in principle have a say about it. There are many novelties in all kinds of areas, and how can we expect everyone to get involved and have knowledge and have opinion about everything that is new and could potentially concern them? There are practical constraints. There are many things that concern me in principle and in practice perhaps, and I do not have enough knowledge about them. I would have a reservation in terms of direct participation.

I have a relatively strong faith in representative democracy. I think we can, to some extent, manage experts through the state, parliaments, etc. which means everybody does not have to be involved directly with every issue all the time. Having said that, if anyone wants to organize and get involved more, we should still inform people about what is happening. If someone chooses to be particularly more interested in this as compared to, say, new medicines or lots of other things, of course they should not be stopped and should be encouraged to get involved. But there are lots of practical problems why that would not happen with everyone. And also I think social scientists need to get real. With new technologies, we can attract people's attention and we can say "oh look, they do not know anything", well, of course they don't. We cannot keep on expecting that, it would get boring if nothing's else. But absolutely if some people want to be particularly interested, some activists, some neighbours next to some facilities or projects, of course they should be involved.

14. You mentioned you were quite skeptical mainly because of the unknown effects of OIF, that does not have boundaries. What do you think about the technological part as related to ethics?

Doing experiments can be ok. Technological issues are difficult, maybe not insurmountable but I think they are challenging. It is a question of whether you can really know what you are doing. You can learn more, and in ways that are potentially safe and defendable. There is one line of argument or critic which says something like: if you do it on a small scale, then you are on a slippery slope, then it becomes inevitable that you keep on doing it and you do it more and more. That argument has some weight but I do not think its impossible to stop the development of something. It can be done, it has been done before. It does not mean that all experiments are ethically defensible. It depends on how you do. In canada for example, the way there has been sort of clock and digger game, a lot of secrecy. Of course, all those things are difficult to defend ethically. But in principle, the technology and doing some experiments are ok.

15. You would agree that more steps should be taken? Some skeptics argue research

should be stopped right now because the balance between good and bad points is an argument to stop scientific research. Do you think more research should be done?

I am not very enthusiastic about this but I do not think we should ban it. Partly because we cannot put a boundary around it. There has been research in these sort of areas from old time before and when one started talking about OIF, it was framed and understood in a different manner. Look what happened earlier, before people started to talk about this as a climate change measure, to understand nutrition and ecology in the sea...

So for me, it becomes difficult to know how, then, do you know which research is OIF and which one is not. How can you ban the one and not the other. I do not think it is a practicable and defensible thing to say that we cannot do this. Because then you are regulating thoughts, intentions behind a particular kind of research. Maybe if you look into detail, there could be some kinds of experiments that would be obviously OIF experiments but I think it is certainly difficult to create that boundary and knowing what to ban and not to ban. I think it can be ok to carry out some experiments. I'm not absolutely enthusiastic about this solving our problem but yes ok, let's do it a little bit.

16. We became aware the issue is fragmented between actors. There's not a huge community struggling to make advances or some NGOs willing this process to stop. We have the feeling there is no a such a community as there is with climate change. Do you think there will such a community, a blogosphere on OF, do you think the controversy will get more attention from different actors?

Very good question, I really dont know. I also not sure that comparatively to climate change, it might be more, or equally at least, interesting to compare it to emerging technologies perhaps. So maybe why is it similar or different in some ways to other technologies such as GM foods... I would start comparing it to that rather than climate change as such. Is it going to cause controversy, be on a large scale or is it going to build up a lot of support? I do not know.

17. A more general question now. What is your opinion about the treatment of information by other actors? How is information dealt with regarding OIF? What do you think about the information conveyed by companies that are or were engaged in this technique or by some NGOs or UNESCO, about the language used, how is it put forward and do you think it is the right way?

It is presented in many different ways. There has been some sort of secrecy around and that is obviously a way of keeping information away from the public sphere.

What would be the reasons for establishing this kind of secrecy?

I am thinking again about the Canadian case, there was a way of avoiding government intervention, regulation. And presumably also to avoid protests. In other cases, there have been cases in australia of companies trying to sell OF for an offsetting thing. There was a marketing effort put into that. That was a very different way to handling information, which is also problematic I guess.

Then you end up with a very big discussion about offsetting, whether that is a good or a bad thing and also about the lack of standards. We could talk about how OIF is sort of presented as part of, in like in the Royal Society report and high profile reports like this on geoengineering,

alongside other kinds of, presented as one kind of geoengineering. I am not sure I have an opinion about that. Some of this is very narrowly scientific and some of it is probably good for its purposes so it is a bit restricted in terms of ethics and politics and dealing with genuine ignorance and uncertainty. But these kinds of discussions are also happening in the GE society. These kinds of arguments around OIF are not that difficult to find if you want to take part of the conversation. As a whole phenomenon, there is quite a lot of transparency and open controversy which makes it easy to find different points of view and different kinds of information.

18. You think there is nothing preventing people from getting information and getting involved, but that has not been put forward to a broader stage because in some kinds of situations it has been kept away from public eye?

I am sure media reporting about some cases, such as the canadian example, there has been quite a lot of media reporting around that controversy. That would be an example of mass public being involved and being reached. It has been part of broader engagement around GE as a whole from some NGOs for example.

19. Is there anything you would like to add?

If you need more people to talk to, there is a person called Duncan Mclaren who is doing a PhD at Lancaster. He has a background as an environment activist but he is also interested in ethics specifically of GE. He is now studying different kinds of ethical theories and perspectives and how they might apply to GE generally and he knows a lot about the technical side as well.