Is using the internet as carbon heavy as flying?

For this week's opening piece on technology I wanted to find out more about communications technology. Phones, computers and the internet have become crucial not just in my own life but also to the spread of the Transition movement, and an essential part of projects like Social Reporting. A book published last year, 'Greening the Media', reports that in 2007 emissions from electricity consumed by information technology were 2.5-3% of the total, and comparable with aviation, but this is not something my Transition group have yet discussed, nor something there seems much getting away from. So I spoke to my friend Toby Miller (co-author with Richard Maxwell, of Greening the Media) to find out more.

Sara: I was interested that the book considers the inputs and outputs of our technology use in an ecological, almost permaculture way.

Toby: That's very important. It's very easy when you have an object in front of you, to think of it only in terms of its utility, but very difficult to think about it in terms of labour and the earth, and equally difficult to think of it as having a life once it's passed out of our hands. We favour a life-cycle approach to consumer technology that highlights in equal measure the costs as well as the benefits of the gadgets we analyse.

Sara: I guess I hadn't thought about my phone ultimately being a product of the earth at some level, as technology just seems so disconnected.

Toby: That's right, it's hard to make these connections, but we think it's very important because one way in which people can act responsibly is to make themselves aware of the hidden environmental costs and share this knowledge.

Sara: So if in 2007 emissions from information technology were comparable with those from aviation, by now they must be far greater.

Toby: Well the chances are they are. Aviation was affected by the recession and although information and communication technology hasn't gone up consistently, overall the trend shows a huge increase. There is an issue of how we measure and compare these things – so server farms, ships taking divers to check if underwater cables are working correctly – which bit of that is part of your carbon footprint when you are on the internet? And you can also argue that if a computer stops you from doing other more carbon heavy things (like flying), over a period of time then it's worthwhile.

The question of measuring impacts also applies to the difference between reading a newspaper or book electronically versus in print. There's a survey that says well over three quarters of book buyers in the UK think that it's better for the environment to read on an e-book reader rather than buy a printed copy. And it's true that two thirds of the carbon footprint in publishing comes from paper, whereas e-book readers don't need pulping, printing or bleaching. There is just a one-off transportation of getting

More by Sara Ayech

More in Connecting stage

the e-book reader to you. So people say that the carbon footprint of a Kindle is off-set in a year. But, if you add the input of the production of the e-book reader, the raw materials, the manufacture, assembly, transport, plus its disposal, we're talking about lots of minerals, lots of water, the electricity for all that, generally powered by fossil fuels, and the emissions from that whole process. Then, there's the disposal of the device. Central processing units, which are in every computer, phone etc. have lots of toxins and carcinogens. Basically, there's no universal method for comparing the emissions from books versus e-readers.

Sara: But how about if I, for example, read the Guardian on my phone? I started doing that because I only read bits of it anyway and couldn't stand throwing stuff in the recycling bin that I hadn't even read. I use obviously use my phone for other things too – emails, Skype and sometimes even for phone calls, so doesn't that reduce the problem if you're using one device for multiple things.

Toby: Yes in one sense it does but cell phones have their own distressing part to play, both in environmental and human terms. They rely on very many dangerous minerals and gases. Plus a core ingredient is coltan which relies on mining, mostly done in Congo, by enslaved and frequently raped workers who are victims of the civil war. Coltan is then transported to China to be smelted into tantalum. The money for it has funded a war in which 5 million people have died.

Sara: I know about coltan and for 10 years I didn't buy a new phone and just used old Nokias, but in this age, particularly in a working environment, I found it difficult not to have one. This is particularly relevant for social and environmental movements which work across multiple geographical locations and where we need to communicate.

Toby: I of course realise that there are contradictions thrown up by these technologies.

Sara: But I guess even though it's uncomfortable it's important to deepen our understanding of their production because that's how we can start to look at how to challenge their production, look at our usage and especially at reuse and disposal.

Toby: Cell phones also rely on telecommunications masts, which disrupt the migratory patterns and everyday flying of birds all over the world, and result in the deaths of millions of birds a year.

Sara: That's unbelievable!

Toby: There are well over 100,000 of these masts in the US alone.

Sara: Also I guess the energy that internet servers use is massive.

Toby: There's a big debate about the carbon footprint of a Google search. Google and Facebook are big users of server energy. They use massive amounts of coal power, nuclear power and to a certain extent solar, but don't explain publicly either the amount or the sources of all this energy. There are also massive server farms which process web data. When we connect to the cloud we're not connecting to the sky; we're connecting to massive machines that have an insatiable appetite for electricity. Cloud computing is a misleading metaphor because these server farms are all too material, in their work and their environmental impact.

Sara: Your book also covers the conditions of workers who make mobile phones and iPhones.

Toby:. I went to China some years ago with my friend Andrew Ross. We weren't able to enter the factories because of armed guards and barbed wire, but we met young women on the one afternoon of the week they were allowed out, when they'd walk some distance to a midpoint from the next factory in order to share lunch with friends from their villages of origin. Their stories were very moving and quite shocking in terms of the alienation from intimacy they experienced along with an authoritarian corporate control of their everyday lives.

Sara: How do we respond to this in a Transition context? Clearly, an individual giving up their computer or mobile phone has little impact on such great problems – the server factories run on fossil fuels, working conditions in China, mining of minerals etc. Transition is a community level response so what can we do locally?

Toby: There are several things you can do without giving up mobile phones, you can connect to social movements around the world where people are trying to protect the workers.

Sara: In terms of big picture, do you think the Cuban model of repairing everything and making products last as long as possible, or the Peruvian model of self-assembly computers is the way to go?

Toby: Yes, but the limitation is two things: firstly, software upgrades are created by corporations with the idea of eventually requiring hardware upgrades for the software to work. Secondly, you still have to find ways of recycling the material, and in Peru for example there is no satisfactory system of recycling the components.

Sara: In the context of practical community action, is it useful to push councils for a disposal and mobile phone recycling policy?

Toby: Well yes, that's useful for the end of life of these products, but the raw materials and production are so globalised, and by such giant companies, that all you can do is urge manufacturers to be transparent and vigorous about monitoring life on the production line.

You can also talk to local government about where and how recycling is done. The problem is that they often don't have the resources to check whether companies recycle in a responsible way. A lot of the time, products which are supposedly going to less affluent consumers in, say, Africa, are not arriving in a usable condition and are just dumped.

Sara: For most people there will also be the balance against the benefits of technology – social movements like Transition have grown globally, in part because of the democratisation of communication. We don't need to rely on traditional media, we can create our own media with our own websites, blogs like this one, and through social networking like Facebook and Twitter.

Toby: These technologies and genres offer a fascinating blend of privacy and publicness. The problem is that in the rush to embrace the new cybertarian world, a cornucopia of meaning, we forget harsh material realities. E-waste is the largest growing category of municipal waste in the world, but our awareness has not kept up with this trend.

Sara: Beyond the environmental impacts of information technology, and the obvious benefits, in Transition, we are trying to re-localise food supply, economy, and buildings, and to live more slowly and in tune with the seasons. There's a danger that constant connectedness takes us in the wrong direction. In the end we cannot localise the mining of minerals and production on computers and mobile phones, and nor would we really want to. We either need to live with the compromise, or embrace slowing down again.

Images: 1. Image from the cover of Greening the Media (Oxford University Press); 2. Electronic waste (from Greenpeace UK website); 3. New server farm being built in the City of London (Sara)

Toby Miller's website - **www.tobymiller.org (http://www.tobymiller.org)**

Themes

Comments

Wow what a thought provoking

4 March 2013 - 5:23pm — Kerry Lane

Wow what a thought provoking post, thank you Sara and Toby.

I was particularly startled by the suggestion that the telecommuncations masts cause the deaths of millions of birds. Are there sources you can give me where I can find out more about this? It seems shocking that I have never heard of it.

The whole situation is very complicated and morally awkward, but you are totally right Sara that we need to start by raising our awareness of the issues as only through this will we come up with appropriate solutions. There is a really interesting book called eGaia written by Gary Alexander one of the Transition Network trustees and in this he envisions a sustainable world where they make plastic from tree resin etc, I can't remember all of the details, but I am wondering now whether he suggests any potential answers to the challenges above.

Hmm I am really interested to read the rest of the week!

Thanks Kerry, it's been such

4 March 2013 - 9:42pm — Sara Ayech

Thanks Kerry, it's been such an interesting subject to learn about but has left me feeling as though there isn't really a good solution, only compromises. I'd like to read eGaia though, and I think the rest of the week will be more positive and solutions-focused.

I'll ask Toby to post more info on birds. I hadn't heard this before either, it's pretty horrifying.

As someone who is still using

4 March 2013 - 10:10pm — Caroline Jackson

As someone who is still using a nine year old Nokia, I generally just feel out of the loop, dinosaur-like and disconnected! It was reassuring to see that there is some virtue to my situation. One of the things that most puts me off updating is the way that you can get drawn into the " must have" world of year on year improvements, ever more wonderful abilities and gizmos. Yes, you can do more and more stuff but there doesn't seem to be the time to decide whether the stuff you are doing is the best stuff to be doing. Sometimes I just want to run away from being connected to the world wide web - do other people feel like that or is it just being old that brings it on?!

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