3. Limitations of ICT in Fighting Climate Change

1. Freedom of Expression

The Internet is easily accessed by anyone who has a computer and internet connection. With user-friendly web platforms such as websites and blogs available throughout the Internet, any individual is able to express their opinions freely and easily. As such, people who are social dissents have posted articles and videos that decry the validity of the scientific truths of global warming, specifically the causes behind global warming. Such information is readily viewed by the international audience, and could distort truths and mislead people to dismiss efforts taken at reducing greenhouse gases emissions.

Climate change activists make use of the Internet to express their viewpoints and provide radical comments that influence public views. Such online information calls for for online users to question the creditability of the information and whether such information might provoke dangerous emotions through controversial or sensitive discussions.

Debates and criticism

One such group of activists is the GlobalClimateScam.com, which a activist network that disagree with governmental and missionary agenda on global warming. This group justified that such agendas were built on dubious unscientific data and invalid claims climate change. GlobalClimateScam.com aims to challenge proposed programs and solutions created by towering governmental officials. GlobalClimateScam.com believes that "There's a better approach to addressing the issue of global climate change rather than the campaign of mass hysteria being promoted by most of the media, much of academia, and many of the special interest groups that stand to profit from their "doom and gloom" pandemonium." The GlobalClimateScam.com website includes blog and video postings that expose global warming hoax and debates on claims and reports from the public mass media.

The Campaign against Climate Change is another group of climate change activist that were formed in the U.K. The Honorary President of Campaign against Climate Change said: "We need to put climate change right at the top of the political agenda — it is by far the biggest threat to humanity. We have to turn this into the primary political campaign. That means keeping on the streets, keeping up the demonstrations and putting an enormous amount of pressure on our politicians." On top of the doing demonstrations and campaigns, the Campaign against Climate Change also created its own activists portal, and profiles and groups on social networking networks such as MySpace and Facebook.

Also, some video clips were posted to internet to decry the truths, such as expressing vehement opinions against the notion that global warming is driven by man. See here.

Disinformation

Online hoax created by activists

The Rising Tide North America environmental/climate activists network made a false press release that announce that the U.S Climate Action Partnership (USCAP), which comprises of 33 corporations and nonprofit organizations, pledged to reduce greenhouse gass emissions by 90% by 2050 and immediate suspension of construction of all new coal power plants. The hoax was created to coincide with the United Nations Conference on Climate Change in Bali, Indonesia. The Rising Tide created one fake website www.climateactionpartnership.org for the false release and another website www.us-cap.org to imitate the USCAP[CC:1].

The website GlobalWarmingHoax.com provided a few kinds of features, like forums, news feeds, in order to gather the voice which is against validity of scientific truths, including videos, news, and articles. To show the climate change from a "historical and common sense perspective", and above all the perspective of dissenting scientists. The audience can share or bookmark the article easily by using the tools provided in website such as Facebook, Google, Yahoo, etc.

False videos created by activists

During January 2007, the international non-governmental organization for environmental protection and conservation Greenpeacemade up a fake video to embarrass Apple Inc. by showing Steve Jobs's pledge to create eco-friendly Apple products. The Yes Men group of activists who impersonate powerful people and spokespersons for prominent organizations for the purpose of humiliating them also showed false videos created using 3D animation to show a fake new Exxon oil product call Vivoleum, which was made from human flesh during Canada's oil convention in June 2007 [CC:2].

2. ICT's Two-fold Role

As seen in section 2, ICT serves as a major linchpin in the efforts to fight climate change. The versatility of ICT does not merely stop at empowering people at work, education and personal living; the appropriate harnessing of the power of ICT would aid in reducing carbon gas emissions into the atmosphere. However, ICT is in fact also a contributor to the upward spiral of greenhouse gas emissions.

The Global ICT Footprint

In 2007, analysis conducted by Gartner, a leading information technology research and advisory firm based in Stamford, has pointed out that the intense use of the Internet has contributed to 5.3% of the world's energy consumption while ICT in general is responsible for around 2% of the world's greenhouse gases emissions [CC:3]. In addition, the ICT industry's own carbon footprint is predicted to grow at 6% annually and double by 2020 due to greater uptake of technology in China and India, the two economic powerhouses, as well as the rest of the world [CC:4].

The global study predicts PC ownership will quadruple between 2007 and 2020 to 4 billion devices and emissions will double over the same period, with laptops overtaking desktops as the main source of global ICT emissions (22 per cent); mobile phone ownership will almost double to nearly 5 billion accounts to 2020 but emissions will only grow by four per cent; and broadband uptake will treble to almost 900 million accounts over the same period, with emissions doubling over the entire telecoms infrastructure.

The ICT sector must manage its own growing impact and continue to reduce emissions from data centres, telecommunications networks, and the manufacture and use of its products.

SMART 2020 Report

The 'SMART 2020: Enabling the low carbon economy in the information age' report highlighted that the ICT sector can help to reduce greenhouse gas emissions, encourage energy savings, and assist efficient and low carbon production. ICT can also provide the means to reduce greenhouse emissions of other sectors, which could result in much more carbon savings and cost savings than the total savings in the whole ICT sector in 2020. The ICT sector could reduce emissions by 7.8 GtCO2e (Giga/Billon tonne Carbon Dioxide equivalent) in 2020 which corresponds to 15% of emissions in 2020. This also meant an estimated 600 billion cost savings.

Reduction of emissions from PCs and peripherals, data centres, and telecoms device

The ICT sector (consisting of personal computers (PCs) and peripherals, telecoms networks and devices and data centres) contributed to about 2% of the estimated total emissions from human activity in 2007, with a quarter of the emissions coming from the ICT materials and manufacture and the rest from ICT use. The SMART 2020 report provided several practices to reduce emissions from three main areas: PCs and peripherals, data centres, and telecoms device.

PCs and peripherals

The use of PCs has grown ubiquitous over the years which also increased the global carbon emissions. The increase in PC computing demand is expected to be compensated by advances in power management and two major technology developments by 2020.

Laptops are expected to largely replace desktop PCs, which today accounts for 84% of the market, by 2020. It is estimated that 74% of PCs will be replaced by laptops. The other technological advancement is the production of low energy alternatives of cathode ray tube (CRT) screens.

Other forms of energy reduction technological breakthroughs include solid state hard drives, choleristic LCD screens and direct methanol fuel cells.

Data centre

The data centre buildings, which contains servers, storage devices, power supplies, fans and other cooling equipments, has increased with the evolution towards the "information age" where large amounts of data is requested, stored and used. Such increase has lead to an increase in the generation of carbon emissions.

Virtualisation technologies will allow pooling of resources when their usage is low to allow the resources to be used by other areas of the enterprise. Virtualisation could reduce emission by 27% with good planning of service delivery and resources pooling.

A further 18% reduction is expected by 2020 with the use of technologies to check high temperature sections of the data centre and shift direct cooling to those sections. Some other ways to reduce energy usage due to the use of energy for running back-up, power supplies and cooling systems includes reducing the air conditioning and allowing the external environment to cool the data centre when climates is cool.

Telecoms devices

It is predicted that the growth of China and India will increase the use of telecom devices such as mobile phones, Internet Protocol TV (IPTV) boxes and home broadband routers, resulting in increased carbon footprint.

Most of the mobile devices carbon emissions originated from the standby mode, which is the power is used by chargers that are plugged in but not being used. The adoption 1W standby standards and the use of "smart charger" (charger which turns off when mobile device is not plugged into the charger) can help compensate the forecasted growth of mobile accounts to 4.8 billion in 2020.

3. Inability of ICT to stand as an independent solution

Although ICT is increasingly being recognised as one of the strongest candidates among all industry sectors to lead in the fight against Climate Change, ICT alone is insufficient to conclude sustained success. ICT needs to be complemented with other solutions or measures to improve and support its role in fighting climate change. ICT technologies and hardware has to be accompanied with the common standards and skills. Incentives for business to adopt and spend on carbon reduction technologies are also crucial to tackle climate change. [CC:5]

The ICT sector needs the support of environmental organisations, communities, governmental authorities, and other industries to realize its potential to reduce greenhouse gases emission. Government regulation, information and education, and research & development are key areas to look into in order to make big changes. Projects financing and proper implementation of standards, supporting policies and secure communications within and between sectors also accounts for the success of ICT in combating climate change. [CC:6]

"PCs, mobile phones, and the web have transformed the way we all live and do business. Global warming and soaring energy prices mean that re-thinking how every home and business uses technology to cut unnecessary costs and carbon is critical to our environment and economy. **Supported by innovative government policy**, ICT can unlock the clean green industrial revolution we need to tackle climate change and usher in a new era of low carbon prosperity." *Steve Howard, CEO, The Climate Group.*

"This rigorous assessment underlines that the world can realise a green economy and make the transition to a low carbon economy. It also underlines the **crucial importance of the international community reaching a deal on a new climate agreement** at the climate convention meeting in Copenhagen in 2009." *Achim Steiner, UN Under-Secretary General and Executive Director, UN Environment Programme (UNEP)* [CC:7]

"If we are to better use ICT technology to move away from existing energy intensive work habits and lifestyles, **we need government policy innovations, incentives for companies and the active participation of consumers**." *Tang Min, Deputy Secretary-General, China Development Research Foundation*

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