EDITORIAL

Scientists have to work with the public – not the politicians – to fight climate change

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'I knew I was in trouble the other day when I found myself bargaining with a starfish' writes Naomi Klein in her most recent book, *This Changes Everything – Climate vs. Capitalism* (Klein, 2015). 'What gets me are not the scary scientific studies about melting glaciers, but the books I read to my two year old.'

Klein is a well-known author and activist, known for her books No Logo (Klein, 1999) and The Shock Doctrine (Klein, 2008). Capitalism is a major theme of both - No Logo criticizes consumer capitalism fostered by covetous and ruthless corporations, while The Shock Doctrine explores how capitalism benefits from disaster - examining cases from Pinochet's Chile to the aftermath of Katrina in New Orleans. In This Changes Everything - Climate vs. Capitalism she considers how capitalism has created a dangerous 'throwaway culture' that sacrifices goods and natural resources for gain and profit. The birth of her son caused her to confront the current fragility of the natural world and the animals that may not live past her son's lifetime; the starfish being one of them. After the sea star wasting disease in 2013, Klein pondered on the tragic disintegration of thousands of starfish due to rising water temperature, 'I caught myself praying for the invertebrates to just hang in for just one more year long enough for my son to be amazed by them ...' (Klein, 2015).

This editorial serves to depart from the 'scary scientific studies' that the non-scientist, such as Klein, prefers to avoid. Rather, there is a focus on the human element in the fight for marine conservation, in order to gain wider public support for creating and nurturing activist movements that can influence governments to change policy. 2015 was not a good year for government infrastructures that support climate action. In the UK, MPs approved fracking in national parks, while cutting valuable subsidies for solar panel installations. Even though China has become the world's largest wind turbine producer and is investing heavily in renewable (http://www.renewableenergyworld.com/articles/2015/ energy 11/china-s-investment-in-renewable-energy-surpasses-europe-us-combined.html) it continues to build contaminating coalmines abroad - currently pursing massive coal-based energy projects in Vietnam and Pakistan. In addition to this, in an attempt to prove their ownership of the South China Sea, Chinese fishermen have ruthlessly destroyed Philippine coral reefs. The lacklustre results of the 2015 United Nations Climate Change Conference – COP21 (http://www.cop21paris.org/) show once again that, after 20 years of UN negotiations, such conferences serve only as inflated diplomatic talk with little evidence of meaningful action.

Talks between scientists and politicians are not enough – governments and global institutions have been given extensive empirical evidence from pragmatic and scholastic research that demonstrate the truth of climate change and emphasize the clear correlation between the changing climate and the use of fossil fuels. Despite this, not enough is being done and we have arrived at the point where we are used to witnessing destruction and devastation in all aspects of the nature that surrounds us.

Klein is on the Board of Members at 350.org, a grassroots movement that seeks to unite 'ordinary people' to create solutions and pressure world leaders to commit to limiting emissions. This year she worked with director Avi Lewis on the documentary This Changes Everything, a film inspired by the book, highlighting the successes of campaigns that local communities have had in fighting energy companies and challenging unsustainable government models. While appearing at the 2015 Copenhagen Documentary Festival, Lewis and Klein talked about how activism is the most effective way to create positive change; 'Politicians the world over keep underestimating how much people care about the issue of climate change' says Lewis. 'We can see people responding in extraordinary ways, like seeing half a million people on the streets of New York last year campaigning for measures to tackle climate change. However, the political class wakes up very rarely to this fact.'

Klein and Lewis have spent extensive periods of time with indigenous communities in their home country Canada. 'In Canada there has been a massive rise of indigenous activism' comments Lewis. '... in fights against pipelines and Fracking we have seen indigenous leaders teaching non-Native allies how to lead from an indigenous world-view. There is a new understanding.' Klein adds to this, 'That is also true of the Shale protests in the Arctic, where local communities gathered – you could see traditional kayaks surrounding that rig. There are a lot of value-based movements right now asserting that everybody is equal. It ties into a rejection of the consumerism. There is a rejection of this culture that treats goods as disposable, that treats the Earth as disposable, that even treats people as disposable.'

While Klein sees capitalism as a major factor in the phenomenon of global warming, she admits there is more to the story than that. This is why she and Lewis strayed from the capitalist argument in the film, '... the intellectual conversation is a really important one, and Naomi goes into that in the book' explains Lewis. 'But I didn't want to connect to that in the documentary, I wanted to connect to human stories, and find a conversation between the big ideas and the lived community experience.'

The intelligent conversation is indeed significant and scientific research is fundamental in convincing governments to adopt sustainable policy. However, it is social movements that will create the most radical change in the limited time frame our climate has. While it is worthy and important to note the efforts of the thousands of protestors at COP21 in Paris last year, it is still not enough to see sporadic marches take place in various localities by those affected communities. Everyone needs to be fighting this battle, all the time. The interest in the Natural World is undeniably present - broadcasters such as the BBC, Channel 4 and Discovery frequently air nature-focused programmes that attract a global audience. Many series are stunningly captured, educational and well funded, using the latest technology to highlight the wonders of natural life. While the message of such shows focus on the beauty, amazing diversity and fascination of both terrestrial and marine life, there is scant mention of the dangers facing the natural environment in the wake of climate change and man's remorseless exploitation of the earth. It paints a worryingly comfortable 'armchair/coffee-table book image' of the world around us. With such a captive audience, surely this presents a golden opportunity to publicize the predicted impact of climate change and other threats to this 'perfect world'. Similar concern has recently been voiced by Martin Hughes-Games, one of the high-profile presenters of the immensely popular BBC Spring-, Autumn- and Winterwatch programmes. In an article in The Guardian, Hughes-Games stated that wildlife programmes had become 'a form of entertainment, a utopian world that bears no resemblance to the reality' (Howard, 2015). In the last episode of the recent BBC series The Great Barrier Reef, presenter David Attenborough meets with both scientists and President Obama in a bid to raise awareness about the reef's destruction. It was a worthy and powerful example of combining televised entertainment with educative social awareness - one that should be embraced by all future media projects.

The clock is ticking, as continued ignorance causes more irreversible destruction to our climate and marine life. There seems now, therefore, a real opportunity for a new media approach that in an accessible and measured way exposes the potential impact and predicted changes (both 'losers and winners') in the brave new world of climate change. One way to achieve this is to develop our outreach and education programmes in marine biology and do more than show the public the beauty of our world but also highlight the sensitivity of our ecosystems. Scientists need not limit the evidence of our fragile, deteriorating planet to academic journals and government bodies – it needs to be broadcast to global citizens. It is only through the involvement, actions and voices of the wider public that pressure can effectively be applied so that politicians prioritize sustainability.

It is clear, and in part this editorial serves as a timely reminder, that scientific evidence is ineffectual without public engagement and understanding.

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