



Reading Reflection #2 - Ash and Jackson

8 Jan at 18:54

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[Jackson Herron](#)

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Jackson Herron

1. Describe key factors/events (political, economic, environmental, etc.) related the development of the science behind global warming, as well as efforts to regulate global emissions in the last century.

In the 1930's began some of the first serious efforts at understanding global cycles of heat and chemicals (e.g. Nitrogen, carbon, water). Through the 1940's and 1950's there was an escalation of state sponsored science as part of the war effort - major players being the United States and Russia. The United States, especially was interested in understanding the distribution of nuclear fallout and the Navy and Airforce sponsored a lot of climate science. In 1957 Roger Revelle posted a paper describing the increasing CO2 concentration in the atmosphere, which revealed that most CO2 was not being absorbed by the ocean as previously thought. In the 1970s came the debate over supersonic air travel. Since European firms were in the lead on the technology, the US stalled the permitting with an extensive environmental review process, and eventually the Concorde jets never came into widespread use. The environmental review focused on potential cooling due to the contrails. The environmental review process established the concept of "Integrated Assessment" - assessing the whole chain of causes and effect in pollution from demand, to technology, to impacts. The 1970s and 80s also saw global regulation of Ozone pollutants, which was the first global regulation of an atmospheric pollutant. Regulating the ozone layer was comparatively easier than regulating climate change because ozone pollutants were fairly inexpensive to replace compared to CO2 emissions. Around the 1980s general scientific consensus around global warming became widespread, though the science had existed since Revelle. The first global institutions and conventions to regulate climate developed through the 90s and 2000s. The 2015 Paris Accord was a landmark negotiation for global attempts to regulate climate warming pollutants.

1. Describe the scientist's myth, the environmentalist's myth, and the engineer's myth.

Scientists Myth

Policy follows scientific consensus. The most common result is drawing a red line in the sand about how much pollution can be emitted before serious harm is done, such as 2 °C warming. This is both difficult to quantify, and unrealistic to be achieved. Policy should instead focus on what countries are willing and able to do, and cutting carbon emissions as fast as possible.

Environmentalists' Myth

Global warming is strictly an environmental problem, i.e. harm being done to nature. In reality global warming is an economic, social, and environmental problem. The chief cause of global warming is burning fossil fuels, which basically provide energy to the entire global economy. Cutting fossil fuel use has extreme impacts on the economy. Additionally the impacts of global warming (and policy changes to regulate it) will have significant impacts on people, not just nature.

Engineer's Myth

Technological innovation leads directly to implementation. In reality technology takes years/decades to grow and mature and reach full penetration in the market. It is never clear from the beginning that a technology will succeed, because it must compete against scaled technologies to successfully enter the market. Decarbonizing will be a process of slow economic development that will require unprecedented cooperation between firms, technology, markets, and policy.

Ash Misra

1. Describe key factors/events (political, economic, environmental, etc.) related the development of the science behind global warming, as well as efforts to regulate global emissions in the last century.

Global warming, through this reading, seems like a discovery in itself. Scientists in the 1950s were originally tracing CO₂ to determine geophysical cycles when they realized the rising levels (pg 34). In the 1970s the first assessment of global climate research was conducted and set a precedent for how integrated climate studies could be conducted in the future. As studies continued, and the threat of a disappearing ozone layer became apparent, a push for environmental policy rose in the 80s culminating in the Montreal Protocol. This treaty was notable because it was a landmark for environmental policy and had the support of governments and industries world wide.

What is important about the Montreal Protocol, a limit on CFCs, is that it was not expensive to regulate. This is a key factor because current climate policies call for change that is much more expensive to manage. These include changes to infrastructure, limitations on manufacturing industries, and rapid development of green technologies. Unfortunately the cost associated with limiting carbon provides incentive for companies to move elsewhere - to cheaper, less regulated places. These places, developing countries, often do not have the money to create green infrastructure nor ability to enforce environmental regulation. Thus the problem of climate change is extremely difficult to regulate in a landscape driven by capitalism and globalization. In this way global warming science is an uphill battle to prove the need for regulation when met with increasing resistance by policy bodies - at least in North

America.

2. Describe the scientist's myth, the environmentalist's myth, and the engineer's myth.

Scientist's Myth:

The scientist myth believes that once science has established quantifiable changes, policy will follow to mitigate those changes. However this is not true. Mere numbers and statistics do not translate to the impact climate change creates for communities and it is therefore difficult to create policies. In addition while scientists can give data they do not have all the information on the culture of places and their outlooks toward climate change. It is easy to say X, Y, and Z country must cut their emissions in half but a more realistic policy could account for the unequal economies of those countries and say. X and Y must cut their emissions by $\frac{2}{3}$ and Z only by $\frac{1}{3}$. Thus the scientist myth creates an unrealistic expectation for policy to follow science in both an efficient and effective manner.

Environmentalism's Myth:

The environmentalist myth is the problem of belittling climate change to just an environmental issue. While global agreements do encourage participation from all countries in climate change mitigation, they do not create an equal system. Global agreements are generic and create a "gridlock" of regulations that are not customized to each country. If climate change is looked at through the perspective of an economic problem, rather than environmental, it opens up international regulations to more malleable agreements that are more representative of the multifaceted problem that climate change is.

Engineer's Myth:

The engineer's myth is that once a new technology is created and enters markets the price will rapidly fall, and performance increase, making it commercially viable and desirable for the masses. This myth encourages simple policies to make green technologies competitive based on subsidies and artificial market (pg 56). However, this optimistic outlook only looks at successful technologies and does not account for the slow diffusion of large scale technologies nor the many green technology solutions that failed at market. Creating policy based on the engineer's myth is difficult it relies on unclear market information, imperfect technologies, and market luck.

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[Alexis Lytle](#)

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8 Jan 2019

Jackson: 3/3

Very comprehensive overview of history of climate change throughout the last century. Clear and succinct definitions of each of the myths.

Ash: 3/3

Excellent description of the Montreal protocol and its impact. Insightful definitions for each of the myths.

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[Taran Bains](#)

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Jackson - 3

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