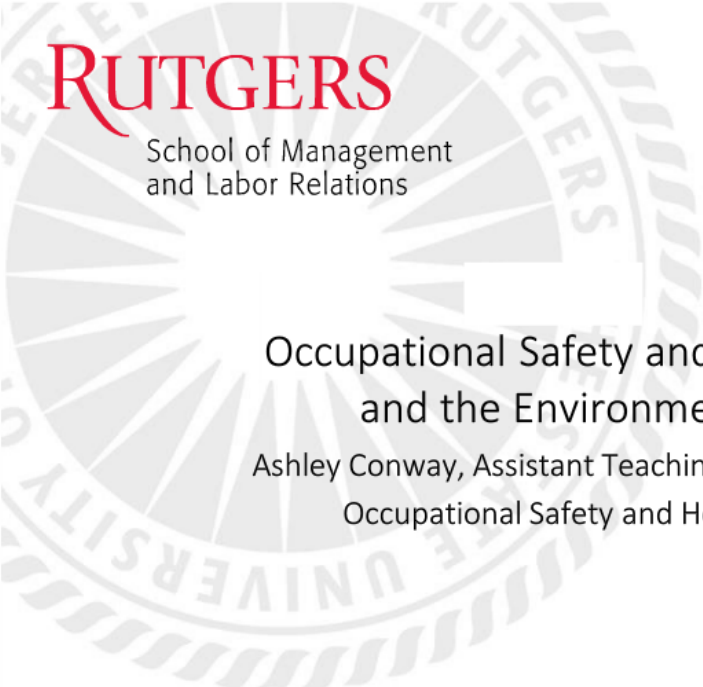




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School of Management
and Labor Relations

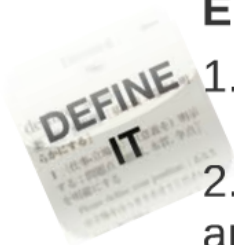
Occupational Safety and Health and the Environment

Ashley Conway, Assistant Teaching Professor
Occupational Safety and Health

Why study the environment in an occupational safety and health class?!

When inside the factory becomes outside the factory

Environment:

- 
1. The circumstances, objects, or conditions by which one is surrounded
 2. The complex of physical, chemical, and biotic factors (as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival

- Merriam Webster dictionary

There is a strong relationship between occupational safety and health and the environment. As you read in the Eula Bingham* article earlier in the semester, this is driven by what happens when “inside the factory” becomes “outside the factory” as hazards in the workplace increase risk in the environment outside of the workplace. It follows then that some of the potentially strongest coalitions are between entities that have a stake in these two areas.



* Eula Bingham - Director of OSHA 1977 - 1981, pioneer researcher of chemical carcinogens, and champion of right-to-know legislation.

Linking environmental and occupational health:



How are environmental and occupational safety and health issues linked?

- 1) The main link between the workplace and the general environment is that the source of the hazard is usually the same, whether it is an agricultural activity or an industrial activity;
- 2) The identification of environmental health hazards often comes from observations of adverse health outcomes among workers; and
- 3) In order to control health hazards, a common approach may work effectively in both settings (workplace and community).

Workplace hazards cannot be viewed in isolation from the environment they exist in. Because of this some occupational safety and health professional organizations have changed their names from “occupational” to “occupational and environmental”. This change is an acknowledgement that practitioners in occupational safety and health are increasingly devoting their attention to environmental health hazards both inside and outside the workplace.

An example of this is the occupational safety and health journal, *New Solutions: A Journal of Environmental and Occupational Health Policy*. The journal was established by Tony Mazzocchi, the leader of the Oil, Chemical, and Atomic Workers Union, and a pioneer in the effort to join the labor and environmental movements, and by Charles Levenstein of the University of Massachusetts Lowell, a leading work environment policy researcher. The journal was formed to meet the task of “building bridges between the environmental and labor movements.” *New Solutions* editors describe that the journal has identified conflicts between these movements, and sought to promote a dialogue about the challenges of establishing ecologically sound, just, and healthy and safe modes of production and consumption. The mission of the journal is to “seek new solutions that are historically and scientifically grounded and can be realistically pursued to establish a sustainable future.”

Source: Yassi and Kiellstr; Slatin, C. et al

What do labor and environmental partnerships look like in the 21st century?

Partnerships and alliances have evolved out of the shared interests presented in the previous slide. How strong are these partnerships and do they have a positive effect on the state of occupational safety and health? This week, you will explore the nature of partnerships between advocates for worker health and safety and advocates for the environment.





A look back at the 1999 “Battle of Seattle”

In late November 1999, over 40,000 protestors began gathering in Seattle at the site of the World Trade Organization’s (WTO) conference of world trade negotiations. Protestors representing local, national, and international groups had been planning the WTO demonstrations against globalization for months and included organizations concerned with the environment, consumer protections, and worker’s issues. The AFL-CIO organized a rally and a march using official permits. Although Seattle was the site of some civil disobedience and illegal actions (such as blocking streets and breaking windows) by self-identified “anarchists”, the official activities (including educational sessions) were peaceful, organized, and closely marshalled by union volunteers. By the medias’ (such as the Seattle Post-Intelligencer and the New York Times) own admission, coverage of the events in Seattle were biased and presented greatly exaggerated coverage of the illegal activities of a small minority of demonstrators and failed to cover the peaceful, law-abiding actions of the vast majority of Seattle protestors. The Battle of Seattle was considered significant because a new coalition of environmentalists and union members and workers were highly visible for the first time.

An environmentalist’s opinion:

“In the past, environmentalists and union members have often been at odds, with some unions seeing environmental laws as a threat to jobs, and some [environmental] conservationists blaming workers for their bosses’ policies. But that was then. Consider now the scene on the streets of Seattle on the first day of the 2000 World Trade Organization World meeting: On the one hand, environmentalists dressed as sea turtles protested the WTO-mandated weakening of laws protecting the creatures; on the other, Teamsters protested the WTO’s tolerance of member countries that refuse to allow workers to organize. A spontaneous chant arose from the turtles: “Turtles love Teamsters!” The truck drivers responded: “Teamsters love turtles!” Looks like the beginning of a beautiful friendship.”

- Paul Rauber, Sierra Magazine

What do
you think?

Why was this alliance seen as so unlikely?

What are differences between the two groups? What do they share?

Over two decades later, do you think (as was Rauber’s hope) that the alliance continues?



Are Blue-Green coalitions sustainable?

3 reasons blue-green coalitions are more sustainable in the 21st Century

Increasing political and environmental crisis	Growing depth of relationships between parties	New organizations and institutions created with explicit environmental & labor concerns
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Since "Battle in Seattle," when union members and environmentalists proclaimed their appreciation for each other, there has been speculation over whether the coalition between "blues" (as in blue collar) and "greens" (as in turtles and trees) would last.

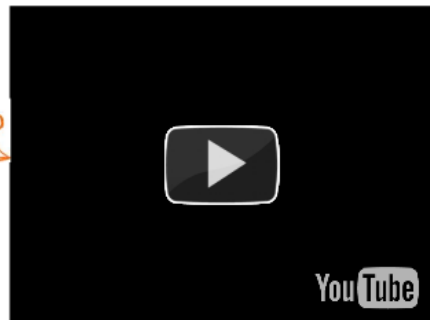
This blue-green alliance has had an on-again, off-again relationship. One reason is the core need of unions to protect the jobs of their members. Generally, unions seek to expand jobs, while generally environmentalists hold that economic expansion threatens the sustainability of life on the planet and that development needs to be reexamined.

Despite these and other differences, Lewis, Gould, and Roberts hold that blue-green coalitions may be shifting toward more enduring relationships for three reasons: 1) increasing political and environmental crises, such as climate change; 2) the growing depth of relationships between the groups, as well as the development of new relationships through pro-active communication forums; and 3) new organizations and institutions being created whose goals are explicitly tied to labor and environmental concerns.

In 2013, blue-green alliances continued to be the object of speculation. A literature search shows that there are many examples of labor and environmental partnerships and initiatives (for instance, the AFL-CIO's Blue-Green Alliance - <http://www.bluegreenalliance.org/>).

Since 1999, crises such as the 9/11 attacks; the financial crisis or "Great Recession" that began in 2007; sharp increases of extreme weather events; and a greater public knowledge about climate change have brought new perspectives that have strengthened shared concern over health and safety issues. But, in some cases, these crises have also increased old tensions.

WATCH
THE VIDEO



Blue Green Alliance. (2009) America Wants Green Jobs. (0:30)



New Jersey Work Environment Council

One example of an organization comprised of labor, environmentalists, and community groups is the New Jersey Work Environment Council (NJ WEC). NJ WEC's stated mission is "... working together for safe, secure jobs, and a healthy, sustainable environment. WEC links workers, communities, and environmentalists through training, technical assistance, grassroots organizing, and public policy campaigns to promote dialogue, collaboration, and joint action."

NJ WEC is a "COSH" or Committee for Occupational Safety and Health.

How did these groups come together to form an organization?

Environmental and labor activists in the New Jersey Right to Know Coalition, which won the nation's strongest state right to know law in 1983, formed the New Jersey Work Environment Council (WEC) in 1986. Between 1986 and 1996, WEC programs were coordinated with the New Jersey Industrial Union Council, AFL-CIO, a statewide labor federation, and the New Jersey Right to Know and Act Coalition, a network of environmental, community, public health, and labor groups. In 1999 WEC transitioned into a statewide membership coalition, building on its base in the labor movement and work with environmental and community organizations.

NJ WEC's focus:

- Right to Know and Act to Prevent Toxic Exposures in the Workplace and Community
- Chemical Safety and Security
- Environmental Justice
- Healthy School Environments
- Workplace Safety and Health

NJ WEC's funders:

- Educational Foundation of America
- Environmental Endowment for New Jersey
- Environmental Support Center
- Ford Foundation
- French-American Charitable Trust
- Fund for New Jersey
- Nathan Cummings Foundation
- The National Council for Occupational Safety and Health
- New Jersey Department of Labor and Workforce Development
- New World Foundation
- New York Community Trust
- Occupational Safety and Health Administration, U.S. Department of Labor
- Public Welfare Foundation
- Schumann Fund for New Jersey
- Tides Foundation-Alki Fund
- Unitarian Universalist Veatch Program at Shelter Rock

Follow the money! Knowing where money comes from can tell you a lot about an organization's goals and motives. If you are researching an organization and are unable to find its funding sources - keep looking! Lack of transparency and openness about how a group is funded often leads to interesting discoveries. Is there something to hide? What are the agendas of the funders?

For example, the funders of WEC were easy to find on the organization's website and I learned that the funding sources are broad and appropriate for the WEC mission.

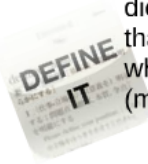


- NJ WEC website at <http://www.njwec.org/>



Divided we fall

* What is a false dichotomy? The fallacy of false dichotomy is committed when the arguer claims that his or her conclusion is one of only two options, when in fact there are other possibilities (mind.ucsd.edu).



another false dichotomy!

DO YOU WANT TO DONATE \$15
TO FEED STARVING CHILDREN,
OR DO YOU HATE CHILDREN?



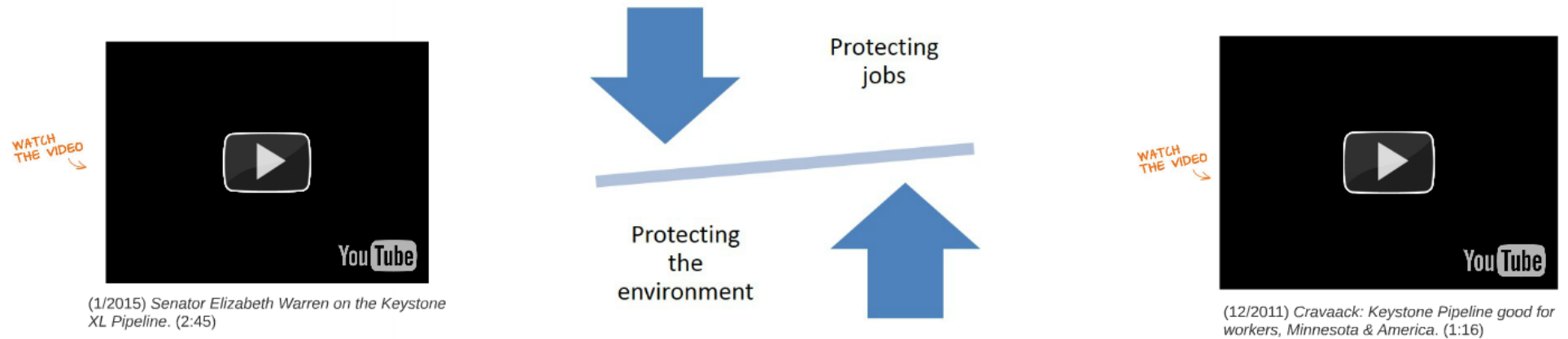
Advocates of occupational and environmental health promote alliances between workers and community members to address shared health problems resulting from industrial processes. These alliances can influence stronger standards being enacted and the enforcement of those standards. However, the tactic of pitting workers and community members against each other has been successfully used by threatening job loss when improved industry standards are called for.

When groups can successfully be divided on the basis of protecting jobs versus protecting the environment, other divisions are reinforced. For instance, the dichotomy shown in the next slide further encourages class divisions between working class and middle class.

For coalitions of workers, unions, community groups, and advocates for the environment to thrive it is important to understand how framing the issue as “either/or” feeds fear and mistrust on both sides. As you learned in Week 3, *how* information is presented and *who* gets to frame an issue have an effect on the decisions individuals make about what risks are acceptable. Understanding and acknowledging different ways of seeing the same issue and identifying shared interests are part of the process of building a successful coalitions.

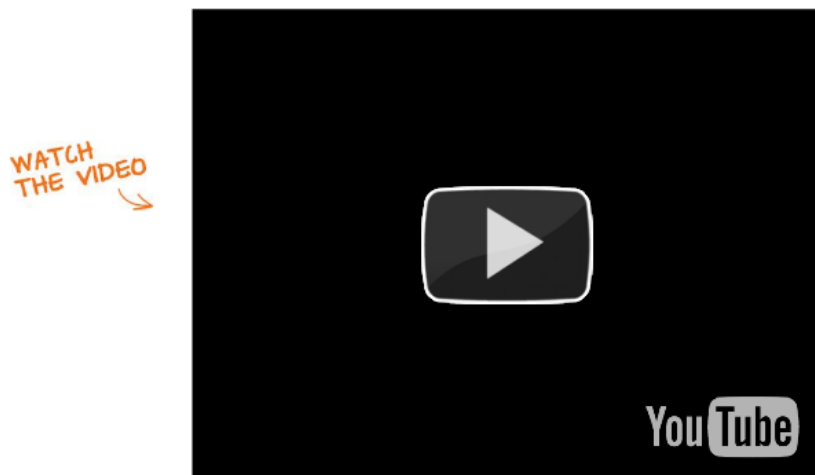
According to Zoller, “Jobs versus health” threats represents a false dichotomy*. Occupational safety and health and environmental advocates hold that health improvements rarely affect profitability and often result in greater economic advantage (Goodstein) and corporate good will. As concern about the environment becomes more mainstream, perceiving jobs and the environment as either/or is less acceptable to the public. This has resulted in a greater acceptance of a sustainable economy that produces both healthy jobs and clean communities.

Jobs and the environment - either/or? The XL Keystone pipeline case.



The XL Keystone Pipeline will transport tar sands extracted oil from Canada across the US to ports for international shipment. In 2015 President Obama rejected the proposed pipeline construction. In January, President Trump signed executive orders that will advance the construction of the XL Keystone pipeline and the Dakota Access pipeline. Both oil pipelines continue to be a hot topic that is debated in Washington and in the media. The "jobs v. environment" dichotomy is central to this debate.

You may recall that reasons why the production and transport of tar-sands oil is opposed was presented in the Naomi Klein TEDTalk "Addicted to Risk" in Week 6.



CNN (11/6/2015) Obama rejects Keystone XL pipeline. (3:01)



FoxNews Phoenix. (2017) President Trump Issues Presidential Permit For Keystone XL Pipeline. (5:57)

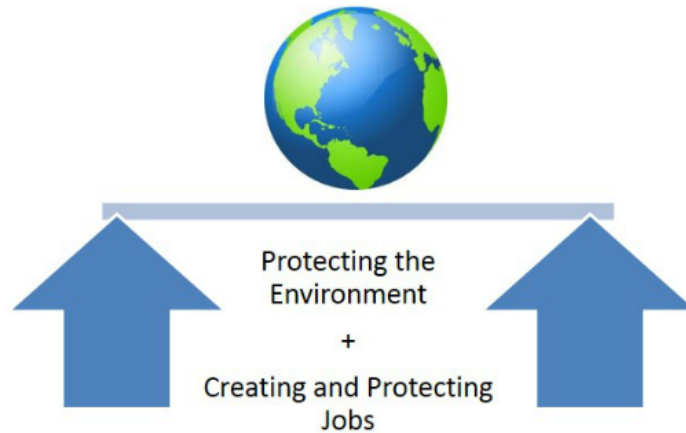


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FoxNews Phoenix. (2017) *President Trump Issues Presidential Permit For Keystone XL Pipeline.* (5:57)

Jobs or the environment - either/or?



The claim that stricter environmental regulation interferes with free-market commerce is often made by business. Unions often oppose environmental regulation because it is seen as hampering job creation. The New York Times article, "A Debate Arises on Job Creation and the Environment", will give you a closer look at both sides of this argument.



A link to the article is on the Week 10 page in Canvas

WATCH
THE VIDEO



Media Matters 4 American. (2012) *To Infinity And Beyond: Keystone XL Jobs Claims Spill All Over The Map.* (1:36)

2/25/2015 - President Obama vetoes legislation to authorize construction of Keystone XL pipeline, rebutting Republican efforts to force his approval; decision is derided by Republicans and hailed by environmentalists, opposing sides in what has become partisan and largely symbolic clash.

3/5/2015 - Senate fails to gain two-thirds vote needed to override Pres Obama's veto of bill that would have approved construction of Keystone XL oil pipeline; vote was 62-37, and defeat was expected.

November 6, 2015 - President Obama rejected TransCanada's application to build the Keystone XL Pipeline on November 6, 2015.

Source: *The Hill*, accessed November 6, 2015

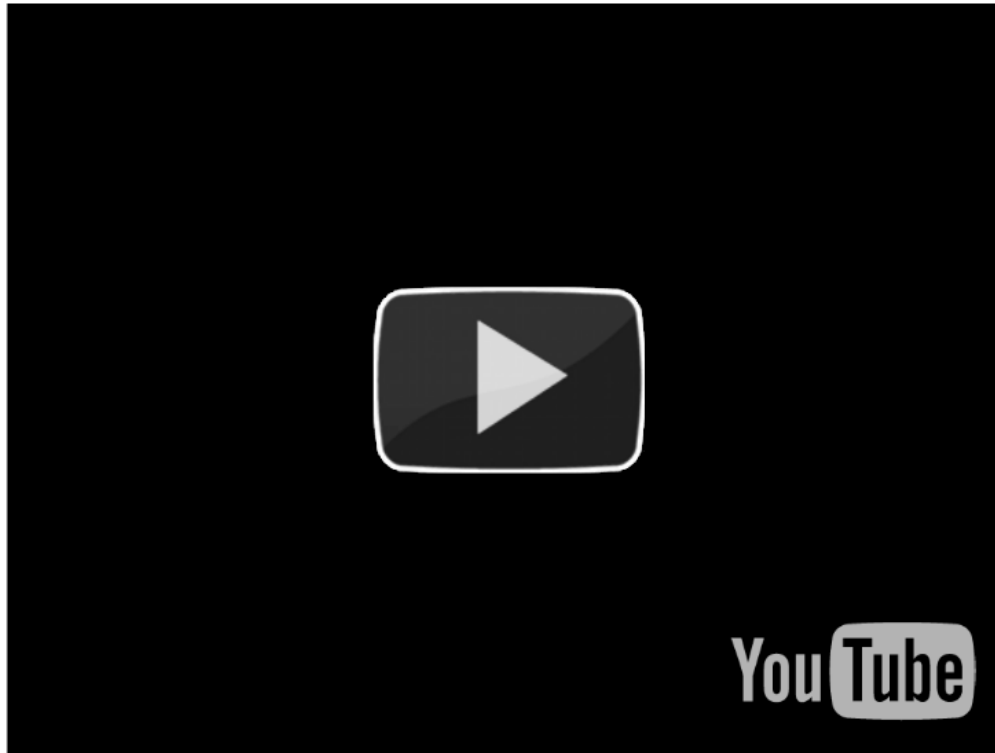
WATCH
THE VIDEO



Wochit News. Nov. 11, 2016. *McConnell Asks Trump To Move Swiftly On Keystone Pipeline.* (0:47)

President Trump approved the XL Keystone Pipeline and repealed President Obama's veto. It is uncertain if the pipeline will be the job creator of hundreds of jobs that TransCanada promises; whether there is a market for the expensively extracted oil; and whether there will be any positive affect on the US economy. What is more certain is that the Canadian Tar Sands have already created environmental problems.

WATCH
THE VIDEO ↘



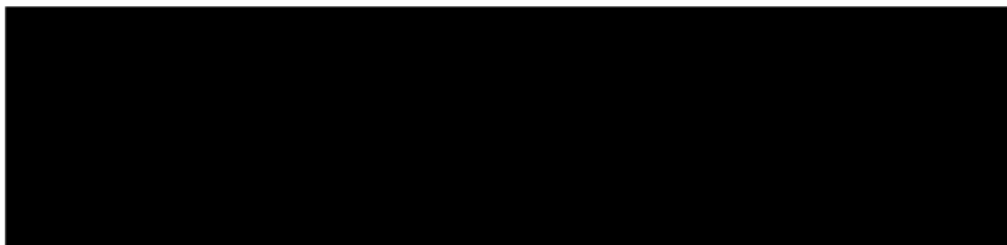
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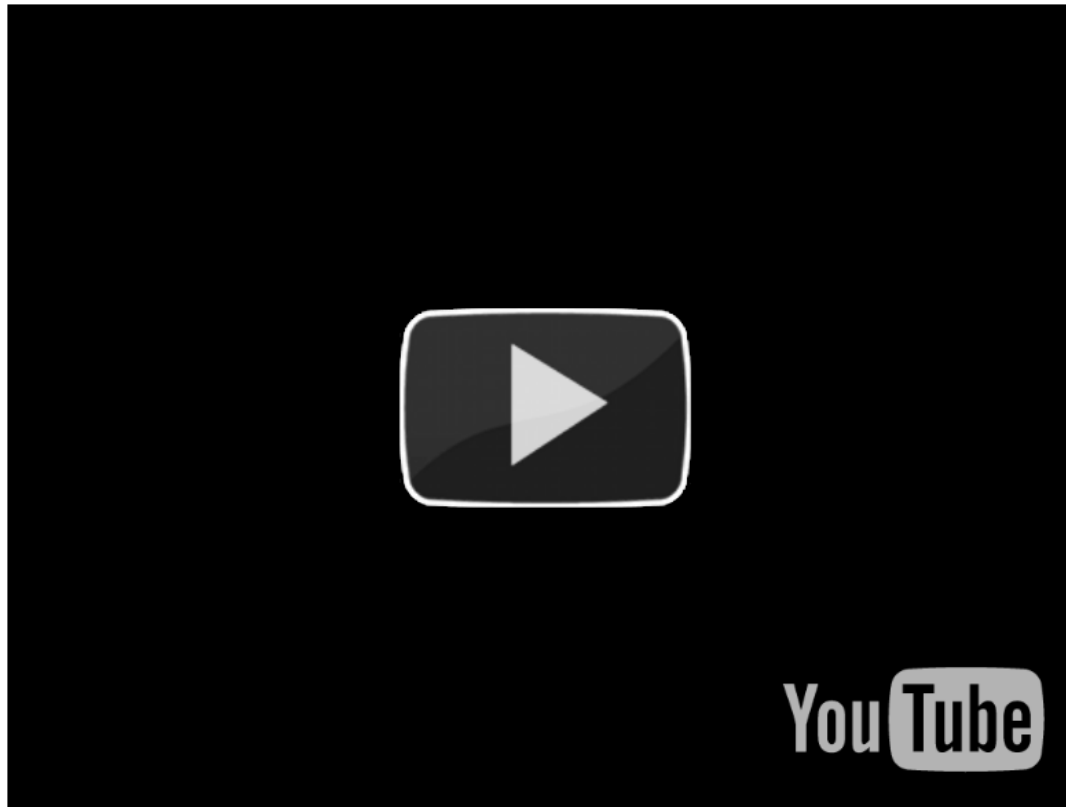
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WATCH
THE VIDEO
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UPDATE

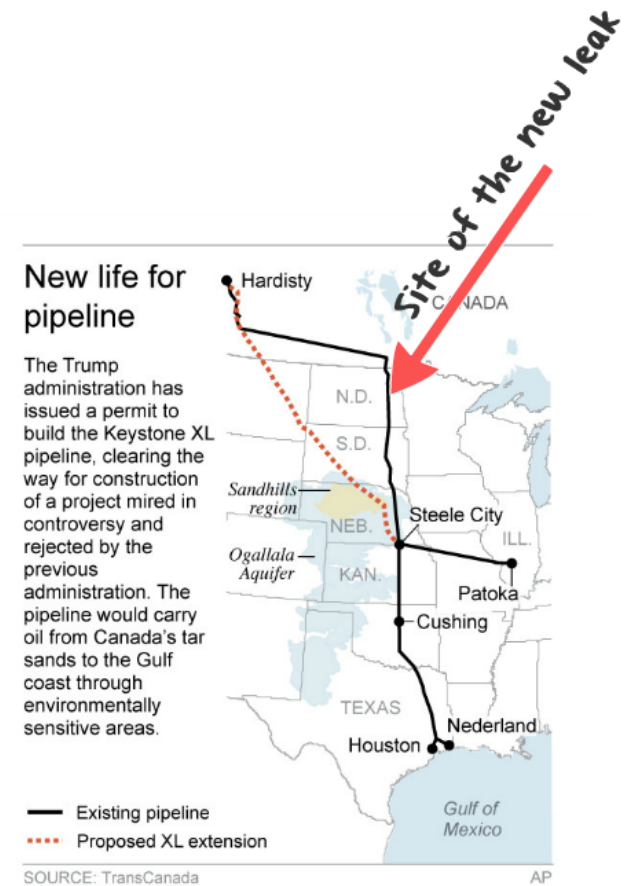
After overcoming a number of hurdles the Keystone pipeline is moving ahead as President Trump granted the project a new permit in early 2019.

In August 2019, the Nebraska Supreme Court approved the route of the Keystone pipeline that cuts across the state. "For years, Nebraska, a deeply conservative state, has been the surprising center of opposition to Keystone XL. It was in Nebraska that a politically diverse array of farmers, Native Americans and environmentalists first elevated the pipeline into the national spotlight. Willie Nelson and Neil Young held a concert in a Nebraska cornfield to rally opposition to the project. In Nebraska, opponents pushed for changes to the route and slowed construction with efforts in the courts and in the government regulatory process. (NYT).

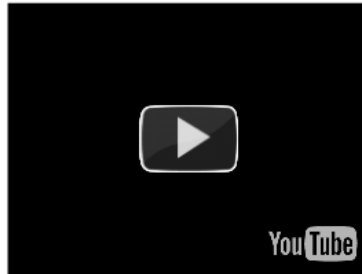
A coalition of environmental and indigenous peoples groups filed suit to halt the pipeline in Montana, however, the state's Attorney General (who is also running for governor) has voiced his support of the project as have numerous associations representing the oil and energy industries.

In the meanwhile, on October 28, 2019, a stretch of the Keystone already built in North Dakota leaked 383,000 gallons of tar-sands oil coating a wetlands area. Catherine Collentine, an associate director with the Sierra Club, said in a statement that this week's leak was further proof that such spills are inevitable.

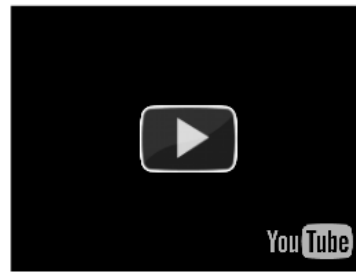
"We don't yet know the extent of the damage from this latest tar sands spill, but what we do know is that this is not the first time this pipeline has spilled toxic tar sands, and it won't be the last," she said. "We've always said it's not a question of whether a pipeline will spill, but when (NYT)."



Case: BP Gulf Oil Disaster



60 Minutes, CBS News. (2010). Deepwater Horizon's Blowout, Part I. (8:53)



60 Minutes, CBS News. (2010). Deepwater Horizon's Blowout, Parts II. (6:46)



On April 20, 2010 the ultra-deep oil rig Deepwater Horizon, located in the Gulf of Mexico, exploded and the subsequent fire killed 11 workers and injured 16 others. This event would likely be long forgotten except that it resulted in the largest oil spill in the world and the greatest environmental disaster in U.S. history.

The BP Gulf oil disaster case illustrates the intersection of occupational safety and health and the environment. In 2010, when it became clear that the oil gushing from the Deepwater Horizon drilling operation could not be stopped, the death of the 11 workers in the oil rig's explosion became the center of sustained media attention. Although multiple deaths under any circumstance is of interest to the public, usually workplace deaths are seen, as "part of the job" and rarely get extensive coverage (Silverstein). When the ecosystem of the Gulf and the economy of Gulf Coast states were clearly threatened, interest in WHY the explosion occurred increased and interest in the circumstances of the 11 workers' deaths also increased.

It has been 8 years since the Deepwater Horizon explosion and the long-term outcomes for the Gulf ecosystem, residents, the economy, and workers are still unfolding. In late May, 2010, delegates to the 2010 Florida AFL-CIO Endorsing Convention unanimously adopted a resolution calling on the leadership of the Florida AFL-CIO to, "work within the legislative and political process to find ways to protect Florida from increased oil drilling, reduce the need for drilling off of Florida's coast, and increase efforts to build a renewable energy infrastructure that creates good, high skilled, high wage jobs." But a Forbes' poll from the same time period showed that although 52% of voters felt that the spill was an ecological disaster that would have long-term consequences, 50% of voters believed that offshore drilling was still a safe, reliable and cost-efficient method of producing oil. So is not surprising that not all workers agree that slowing or halting off-shore deep-water drilling is desirable (as the article below illustrates). The tension between the need for jobs and the need to protect the environment will always be present but the growth and acceptance of blue-green coalitions shows a growing understanding that new solutions to old tensions are needed.

The Gulf oil disaster captured the attention of the media and the public in the U.S. and worldwide.

**What do
you think?**

- What is the "right amount of safety" for clean-up crews and who should get to decide?
- What impact do you think the BP Gulf oil disaster had on labor and environmental alliances and partnerships?
- How much did you know about the Gulf oil disaster? Did you know about the deaths that occurred when Deepwater Horizon exploded? If so, what did you think about the fatalities when you learned about them?

Horizon exploded? If so, what did you think about the fatalities when you learned about them?



BP Oil Disaster

UPDATE

In November 2012, BP and the United States Department of Justice settled federal criminal charges with BP pleading guilty to 11 counts of manslaughter, two misdemeanors, and a felony count of lying to Congress. BP also agreed to four years of government monitoring of its safety practices and ethics, and the Environmental Protection Agency announced that BP would be temporarily banned from new contracts with the US government. BP and the Department of Justice agreed to a record-setting \$4.525 billion in fines and other payments but further legal proceedings not expected to conclude until 2014 are ongoing to determine payouts and fines under the Clean Water Act and the Natural Resources Damage Assessment. As of February 2013, criminal and civil settlements and payments to a trust fund had cost the company \$42.2 billion. It is likely that the oil spill will continue to move through the courts for many years as the negative environmental impact is closely monitored by scientists.

- [Forbes](#), [New Orleans Times-Picayune](#), and [Agence France Presse](#)

1/16/2015 - Federal Judge Carl J Barbier rules that BP will be held responsible for discharging 3.19 million barrels of oil into the Gulf of Mexico, figure that will effectively lower ceiling of company's financial liability to \$13.7 billion from previous government estimate of \$18 billion; Barbier, who notes company's cleanup efforts mean that it should not be held liable for full 4 million that were spilled, does not say how he arrived at figure.

1/21/2015 - BP presents arguments for reducing \$13.7 billion in potential fines as next phase begins in trial over 2010 Gulf of Mexico oil spill; contends that ecosystem has not collapsed, citing its mitigation efforts, and argues that fines should take into account company's ability to pay amid collapse in oil prices.

3/3/2015 - Dolphins are dying in large numbers in northern Gulf of Mexico, with 1,308 dead or dying animals discovered since February 2010; some researchers suspect that April 2010 BP Deepwater Horizon oil spill has contributed to deaths.

- [New York Times](#)

4/4/2016 - A federal judge in New Orleans granted final approval Monday to an estimated \$20 billion settlement over the 2010 BP oil spill in the Gulf of Mexico, resolving years of litigation over the worst offshore spill in the nation's history.

- [Washington Post](#)

2019 **UPDATE**

The Trump Administration Is Rolling Back Offshore-Drilling Regulations

Amy Gunia, May 3, 2019, Time Magazine

The Trump Administration on Thursday announced plans to loosen offshore-drilling regulations that were put in place after the 2010 Deepwater Horizon oil spill to prevent another disaster.

The new rules – one of which will reduce testing requirements for safety devices called blowout preventers – were announced by former oil lobbyist and acting Interior Secretary David Bernhardt and detailed in a 289-page plan, according to the New York Times. A malfunctioning blowout preventer was one of the leading causes of the BP Deepwater Horizon catastrophe, which caused the worst oil spill in U.S. history.

The changes reduce the amount of live data that operators are required to provide onshore monitors and the amount of safety test reporting that they must provide to the Interior Ministry, the U.S. government department responsible for the management of public lands and natural resources. The legislation also removes the requirement for the Interior Department to externally verify safety operations and equipment used by offshore drillers, according to the Times.

The document also said that the changes will save the oil industry \$824 million over 10 years, according to the Times.

Many of the changes were requested by the American Petroleum Institute, an oil and gas trade association and lobbying group, the Times reports.

“The Trump administration, in other words, wants to hand over responsibility for industry safety to the very entity the commission warned against entrusting with that responsibility,” said Bob Deans, a spokesman for the advocacy group the Natural Resources Defense Council, according to the Times.

Many of the regulations being relaxed were implemented during former President Barack Obama’s administration based on the recommendations of a government committee which investigated the causes of the Deepwater incident, which spilled 4.9 million barrels of oil before it was finally stopped.

Environmental groups expressed their concern.

“The well control rule was one of the most important actions we took in response to the 2010 Deepwater Horizon disaster. If the Trump administration’s final rule weakens these protections, it will put workers, waters and wildlife at needless risk,” environmental non-profit Earthjustice said on Twitter.

U.S. President Donald Trump has pushed to open more U.S. water to offshore drilling, but his plans have been delayed. In late March, a federal judge in Alaska dismissed his 2017 executive order reversing Obama-era moratoriums on drilling in the Arctic.

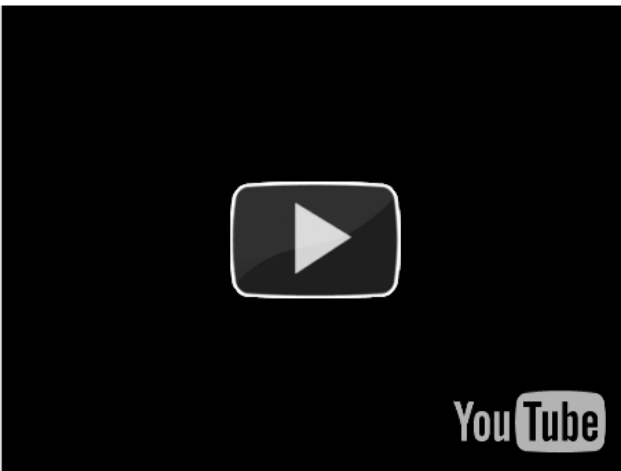
Lest we forget

Eleven workers died after a blast on the BP-leased drilling rig Deepwater Horizon on April 20, 2010 about 50 miles southeast of the Louisiana coast in the Gulf of Mexico. The rig was owned by the Swiss firm Transocean Ltd. It was drilling the Macondo well, in which BP was the majority owner. On the morning of April 12 — after burning for about a day and a half — the Deepwater Horizon sank. It rests on the bottom about a mile below the Gulf surface.

None of the men worked directly for BP. Two were employed by M-I Swaco, a division of oil field services company Schlumberger. The rest worked for Transocean.

No bodies were recovered.

- [Huffington Post, 11/15/2012](#)



Deepwater Horizon - Trailer. (2016) (1:59)

You might be interested in watching the movie Deepwater Horizon based on the New York Times' article "Deepwater Horizon's Final Hours". It wasn't a box office hit, but did get critical acclaim, including two Oscar nominations. I thought it captured the ethical dilemmas faced by people in a disaster well, including how one erroneous cost benefit analysis caused the most devastating environmental disaster in U.S. history. The movie is available on Netflix.

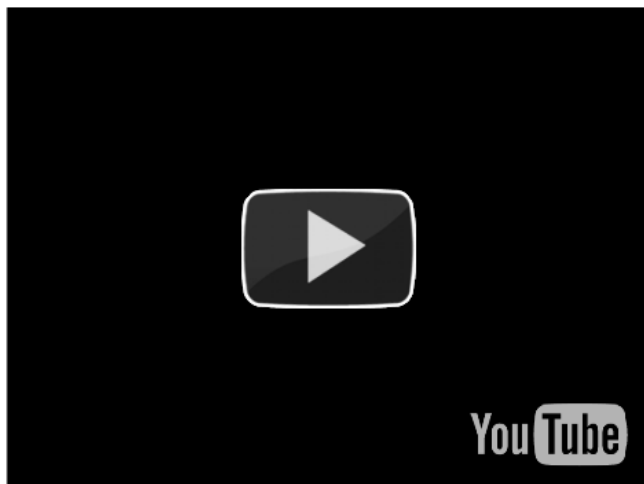
**Next - a closer look at climate change,
so keep going...**

A scenic view of a mountain valley with a rainbow in the sky. The image shows a deep valley with steep, rocky mountainsides. A river or stream flows through the bottom of the valley. A bright rainbow is visible in the sky, arching over the valley. The overall tone is somewhat somber due to the overcast sky, but the rainbow adds a touch of hope or beauty.

What does climate change have to do with occupational safety and health?

Much of the pollution that contributes to the earth's changing climate is from manufacturing, transport, and other areas of commerce. The effects of climate change are already changing how work is done and the level of risk workers are exposed to.

OSH and CLIMATE CHANGE



Yale University. (2011) Global Warming's "Six Americas". (6:24)

Six Americas

The Alarmed

2009: 18% | **2011:** 12% | Are most convinced that climate change is happening, see it as a threat to them personally, and are very worried about it. This group tends to be moderate to liberal Democrats who are active in their communities. They are more likely to be women, older middle-aged (55-64 years old), college educated, and upper income, and hold relatively strong egalitarian values, favoring government intervention to ensure the basic needs of all people. They believe that it is more important to protect the environment than to privilege economic growth, and are least likely of the six groups to be evangelical Christians.

The Concerned

2009: 33% | **2011:** 27% | Are also convinced that climate change is happening, although they are less certain and see it less as a personal threat than the alarmed. This group is representative of the full diversity of the United States in gender, age, income, education, and ethnicity—and tends to include moderate Democrats with an average rate of involvement in civic activities.

The Cautious

2009: 19% | **2011:** 25% | Are somewhat convinced that climate change is happening, but the belief is relatively weak, and many say that they could change their minds. This group is evenly divided between moderate Democrats and Republicans, with relatively low levels of civic engagement and traditional religious beliefs.

The Disengaged

2009: 12% | **2011:** 10% | Are not at all sure that climate change is happening and are the group most likely to say they could easily change their minds. They have hardly thought about climate change and do not consider it personally important. This group tends to be moderate Democrat but is politically inactive. They prefer economic growth over environmental protection and are more likely to be minority women with less education and lower incomes.

The Doubtful

2009: 11% | **2011:** 15% | Say that they don't know whether climate change is happening or not and do not see it as a personal threat. This group is more likely to be male, older, better educated, high income, white, and Republican, with an average rate of involvement in civic activities. They hold strongly individualistic values and are more likely to say that they are "born again."

The Dismissive

2009: 7% | **2011:** 10% | Are sure that climate change is not happening and they are not worried about the issue at all because they think it doesn't exist. This group is more likely to be high-income, well-educated, white men. They are also more likely to be very conservative Republicans who are civically active and hold strong religious beliefs, and are the segment most likely to be evangelical Christian. They strongly endorse individualistic values and oppose most forms of government intervention.



What is your attitude about climate change?

Read the descriptions of the attitude segments on climate change and watch the short video. What segment do you think you are in?

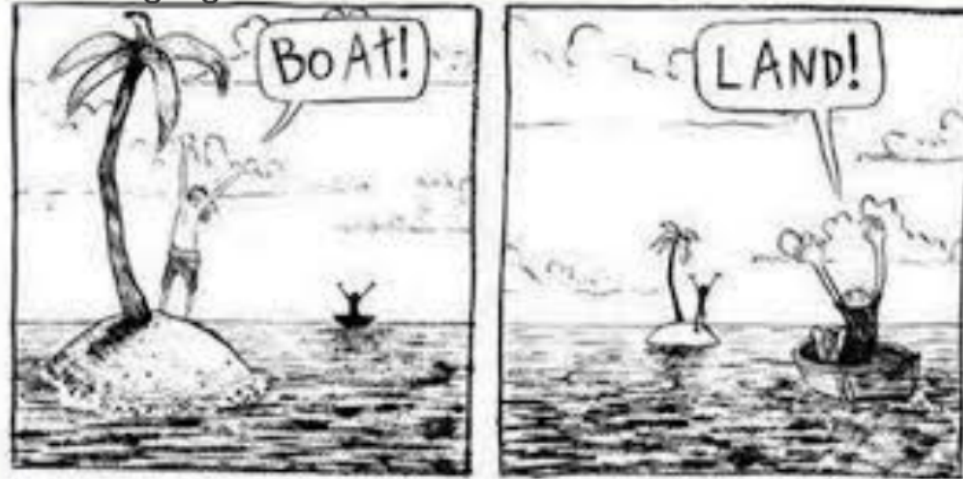
Source: Anthony Leiserowitz et al., "Global Warming's Six Americas," Yale Project on Climate Change/George Mason University Center for Climate Change Communication, May 2011.

Take the Six Americas Super Short Survey (SASSY!)

1. Click on the link below or access the survey on the Week 10 page in Canvas.
2. Take the SASSY!
3. Remember your segment.

<https://climatecommunication.yale.edu/visualizations-data/sassy/>

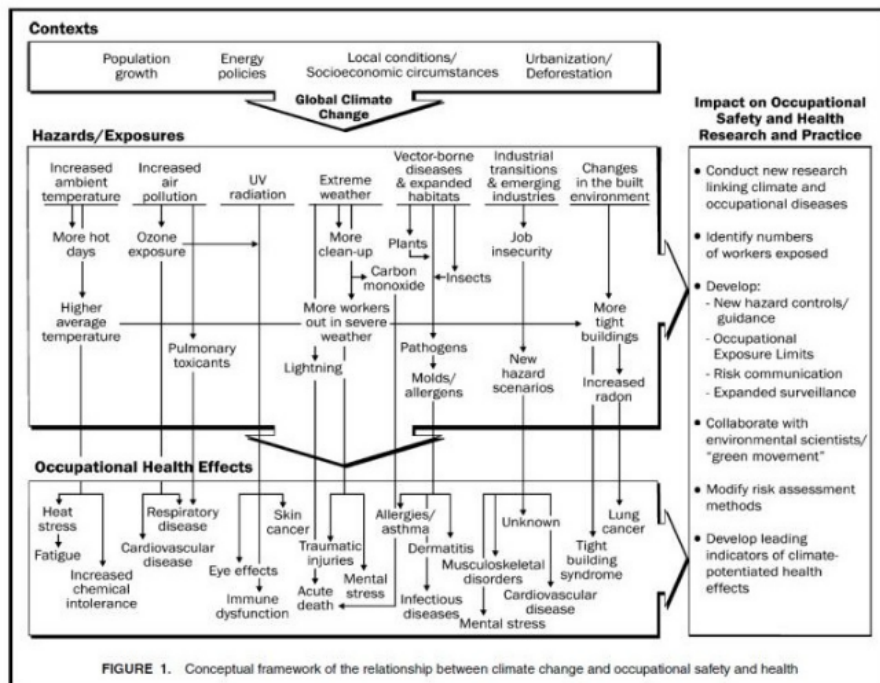
There is no "good" or "bad" segment. Our positions and perspectives on important issues are based on personal experiences and beliefs; they also evolve as our knowledge grows.



That isn't to say that there aren't right or wrong answers about climate change. Science is based on fact - not opinion and personal beliefs. This is the theme that runs through this presentation. More on this later.

I hope that this week's topic gives you some food for thought on the topic of climate change and a greater understanding of how closely work and the environment are linked.

How does climate change pose a risk to workers?



- Schulte and Chun 2009

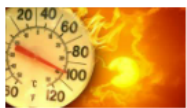
A number of worker populations, both indoors and outdoors, may be particularly vulnerable to threats from climate change. Some of these workers may include: emergency responders, health care workers, fire fighters, utility workers, farmers, and transportation workers. Climate change can amplify existing health and safety issues and new unanticipated hazards may emerge. Workers may also be exposed to conditions that the general public can elect to avoid, and workforce increases are likely in jobs that are most affected by climate change such as wildland firefighting, as well as in industries that will emerge in response to it, including renewable energy. For worker populations such as migrant workers and day laborers who may have inadequate housing or other social and economic constraints, the health effects of climate change may be additive from exposures both at work and at home.

Impacts to workers can include the direct effects of climate change associated occupational hazards such as: increased ambient temperatures, air pollution, and extreme weather. Additionally, indirect climate change associated occupational hazards are likely to occur from vector-borne diseases and expanded habitats, industrial transitions, emerging industries (e.g., renewable energy, carbon sequestration, and "green industries"), increased use of pesticides, and changes in the built environment.

Although not specific to occupational safety and health, the 3rd National Climate Assessment (presented later in this Prezi) has a health chapter containing an extensive synthesis of current knowledge and gaps regarding climate change and human health. Additionally, the Fifth Assessment Report of the Intergovernmental Panel on Climate Change chapter on human health includes a section that specifically addresses climate change and occupational safety and health.

- National Institute of Occupational Safety and Health

What occupational hazards are impacted by climate change?



Increased ambient temperatures

Higher temperatures or longer, more frequent periods of heat may result in greater heat stress, which may lead to more cases of heat-related illnesses such as heat stroke or heat exhaustion, decreased chemical tolerance, and fatigue. There may also be indirect effects including reduced vigilance regarding safety and increased risk of injury and irritability that may lead to carelessness.



Air pollution

Elevated temperatures can increase levels of air pollution including ground-level ozone. Outdoor workers have longer exposure to air pollutants which may be linked to chronic health effects such as respiratory diseases or allergic disorders). The frequency and severity of wildfires is projected to increase resulting in higher levels of particulate matter and other air pollutants.



Extreme weather

Extreme weather events or natural disasters such as floods, landslides, storms, lightning, droughts, and **wildfires** are becoming more frequent and intense. Weather disasters may be associated with deaths, injuries, diseases, and mental stress. Workers involved in rescue and cleanup have more exposure to risky conditions as the frequency and severity of extreme weather events increase. Extreme weather events may also cause damage to infrastructure (e.g., power, roads, and transportation) and buildings. Workers could be put in new or unfamiliar circumstances leading to a high risk of traumatic injury. Disruptions to information technology could lead to standards of control not being applied or the inability to recognize hazards. Some workers may be at increased risk of violence if mobility, electricity, food, and shelter become compromised. Carbon monoxide poisoning may also be an issue in areas where generators and engines are being run with poor ventilation. The impact of more frequent and intense weather events on mental health and stress is another consideration.



Vector-borne diseases and expanded habitats

Changing temperatures and shifting rainfall can affect habitats of vectors, pathogens, hosts, and allergens. Increased prevalence and distribution of water-borne and food-borne pathogens could affect workers, particularly emergency responders and health care workers. Pollen may increase from earlier flowering and longer pollen seasons. Increasing numbers of hurricanes and floods could lead to more houses with mold and more remediation and construction workers exposed. Mold may lead to allergic as well as non-allergic or irritant asthma. Increasing temperatures and carbon dioxide in the atmosphere may increase the growth and wider distribution of poison ivy and other poisonous plants. Changes in temperatures have also affected tick and mosquito populations increasing their populations, extending their transmission seasons, and expanding the seasons and areas they can be found. Outdoor workers may be at increased risk for mosquito-borne diseases (e.g., West Nile virus infection) and tick-borne diseases (e.g. Lyme disease). Expanded vector ranges and the introduction of diseases not previously prevalent in the United States (e.g., dengue and chikungunya virus infection) will result in the increased use of pesticides, potentially placing workers at increased risk for exposure.



Industrial transitions and emerging industries

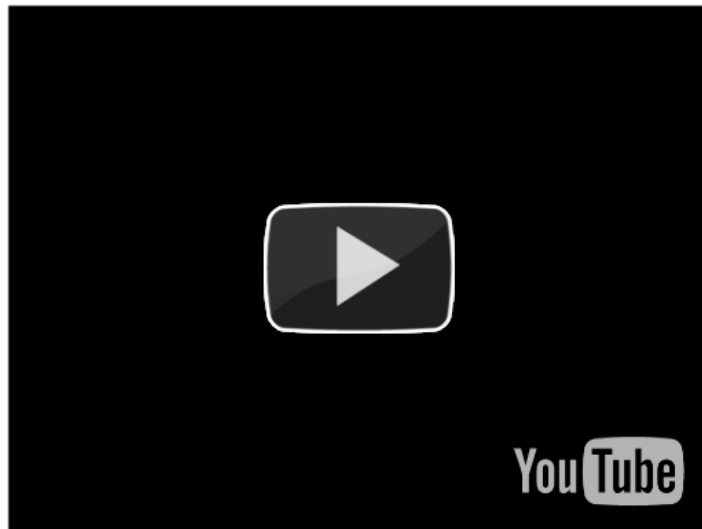
Climate change may impact various industries. Extreme weather events and damaged infrastructure and buildings may negatively impact the economy and employment, resulting in job insecurity and affecting health. Other industries that offer “greener” technologies may grow and be a source of new employment, although they may have occupational hazards as well. Emerging industries, increased production of nuclear energy, and recycling all have hazards that will need to be identified and controlled.



Changes in the built environment

High temperatures increase the need for climate-controlled buildings. Building-related illnesses (e.g., tight building syndrome or sick building syndrome), sometimes related to indoor air quality, may occur, especially in buildings with air conditioning, water damage, or energy-efficient “tight” buildings with microbial-contaminated humidifiers or air handlers that use biocides. Tight buildings may also lead to radon buildup in work areas such as smaller rooms, storage areas, or offices. Many industrial settings, such as paper mills, are not climate controlled and the higher temperatures resulting from climate change will increase heat exposure to these workers.

Bill Nye's 5 minute explanation of climate change



ClimateRealityProject.org (2011) Climate 101 with Bill Nye. (4:33)

"Bill Nye is a scientist, engineer, comedian, author and inventor, and a man with a mission: to help foster a scientifically literate society."

- Rutgers Today

Is climate change real? **Yes!**

As in most issues with an economic stake, not everyone agrees that climate change is a problem - or even that it exists. In the U.S. the science of climate change has been accused of being highly flawed "junk science". This is rarely true in other countries and is uniquely a U.S. phenomenon.

Why do you think that climate change is dismissed or denied?



What do scientists think?

As mentioned in the previous video, the International Panel on Climate Change (IPCC) was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to assess scientific, technical and socio-economic information concerning climate change, its potential effects and options for adaptation and mitigation.

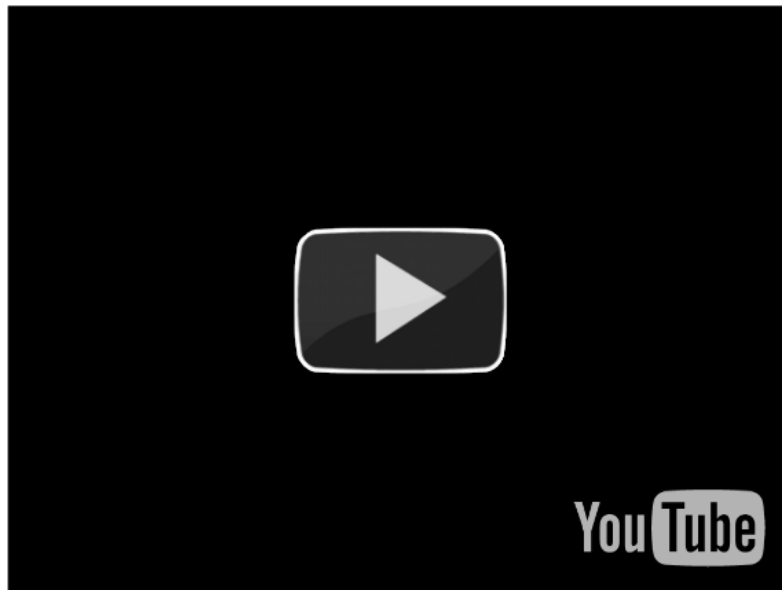


<http://www.ipcc.ch/>

In March of this year the IPCC released the Fifth Assessment Report (WGI AR5) which provides a comprehensive assessment of the physical science basis of climate change. A total of 209 Lead Authors and 50 Review Editors from 39 countries and more than 600 Contributing Authors from 32 countries contributed to the preparation of WGI AR5.

The video explains the process of preparing the WGI AR5 and presents some key findings. You will often hear IPCC and the WGI AR5 referred to in the climate change arena. As you know, reaching consensus can be difficult, so when the IPCC overwhelmingly agrees, such as the members did for this report, it makes quite an impact on governments, policy makers, politicians, economic powers and citizens.

WATCH
THE VIDEO



IPCC. (2013) Climate Change 2013: The Physical Science Basis. (9:19)



False balance – cultivating counterfeit controversy to create confusion

In science, talk of airing 'both sides' of an argument is usually a red flag. In science, arguments are assessed using *formal logic*, *scholarly consensus*, and *empirical evidence* to determine whether there is a legitimate controversy between two viewpoints.

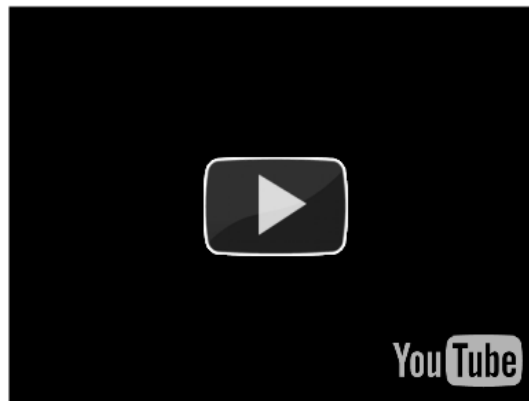
Insistence that "both sides" be given equal weight to achieve balance is a tactic promoted by peddlers of bad science and pseudoscience (and is often - intentionally or unwittingly - taken up by journalists and politicians). In discussing an issue, they insist that "both sides" be presented. *This doesn't mean that criticism should be rejected.* On the contrary, trying to disprove theories and hypothesis by continually testing (and re-testing) to build scientific consensus is the essence of the scientific method.

OK, I realize this is not the easiest concept to understand, so here is John Oliver to give it a shot.



need people's opinion on fact."

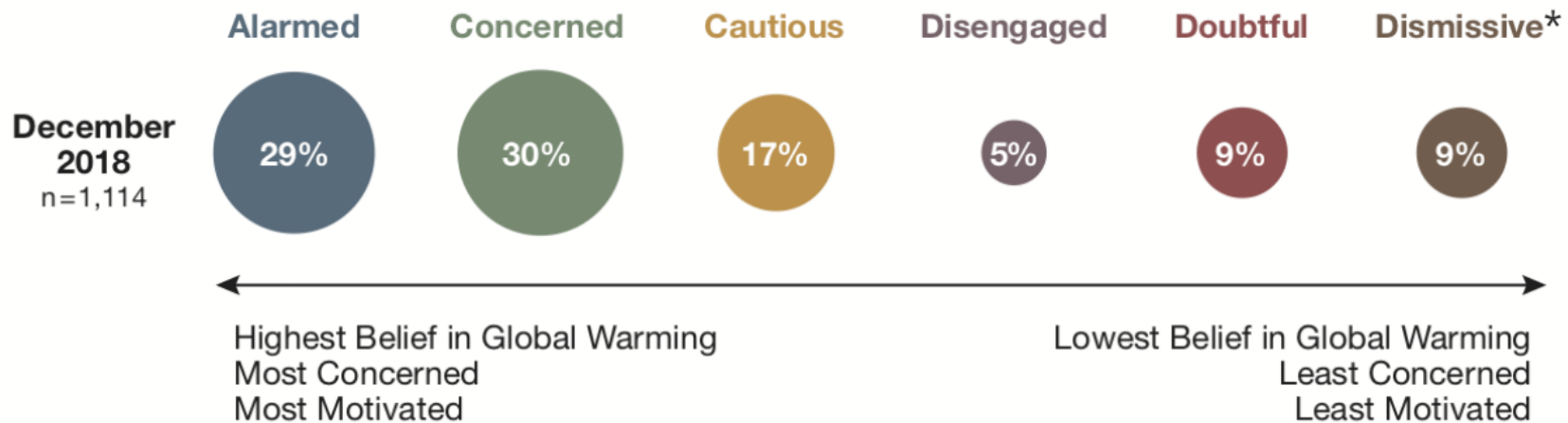
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MSB Science. (2015) John Oliver Climate Change Debate. (4:26)



Source: Graham Coghill, Science or Not



*"Dismissive" is the name that the Yale Project uses to describe climate change "deniers" or skeptics



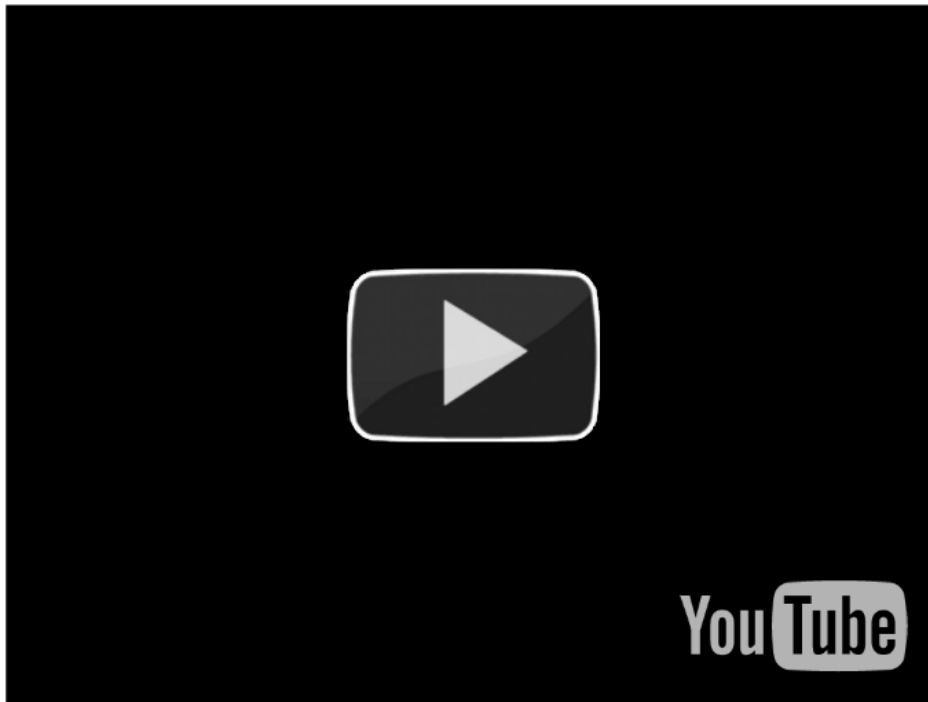
If only 18% of people are doubtful and dismissive of climate change, why do you think they have such significant influence on climate change politics, policy, and discourse?

What attitude segment were you in? Why? What is your climate change story?



Understanding science denial

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THE VIDEO



California Academy of Sciences (2011) Why Do Americans Continue to Deny Climate Change? (3:20)

As you read the articles this week, keep in mind our review of the scientific method in Week 3; *although science doesn't guarantee that mistakes will not be made - it does guarantee that mistakes will be corrected; thus improving on already accepted scientific theories.*



For twenty years, Mark Hertsgaard has written about global warming for outlets including the New Yorker, Vanity Fair, Time, NPR, the BBC and The Nation. But the full truth did not hit home until he became a father and, soon thereafter, learned that climate change had already arrived—a century earlier than forecast—with impacts bound to worsen for decades to come. Hertsgaard's daughter Chiara, now seven years old, is part of what he has dubbed “Generation Hot”—the two billion young people worldwide who will spend the rest of their lives coping with mounting climate disruption.

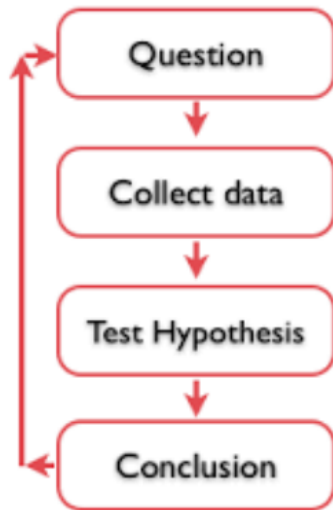
- <http://markhertsgaard.com/about/>

Are you or your children part of “Generation Hot”?

Do you think that climate change will affect your career and your life? In what ways?



But isn't doubt good for science?



Well, yes. This brings us back to the short video "The Scientific Method Made Easy" that you viewed in Week 2.

"Science is, and always has been, about doubt, uncertainty — what the 18th century physicist James Clerck Maxwell called 'thoroughly conscious ignorance.'.. Science often traffics in doubt and readily welcomes revision (testing the hypothesis). And these are precisely the attributes that make it deserving of our confidence." (Firestein, S.)

But healthy skepticism that is fundamental to the scientific method can be abused and manipulated when there is a demand for "scientific certainty" with the intent to influence policy or prevent the regulation of hazards. This is a counter-intuitive and nuanced notion that seems to confuse even students majoring in science. No wonder then that people are unsure or disengaged about climate change!

An OSH example of this is diacetyl. As you learned in Week 4, the connection between diacetyl and a rare, fatal lung disease has been recognized since 1999. In the years since, compelling evidence has been compiled that shows a clear association between diacetyl and *bronchiolitis obliterans*. Fast-forward to present day and despite the efforts of the medical and research communities, national unions, the families of dead and injured workers, NIOSH and OSH, and progressive legislators, **there is not a federal permissible exposure limit (PEL) for diacetyl**. The strategy of demanding scientific certainty has been consistently and successfully used in this case.





As illustrated in the cases you have studied this semester, the regulation of hazards that can cause illness and injury is highly political and often contentious. Whether establishing a safe exposure limit to a chemical like diacytel or recognizing ergonomic hazards as a legitimate health issue - the bottom line of profit vs. safety is always considered. Understanding how demanding scientific certainty is used as a strategy to prevent regulation is useful in understanding why clearly identified hazards continue to be unregulated and how the harm caused by those hazards continues unchecked.

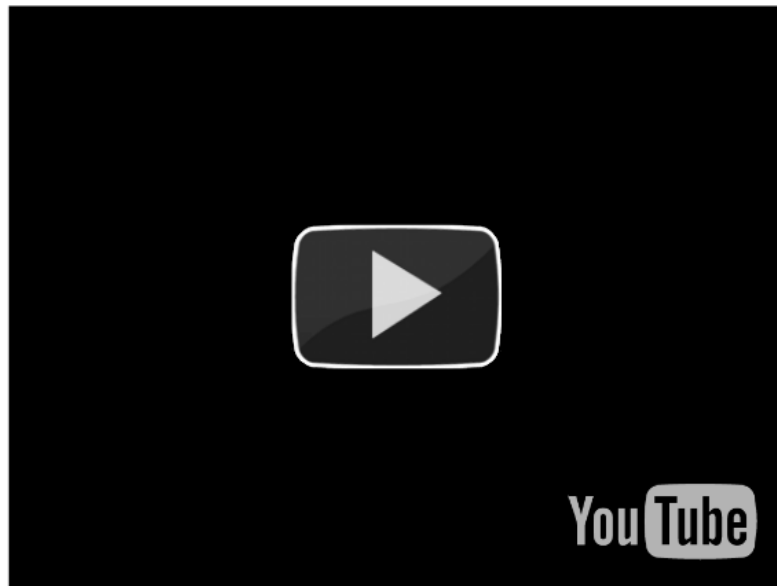
In their seminal work "Manufacturing Uncertainty", David Michaels (the head of OSHA under President Obama) and Celeste Monforton (OSH researcher and worker advocate) explain the strategy of creating uncertainty and doubt about a risk by creating doubt about the validity of scientific evidence.



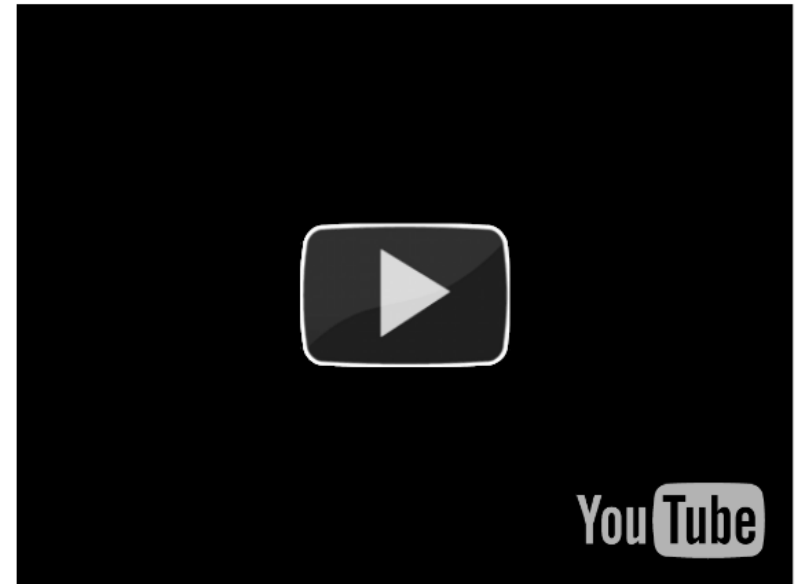
This week you will be reading *Manufacturing Uncertainty: Contested Science and Protection of the Public's Health and Environment*. You can access the article on the Week 10 page of Canvas.

Now that we have looked at science denial, let's get back to climate change and how it is linked to the work people do and the risks workers encounter.

Did climate change play a role in Superstorm Sandy?



NBC News. (11/12) Hurricane Sandy provides 'wake-up call' for cities at risk of flooding. (4:55)



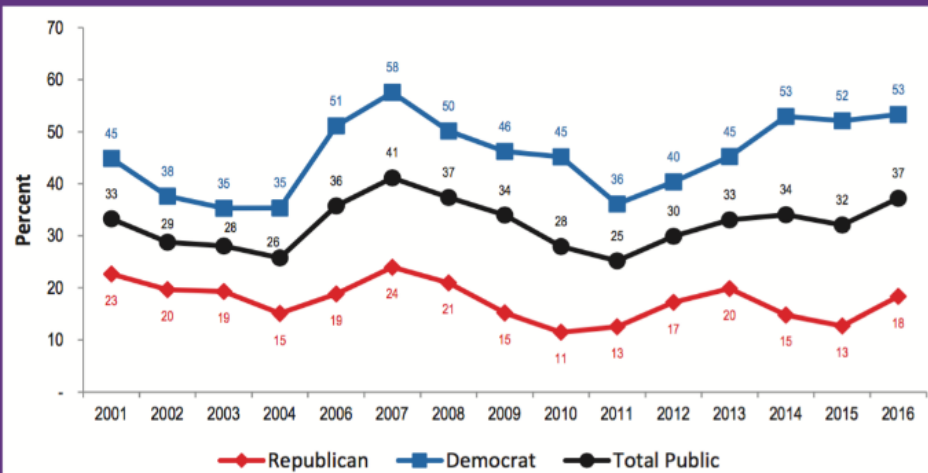
TIME Explains: Hurricane Sandy and Climate Change. (2:29)

What do
you think?

Did Sandy affect your job? Your study at Rutgers?
How will climate change affect your future career?

Super Storm Sandy
Death toll: 286
Cost: >\$68 billion ... and counting!

Figure 7. Respondents saying that they personally worry a great deal about global warming, by party



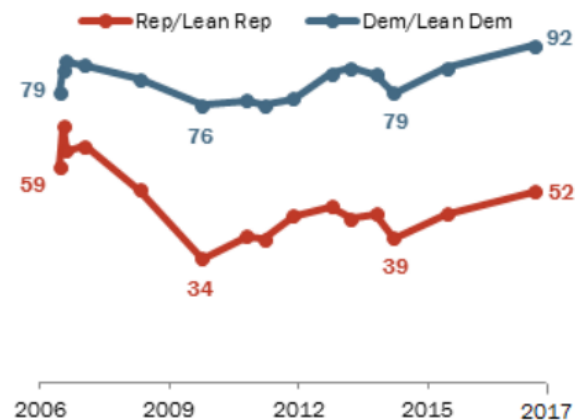
Source: The Gallup Organization

Shifting opinion on climate change

Although there is still a large partisan divide, the tide is turning (no pun intended) on thinking about climate change in the US. This survey from Gallup shows that since 2010 the number of Americans who think there is evidence of climate change grew (although there is still a large partisan divide). It may be that as people personally experience extreme weather, the numbers will continue to rise.

In both parties, more say solid evidence of global warming, but wide gap persists

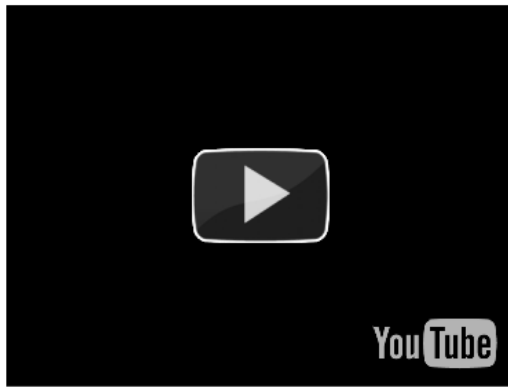
% who say there is solid evidence that the average temperature on Earth has been getting warmer



Source: Survey conducted June 8-18, 2017. QA77.

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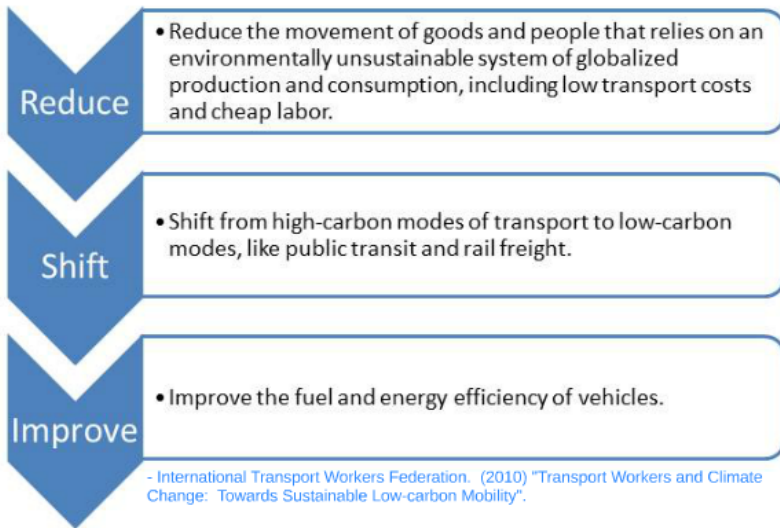


TEDTalk. Naomi Klein: Addicted to Risk. (20:00)

*If you watched "Addicted to Risk"
in Week 7, skip viewing this video.*

Naomi Klein is a Canadian author, journalist, and social activist, known for her political analyses and criticism of corporate globalization. In this TED Talk, Klein poses the question: what makes our culture so prone to reckless high-stakes gambles - the kind that caused the BP disaster? This question can also be asked of other recent OSH disasters (for instance, the West Texas fertilizer plant explosion and the Bangladesh factory collapse).

As you watch the video, pay particular attention to the concept of "precautionary principle". This is an approach to occupational safety and health that is common in Europe, but is often maligned in the US.



"There are no jobs on a dead planet." - Brooke Anderson, Climate Workers

Earlier in the lecture the historical tensions between workers (and the unions that represent them) and environmentalists were examined.

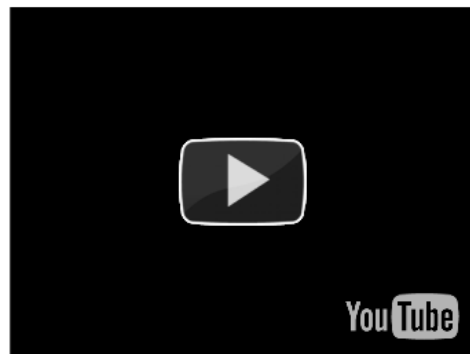
The shifting positions of major national and international unions on climate change reflect the growing U.S. acceptance of the science of climate change and a growing concern about how it will impact the economy, national security, jobs, health - virtually every aspect of our lives.

Some unions have begun to integrate policy on climate change into how they do business. For instance the International Transport Workers Federation (ITF) has adopted the framework of "reduce, shift and improve" into the organization's work.

But, in general (particularly in the U.S.), unions continue to debate and wrestle with how climate change will impact the industries that employ their members, as well as the health and safety hazards that workers will encounter in a future that is predicted to bring more "super-storms", "super-typhoons" and other extreme events.

But wait a minute...

WATCH
THE VIDEO



IBEW International. (2012) *IBEW Goes for the Green*. (2:47)

Not so fast!

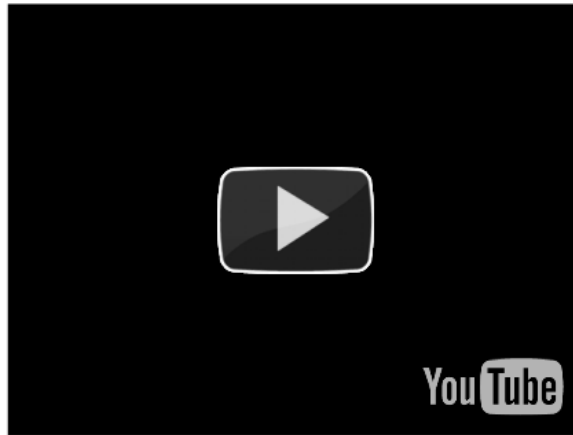
Don't

Is there greater acceptance of climate change?
Two or three years ago I would have said yes, but
the 2016 election changed everything. Here's
how ...

Donald Trump to Chart a New Course on Energy and Climate - Wall Street Journal

Not so fast!

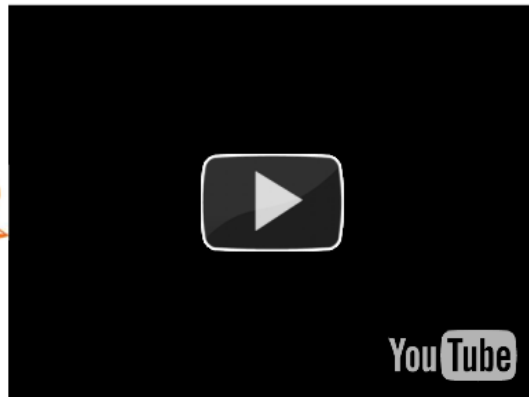
WATCH
THE VIDEO →



Wall Street Journal. (11/11/2016) Donald Trump to Chart a New Course on Energy and Climate. (4:15)



The Paris Climate Accord



On September 3, 2016, President Obama signed an executive order confirming the United States' adoption of the Paris Climate Agreement.

In June 2017, just five months after taking office, President Donald Trump announced that he intended to remove the US from the global compact that rallied world countries around the goal of limiting global warming to below 2 degrees Celsius.

Trump announced in a Rose Garden speech that the country would “cease all implementation” of the Paris accord and the “draconian financial and economic burdens the agreement imposes on our country.”

The President repeated his disapproval of the pact on October 23, 2019 at a shale oil and gas conference in Pittsburgh. “I withdrew the United States from the terrible, one-sided Paris climate accord,” he said to applause from the crowd. “It was a total disaster for our country.”

But despite those speeches, the US has not actually withdrawn from the pact yet. The US has remained a party to the Paris accord because of a “cooling off” period written into the pact, stating that no country can leave it for three years after it goes into force.

“So, the first date that the president can send a letter withdrawing the United States is Nov. 4, 2019,” said David Waskow, a climate policy expert at the nonprofit World Resources Institute.

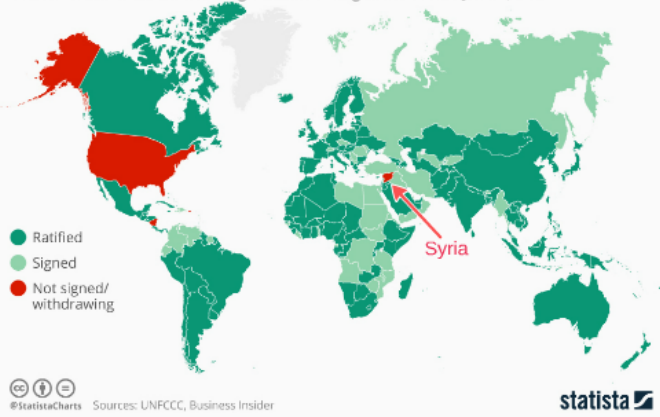
But even then, the US won't be out. Full withdrawal takes a year.

That means the US can't finally and officially be out of the Paris Agreement until Nov. 4, 2020, the day after the US presidential election.

- Public Radio International (PRI), The World

The State of the Paris Agreement

Countries that have ratified or signed the Paris agreement as of June 1, 2017





This is the reason why the Paris Climate Agreement committed \$\$\$ to provide international support to help developing countries adapt to the most severe consequences of climate change



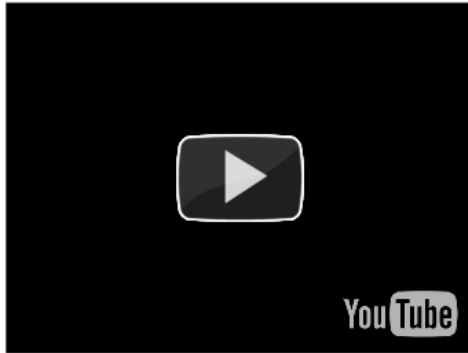
What is "climate justice"?

As mentioned in the previous video, issues of climate change are sometimes framed as issues of fairness and justice. This is because the effects of climate change are disproportionately hurting poorer nations (such as Central American countries) and everyone with fewer resources (for instance, people in the 9th Ward of New Orleans displaced by Hurricane Katrina). Advocates of climate justice also cite that those who have contributed the *most* to carbon emissions (US and China) will be *least* likely to be hurt by climate disruption and will likely profit from it.

Whether you agree with the goals of climate justice or not, it is clear that the alliances being made around shared issues of climate change, wealth inequality, and racial/class disparities are growing.

THIS IS BIG because we all live on the same planet

WATCH
THE VIDEO



2015 - Part 1 of 8 Under The Dome Documentary on China's Pollution by Chai Jing (5:56)

March 16, 2015 - Every so often a seminal book or powerful movie alters the way we see the world around us.

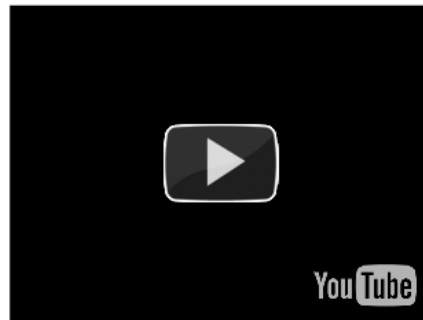
An online documentary about air pollution in China, *Under the Dome*, has done exactly that for the Peoples' Republic. Made by a well-known China Central Television newscaster, Chai Jing, the film drew more than 150 million viewers in the first days after Chai posted it online. In the film, Chai, dressed casually in jeans and a white blouse, paces back and forth on a stage in what is essentially a 143-minute TED talk – with devastating effect.

In three weeks, it went from being an Internet sensation, to being blocked by government censors, to being the subject of a question to Premier Li Keqiang at a press conference on Sunday where Li vowed that the government would do more to combat pollution.

- Mufson, Washington Post

This frame is optional.
There are no exam questions from it. If you are interested in global politics, this may interest you.

"As the largest greenhouse gas emitter in the world, without China, climate goals that most agree is necessary to prevent serious irreversible consequences are out of reach," says Sergey Paltsev, the lead author of the study and the assistant director for economic research at MIT's Joint Program on the Science and Policy of Global Change.



Watch the video

NMANewsDirect. (12/11/2014) Climate change: US and China reach agreement on greenhouse gas emissions reduction. (0:48)

On September 3, 2016, President Obama and President Xi Jinping of China formally committed the world's two largest economies to the Paris climate agreement in Beijing on Saturday, cementing their partnership on climate change and offering a rare display of harmony.

This was BIG and gave hope to the climate science community around the world that real progress would at last be made to reduce carbon emissions!

from my perspective

As you might have guessed my Six Americas segment is "alarmed". I think that climate change is the most urgent problem the world currently faces. But I didn't always think this!

Although I never doubted that human activity had an impact on the global climate, I didn't feel like it was "my issue" and that I could leave it to the environmentalists and scientists to solve. But as a public health nurse and an advocate of safe, healthful working conditions it became impossible to ignore the profound effect that our changing climate is having on the public's health and workers' health and safety. Since I recognized this, I have been privileged to learn about the climate crisis from some of the world's most renowned climate scientists right here at Rutgers.

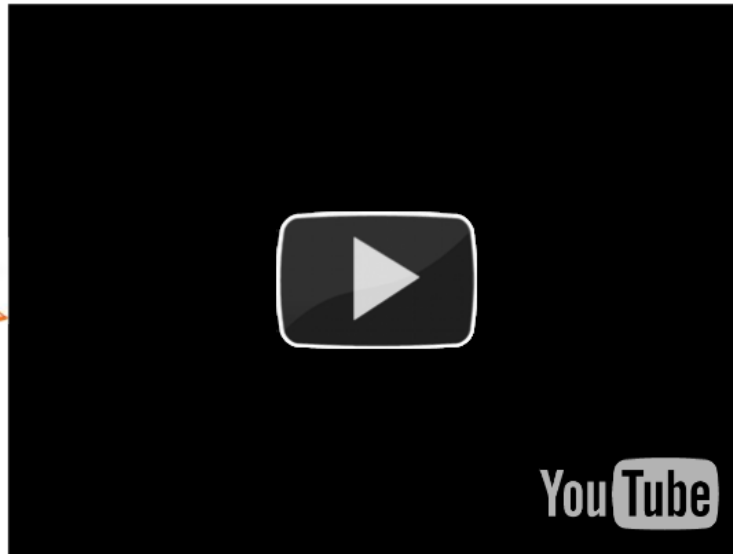


Read "Climate Change is this Generations Vietnam War" on the Week 12 page in Canvas. *Optional*

The generation that caused a dramatic increase in the degradation of the environment will not be the generation to fix things. Yes, we broke it but won't be around to fix it (I truly am sorry about that fact). It will be up to you and your children and your children's children to mitigate the worst effects of climate change.

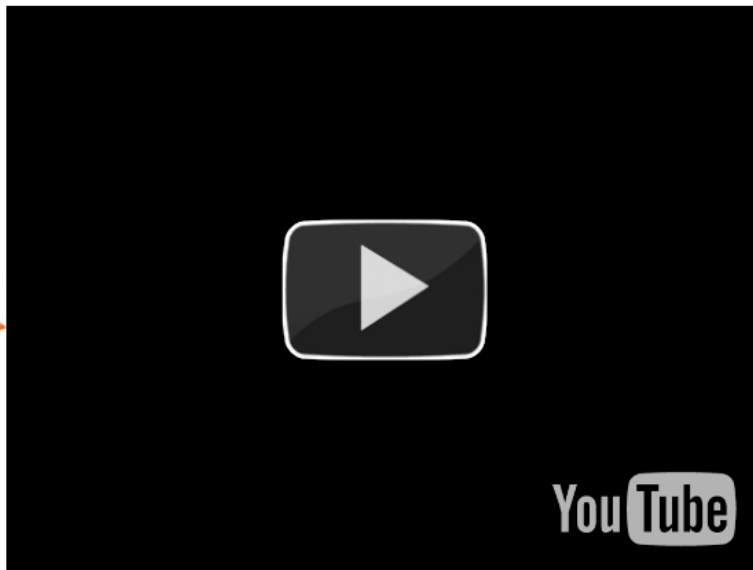
I'm not sure what the future will bring but I am heartened that people are finally acknowledging the urgency of the problem of climate change. It could be that climate change will be the issue that unites people across our differences to take action and demand that their governments act decisively on climate change. At least I hope so, because we don't have forever to figure this out!

WATCH
THE VIDEO



350.org. (2019) Sept 20th: Workers & Youth Join Together for Climate Action (2:22)

WATCH
THE VIDEO



The Guardian. (2019) Greta Thunberg: the speeches that helped spark a climate movement. (2:05)

U.S. Unions back the climate strike

An estimated 7.6 million people joined the global climate strike September 20-27, making it the largest demonstration against climate change in the world's history. There were more than six thousand events in 185 countries. 1.4 million participated in Germany; 1 million in Italy; 600,000 in Canada; 500,000 in the US; 350,000 in Australia; and 350,000 in the United Kingdom.

The strike was part of an on-going series organized by young people around the world. This time the youth asked adults to join them. A wide swath of U.S. unions were among those who answered the call.

The AFT (American Federation of Teachers) local at Rutgers University along with other trade unionists, students, and community members organized a Central Jersey Climate Coalition that demanded Rutgers become carbon-neutral by 2030 – whereupon President Barchi appointed a committee to make a plan to be carbon-neutral by 2030 chaired by one of its advocates.

- Labor Network for Sustainability (LNS)

RU ready to get involved?



Rutgers students at the 2014 Climate March in NYC

RUTGERS Climate Institute

"The Rutgers Climate Institute is a University-wide effort to address one of the most important issues of our time through research, education and outreach. The Institute draws upon strengths in many departments at Rutgers by facilitating collaboration across a broad range of disciplines in the natural, social and policy sciences."

Website: <http://climatechange.rutgers.edu/>

Follow on Facebook: <https://www.facebook.com/RUClimateInstitute?fref=ts>

RUTGERS STUDENT LIFE get involved

- Green Print
- Students for Environmental Awareness
- Food and Water Watch
- Fossil Fuel Divestment Rutgers
- Oxfam
- RU for Endangered Animals
- Rutgers for Primate Conservation
- Central Jersey Climate Coalition
- And others!

If you are interested in learning more about climate change or want to get involved in a student environmental organization, check out these resources.



One of the most important things you can do to influence public policy and action on the climate is to vote! For your one-stop shop for student voting information go to: <https://cypp.rutgers.edu/ru-voting/> Center for Youth Political Participation, Eagleton Institute of Politics

That's it for the presentation. You can access the readings on the Week 10 page in Canvas. I hope you all have a great week!



Bingham, Eula. 1983. Right to Know Movement. American Journal of Public Health.

ILO Encyclopedia of Occupational Safety and Health. From Chapter 23: The COSH Movement and Right to Know.

Kohler, L. 1998. Environment and the World of Work: An Integrated Approach to Sustainable Development, Environment, and the Working Environment. ILO Encyclopedia of Occupational Safety and Health.

Lewis, T., Gould, K., and Timmons, R. From Blue-Green Coalitions to Blue-Green Partnerships? Creating Enduring Institutions through Just Transition, Climate Justice and the World Social Forum. American Sociological Association Meeting, August 2003.

Parker, Greshko and Howard. A Running List of How Trump is Changing the Environment. National Geographic. October 25, 2017. Retrieved from: <https://news.nationalgeographic.com/2017/03/how-trump-is-changing-science-environment/>

Ryan, Lizza. (9/2013) How the Keystone XL Pipeline Tests the Administration's Resolve on Climate Change. The New Yorker Magazine.

Schor, E. 2010. Twin BP Disasters Complicate Push for Safety. New York Times.

Slatin, C. et al. 2009. New Solutions and the Blue Green Alliance: Good Jobs, Green Jobs Conference. New Solutions Journal.

Yassi, A. and Kiellstrom, T. 1998. Linkages Between Environmental and Occupational Health. International Labor Organization Encyclopedia of Occupation Safety and Health.

Zoller, H. (2009). The Social Construction of Occupational Health and Safety: Barriers to Environmental-Labor Health Coalitions. New Solutions.