**Stakeholder: Farmer**

**Farming Family Living in the Floodplain**: For generations, our family has been working this same land with tried and true traditions and methods. In the floodplain, the soil is naturally rich in nutrients for our crops to grow. We have been able to be “dry farmers” in that we only rely on rainfall for our water and we have never had to manually irrigate.

However, with this erratic weather at unpredictable times, we have been seeing drier, hotter summers with late season storms and wetter winters. These factors increase the number of pests and invasive species that effect our crops. Some years the river floods overtopping or breaching the levees destroying our crops or making it too wet to even get the seeds in the ground. Other years when the plants do grow, but we see hot temperatures, our crop yields are very low or are sometimes not of the quality for human food-grade, so consequently our income decreases. Universities and corporations are researching and producing Genetically Modified Organism or GMO seeds to combat these issues, but that seed is more expensive than the type we buy today.

Since we live in a 500-year floodplain and we have been flooded twice in the last 20 years, the federal crop insurance rates are going up and the pay-outs are going down with the fear that we may not even qualify anymore. Unfortunately, we can no longer afford that insurance. We want the U.S. Army Corp of Engineers to build taller, impenetrable levees to keep the water out of our fields. Since this is our private land, we want to remove the fencerows and forested areas to put more area into cropland. We are also considering installing irrigation systems so that our crops do not wither and die. Just to make ends meet, our family has to be concerned about the weather today and its effects on our fields.

Discussion Questions:

1. What values or beliefs might be the foundation of the farmer’s point of view?
2. Which beliefs of the farmer do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the farmer?
4. What, if anything, in the point of view of the farmer, challenges your own personal assumptions?
5. What solution(s) might the farmer propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Coal Power Plant Worker**

**Coal-Fired Electrical Power Plant Worker**: For years, my family and relatives have worked at this power plant, or for contractors and businesses that support this power plant. This plant has provided good paying jobs for hundreds, if not thousands, of people allowing us to raise our families and send our kids to college. In this low-income rural area, there are very few other economic opportunities. This plant provides electricity for two million homes and is a mainstay in this community!

People say that the power plant is polluting the environment. However, our company has complied with all environmental laws and regulations. They have installed pollution controls. The chemicals and metals going into the air are declining. Granted, the scrubbers do not reduce carbon dioxide, but they are not designed to do that, and the regulations do not require that. If new, stricter regulations were put into effect, that would just kill jobs and raise the price of electricity for everyone.

There are rumors that they want to close this power plant and build a new natural gas-fired power plant elsewhere. Since the natural gas prices have plummeted recently, natural gas has become the #1 way to produce electricity. The fear is that they will announce the closing soon, not allowing us workers enough time to find new jobs for so many people. Besides, don’t we need coal-fired power plants to maintain a reliable power grid for all of these homes? We need to take care of our families first and keep this power plant open!

Discussion Questions:

1. What values or beliefs might be the foundation of the power plant worker’s point of view?
2. Which beliefs of the worker do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the worker?
4. What, if anything, in the point of view of the worker, challenges your own personal assumptions?
5. What solution(s) might the worker propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Construction Company**

**Construction Company that Designs and Builds Buildings**: Our construction company has been long-standing in our community creating homes and businesses. It has been a very successful business using techniques of architecture and construction that we have utilized for years. However, some of our customers are now not satisfied with some of the structures we have built several years ago, and new customers are requesting updated technologies. Should we stick with our tried-and-true approaches that our staff has always used, but potentially lose some customers? Or, do we spend large amounts of money to train our staff, update our systems, and install new, unfamiliar products? Here are some examples of our issues.

Previous structures that we have built are failing to meet the demands of hotter and more humid summers. The air conditioning, insulation, and windows are not keeping our clients cool enough and mold is growing with that extra moisture, causing indoor air quality to be degraded.

Our architects and designers have used past climate observations for their building design parameters. Because of the potential changes in the climate, there is a new system that utilizes global climate models and dynamic scaling techniques. However, that system is very complicated to operate and expensive to purchase.

With the erratic storms, the large, flat roofs of warehouses and schools are not holding up with the deep snows, high winds, and quick hits of heavy rains. More cost has to go into construction of more robust roofs.

Customers are looking for buildings that are affordable to construct, affordable to operate, with reduced energy consumption and lower peak energy demands with this future of climate variability. How can our company best do this while staying in business ourselves?

Discussion Questions:

1. What values or beliefs might be the foundation of the construction company’s point of view?
2. Which beliefs of the company do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the company?
4. What, if anything, in the point of view of the company, challenges your own personal assumptions?
5. What solution(s) might the company propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Climate Change Skeptic**

**Climate Change Skeptic**: I am questioning all of this hype on climate change. It is really pitting “our economy” vs. “the environment.” Environmental protection is being viewed as putting ecology ahead of fossil fuel-burning electrical power plants, chemical facilities, steel mills, and ultimately economic growth.

People first called it global warming, then climate change, and now a fear of carbon. Carbon dioxide is a basic, natural molecule that makes life on Earth possible, and it is not a pollutant. They are working with a flawed predictive model.

Concerning high temperatures… All 8 continents have recorded their all-time record high temperatures prior to 1980, and 38 states recorded their all-time record highs prior to 1960. The highest decade of Heat Wave Index (according to the EPA) was in the 1930’s. “Winter mortality” due to freezing cold kills more people than the summer heat. With a global cold period from 1945-1977, the sea ice in the Artic increased. With no land masses to form thicker glacier ice, and a warmer global period now, of course the sea ice will melt and shrink.

Sea level rises are not spiking, but rather having a steady, linear rate of rise due to gravitational factors and tidewater lands actually lowering or sinking. Ocean acidification due to carbon dioxide emissions is very small over a long period of time, and was concocted just to bring the oceans into this global warming debate.

There are needed government regulations and laws for companies to scrub out pollutants of chemicals and metals from getting into the air. However, electrical utilities, automotive industries, and the like face ongoing carbon dioxide regulations on ill-advised science. This is raising energy and product costs, reducing economic growth and jobs, and causing governments to spend tax dollars monitoring these regulations. Eventually, companies “do not want the hassle” and will move elsewhere to a different state or even country. We are wasting time, resources, and investments to “solve” a problem that does not exist. We need to worry about the employment and revenue in the United States first.

Discussion Questions:

1. What values or beliefs might be the foundation of the skeptic’s point of view?
2. Which beliefs of the skeptic do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the skeptic?
4. What, if anything, in the point of view of the skeptic, challenges your own personal assumptions?
5. What solution(s) might the skeptic propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Financial Investors**

**Investors are looking at investment risk in light of climate change. Furthermore, it is not just wealthy people, but everyone with a retirement 401k plan that should be aware of an ever-changing *environment and market*.**

Some may question the science, but all of us are faced with a swelling tide of climate-related regulations and technological disruption. Some investment companies are looking at how to mitigate climate risks, exploit opportunities or have a positive impact.

A quick overview of the climate change reality presents risks and opportunities through these four areas:

1) physical: more frequent and severe weather events

2) technological: advances in batteries, electric vehicles, or energy efficiency

3) regulatory: subsidies, taxes and energy efficiency rules

4) social: changing consumer and corporate preferences

Missouri investors are considering these two investment choices:

1) Oil production in North Dakota, or…

2) Wind turbines in North Dakota

North Dakota is No. 2 in the country for oil, producing 1 million barrels a day. The state is 11th in wind capacity. But even more impressive is the amount of power produced by wind compared to the number of homes in the state. North Dakota wind turbines power twice as many households than are in the state.

In terms of climate, North Dakota has gotten warmer and is wetter over the last 50-75 years. The rate at which North Dakota’s climate is warming is expected to accelerate through the rest of the century. Surprisingly, winds are gradually calming.

With this latest climate update regarding calming winds, investing in wind turbines seems risky. Maybe we should stay with the tried and true: oil production.

Discussion Questions:

1. What values or beliefs might be the foundation of the investor’s point of view?
2. Which beliefs of the investor do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the investor?
4. What, if anything, in the point of view of the investor, challenges your own personal assumptions?
5. What solution(s) might the investor propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Coastal Timeshare Owner**

**A Missouri family is troubled with their beachfront timeshare.**

The Smiths love the beach and the ocean, and they have been part of a beachfront property timeshare in Florida for the last 15 years. They enjoy getting away from their busy lifestyle in Missouri and spending some quality family time by the ocean. However, they have noticed some changes over the years with their beachfront property. For example, even though there is ample beach area, the ocean water seems to be coming up higher on the beach at high tide than it ever has before over the last 15 years. Hurricanes seem to be increasing in intensity, but so far, they only had to cancel one vacation due to the heavy rain of a hurricane. Interestingly enough, no one is talking about the loss of beach or the increasingly powerful hurricanes.

The Smiths have been investigating other beachfront property along American coastal areas. There seems to be a recurring theme: the ocean continues to encroach upon beachfront property in addition to powerful storms and hurricanes reeking havoc by destroying homes and eroding beaches. Many beachfront properties are struggling.

The Smiths, however, stumbled across information regarding beachfront property in South Carolina. Towns along the coast there are involved with dredging sand from the sea floor and pumping it onto beaches – a practice called “nourishment.” This practice has helped to protect beachfront property.

Who pays for “nourishment” in beachfront towns?

Does it have to be redone? If yes, where does that additional money come from?

Nothing is currently being talked about with their Florida beachfront timeshare in terms of saving the beach. The Smiths are now considering selling their timeshare in Florida and going with a beachfront community that is more proactive in protecting their beach.

Discussion Questions:

1. What values or beliefs might be the foundation of the family’s point of view?
2. Which beliefs of the family do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the family?
4. What, if anything, in the point of view of the family, challenges your own personal assumptions?
5. What solution(s) might the family propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Health Care Providers**

**Health care providers are facing an uncertain and expensive future.**

Health care workers have been extremely alarmed by the population explosion of deer ticks in the eastern U.S. Scientists, in chemically treated overalls, have determined this through numerous field studies over the years. Along with the exploding tick population there has been an increase in tick related illnesses at the local hospitals. Ticks can carry at least 16 types of disease causing organisms. Infections from these organisms can be severe and even fatal.

A number of factors are considered to contribute to the population boom with warmer winters and higher humidity playing a big role. Furthermore, the Center for Disease Control has acknowledged that some tick born illnesses, like Lyme disease, are spreading into states that have never recorded it before in their history. Again, warmer winters and more moisture are considered to be contributing to this spread.

In the southern states, there is another concern among health care workers regarding mosquitoes carrying diseases. Two weeks after a mega hurricane, the mosquito population explodes. Combine this population explosion with mosquitoes carrying diseases being inadvertently brought to the states on airplanes and ships – this spells a recipe for disaster. Although no new diseases are being circulated around the United States at this time, the 2016 outbreak of the Zika virus is seen as evidence that travelers from the tropics could cause a U.S. outbreak.

In addition to disease carrying ticks and mosquitoes, health care providers are concerned about accommodating the needs of people after mega floods, mega hurricanes, mega fires, mega tornadoes, etc. Many physical needs must be addressed, however, emotional needs cannot be neglected.

How do we as health care providers manage the additional health related issues associated with climate change?

* Should we provide more education for disease carrying ticks and mosquitoes?
* Where will the funding come from to educate citizens?
* With future, potential outbreaks and epidemics, how do we get more funding for additional medicines, vaccines, new treatments, new recruits, and training of staff?

Discussion Questions:

1. What values or beliefs might be the foundation of the health care provider’s

(HCP) point of view?

1. Which beliefs of the HCP do you think are substantiated by evidence?
2. In your opinion, which beliefs, if any, are unsubstantiated by the HCP?
3. What, if anything, in the point of view of the HCP, challenges your own personal assumptions?
4. What solution(s) might the HCP propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**

**Stakeholder: Non-profit Relief Organizations**

**The weather seems to be getting more severe. How do we plan for that?**

Scientists predict that climate change in California will result in megafloods. The increase in temperatures and extreme precipitation, also called atmospheric rivers, will contribute to more epic floods. Loss of homes and lives could be epic as well.

Megafloods are already occurring, and water is traveling in new ways and flooding new places. Some of it is due to development, impervious surfaces, poor planning, and/or poor infrastructure. Climate change is also contributing. Rainstorms are more intense (10 inches plus) and more frequent than they used to be. Residents in flood prone areas are trying to determine if they should rebuild or move to a new location. They are tired of going through flood events over and over again.

New York City sits right on the water. It is a target for flooding and storms of increasing intensity. Superstorm Sandy has already shown this by a six foot storm surge from the Hudson River severely impacting the West Chelsea area.

As climate change intensifies, megafires are occurring in the U.S. at much higher rates over the last two decades. Catastrophic flames ripped through Napa and Sonoma Valleys leaving 42 dead and upwards of $8 billion in damage. 2017 marked the nation’s costliest wildfire-fighting season – a record $2.4 billion for the U.S. Forest Service to battle flames in an area the size of New Jersey and Delaware combined. One scientist in Oregon has warned that the Pacific Northwest is capable of unleashing megafires: walls of fire that can create their own weather, take lives, and disrupt many others as they consume more than 100,000 acres.

The intensity and frequency of natural disasters continues to grow. Non-profit Relief Organizations are faced with many challenges including the following:

1. How can we be best prepared, ahead of time, to face natural disasters in terms of food, water, shelter, medicine and workers trained and ready to deploy?
2. How do we plan for equipment needs used for recovery and where should it be stored?
3. Do we have a computer system that is capable enough to track volunteers and organize deployments during these mega events?
4. Where do we get funding for all of these continued catastrophic events? Our donors are already over-tapped with requests.
5. How do we prioritize disasters when many are occurring at the same time?
6. If the disasters continue at the 2017 rate, how will we possibly keep up?

Discussion Questions:

1. What values or beliefs might be the foundation of the Non-profit Relief Organization?
2. Which beliefs of the organization do you think are substantiated by evidence?
3. In your opinion, which beliefs, if any, are unsubstantiated by the organization?
4. What, if anything, in the point of view of the organization, challenges your own personal assumptions?
5. What solution(s) might the organization propose? What counter-arguments would you expect from other stakeholder groups?

**Please be prepared to share one possible solution with the larger audience.**