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With daily news briefs, political sound bites, and blatant advertisement urging citizens to go into a moral frenzy about climate change, it is not surprising that practical solutions are not only difficult to conceive, but even less plausible to implement. In the midst of the actual debate about global warming and its prevention, policies or actions to negate the impacts of climate change have become generalized as a trend to “go green.” And although it is evident that the world is shifting its focus on changing weather patterns, what is not clear to the average person is what causes climate change and what actions will effectively slow the destruction it wreaks on the planet. The obvious outcome of this incident is that many people are unaware of the approaches they can take, as ordinary citizens, to better our environment. Protecting the earth becomes a political issue, defended by different parties in different contexts, but still out of reach for the average person. However, one of the most basic plans that could be adopted by governments and people alike to ease the problem of climate change by altering one of the simplest occurrences in their lives: not their cars, their energy companies, or even the products they use, but diet.

Most of the policies proposed to combat global warming deal with reducing carbon dioxide emissions through the use of alternative energy or more eco-friendly petroleum drilling. Although both of these solutions should be explored further, restricting actions to reducing CO2 emissions is counterproductive. The problem of global warming and climate change should be attacked on multiple fronts, including the reduction of other gases such as methane. In fact, although CO2 emissions account for around 50% of the greenhouse gases in the atmosphere, and thus climate changes, a gas such as methane is responsible for nearly half of all human-caused warming in the world today.

Thus this plan endorses that governments around the world take actions to reduce the emission of methane gasses by promoting plant-based diets and a reduction in animal agriculture.

The first thing that must be examined is why methane emissions must be addressed in the fight against global warming.

In the status quo, policies tend to address reducing carbon emissions. Even the Kyoto Protocol, the international agreement developed by the UN Framework Convention on Climate Change and spearheaded by the United States, outlines three main mechanisms to slow the progress of global warming. These mechanisms are market-based, so countries can tangibly gauge the success of their efforts to clean up the planet. They are, emissions trading (mainly carbon trading), national projects that reduce carbon emissions, and joint implementation to encourage foreign investment. There is no mention to the other greenhouse gasses which contribute to the devastation of the planet, nor is there any incentive for a country to reduce their emissions of gasses such as methane which prove to be more dangerous than CO2.

Methane, according to Earth Save International, has been increasing in the atmosphere at rates faster than CO2. Methane levels have doubled in the last two hundred years, while CO2 levels have risen

by about 31%. Furthermore, the Environmental Protection Agency has developed a measure called the Global Warming Potential to assess the danger of any pollution-causing gas in regards to climate change. On the GWP scale, methane is recognized as 21 times more powerful than CO₂. The GWP scale is based on a gas's effectiveness as a greenhouse gas, which means that methane traps and absorbs heat 21 times more than CO₂, both of which directly lead to global warming. Couple this with the fact that there is just as much methane in the air as there is CO₂, and that methane occurs naturally as well as artificially, and this instigates the situation even more.

The EPA has publically acknowledged that along with carbon emissions, methane should be given the most significant amount of attention to stop the onset of climate change, but so far, their calls have gone unanswered. John Acheson, a geologist at the Baltimore Sun, exemplifies the need to shift the focus from a reduction of CO₂ to the downsizing of methane when he states, "So forget rising sea levels, melting ice caps, more intense storms, more floods, destruction of habitats and the extinction of polar bears. Forget warnings that global warming might turn some of the world's major agricultural areas into deserts and increase the range of tropical diseases, even though this is the stuff we're pretty sure will happen." The fact is that global warming due to carbon emissions is a problem that scientists and activists are working on across the globe. But the larger and more looming issue of methane emissions goes largely ignored.

The next thing to realize within the plan is why methane gasses are a direct result of human consumption, and can thus be negated through governments proactively endorsing plant-based diets and a reduction in animal agriculture.

Much like CO₂, methane is released into the atmosphere due to human activity- this explains why, compared to the pre-industrial methane levels in the 1700's, there is 150% more of the gas in the air currently. But even though a portion of methane emission can be attributed to human actions such as coal mining and landfills, the majority of emissions are due to animal agriculture. The practice of breeding, raising, and slaughtering livestock and other animals causes the release of more than 100 million tons of methane into the air annually. Increased demand for meat that is intended for consumption only furthers the problem. In fact, the rate at which people consume meat has increased 5 times over the last 50 years, and trends reflect an increase that is yet to come.

It should therefore be no surprise that the World Watch Institute reports that more affluent and industrialized nations consume more meat; "coincidentally," they also happen to have higher rates of carbon, methane, and other greenhouse gas emissions. The WWI goes on to report that the United States and China, which contain a quarter of the world's people, consume half the world's supply of poultry, over 65% of the world's pork, and 35% of all the beef in the world. These stark statistics do not even account for the affluent nations in Europe, nor do they reflect the fact that the commercial farming of fish was at 21 million annual tons in the 1950s, but now stands at over 120 million tons a year.

Animal agriculture inherently increases the levels of methane in the world due to the fact that it is a gas that naturally occurs during the digestive process of many animals, and is released through their flatulence. Thus, the more animals there are in the world- especially livestock (which accounts for over 85% of the methane released through animal agriculture yearly) - the more methane is released into the atmosphere. Furthermore, animal agriculture promotes methane pollution because animals produce solid waste which breaks down and releases the remaining 15% of the gas into the air. Animal

agriculture is so damning that the UN Food & Agriculture Organization reports that livestock generates 18% more emissions than do all the transportation vehicles in the world combined.

Therefore, the carbon footprint a vegetarian leaves behind compared to a person who eats a significant amount of meat is similar to the difference between someone who drives a sedan versus a sports utility vehicle. But the energy efficiency of a person's diet is almost never acknowledged. In fact, recent studies published in *Earth Interactions*, have disclosed that in a comparison of five different diets, ranging from the average American diet (high in meat, protein, animal products) to a fish-only or vegetarian diet, the most energy efficient choice was the vegetarian diet, followed by a one which included poultry.

One can measure the energy efficiency of a diet by looking towards emissions that are released in all the stages of production of the food products. It can then be seen how damaging the average American diet is, since it requires an extra 1.5 tons of greenhouse gas emissions per person annually, including methane & CO₂, than compared with a vegetarian diet.

This is where the plan steps in. In the United States, agencies such as the Federal Food & Drug Administration already exist to raise public awareness about healthy diets. Governments around the world are also taking steps to reduce carbon emissions by doing everything from giving subsidies to car companies who go green, to providing citizens in certain areas with tax breaks for installing alternative energy sources within their homes. Thus, a national government can be an appropriate agent of action to promote diets that are more environmentally friendly through the use of entities that already exist, such as the FDA. If governments are already playing an active role in the development of new technologies that have a reduced carbon impact or can even help clean up the air, then they can urge their citizens through public awareness projects, to significantly reduce the amount of animal products they consume. Much of the information relating to diets and global warming is not promoted by mainstream media, but by framing the topic as a focal point of the struggle against climate change, governments can take a large step in solving the problem.

Along with encouraging a plant-based diet, governments can encourage a reduction in animal agriculture. In addition to the very clear loss of methane production that will certainly result, this plan has the advantage of offering additional benefits that inversely impact global warming on many fronts.

First, animal agriculture has led to diverting of important human resources, an issue that can be solved by this plan. Deforestation occurs, especially in rain-forest rich areas such as South America, because commercial farmers need more land for their livestock to graze. In developing nations, levels of meat consumption grow higher each year as the countries try to mirror the economic and social actions of Western and affluent nations. By decreasing the demand, this plan will directly reduce the need for deforestation. Plant life is central to a stable global climate, since plants & trees consume CO₂ and release oxygen. Yet when this plant life is cut down to make way for a pasture, all the carbon is released back into the atmosphere. The Nature Conservancy states that up to 20-25% of carbon emissions are due to deforestation and the use of land for cattle farming.

The other important resources that are diverted to the raising of livestock to meet consumer demands include grain and water. Over 36% of the grain in the world is used to feed livestock, and the number is projected to rise since the demand for meat rises on a yearly basis. This plan would reduce at least a small percentage of the 670 million lbs of grain used to feed livestock, and the freed grain could

feed millions of people instead. If only ten percent less grain was used, then over 225 million people could be additionally sustained. Even a small reduction could thus prove beneficial for the human race as a whole. Furthermore, the massive amounts of freshwater used to not only irrigate the grain but to produce beef and pork could also be reduced, and thus ease the water crisis that afflicts even developed nations today.

Second, methane is dangerous in multiple ways, and CO₂ emissions actually cause more methane to be produced; this plan not only solves for such threats, but inherently increases global safety. As the world grows warmer, ancient ice caps have started to melt. World temperatures have already risen by half a percent in the last 100 years, and if they rise by only a few more degrees, a significant amount of these ice caps would melt. In addition to the issue of rising sea levels, according to geological studies done over numerous decades, these ice caps contain over 3000 times the amount of methane currently circulating in the atmosphere. The release of these stores of methane could trigger a global catastrophe- something that has happened at least twice in history. At high concentrations, methane can be explosive, and seeing as there is 400 gigatons of the gas of methane currently locked in ice, the release of even a small amount could spike global temperatures, kill off thousands of species, and cause oxygen levels to plummet.

Such methane hiccups already occur on a smaller scale. In 1986, pent up greenhouse gasses were released by Lake Nyos in Cameroon, Africa- and 1800 inhabitants of the area asphyxiated instantly. The release was sparked by an explosion due to high concentrations of methane within the lake. There have been efforts to de-gas the lake and similar areas- but such actions cannot be taken with the entire atmosphere. Since this plan directly reduces the amount of methane in the atmosphere, it will circumvent the rise of world temperatures and the likelihood that such an event will occur in the future of the world. But the action must be taken now, not within the next century or two.

The last unique benefit that will be discussed of this plan is the fact that it will increase the health of populations around the world. Countries that have higher rates of meat consumption also have higher rates of sickness such as heart disease, stroke, cancer, and other ailments. Food that is high in fat and protein content, such as red meat, has been clearly linked to epidemics of obesity as well as the aforementioned diseases. Thus, it can be seen that by discouraging the consumption of livestock and other meat, not only will the government be increasing the occurrences of environmentally friendly diets, but the government will be increasing the health of its populations. Since obesity is currently a widespread problem that costs the United States over \$70 billion annually in health care costs, this plan circumvents such fees and actually increases economic productivity. Furthermore, high concentrations of methane have been linked to incidents of brain cancer, birth defects, and genetic disorders. Landfills are an example of this. Theories suggest that landfills, which also spew the dreaded greenhouse gas, permeate water supplies and thus cause all these damaging health issues. By decreasing methane in the atmosphere overall, the plan decreases the chance of such an issue even occurring.

The struggle against global warming is not one that can be approached, solved, or prevented through the adaptation of a singular policy or plan of action. Only by addressing the issue on multiple fronts can any progress be made by mankind. Yet even this progress is inevitable unless the government steps up and publicizes actions that everyday citizens can take to clean up the air and the land around them. Reducing carbon emissions and alternative energy proposals have their own downfalls, and

something like a reduction in methane emissions should be committed in conjunction with other plans. But restricting public action by withholding crucial information will be devastating. Therefore, it becomes essential for governments to adopt a plan with such unique benefits as increasing global health and reducing deforestation. This plan's endorsement **that governments around the world take actions to reduce the emission of methane gases by promoting plant-based diets and a reduction in animal agriculture** will certainly be an important factor in the efforts to bring about positive climate change.