

Dousing the Flame



Climate change's impacts and potential solutions

STORY BY ARTI JAIN & ALZHRAA MAHMOUD

PHOTO BY VINCENT HSIAO

PHOTO ILLUSTRATION BY WILL KODNER

SLEEK SOLAR PANELS adorn rooftops like shimmering scales, wind turbines spin gracefully atop hillsides and verdant parks intertwine with bustling cityscapes. Pedestrians stroll tree-lined streets, breathing air as crisp and clean as a mountain breeze, while wildlife frolics in revitalized habitats. Yet, when gazing upon our current reality, the stark disparity between this utopia and the harsh truth of the present climate crisis becomes painfully evident.

Climate change, a term first coined by Wallace Broecker in 1975, refers to environmental shifts largely affecting temperature and weather patterns. While the Earth's climate has always varied, humans have accelerated these changes, culminating in an unprecedented climate crisis.

However, it would be an oversight to say that no one is improving the situation. Every day, governments, large corporations and individual citizens maintain and create environmentally-conscious standards. While some believe that even this amount of action will not be adequate, others continue to innovate, hoping to one day avert the climate catastrophe.

BACKGROUND

Temperature variation affects everything on the planet, from sea life to severe storms. One such area is agriculture, a sector often overlooked. Social studies teacher Kelley Krejnik is well versed on the science and history surrounding climate change, as she obtained her master's degree in sustainability and has since pioneered a new class, Sustainable Investigations, at Ladue High School.

"Missouri is largely a rural state so [farmers] are starting to be concerned about the crops they traditionally have grown, [thinking about whether they will] continue to thrive and produce the same meals as they have previously," Krejnik said. "A couple of degrees

can make a big difference between not enough time for freezing or germination."

Elliot Kellner, Director of Commercial Innovation at the Donald Danforth Plant Science Center, is similarly concerned with the implications of modern agricultural practices.

"At the Danforth Center, we're working on making all of these important crops more drought tolerant [and] more pest resilient,"

Kellner said. "In an environmental setting of changing climates, hopefully we can still be efficient and effective at producing food to make sure that people still have just as much food available as [they] do now. Specifically, we're doing so in a way that is more environmentally conscious."

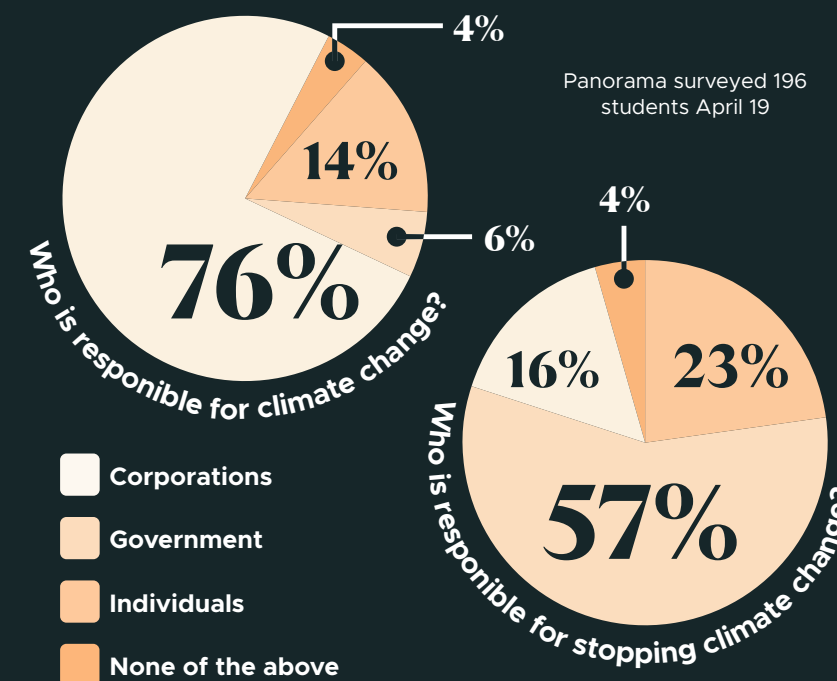
Regardless of how Kellner and the agricultural industry hope to innovate science, many agree that environmental changes, no matter how small or large, will be felt.

"Some of the things that we take for granted as being part of our life rituals are going to change," Krejnik said. "The climate, the weather [and] the environment are such instrumental parts of our social fabric and our cultural fabric that we have to think about. What do we want to hold on to, what do we want to preserve, what do we want to start anew, what do we want to prevent and how do we want to be resilient?"

ENVIRONMENTAL CLASSISM

Ultimately, climate change will affect everyone on the planet. However, the means and intensity of such an exposure differ widely throughout the world, and often falls upon socioeconomic divides.

Agricultural genetic modifications are specifically targeted towards western crops such as corn or soybean. However, the cassava plant, a major staple in the de-



What do you wish you did to reduce climate change's effects?



"I wish I got less plastic bags from the grocery stores. Those things are horrible. [I would] bring my own cloth bags when I go grocery shopping."

RICHARD RAMIREZ (STAFF)



"I wish I recycled more. I don't really do much for climate change, [but] I'd start talking about it more. I don't really talk about it a lot."

EVELYN ROBERT (9)



"I wish I didn't use the car that much. Maybe [I would] learn how to bike and do that for local transportation instead."

ALEX WANG (10)



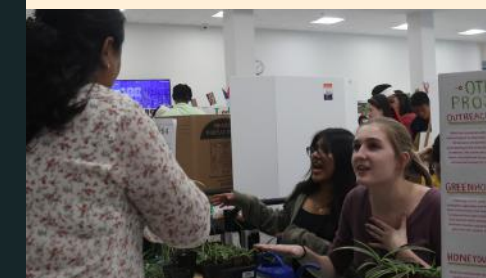
"I wish I advocated for my environmental issues in St. Louis. I wish I spoke more for the trees, like my idol the Lorax."

BETLEHIME GEMA (12)

'Due for a Change

Ladue student and staff opinions on climate change

BELOW: Eva Busker (12) (right) speaks about SAGE at a booth at Rams Around the World, a student led cultural festival, April 24. The club focused on their project of implementing a native pollinator garden and handed out plants grown in Ladue High School's greenhouse. "It's really important for people to know the things that Ladue is doing to work on how [it is] sustainable," SAGE director Ella Marks (12) said. (Photo by Mac Huffman.)



Paging SAGE

STORY BY ALZHRAA MAHMOUD

STUDENTS AT LADUE High School are initiating sustainability projects through SAGE, a club founded in 2019. Every year, the club participates in the Green Schools Quest, a state-wide challenge presented by the Missouri Gateway Green Building Council.

"This year, the theme was biodiversity — to promote animals and plants, things like that," sponsor Kelley Krejnik said. "A pollinator garden was an idea that was presented by the group, so that's what we're going to install."

A pollinator garden can increase native biodiversity and community engagement. SAGE also participates in educational endeavors, hoping to instill an interest in the environment early on.

"We've been reaching out to people who are younger and teaching them about sustainability," SAGE director Ella Marks (12) said. "So, they'll understand those concepts early on, and they go into their classrooms with that understanding that there is an issue in our world and there are things that we can do to address it."

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veloping world, lags behind in such genetic developments.

“There are [about] 365 million people in sub-Saharan Africa that are functionally dependent on cassava for their food security,” Kellner said. “But, until about 15 years ago, cassava had never been the target for any kind of genetic improvement because people in the United States don’t eat cassava and neither do people in Europe. There’s no market for it, and all of the firms that do that type of really high-tech work are in the West.”

For economic reasons, for-profit companies tend to focus on crops with higher monetary value. The Danforth Center is uniquely situated in this regard, as they are a nonprofit and can spend money on crops such as cassava without fear of losing out on profits. Nonetheless, this is merely one form of environmental classism — another is present within the United States itself.

“In Mississippi, there are petrochemical plants that create a lot of toxins that have increased the rate of cancer,” Krejnik said. “People who live there have lived there for generations and they don’t necessarily want to leave. They [also] didn’t build the chemical plants, are suffering and don’t always have the financial means to relocate. We get into a lot of these interesting ethical debates about who’s responsible for what, how do we help people, how do we repair the harms that could be caused, how do we prevent those harms [and] who is responsible for all of this. They’re not easy answers.”

FALSE INFORMATION

High schoolers are often asked about such concepts in their classes, leading to climate change’s popularity on social media platforms. While this creates an op-

portunity for promoting education and awareness, it also leaves ample room for misinformation.

“[There is] a lot of backlash perpetuated against the renewable energies that we have now,” SAGE director Ella Marks (12) said. “They do have their flaws — it’s not perfectly clean energy. I think that can be very damaging, especially when people think renewables are worse for the environment. [However], that’s not necessarily true unless you only look at one component of it.”

A popular example of misinformation is electric vehicles. According to the MIT Climate Portal, EV manufacturing produces 80% more emissions than the production of their gas-powered counterparts. However, that singular statistic paints an incomplete picture of EVs. Most sources covering sustainability paint an idealistic picture of environmentalism that ignores the true reality. SAGE leader Gabe Bernstein (12) especially notices this through his own climate research. Bernstein has taken two environmental classes at Ladue High School as well as completed internships with the Shaw Nature Reserve and Washington University in St. Louis.

“[Greenwashing is] where products try to [appear] sustainable to [cater to] that demographic of people who want to be sustainable,” Bernstein said. “When you really look into it, it’s not sustainable at all. It’s really harmful because people don’t always have the drive, motivation or time to do all this research to figure out if [a product] is sustainable.”

Amidst the attempts to move towards environmentally-friendly practices is the concept of over-rated methods of improvement. For example, reusables and the zero-waste movement are often considered one of the best ways to stop climate change. In reality,

CANCER ALLEY

A region in southeast Louisiana containing about 150 petrochemical plants. According to the National Air Toxics Assessment in 2015, citizens in this region are more than 50 times more likely to develop cancer. This area is predominantly low-income African Americans.

THE CENTRAL CHILE MEGA DROUGHT

Drought in Chile from 2010-2020 caused 9 million people, or approximately 51% of the population, to live in water scarce regions.

THE NORTH ATLANTIC GARBAGE PATCH

Similar to the more commonly known Pacific Garbage Patch, another garbage patch lies dormant in the North Atlantic Ocean. Contrastly to the Pacific Ocean, the North Atlantic Ocean contains extremely small microplastics harming marine wildlife health and safety.

BRA-CHILL, IT’S NOT ALL BAD

According to the U.S. Embassy in Brazil 2023, Brazil plans to eliminate illegal deforestation by 2028, greatly reducing Brazil’s carbon footprint.

according to the Royal Melbourne Institute of Technology, reusable tote bags must be used over 104 times to counteract the environmental costs of their production.

“It’s important to keep in mind that sustainability isn’t completely perfect,” Marks said. “Ideally, in the future, our practices can be environmentally friendly without any sort of harm to other areas of life. Right now, though, it’s not always linen-wrapped and pretty.”

SEEKING SOLUTIONS

Amidst the sea of misinformation, trends, advice and research, it can be hard to find a true solution to the climate crisis.

“There needs to be more of a cohesive effort towards sustainable practices,” Bernstein said. “Obviously, it’s not very realistic if we just want to convert everything to electrical or solar power in the next few years. There are a lot of things that the government can be doing — it’s just that people don’t have enough force to drive the government to [action].”

While some believe that the government is responsible for climate change, others argue that it is up to individuals and that the government cannot mandate sustainable choices. Kellner believes that there are limitations to the impact that individual decisions have.

“Everybody should be out there doing everything that they can do to improve the situation,” Kellner said. “But, at the end of the day, there’s a real limit to what one individual can do. [For example], if you ceased all [of] your own greenhouse gas emissions personally or in your household, does it change something? Yes, but it’s not observable.”

Having worked alongside federal agencies in the public sector, Kellner understands the government’s limitations. Now that he

works with for-profit agricultural-technology companies, he has found another way to adopt environmentally beneficial practices.

“We see very limited adoption of technologies that come out of the public sector,” Kellner said. “However, technologies that are actually taken to market by for-profit companies are seeing much higher rates of adoption. Normally, that’s because there’s some sort of positive financial benefit for the farmer.”

Most students lack the opportunity and resources to invent new technologies. Nonetheless, there are alternative ways to contribute.

“Instead of seeing [the environment] as a disappointment, see awe in what is going on on that day,” Krejnik said. “[Take] the bees that were in the tree [April 1 at Ladue High School]. That might seem like a nuisance to some people, but it’s incredible when you stop and think. Those are bees, and the world needs those pollinators. There could be a day and a place where that type of thing is so rare and so unheard of that you’ll be telling that story to somebody. I don’t want that to be the case.”

Small changes, from plants blooming earlier to changes in animal migration patterns, show climate change’s ramifications. St. Louis residents, specifically, have dealt with increasing flooding as a result of changing temperatures. Citizens tend to take notice when effects are observable from their backyard, school or wallet.

“Never underestimate what an uncomfortable human will do to be comfortable,” Kellner said. “There are technical solutions to the climate crisis. Some are expensive, but through innovation we can make them cheaper. Or, through public action, we can fund or subsidize them. So, we’re going to make it. It’s going to be weird, but we’re going to get there.” 