How will you reimagine our future?

REIMAGINE OUR FUTURE

International Sustainability Competition

https://reimagine.web.illinois.edu/

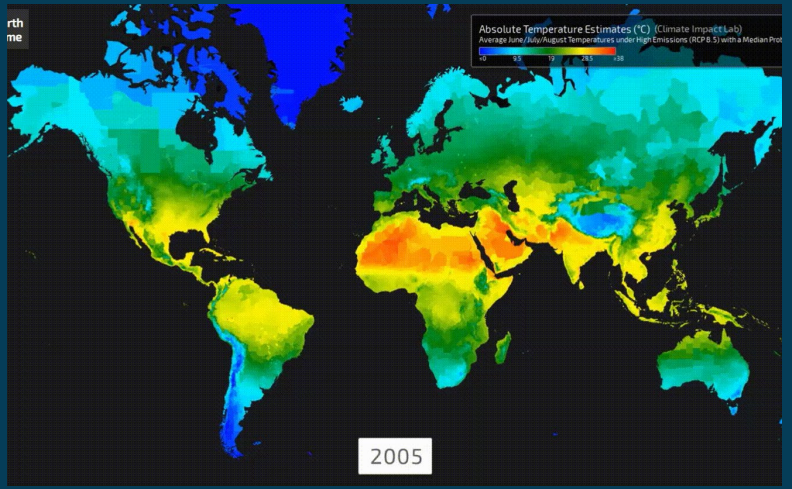
Your idea could be WORTH **$2000** to you and have an impact on the future!

STUDENT SUSTAINABILITY COMMITTEE

The Challenge & Your Mission

The global sustainability crisis consists of many interrelated challenges:

- Global climate change
- Persistent poverty
- Food and water insecurity
- Lack of quality education
- Social inequities
- Loss of biodiversity



Mission: Develop, alone or in a team, a bold and innovative plan or solution that promotes one or more of the United Nations' Sustainable Development Goals (SDGs).

Step 1: Registration

1. Identify a local or global problem that you aim to address and consider its connections to the UN Sustainable Development Goals.
2. Chat with your friends and classmates. You are welcome to work as a team or as an individual.
3. If you are in need of a team, you may post on the Discussion Board to find teammates with complementary interests and expertises.
4. Do preliminary research.
5. Register for the competition before **September 19, 2022 at 11:59 PM (CST)**

https://sdg.data.gov/

https://reimagine.web.illinois.edu/registration/

Step 2: Seek the Advice of a Specialist

6. Analyze social, technological, economic, environmental, and political aspects of both the problem and your solution wherever it is relevant.

7. It is required for entrants to seek the advice of a specialist regarding your ideas. We have provided a list of specialists on our webpage or you can find your own specialist. Submit a short description of your meeting with a specialist by **October 14, 2022 at 11:59 PM (CST)** .

Step 3: The Fact Sheet

8. You must submit your ideas in a short fact sheet before **November 21, 2022 at 11:59 PM (CST)**.

9. Your fact sheet must consist of no more than 1000 words and typically 1-3 pages long. All excellent fact sheets will be widely publicized after the competition.

https://reimagine.web.illinois.edu/fact-sheet-requirements/

Step 4: Finalist Presentations

10. A team of judges will assess your entry and select 10 to 12 finalists (announced November 25).

11. The finalists will be asked to produce a 3 -minute video that captures their idea(s) or solution. Videos must be uploaded on the competition webpage by **November 29, 2022** .

12. The Awards Ceremony will be held online and at the Siebel Center for Design on **December 3, 2022** .

13. The winners will present their videos at the prestigious World Sustainability Teach-in Day on **December 7, 2022** : https://esssr.eu/wsdtid/

Eligibility & Prizes

- Must be a full -time undergraduate student at a participating university in or outside the US;
- May participate alone or (preferably) in a team of your own selection. There is no maximum number of teammates. It is however strongly encouraged that team members should be from different disciplines (e.g., biology, history, and computer science)

One (1) Top Prize:	Two (2) Second Prizes:	Three (3) Third Prizes:
$2000	$1000	$500

Based on sponsor support, other awards in the form of internships, among others, could be awarded.

Participants will improve their career prospects by interacting with sustainability professionals in industry, consulting firms, government, or academia.

https://reimagine.web.illinois.edu/competition -guide/

Important Dates

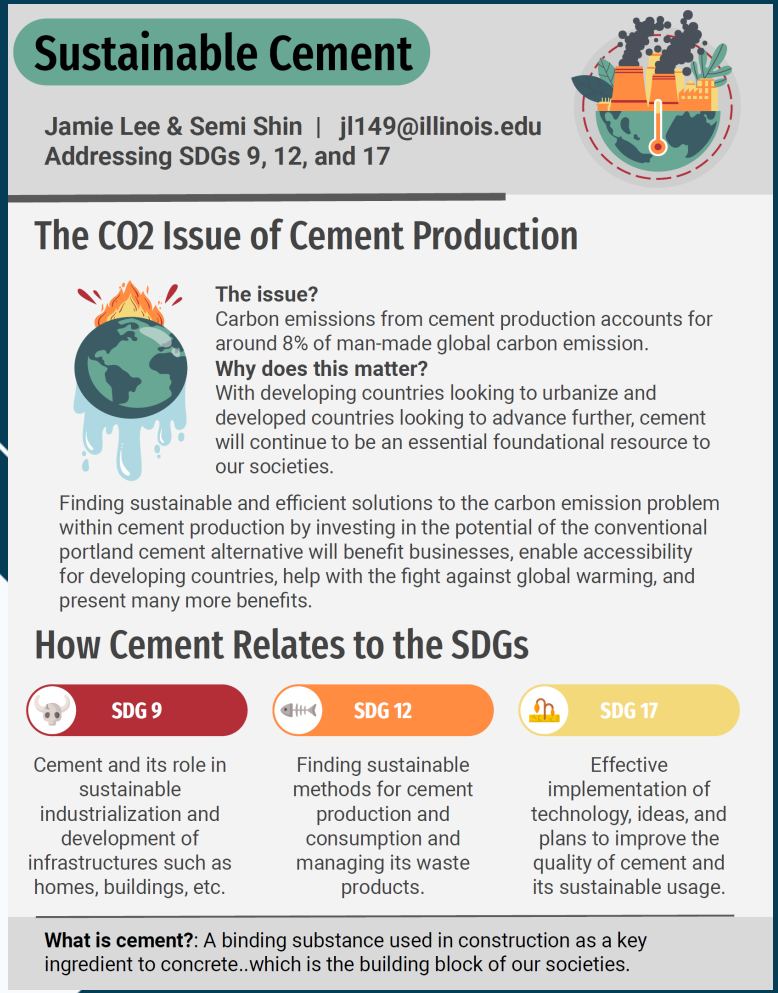
1. Registration: September 19, 2022 at 11:59 CST
2. Seek the Advice of a Specialist: October 14, 2022 at 11:59 CST
3. Submit a Fact Sheet: November 21, 2022 at 11:59 CST
4. Finalists Notified: November 25, 2022
5. Finalists Record Presentations: November 28 -29
6. Awards Ceremony: December 3, 2022
7. Winners Presentation to World Sustainable Development Teach -In Day: December 7, 2022

Previous Winners

1. **Overall Winner: Team 19, Jamie Lee and Semi Shin, “Sustainable Cement”**

1. Runner-up: Team 45, Advay Sudarshan, Aryan Panigrahi, and Yuge Ji, “An Energy-Efficient Cooling System for Future Data Centers”

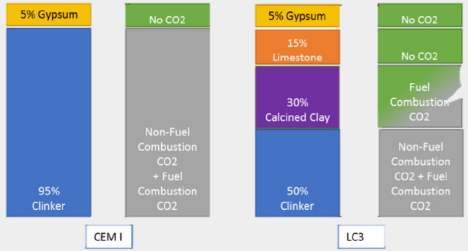
1. Third Place: Team 37, Sakshi Vaya, “Education X”



Our Alternative: LC3

What is LC3?

LC3, simply put, is a variation on our conventional portland cement. It reduces the use of clinker* (main ingredient of cement) in the production process and replaces it with calcined clay which inherently has significantly less carbon emissions and eliminates the need to break down limestone.



Has potential to reduce up to 40% of of carbon emission in the cement production process.

No new technology or novel process is required to switch to LC3! A slight altering of the portland cement production method will do.

Despite its scalability, effectiveness, and efficiency, LC3 isn't being utilized to its fullest potential. Aside from relatively small scale projects in developing countries, there has been no significant applications.

More body of research and credibility (safety, durability, etc.) on cement alternatives like these could help with our global green efforts. Environmental organizations and local businesses/communities can spearhead change.

Industrialization, construction, consumption, etc. isn't going to slow down any time soon. Even if LC3 isn't the perfect solution, as long as this sparks and stresses change, it will lead us towards a more sustainable future.

***Clinker**: Crushed limestone and minerals heated at high temperatures; high quantity required for cement; also the main source of carbon emission.

Implementation

Our Goal

Rather than introducing a new technology, we're introducing a preexisting one in the hopes of sparking conversations and bringing the issues behind cement production under the spotlight of the sustainability conversation.

Our local ecosystem here at UIUC and its surrounding communities could become the starting place of such conversations and we need your help. Promoting further research, small-scale projects, and the implementation into our local infrastructures is our deed, and those with power and knowledge can act on our behalf.

Why Businesses Should Care

1. LC3 can be cost-effective and profitable with accessibility to clay
2. Production cost of LC3 has potential to be 25% lower due to energy and material savings
3. Green alternatives and solutions should be prioritized considering the changing politics, green policies, and restrictions that may come about.

Caveats and Things to Consider

Establishing the safety and credibility of LC3 or any alternative is crucial. In addition, seeing how it will fit into our unique ecosystems will require a lot of time and effort from experts and stakeholders.

Remember that we are all stakeholders when it comes to shaping our communities and our planet.

Our sincerest thanks to: Dr. Iwona Jasiuk (Professor in the Department of Civil and Environmental Engineering at UIUC, ijasiuk@illinois.edu), Mr. Wes Maurer (National Smart Cities Lead at Gannett Fleming, wmaurer@GFNET.com), and Mr. James Jennings (Manager in the Bureau of Land of the Illinois EPA, James.M.Jennings@illinois.gov)

https://www.sciencedirect.com/science/article/pii/S2238785421010048
https://www.designingbuildings.co.uk/wiki/Limestone_calcined_clay_cement_LC3
https://www.enr.com/articles/44447-low-carbon-cement-gains-ground-in-non-us-markets
https://www.icevirtuallibrary.com/doi/full/10.1680/jgrma.18.00029
https://iopscience.iop.org/article/10.1088/1755-1315/796/1/012037/pdf
https://www.youtube.com/watch?v=f9618uQIZmc&ab_channel=TED
https://lc3.ch/the-material/
https://en.wikipedia.org/wiki/Calcination
https://www.usgs.gov/centers/nmic/mineral-industry-illinois
https://www.cement.org/cement-concrete/how-cement-is-made

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

We hope to see your submission!

STUDENT SUSTAINABILITY COMMITTEE

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN