



GCIC 2023-2024 Cohort List

Sustainable Human Settlement; Affordable and Clean Energy (SDG7, SDG11)

Sustainable Industrial Manufacturing (SDG 9)

Reduce, Reuse, Recycle; Resource Efficiency (SDG 12)

Sustainable lifestyle and Responsible Consumption (SDG12)

Other Actions to Combat Climate Change (SDG13)

Notes:

- *All projects are listed alphabetically by their project names.
- * Your project might be recategorized for better alignment with the topic.
- * P/Y in front of your project name means:
 - P – Professional Innovator
 - Y – Youth Innovator



Sustainable Human Settlement; Affordable and Clean Energy (SDG7, SDG11)

P | Chedza Solar Backpack

Chedza Solar Backpack provides affordable, clean energy to students and rural residents without electricity, addressing off-grid study challenges. It eliminates harmful kerosene, candles, and fossil fuels, reducing health and environmental risks. Crafted from durable waterproof canvas, it incorporates a solar panel, LED light, and USB port. Users can illuminate their homes at night and charge devices while carrying books and laptops.

Location: Gaborone, Botswana

P | CLIP Energy

CLIP is an affordable device which tells households how much energy each of their appliances uses and when. This empowers users to make informed choices, reducing household electricity usage by up to 20%. It's also a valuable tool for those facing a cost-of-living crisis, helping them save money as disposable income shrinks and households seek ways to cut energy expenses.

Location: London, UK

Y | Nano-Friction Energy Collection System

This team envisions deploying Triboelectric Nanogenerator (TENG) systems in households, capturing untapped mechanical energy from everyday activities. These systems convert nano-friction into usable electricity, offering a green energy alternative. They've designed two TENG systems: a roof-mounted water droplet TENG for raindrop friction and a floor-installed press-type TENG for movement friction. Additionally, they explore using straw as a raw material for TENG cathodes, furthering their commitment to sustainability.

Location: Henan, China

P | PanelTech.US

PanelTech.US proposes a sustainable development project for Bantul Regency to set a global precedent in waste management. It will convert organic waste into probiotic fertilizers, hazardous waste into green energy, and clean plastic into green lumber. The project includes a repurposing facility to reduce landfill waste and generate green raw materials, as well as educational and tourism components, university partnerships, and green housing projects to promote eco-friendly living and job creation.

Location: Bantul Regency, Indonesia

Y | PowerUpCommunities

PowerUpCommunities is an innovative energy efficiency program aims to improve the lives of low-income communities in Arizona and New Mexico by providing accessible, affordable, and sustainable heating and cooling solutions for all.

Location: Stanford, CA, USA



P | ReinLight

ReinLight is a solar-powered, portable water purifier designed to transform contaminated water into safe drinking water, without the need for grid electricity. It efficiently purifies 8 liters of water, removing 99.99% of viruses and bacteria, thereby reducing health risks. It addresses water scarcity in sub-Saharan Africa exacerbated by climate change.

Location: Kano State, Nigeria

Y | Roof Greening

This project is a plan for the implementation and popularization of Roof Greening, which aims to effectively use plants and a series of technologies to change the situation that a large number of buildings' roofs are discarded and not used.

Location: Wenzhou, China

P | Varea

Varea pioneers consumer hydrogen deployment with cost-effective modular fuel stations. They've developed a prototype at Greentown Labs, focusing on versatility and affordability in infrastructure development. Currently, the hydrogen ecosystem lacks support, with limited fuel cell stations. Varea's fuel stations provide an all-in-one solution for hydrogen production, compression, and refueling with a compact design, optimizing space utilization and scalability. This innovation addresses issues like large-scale hydrogen storage and costly installation.

Location: Texas, USA

P | YPES

YPES produces biomass briquettes as an energy alternative to traditional charcoal and firewood for cooking and heating, targeting off-grid households and those unable to use electricity for these purposes. They utilize organic waste materials, including agricultural residues, sawdust, and wood chips, ensuring no contribution to deforestation. This approach also generates income opportunities for local communities, fostering poverty reduction and economic development.

Location: Malawi

P | Zephyr High Efficiency AC

Increasing global temperatures increase the demand for cooling. Space cooling is an urgent global need and a major contributor to greenhouse gas emissions. Zephyr develops a novel approach to space cooling that will reduce energy consumption by two-thirds with commensurate reductions in carbon emissions and cost. Their refrigerant-free technology does away with the vapor compression cycle in favor of a new thermodynamic cycle.

Location: Massachusetts, USA



Sustainable Industrial Manufacturing (SDG 9)

P | Algreen

Algreen provides sustainable alternatives to petroleum-based polyurethanes, which account for 8% of global plastic production. Commonly used in cosmetics, packaging, autos, and fashion, conventional polyurethanes originate from carbon-heavy petroleum refineries and often end up in landfills or incinerators. Algreen's innovative materials are derived from biomass, agricultural waste and algae. These fully biobased polyurethane alternatives is cost-effective, recyclable, and biodegradable, with a 50% CO2 reduction.

Location: London, UK

P | Argonauts

Argonauts offers a biobased alternative to polyester. Their novel process utilizes agricultural waste from sugarcane to create a bacteria-based polymer, Polyhydroxybutyrate (PHA), which can be spun into thread. Their product is circular and biodegradable, addressing the issues of fossil fuels and microfiber pollution. It also emits 80% less carbon than polyester. By replacing just 1% of polyester, it could save thousands of tons of ocean microfibers and landfills.

Location: New York, NY

P | Faeba

Faeba aims to produce scalable, cost-effective textiles, empowering the fashion industry to achieve carbon reductions. Their first product is a textile made from banana fabric sourced from agricultural waste. Conventionally, banana plants are used for just one fruiting cycle, leading to significant emissions and wasting tonnes of usable material annually when they are burned or left to decay.

Location: London, UK

P | Fibe

Fibe is revolutionizing the fashion industry with a technology that extracts cellulosic fibers naturally occurring in potato harvest waste. Their primary goal is to develop a versatile material, poised to become the next mainstream textile fiber, offering sustainable, affordable, and scalable materials for the fashion industry.

Location: London, UK

Y | Iowa Solid Waste Management (ISWM)

ISWM, an ambitious youth group, presents a guidebook for corporate manufacturers, emphasizing education, implementation, and innovation in reducing industrial waste. With next generation's perspective, they aim to disrupt the cycle of environmental harm from current industrial standards, providing a starting point for



understanding "why," "what," and "how" to manage industrial waste. Their belief in advocating for improvement drives companies to invest in a sustainable future.

Location: Iowa, USA

P | Microbial Zinc Oxide manufacture

A sustainable industrial production of an important metal oxide, Zinc Oxide. Unlike the traditional combustion manufacturing process, which heavily relies on intensive energy consumption and generates tremendous CO₂, this novel technology generates renewable electricity instead, drastically reduce CO₂ emission, and reduces the operational cost. The functional microorganisms can fix CO₂ and convert CO₂ to biofuel or multi-carbon compounds at the same time.

Location: Boston, USA

P | Phabuilder

Phabuilder's "Next Generation Industrial Biotechnology" (NGIB) method revolutionizes Polyhydroxyalkanoates (PHA) production. PHA, eco-friendly biomaterials, offer a greener alternative to petroleum-based plastics. However, its industrialization has been hindered by high production costs and unstable product quality. NGIB's energy-efficient, AI-controlled fermentation process reduces costs, freshwater usage, and complexity, enabling successful PHA industrialization, overcoming the disadvantages of the current industrial biotechnology.

Location: Beijing, China

P | PulpaTronics

PulpaTronics develops a sustainable alternatives for radio-frequency identification (RFID) tags. RFID tags are electronic circuits embedded in products for identification, item tracking and inventory management in retail. PulpaTronics creates a paper-only RFID tags that do not require an antenna or a microchip, eliminating metal mining, streamlining manufacturing processes and reducing overall environmental impact. These paper-only tags are recyclable and significantly cheaper than conventional ones.

Location: London, UK

Y | Yisiji

Yisiji is a digital platform for carbon emission monitoring and asset management. Using GIS, big data, and IoT, it tracks emissions throughout the manufacturing process, providing real-time greenhouse gas monitoring and calculations. The platform offers comprehensive, visualized analysis of emissions and energy savings, supporting sustainable industrialization in China. By automating carbon asset management, it reduces manual labor and costs while enhancing operational efficiency and environmental governance.

Location: Zhengzhou, China



Reduce, Reuse, Recycle; Resource Efficiency (SDG 12)

P | Biofuel-oriented Waste Solution (BWS)

BWS is a closed-loop system of biochemical processes that contributes to sustainable food waste management, renewable bioenergy production, and the reduction of net greenhouse gas emissions. Through a novel paradigm shift, BWS effectively upcycles previously landfilled or composted food waste and enhances waste-to-energy conversion to produce four high-value products: biogas, biodiesel, biobutanol, and biofertilizer.

Location: Singapore

Y | FengChao

FengChao's High-Speed Rail liquid waste treatment device recycles waste on trains, easily installed and performs treatment on-site, performing solid-liquid separation and transforming that into liquid fertilizer and solid fuel within half an hour. It efficiently recovers nitrogen and phosphorus, suitable for farmland use, reducing chemical fertilizer needs and saving energy. This solution benefits the environment and reduces operational costs by replacing sewage suction operators.

Location: Beijing, China

Y | Green Hydrogen

Green Hydrogen specializes in photosynthetic biological hydrogen production, using microorganisms and sunlight to convert water and organic matter into hydrogen. Their eco-friendly process eliminates carbon dioxide emissions by harnessing solar energy and transforming biomass, especially straw. This method also addresses rural straw burning and atmospheric pollution. It offers a cleaner alternative to hydrogen production like steam-methane reforming and electrolysis.

Location: Henan, China

P | GrenadaGrows

GrenadaGrows (GG) envisions a circular model turning local fish and chicken waste, plus biomass, into organic soil enhancers. Partnering with local waste management authority, government, the University of the West Indies-St., farmers, fishers, and a U.S. agricultural company, GG plans to divert 13,000 tons of waste yearly and cut synthetic fertilizer imports. This fosters local food production, mitigating Grenada's 70% food import reliance.

Location: Grenada, West Indies

P | InResST

InResST is dedicated to solving the problem of Marine plastic pollution, recycling discarded fishing nets, and making discarded fishing nets into fashion textile products. The project makes discarded fishing nets into



textile raw materials, reduces the exploitation of raw materials, saves resources, reduces carbon emissions, and establishes a sustainable circular economy business model.

Location: Zhejiang, China

P | Made From Stone

Made From Stone™ is a patented technology, reducing virgin plastic in packaging by up to 67% and lowering CO2 emissions by replacing plastic resin with renewable calcium carbonate (CaCO3). This "drop-in" solution works with existing manufacturing equipment for various applications. It offers a practical path to reducing plastic and CO2. By leveraging existing infrastructure and calcium carbonate, Made From Stone also promotes a circular economy where the compound can be reused, such as in concrete.

Location: Florida, USA

P | Miyonga

Miyonga's innovative mobile fruit processing solution combats food waste, targeting fruit left to rot at rural Kenyan farms. This concept, piloted successfully, has pan-African potential. Targeting the European dried tropical fruit market, they connect rural farms to central packing facilities via mobile drying units in shipping containers, streamlining bulk shipments and reducing logistics costs. It also empowers women farmers, providing income for families and children's education.

Location: Nairobi, Kenya

P | RePlasTerial

RePlasTerial innovates applications of plastic recycling, by transforming single-use packaging waste plastics into large-area panels. These panels serve as eco-friendly alternatives for commercial space, like retail stores, exhibitions, offices, furniture, and more, replacing traditional high-carbon materials.

Location: Shanghai, China

Y | Turn Grass Into "Gold"

This project tackles excessive straw in southern Xinjiang, where straw burning remains common and contributes to carbon emissions. By utilizing cotton stalks and corn straws, they create nutritious fermented livestock feed. This feed can serve as the primary roughage for cattle and sheep, lowering breeding expenses. Additionally, it addresses ecological challenges in the Kashgar region, where limited arable land clashes with livestock needs, stressing the fragile ecosystem.

Location: Xinjiang, China



P | Wonki Collective

Wonki pioneers a B2B food matchmaking marketplace to combat supply chain food waste, targeting manufacturing and processing food waste like ingredients, by-products, and CPGs. Around 40% of food produced never reaches supermarket shelves. Sending supply chain food waste to AD/landfills is cheap, quick and not uncommon. Wonki's marketplace automates tracking and redistribution, enabling food manufacturers to sell or reuse it instead of disposal.

Location: London, UK



Sustainable Lifestyle and Responsible Consumption (SDG 12)

Y | BoohPapa

BoohPapa provides farmers with solar-powered dehydrating technology, allowing them to preserve produce as powder for extended storage. With 2.5 billion Africans projected by 2050 and 3.2 million tons of food wasted annually in Ghana, BoohPapa educates farmers on dehydration benefits, such as improved shelf life, reduced waste, and increased income. They vision a platform that streamlines branding, packaging, and sales, empowering local farmers as entrepreneurs while minimizing post-harvest losses.

Location: Ghana

Y | Delly

Delly envisions a peer-to-peer sharing platform for small- and median-sized package last-mile delivery, addressing carbon emissions from growing e-commerce. This two-sided marketplace connects delivery companies with local riders. Delivery companies and local retails send packages to a central warehouse, and local riders choose parcels, using eco-friendly vehicles for delivery. Delly reduces urban congestion and creates local part-time jobs, promoting sustainability in urban logistics.

Location: Cambridge, USA

P | DrinKicks

DrinKicks transforms food waste and recycled materials into sustainable products. Their first product is a shoe made of apple, corn, bamboo, rubber, and plastic. Each shoe contains an NFC chip in the heel, enabling users to track their carbon footprint through a gamified recycling experience, complemented by educational content on critical environmental subjects and the significance of the circular economy.

Location: Texas, USA

P | MOBY Filters

MOBY produces washing machine filters that capture microfibers, which are then upcycled to manufacture new MOBY filters within a closed-loop system. These innovative filters tackle the pervasive microfiber issue, a common form of microplastics released from synthetic clothing during washing. Around 35% of microplastics originate from laundering synthetic textiles at home. MOBY's versatile filters can be used in single washers, commercial facilities, or come pre-installed in washing machines.

Location: New York, NY

Y | Plateco

Plateco envisions transforming the food market eco-friendly. They invite individuals to join in environmental efforts while promoting health and weight loss through diet. Plateco utilizes AI technology and an eco-diet



database to track users' carbon footprint from meal snapshots, analyzing it alongside calorie intake and offering efficient, friendly food suggestions. It targets eco-conscious, health-conscious, and fitness enthusiasts, filling a gap in the eco-diet app market.

Location: Hongkong, China

P | Samudra

Samudra is an innovation amplifying seaweed farming 100x with improved monitoring, robotics and AI. This is relevant to the challenge theme of limiting climate change since seaweed farming is a globally scalable climate and nature positive food production system.

Location: London, UK

P | SimplyGood

SimplyGood innovates to create eco-friendly home cleaning & personal care products, which eliminate the need for single use plastic bottles in the home. Their proprietary dissolvable tablets are 300x lighter and 200x smaller than traditional supermarket liquid cleaners to reduce home carbon footprint.

Location: Singapore

P| Sustainable Planet

Sustainable Plant revolutionized protein production by cultivating high-protein aquatic plants, water lentils, on non-arable land. These plants yield ten times more than soybeans, mitigating the risk of a global protein shortage and deforestation. With cost-effective infrastructure in Africa, Thailand, and the Middle East, it generates jobs for disadvantaged communities, aids smallholder farmers, and transforms unusable and non-arable land into plant protein resources. The project also serves as a carbon sink.

Location: Switzerland; London, UK

Y | Young Pet

Young Pet aspires to create an eco-friendly pet fashion community. They offer pet clothing made from recycled plastic materials, establish an online eco-conscious customer community, and incentivize customers to return out-of-season clothes for secondary recycling in exchange for discounts. Their goal is to make a meaningful contribution to combating plastic pollution.

Location: Barcelona, Spain; Illinois, USA



Other Actions to Combat Climate Change (SDG13)

P | Blue Dot Motorworks

Blue Dot pioneers universal technology to transform conventional vehicles into plug-in hybrids, filling a vital gap in decarbonizing road transportation. Despite the rapid growth in EV production, the global fleet turnover won't meet climate targets. Their swift solution can be installed by any mechanic in a day, costing 83% less than doubling EV production, reducing battery demand, and preventing 18 GT of embodied carbon from additional vehicle manufacturing.

Seattle, USA

Y | Carbon of Wisdom

Carbon of Wisdom introduces an innovative method for urban carbon emissions accounting, vital for setting city-specific reduction goals. Existing methods vary in coverage and applicability. Their analysis favors Community-Wide Infrastructure Carbon Footprint (CIF) as adaptable to most cities and enhance CIF by integrating insights from Life Cycle Assessment (LCA) and Carbon Stock. They also explore blockchain and satellite monitoring for further improvement, to achieve enhanced precision and broader applicability.

Location: Hongkong, China

Y | COREarth

COREarth envisions a secure, efficient carbon-border trading platform addressing trust issues in cross-border carbon trading. Using AI and blockchain, they create a Carbon Tag for each imported product to track its embodied carbon emissions. They issue certificates to EU importers, provide real-time emission benchmarks and price predictions, and generate emission reports and cost-benefit analyses through API connections. This empowers EU importers to confidently select low-carbon products.

Location: Hongkong, China

P | EcoView

EcoView addresses the need for customized climate risk assessment in a world facing more extreme climatic events. Current solutions lack the ability to forecast disasters and assess systemic risks across economy sectors and timeframes. Their MVP, Wildfire Watch, forecasts and analyzes the economic impact of mountain fires on diverse crops, serving the climate risk analysis market, including public and private entities such as insurers, banks, investors, and manufacturers.

Location: Shandong, China

Y | Green Forest Defender

Defender, an intelligent desert tree planting robot, combats desertification in China. Unlike labor-intensive, inefficient afforestation methods with low tree survival rates, this fully automated robot aims to enhance



afforestation efficiency and reduce manual labor. It performs tasks like sequential excavation, seedling placement, and soil restoration. With real-time monitoring through cameras assessing damaged seedlings and controlling mechanisms, it has the potential to increase tree survival rates in desert regions.

Location: Jilin, China

P | KunSheng CO₂-Based Polymers

KunSheng pioneers efficient carbon dioxide (CO₂) utilization technology, enabling large-scale polypropylene carbonate (PPC) polymer production using waste CO₂. Their novel catalyst technology ensures efficiency and scalability, with a mature process capable of producing over 10,000 tons of PPC polyol, removing 0.55 tons of CO₂ per ton produced. This versatile technology captures and repurposes CO₂ emissions on-site, transforming it into valuable chemical products, including biodegradable plastics, films, PPC emulsions, and adhesives.

Location: Suzhou, China

P | Olsights Eye

Investment in the Energy Transition calls for innovative ways to screen for projects and quickly decide on what is investable and doable, and that is where Olsights Eye comes in. As the first interactive geospatial web app, they accelerates the acquisition of essential data and insights for both project developers and permitting agencies, consolidating the six main project enablers: energy production, local infrastructure, the power grid, land use, economic modeling, and national policy overlay.

Location: London, UK

P | Tibetan Geological Carbon Sink

This project harnesses the Tibetan geological carbon sink's potential, emphasizing the growing Tibetan Plateau as a unique carbon reservoir from past global warming periods. It suggests building retaining dams in specific Tibetan valleys to amplify negative carbon-climate feedback mechanisms, turning barren Tibetan deserts into wetlands. This initiative promises swift, cost-effective contributions to global carbon neutrality at a minimal carbon uptake cost. It also improves local living conditions with better access to food, freshwater, and oxygen.

Location: Beijing, China