4R AWARDS
EXCELLENCE IN WASTE MANAGEMENT

Confederation of Indian Industry

CII WOW
Waste to Worth Transformation

CII 4R Awards

REDUCE | REUSE | RECYCLE | REPAIR

India's Leading companies in Transforming Waste to Worth

CII COMPENDIUM 2024

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MESSAGE

India is emerging as a global leader in waste management, driven by innovative practices and a commitment to sustainability. The country has made significant strides through different initiatives which emphasize urban sanitation and waste management on a national scale. These initiatives have fostered collaboration among various stakeholders, including government bodies, private enterprises, and local communities, to implement effective waste management strategies.

The Confederation of Indian Industry (CII), committed to promoting industrial sustainability, is spearheading various initiatives to help enterprises minimize their environmental footprint.

A special emphasis is placed on waste management and handling as part of the efforts to promote circularity. These initiatives are grouped into a transformational movement known as the 'CII Waste to Worth Movement'. As part of this movement, CII instituted the 3R Awards in 2020, which will evolve into the 4R Awards in 2024. The objective of these awards is to recognize and reward industries, enterprises, startups, and institutions that excel in waste management practices. These awards are expected to raise awareness among industries and other stakeholders, inspiring them to embrace innovative and effective waste management practices.

Industries are increasingly implementing innovative strategies to reduce waste and minimize landfill contributions. One prominent approach is the adoption of 4R principles, which focus on maximizing resource efficiency by keeping materials in use for as long as possible.

The recently launched CII Compendium of the Top 25 Leading Industries and 20 other notable success stories from industries, startups, academia, individuals, research institutes, and labs for managing waste serves as an industry benchmark. This compendium highlights the collective efforts of waste stakeholders in driving the nation toward a Net Zero future.

I congratulate all the academics, individuals, research institutes, startups, and industry members for their contributions to this compendium. Their efforts and active engagement in waste management initiatives play a vital role in propelling our country toward a circular economy in the coming decades, paving the way for a cleaner and healthier environment for future generations.

Chandrajit Banerjee
Director General
Confederation of Indian Industry (CII)

MESSAGE

Protecting our planet is not just a responsibility, but a necessity for our very survival. As we face the escalating impacts of climate change, biodiversity loss, and pollution, it becomes increasingly clear that our well-being is intricately linked to the health of our environment. Every action we take, whether reducing waste, conserving water, or supporting sustainable practices will contributes to a larger effort to preserve the ecosystems that sustain us. By prioritizing the protection of our planet, we ensure not only a healthier world for ourselves but also for future generations.

The CII 3R Awards, established in 2020, recognize and honor industries, startups, academia, research institute and labs for their outstanding contributions to waste management. These organizations are setting new standards in "Minimizing Waste" by developing products with minimal or zero waste; "Municipal Solid Waste Management" by Efficiently handling urban waste; "Plastic and E-Waste Management" by Implementing effective EPR strategies. Successfully implementing 4R (Reduce, Reuse, Recycle and Repair) in their industry.

By recognizing these efforts, the CII 4R Awards inspire and motivate others to adopt best practices, leading to a more sustainable future. Different industries, start-ups, academia, individuals, research institutes and labs have been encouraged to participate in the awards and the entries were evaluated by experts of the appraisal committees and further members of eminent jury.

This compendium showcases the top waste management practices across the country of 25 industries and other notable success stories of 20 industries, startups, academia, individuals, research institutes and labs. It serves as a valuable resource for industries and startups to learn from and implement these proven strategies.

The success of these initiatives hinges on strong partnerships between the public, private, and civil society sectors. By working together, we can drive innovation in the circular economy and contribute to achieving India's net-zero emissions target by 2070.

I extend my sincere gratitude to the esteemed jury members and experts for their invaluable guidance and support. I also thank the participating industries, startups, academia, individuals, research institutes and labs for their commitment to environmental sustainability.

Prof Anil K Gupta,
Chairman CII 4R awards 2024
Indian Scholar- Innovation and Padma Shri Awardee

ABOUT CII 4R AWARDS 2024

Whole world is adopting newer, innovative, cost-effective approaches and solutions to address the growing menace of Waste. It is important for a country like India, where the population is very large and waste management practices are not yet fully adhered adopts innovative and scientific management of waste that is socially, environmentally and commercially sustainable.

Many innovations and solutions are available and to some extent practised in many parts of the country by industries, start-ups and academia, research institute or labs to manage Municipal Solid Waste (MSW). However, large scale implementation of solutions is yet to be seen.

Similarly, Indian industry have adopted and practised processes and solutions to encourage Reducing, Reducing, Recycling and Recovering of plastic & packaging waste, e-waste and waste generated in industrial activities or waste generated from their own activities. Most of the industry follows stipulated guidelines of waste management through sanitary landfills and other processes. However, there are industry primarily MSMEs are yet to fully adapt such practices.

Industry is also conscious about the fact of waste generated by the consumers/users while consuming/using their products. Industry is in constant process of designing their products those will increasingly use non-polluting materials and will generate minimum waste at the users end. However, Industry's efforts in designing their products including its packaging are still not adequate.

It is important to capture and disseminate the best practices for others to follow and at the same time to recognize and reward the industry, start-ups, academia, research institutes or labs who have setup benchmarks in (1) Excellence in Managing MSW by private firms; (2) Excellence in Innovative Solutions by Start-ups for Sustainable Waste; (3) Excellence in Best Practices in Managing Plastics & Packaging Waste or E-Waste (under EPR); (4) Excellence in Zero / minimum Waste Generating Products; (5) Excellence in 4R by Industry (Manage Own Waste); (6) Excellence in Innovative Solutions for waste management (Academic & Research Institutes / Labs)

With this background, CII under its waste to worth initiative, this year has announced the 5th edition of 4R (Reduce-Reuse-Recycle-Recover) Awards to recognize and reward best practices of industry, start-ups academia, research institute or labs in order to set a benchmark of excellence in waste management for large number of industries to thrive to adopt these best practices.

CII 4R AWARDS 2024 CATEGORIES

All the large industries, MSMEs, start-ups, academia, research institutes or labs across the sectors can apply for categories and sub-categories below:

1. Excellence in Managing MSW by private firms
2. Excellence in Innovative Solutions by Start-ups for Sustainable Waste
3. Excellence in Best Practices in Managing Plastics & Packaging Waste or E-Waste (under EPR)

Sub-category:

- Producers, Importers, Brand Owners (PIBOs)
- Public Responsibility Organizations (PROs)
- Recyclers / Co-processors

4. Excellence in Zero / minimum Waste Generating Products
5. Excellence in 4R by Industry (Manage Own Waste)
6. Excellence in Innovative Solutions for waste management (Academic & Research Institutes / Labs)

India's Top 25 Leading Industries: Transforming Waste to Worth

Allcargo Supply Chain Pvt Ltd

About Company

Allcargo offers International Supply Chain services through ECU Worldwide NV, express distribution via AllcargoGATI Limited, Container Freight Stations, and Inland Container Depot (CFS-ICD) services through Allcargo Terminals Limited, logistics parks under TransIndia Real Estate Limited, supply chain and contract logistics through Allcargo Supply Chain Private Limited.

With a presence in over 180 countries, the company is taking their purpose of helping global supply chains while caring for sustainability, to the next level. They have implemented a sustainability strategy focused on ESG and our continuing CSR initiatives, Allcargo have prioritized their efforts to reduce emissions and our overall environmental impact as well as to create a lasting, positive impact on society.

About the Products

Allcargo Supply Chain offers next-generation end-to-end contract logistics and 3PL solutions for sectors like automobile, e-commerce, chemical, pharmaceutical, and food and beverage, with warehouses in over 70 locations across India.

Through the continuous improvement/six sigma workshop, Allcargo empower their workforce to contribute and lead their impact-driven initiatives. The company achieved a score of 77% in the Supply Assurance Assessment (48% above industry benchmark of 52%).

R & D Structure and Collaborations and Partnerships

Sustainable labelling solution: Switching to eco-friendly (compostable material) labels, liner less label solution and Ink-base label solution. Alternate to wooden pallet: Pallets made from sustainably sourced wood or alternative materials like recycled plastic or metal etc.

Corrugated boxes reutilization: Reutilization of corrugated boxes by shredding to pieces and used as dunnage in packaging. Hybrid genset: Integrating diesel generators with renewable energy sources like solar or biodiesel or wind to reduce fuel consumption and lower emissions.

Best Practices

Lead-acid batteries are the most used forklift batteries. Under battery regeneration process, plates are desulphated and the electrolyte is reconstituted. Resulted to reducing carbon equivalent GHG emissions to the tune of 77% in line of procuring new one and life of batteries increased by ~2-3 years. Redesign of label to optimize papers & alignment with all SCM partners (Customer, Hub, Dealers, Vendors). Reutilization of labels liner (butter/glossy) paper & utilization in warehouse operation. Recycle cut outs / scrap with authorised vendor. By using liner paper, ~90% scrap reduced and ~25% A4 rim purchase reduced, by resizing ~60% label cost reduced. Auto-gate/boom barrier using UHF ID configured with Gate pass App: Cocreated design with tech partner, 68% reduce waiting time, 100% eliminated paperwork activity by digitizing vehicular compliance monitoring (vehicle insurance, PUC, driver license etc.), CO2 generation reduced from 1219kg to 12kg, REBA score reduced from 13 to 3. The company secured Platinum Championship award under EHS category for the given case study at the 17th CII National Competitiveness & Cluster Summit 2024.

Future Plans

Electric vehicle: Allcargo have been actively supporting Swedish furniture giant, IKEA, in its mission to achieve home deliveries with 100% zero tail-pipe emissions by 2025. The company aim to achieve 100% electric vehicle deliveries in Hyderabad, Bengaluru, Pune by 2024. This EV-driven last-mile delivery partnership has since expanded to the IKEA Nagasandra store in Bengaluru, where the company have introduced electric three-wheeler cargo vehicles. Plans are also underway to introduce larger-capacity, four-wheeler electric cargo vehicles in the near future.

Solarization one of company's warehouse location is powered by solar energy for operations. Target of achieving 1.1 MW of energy via solar.

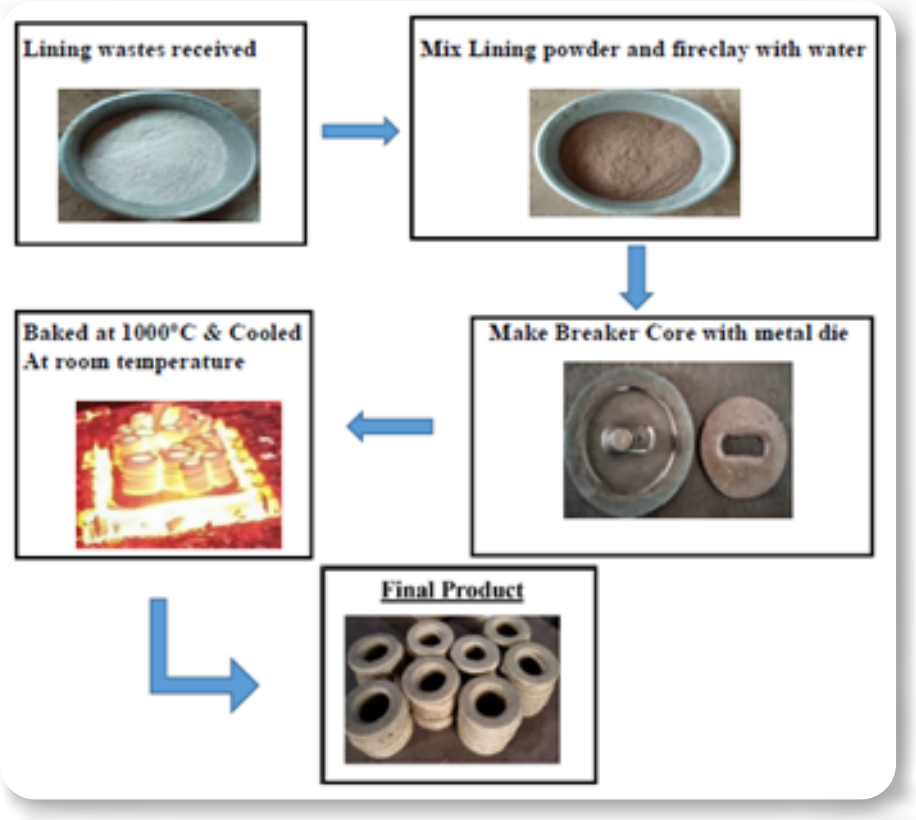
Aqua Alloys Pvt Ltd

About Company

Aqua Alloys specializes in the design, development and manufacture of abrasion and impact resistant cast products in Alloy Iron and Alloy Steel used in the crushing and grinding applications. Aqua Alloys supplies a wide range of performance castings to Cement, Quarry, Mineral processing, Power, Steel Industries.

About the Products

Re-cycling of melting furnace lining material waste into manufacturing of breaker core used in foundry production process.



Best Practices

In Aqua Alloys view this type of lining waste reclamation has not been carried out in any foundry industry. Hence it's a trend setter project. Thermal resistance properties of refractory powder used to make breaker core which requires the same properties.

Resources required for the project are Powder sieving, Core breaker dies – used of earlier process only, mixing fluid – water, Brick powder – easily available, Resources needed for this recycling project was all ensured to be done in house only. Skills required are already available in-house. Small re-orientation training is done to tell savings and positive environmental impact to operators.

Future Plans

Reuse of Lining material wastes- increase to 90% from existing 65%. Balance 10% cannot be recovered as it gets attached to slag. Bring more products into recycled core breaker use.

Other 4R projects: Increase sand recycling by 20%. Increase energy efficiency per ton by 5%. Reduce water consumption by 10%. Reduce paper consumption by 50% with new ERP system. Yield improvement in liquid metal from 65 % to 70%. Metal slag utilization project

Bisleri International Pvt Ltd

About Company

With a legacy of over 54 years, Bisleri International Pvt. Ltd has grown to become one of the largest premium beverage businesses in India. Being the makers of the country's largest-selling packaged drinking water, Bisleri follows a stringent process of 114 quality tests and a 10-stage purification. It remains true to its core value of providing consumers with pure, safe and healthy water.

Bisleri International has a strong presence with 128 operational plants and a robust distribution network of over 6,000 Distributors and 7,500 Distribution Trucks across India and neighbouring countries.

About the Products

Bisleri's diverse portfolio champions hydration and refreshment with iconic products like Bisleri packaged drinking water, known for its purity and trust. Vedica, a premium Himalayan spring water, offers water with naturally enriched minerals. Bisleri's carbonated soft drink range includes Pop, a classic orange-flavored fizzy drink; Limonata, a refreshing lemon and mint-flavored drink; Rev, a black cola beverage, and Spicy Jeera, crafted to suit India's love for jeera. Each product reflects Bisleri's commitment to quality, taste, and innovation for every preference.

Best Practices

The company claims that they are a 'water-positive' and 'plastic-neutral' organization, drives sustainability through Bisleri Greener Promise, with flagship programs like Bottles

For Change, educating communities on responsible plastic consumption and plastic recycling to create valuable products, and Project Nayi Umeed, which focuses on water restoration through check dams, rainwater harvesting, and responsible groundwater usage. Their initiatives foster impactful community and environmental engagement.

Bisleri use mono polymer plastics which are 100% recyclable. The company follows the 4Rs approach (Reduce, Reuse, Recycle, Repurpose), which has resulted in a reduction of over 10% in virgin plastic consumption. The reusable containers had helped to saved approximate 48,000 MT of virgin plastic in FY 23-24 which accounts for almost 25% of the company's business. In the fiscal year 23-24, Bisleri collected and recycled 76,647 MT of post-consumer plastic, achieving 110% of its target against the consumption and becoming a Plastic Neutral Company.

Future Plans

The company initiatives are aligned with the Sustainable Development Goals and achieved 9 out of 17 goals, which are (3) Good Health & wellbeing, (6) Clean water & sanitation, (9) Industry, Innovation and Infrastructure, (11) Sustainable Cities and Communities, (12) Responsible Consumption and production, (13) Climate Action, (14) Life below water, (15) Life on Land and (17) Partnerships for the goals.

Bisleri plans to extend the "Bottles for Change" program to cover 20 major cities and collect used plastics and recycle 12,500MT of plastic by 2025. Under project NAYI UMEED to construct or restore 350 check dams across India and focusing on harvesting over 35 billion litres of water and irrigating over 23,000 acres of land. This will help over 65,000 members of families and provide them access to clean water for cultivations, sanitation, and hygiene. Also reducing 30% carbon footprint by using renewable energy.

Blue Planet Environmental Solutions India Pvt Ltd

About Company

Blue Planet is a global leader in sustainable waste management, offering innovative technology solutions for a circular economy. Founded in 2017 and headquartered in Singapore, Blue Planet focus on upcycling waste, landfill reclamation, and decarbonization, aiming for Zero Waste to Landfill. Blue Planet serves over 15 countries and advancing environmental and social impact.

About the Products

Blue Planet offers two key solutions: dryQUBE: A modular and scalable dry-digestion technology that converts agro-waste like paddy straw into biogas, electricity, or compressed bio-CNG. It also produces nutrient-rich organic fertilizer, reducing pollution and promoting sustainable farming. BlueWaaS: A compact, plug-and-play solution using anaerobic digestion to turn food waste into green energy and manure. It eliminates waste disposal costs and transforms waste into a revenue source, available in models handling 5 to 5000 kg/day.

R & D Structure and Collaborations and Partnerships

Blue Planet R&D process includes identifying key environmental challenges, conducting research, testing prototypes, and scaling up solutions. The R&D team collaborates closely with technical experts, industry stakeholders, and external partners for knowledge-sharing and innovation acceleration. Collaborations with the International Solid Waste Association (ISWA), Waste Management and Recycling Association of Singapore (WMRAS), and Eco Business further enhance Blue Planet R&D by integrating global best practices, promoting sustainable waste management, and driving impactful environmental solutions.

Best Practices

Blue Planet focus is on reducing waste, conserving resources, and promoting a circular economy. Blue Planet prioritize integrated waste management systems, ensuring efficient segregation, collection, recycling, and disposal of waste. This includes converting organic waste into renewable energy and valuable resources through waste-to-energy technologies. Blue Planet also emphasizes carbon footprint reduction by utilizing energy-efficient processes, adopting renewable energy sources, and optimizing logistics for minimal environmental impact. To promote sustainability across industries, Blue Planet work closely with stakeholders, fostering collaborative partnerships that enhance innovation in waste treatment and resource recovery. In addition, Blue Planet are committed to compliance with environmental regulations and regularly monitor their operations to ensure safety and sustainability standards. Continuous training for their team ensures that the latest technologies and processes are applied for maximum efficiency and minimal environmental impact.

Future Plans

Their plans included establishing integrated waste management facilities across multiple states in India. These facilities aim to reduce reliance on virgin resources, promote decarbonization, and enhance sustainability. By closing the circular loop in waste management, Blue Planet are committed to fostering a circular economy and driving environmental and economic resilience.

Driblet Pvt Ltd - Arc Robotics

About Company

Arc Robotics tackles growing sewage challenges with their cutting-edge robotic solutions designed for confined spaces. Their Krait robot automates dangerous tasks, reducing human risk and preventing blockages, while minimizing environmental damage. Arc Robotics are committed to safer, more efficient waste management, driving a cleaner, more sustainable future.

About the Products

Arc Robotics have developed Krait a versatile robotic arm designed to clean and inspect confined spaces like sewers chambers and pipelines. It automates hazardous tasks, reducing the need for manual labor in toxic environments. With advanced sensors and precision control, Krait effectively tackles blockages, preventing overflows and contamination. Built for safety, efficiency, and reliability, it minimizes environmental impact and operational costs, providing a modern solution for wastewater and solid waste management in urban areas.

R & D Structure and Collaborations and Partnerships

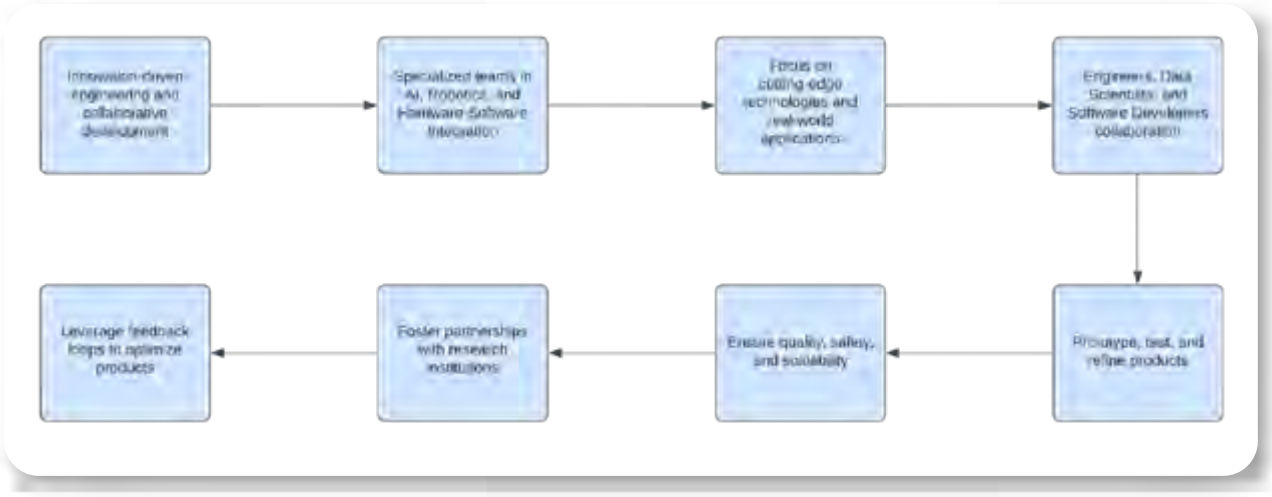
Arc Robotics' R&D structure follows a phased approach to product development, ensuring both innovation and reliability. The process begins with "Ideation", where new concepts are brainstormed, followed by "Conceptual Design", refining ideas into feasible solutions. In the "Detailed Design" phase, technical specifications and system architectures are developed. "Rapid Prototyping" allows for initial testing, adjustments, and improvements. Finally, successful prototypes move to the "Production" phase, where designs are scaled, refined, and prepared for market launch. Arc Robotics are a part of Garbage free initiative by IIT Kanpur and partnered with SINE IIT Bombay.

Best Practices

Arc Robotics are dedicated to transforming cleaning processes and promoting environmental sustainability through their innovative robotic solutions. Arc Robotics focus on developing advanced robotic systems designed to tackle the unique challenges of confined spaces, enhancing operational efficiency and safety. By leveraging data-driven insights, Arc Robotics optimize their robotic solutions for effective waste management and monitoring in urban environments, streamlining cleaning operations and minimizing their environmental impact. Arc Robotics have actively engage with local communities and industry partners to raise awareness about the importance of modernizing cleaning practices in urban areas.

Future Plans

Arc Robotics envision a future where their innovative technologies set the benchmark for safety and efficiency in this domain. Over the next five years, Arc Robotics strategic plan is to establish themselves as the foremost provider of these solutions across India, beginning with a strong foothold in Madhya Pradesh. From there, Arc Robotics aim to expand their reach nationwide, eventually bringing their groundbreaking innovations to the global market, addressing the unique challenges faced in confined spaces worldwide. By focusing on continuous innovation and customer-centric solutions, Arc Robotics believe they can set new industry standards and redefine how confined spaces are managed, ultimately contributing to safer and more efficient urban environments.



EverEnviro Resource Management Pvt Ltd

About Company

EverEnviro Resource Management Pvt. Ltd., established in 2019 by Ever Source Capital, offers sustainable waste management solutions across India. EverEnviro specializes in managing municipal, hazardous, industrial, and e-waste, employing advanced technologies to drive a circular economy and contribute to environmental sustainability.

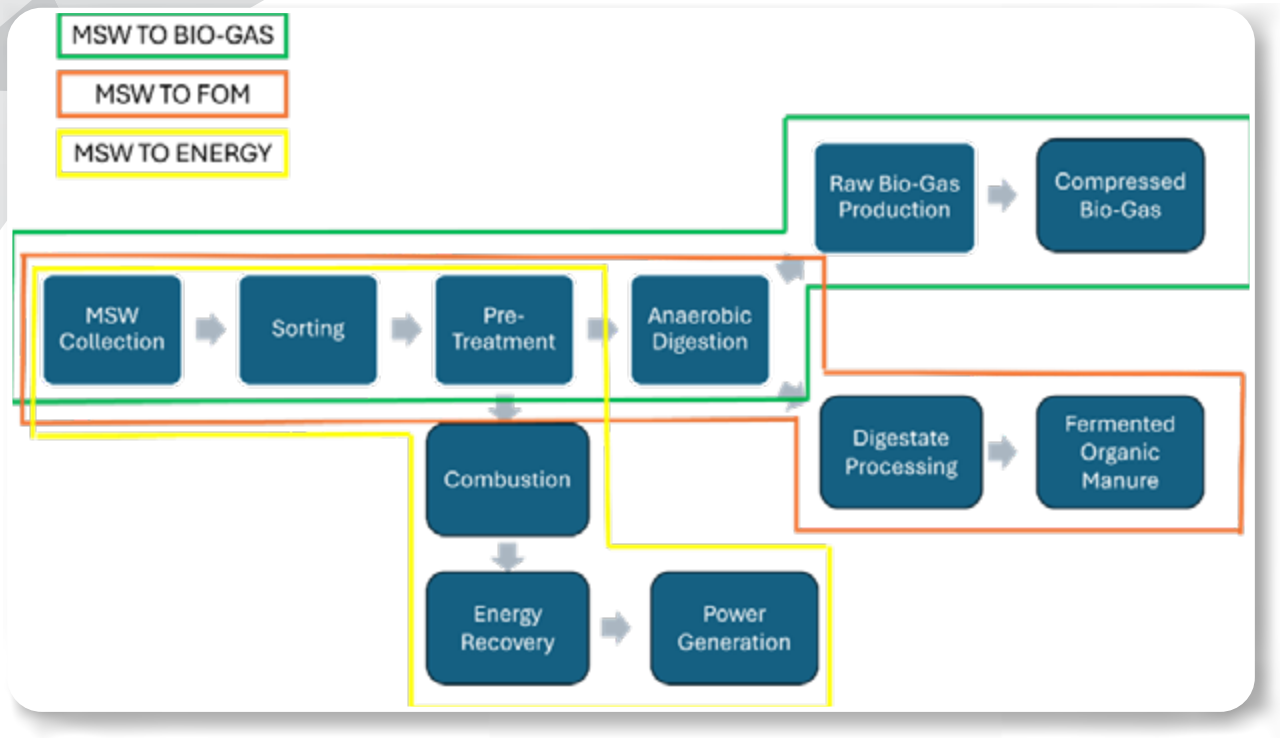
About the Products

Compressed Biogas (CBG): Produced from organic municipal solid waste through anaerobic digestion, used for clean energy in transportation and heating. Green Electricity: Generated from waste-to-energy (WTE) incineration, contributing to sustainable electricity to Hotels, Malls, Offices & Industries. Fermented Organic Manure (FOM): Derived from organic waste, this high-quality manure improves soil fertility and promotes sustainable agriculture by reducing chemical fertilizer usage.

Best Practices

EverEnviro's R&D emphasizes process optimization, waste segregation, and energy efficiency.

EverEnviro collaborates with municipal bodies like Indore and Delhi Corporations to ensure reliable waste feedstock supply and efficient operations. It partners with technology providers and vendors for equipment upgrades and process optimization. Key collaborations include strategic alliances with Indore's waste management system to ensure quality feedstock for biogas production and partnerships with urban local bodies for effective collection, transportation, and waste segregation. These collaborations enhance Ever Enviro's ability to deliver innovative waste management solutions and promote sustainability.



Best Practices

EverEnviro operates across several domains which includes Waste collection through optimized routes and eco-friendly fleets in Delhi and Ahmedabad. Waste-to-Biogas (Indore) processes municipal waste into CBG, reducing landfill usage and supporting sustainable energy solutions. Waste-to-Energy (Delhi) converts 1300 TPD of waste into 12 MW of green electricity, contributing to emissions reduction and public transit operations. Organic waste is processed into Fermented Organic Manure, reducing landfill waste and supporting local farmers with eco-friendly fertilizers. Drives awareness campaigns and incentivizes households and businesses to engage in waste segregation and recycling, promoting long-term behavioral change. Maximizes resource recovery with the production of compost, bio-CNG, and value-added products like briquettes from waste rejects.

Future Plans

EverEnviro plans to expand waste-to-energy operations in Okhla, Bhopal, and Prayagraj, targeting 1000 TPD of waste processing. Future goals include launching digital platforms to enhance waste management, expanding composting and FOM production facilities, and introducing advanced equipment to further optimize material recovery. Additionally, EverEnviro aims to diversify feedstocks for CBG production and reduce dependency on landfills.

Ganesha Ecopet Pvt Ltd

About Company

Ganesha Ecosphere Limited is amongst the leading recyclers of PET in India. Ganesha Ecosphere are playing an important role in leading the circular revolution for plastics in India and across the world. It was incorporated in 1987. Led by Mr. Shyam Sunder Sharmma, Chairman and his team of skilled professionals, the Ganesha Ecosphere emerged as the largest producer of RPSF (recycled polyester staple fiber), pioneering the production of rPET fibre and rPET yarn from pre- and post-consumer PET bottle scrap. For 3 decades, Ganesha Ecosphere have contributed to environmental sustainability by transforming PET waste for high quality fibers and yarns for textile applications.

About the Products

Ganesha Ecosphere is empowering its entire eco-system of downstream product users to graduate to complete resource circularity, empowering them to emit 60% lower carbon emissions compared to virgin plastic. Ganesha Ecosphere have already installed 42,000 mT/Annum capacity to manufacture USFDA, EfSA approved rPET and is planning to double this by next year to cater to EPR regulations of the brands.

Ganesha Ecosphere operates six manufacturing facilities in North and South India as well as in Nepal with a total installed capacity of 1,96,440 TPA, recycling ~16-18% of Indian PET bottle waste. Apart from its widespread pan-India network, Ganesha Ecosphere exports to over 19 countries. Ganesha Ecosphere Limited is listed on the National Stock Exchange of India Ltd. and on the BSE Ltd., where it is a high performing and actively traded company.

R & D Structure and Collaborations and Partnerships

Ganesha Ecosphere commissioned 11.49 MWp of rooftop solar power capacity across production facilities in Temra, Rudrapur, Bilaspur and Kanpur. Ganesha Ecosphere entered into a partnership with a leading independent power producer for the supply of solar power for captive consumption. The have extended this responsibility to the use of water. The Warangal facility is equipped to recycle around 95% water used in operations, drawing only ~5% freshwater resource and being a zero liquid discharge facility. Ganesha Ecosphere have specifically partnered with the best technology providers and leverage Starlinger recoSTAR PET 165 HC iV+ recycling lines. Ganesha Ecosphere has tripled their food grade bottle to bottle recycling capacity from 14,000 tons to a remarkable 42,000 tons annually.

Best Practices

For 30 years, Ganesha Ecosphere engaged in the recycling of PET bottles into polyester staple fibers and yarns, establishing them as a leader in the manufacture of recycled raw materials for the textile industry. Ganesha Ecosphere made a decisive extension to play a larger role in helping green and decarbonize the world by leveraging advanced technology to make recycled PET packaging safe for food and human contact using waste bottles.

This competence has been sustained by supply chain access to growing plastic waste quantities through network of 270+ suppliers. This waste is processed in the company's six manufacturing facilities across India and Nepal with a total processing capacity of 196,440 TPA . This throughput is offered through a portfolio of 500+ product variants. In turn, the Ganesha Ecosphere is engaged in relationships with 425+ customers across 19 countries. The projected growth of the bottle-to-bottle recycling business is expected to increase the proportion of its revenues from 7% in FY 2023-24 to a projected 40% thereafter on achieving the peak utilization of capacities installed. This evolution will help enhance the company's consolidated margins profile, deepening business sustainability. Ganesha Ecosphere are now recycling 9.4 Billion+ bottles annually and expect to generate double-digit growth given the government's Extended Producer Responsibility and Plastic Waste Management mandates to curb plastic pollution.

Future Plans

Ganesha Ecosphere expect to play an active role in making circular economy a reality through proactive capacity creation and emerging as a preferred supplier of planet-positive, circular rPET products to reputed textile and FMCG brands. Mere manufacturing will not be enough; Ganesha Ecosphere are engaged in building a first-mover advantage and become preferred supplier of rPET bottle grade chips for established FMCG brands and high quality rPET fibers and yarns for textile brands.

Gangotree Energy Projects Pvt Ltd

About Company

Gangotree Energy has developed a pioneering solution to manage non-recyclable, combustible municipal dry waste by converting it into an alternative renewable solid fuel. Branded as "Urjwala," these pellets provide an eco-friendly, cost-effective fuel for boilers and heaters across various industries, addressing the dual challenges of waste management and renewable energy.

About the Products

Urjwala pellets tackle the problem of non-recyclable waste, which often ends up in landfills or incinerators, causing significant environmental harm. By adopting a decentralized approach, Gangotree Energy enables localized dry and garden waste processing, reducing transportation costs and emissions. The process involves collecting, sorting, shredding, drying, and compressing waste into high-energy-density pellets, which are rigorously tested for quality and environmental compliance.

Best Practices

Urjwala pellets contribute to multiple Sustainable Development Goals (SDGs), including responsible consumption and production, climate action, and affordable clean energy. By

leveraging the principles of "segregation at source" and the philosophy of "My Waste, My Responsibility," this solution empowers communities to manage their waste sustainably, creating jobs and supporting local economies. This will help the institutes , campuses , townships and villages, towns and city ULBs in complying with the SWM 2016 and not depending on unviable "Waste to Energy Power plants" or sending the RDF waste to far flung cement plants.

R & D Structure and Collaborations and Partnerships

The benefits of Urjwala pellets are significant: They divert waste from landfills, reduce methane emissions, and provide a renewable energy source that decreases dependence on fossil fuels. The decentralized model fosters local economic empowerment while minimizing emissions. Additionally, Urjwala pellets are versatile, cost-effective, and suitable for various applications, from small-scale heating to large industrial processes.

Future Plans

By transforming waste into a resource, Gangotree Energy promotes a circular economy and supports sustainable waste management practices. As industries worldwide strive to reduce their carbon footprint, Urjwala pellets offer a scalable, practical solution that contributes to a cleaner, greener future. Gangotree Energy remains committed to expanding the use of Urjwala pellets, driving progress toward a sustainable world.

Gencrest Bio Products Pvt Ltd

About Company

Gencrest, a biotechnology firm, is a pioneering force in the agricultural innovation, with two -state-of-the-art R&D centres, harnessing cutting-edge botanical-based fluid technology from its research driven infrastructure. With a formidable commitment to research, Gencrest spearheads into the optimization of liquid fertilizer revolutionizing the traditional agricultural practices.

About the Products

Gencrest have an array of products. However, their hero products are AgroSatva & AgroBest.

AgroSatva: Slow release, natural organic liquid nutrients enhances intense root development boosts yield and improves the soil structure, AgroSatva is eco-friendly and aligns with the organic agriculture principles. It reduces flower dropping, boosts vegetative growth, maximises flowering and fruiting.

AgroBest: Use of excessive input rate has resulted in environmental threats such as soil erosion, nutrient wastage, nutrient unavailability, water contamination, a dwindling groundwater table, water logging, and bio-diversity effect. To overcome these challenges, the application of organic manure is highly recommended.

R & D Structure and Collaborations and Partnerships

Gencrest has its headquarters and R&D centre in Mumbai and manufacturing facility with dedicated R&D located in Bhusawal, Maharashtra, India. 30 dedicated scientists have helped Gencrest expand its horizons beyond conventional fertilizers, by encompassing a diverse array of next-generation fertilizers spanning Organic, Super Specialty, and Nano-fertilizer categories. These innovations yield superior agri-nutrients, comprising of bio-

stimulants, bio-nutrients, fermented organic manure, super specialty fertilizers and nano-fertilizers.

Best Practices

The four foundations of best practices are:

Economic viability: The product is easy on farmers' wallets and offers good value.

Environmental Sustainability: Because their product, which is based on botanical sap technology (BST), is organic, it is sustainable and eco-friendly.

Social Acceptability: The product has been well received by the farming community, with 10 million farmers already utilizing it. This product is the best, according to our internal and external stakeholders - dealers, industry colleagues, and industry associations.

Food Quality and Safety: Gencrest's product is safe because it is organic, making it an ideal partner for farmers.

Future Plans

Gencrest have their presence in 15 states across India and are now foraying and spreading their wings globally to promote sustainable solution for the agri world. Gencrest have touched lives of 10 million farmers and their plan is to reach out to every household of farmers to educate them on sustainable products. Very soon Gencrest are going to launch nano products as well.

GG Wastech Pvt Ltd

About Company

GG Wastech Pvt Ltd. is the leading waste management startup hailing from Raipur, Chhatisgarh. It was founded in February 2021 and has made a significant impact ever since, by disposing of over 3.5 lakh tonnes of waste and carrying a capacity of processing more than 1500 M.T of waste daily.

About the Products

Wastech sources waste from multiple municipalities and dumpsites, converting it into Refuse-Derived Fuel (RDF) and shredded RDF (SRDF) to supply to cement industries as Alternative Fuel Resources (AFR). Wastech process agricultural waste like bagasse, mushroom beds, rice husk and cashew nutshells, and industrial waste like dolachar, back filter dust, pyrolic oil and tyre carbon. Additional services include Biomining of Legacy waste, Extended Producer Responsibility (EPR), Sanitary Landfill (SLF) management, leachate treatment, and logistics support.

R & D Structure and Collaborations and Partnerships

Wastech has established strategic collaborations with prominent organizations such as Nuvoco, UltraTech, Shree Cement, and Adani Cement as efficient AFR suppliers.

Additionally, Wastech has worked with Amul, KMF Nandini, Indian Oil Corporation and Rashtriya Chemicals & Fertilizers Ltd. for Extended Producer Responsibility (EPR) services. It also collaborates with Tata Steel and municipalities of various cities for Biomining Projects of Legacy wastes & MSW, showcasing its expertise in serving government clients and driving sustainable practices.

Best Practices

Wastech prioritizes sustainable and environmentally friendly methods in handling Municipal Solid Waste (MSW), agricultural waste, and industrial waste. By converting MSW into Refuse-Derived Fuel (RDF) and Shredded RDF (SRDF), they reduce landfill waste and promote sustainability by supplying waste as alternative fuel resources (AFR). Wastech expertise in processing various agricultural and industrial waste materials ensures proper waste disposal. Wastech's commitment to biomining, Sanitary Landfill (SLF) management, and leachate treatment plant operations demonstrates their dedication to environmental stewardship. Additionally, Wastech provide efficient logistics and transportation services, ensuring timely and responsible waste collection and disposal. Wastech's community-led social programs promote education and community engagement, setting a high standard for waste management and serving as a model for other organizations to follow in achieving sustainable waste management goals. By adopting these practices, Wastech promotes a cleaner and healthier environment for future generations.

Future Plans

Wastech plans to expand its operations by setting up advanced waste pre-processing facilities near cement clusters to develop efficient techniques for the utilization of MSW & legacy waste to supply AFR at economical costs. Wastech also aims to organise more awareness campaigns on waste management and explore opportunities in diverse waste categories.

Godrej Industries Ltd

About Company

Godrej Industries (Chemicals), established in 1963, is a key business of the Godrej Group and a pioneer in "Green Chemistries" aimed at promoting environmental stewardship and a sustainable future. As one of India's leading oleochemicals, surfactants, specialty chemicals, and biotech product providers, the company largely use renewable feedstocks from vegetable oils. Their commitment to innovation and customer-centric, sustainable solutions has driven our success and global reach, spanning over 80 countries.

About the Products

Godrej have varied application segments like home and personal care, oil and gas, agrochemicals, pharmaceuticals, rubber, chemical & polymer intermediaries, lubricants & metalworking fluids, food & beverages, paints & coatings, etc. Their dedication to responsible practices has earned them prestigious awards and certifications, while earning trust & respect from global suppliers and customers equally time and again. As part of the Godrej Group, they are guided by the "Good & Green" vision, working towards a more inclusive, greener world while aligning with emerging global standards.

Godrej Industries have integrated Management Systems (IMS), achieving ISO 45001, ISO 14001, and ISO 9001 certifications. As a holder of the Responsible Care logo, the company demonstrate their commitment to chemical safety and environmental stewardship. Their proactive efforts have earned us a CDP rating of A- for Climate Change. Their Sustainable Palm Oil Policy promotes responsible production and procurement, adhering to Roundtable Sustainable Palm Oil (RSPO) criteria. To foster a culture of sustainability, Godrej Industries have launched online e-learning programs focused on energy conservation, waste management, and water conservation.

R & D Structure and Collaborations and Partnerships

Godrej Industries have conducted approximately 7 programs in a year. Godrej Industries has conduct awareness programs in nearby schools and community areas to promote environmentally friendly waste management practices. Initiatives include tree plantation drives at schools, e-waste collection drives, and fire-fighting awareness training. Their CII task force training for UPL University students and hosted paper bag-making sessions to encourage alternatives to single-use plastics at Godrej colony. In the APMC market, the company organized cleanup drive and trained vendors on reducing plastic waste. Through

these efforts, Godrej Industries aim to foster community involvement and instil a sense of responsibility toward sustainability.

Best Practices

Godrej Industries Limited (Chemicals) demonstrates an impactful commitment to sustainability through its nickel catalyst recycling program. For FY23-24, through process of recycling of used catalysts company has been able to recover 98.9 % to produce fresh catalysts via certified recyclers, enabling a sustainable closed-loop system. The food wastage is processed in Bio Composting Machine and is used as organic fertilizer on the plant campus. The company has started using recycled IBCS for their packaging material, this has reduced their virgin plastic packaging. They have started loading one of their product into tanker instead of HDPE 300kg drums this will approximately reduce 25MT of plastic annually. Online training sessions on plastic waste management by Godrej, over 130 participants seized the opportunity by joining online to enhance their knowledge and contribute to sustainable practices.

Future Plans

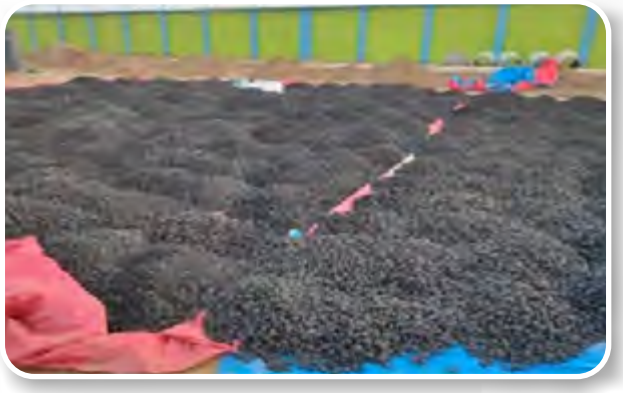
Exploring ways to convert company waste to value and minimization is generation through process optimization. Godrej Industries (Chemicals) will study all Heat exchangers for efficiency improvement and heat recovery. Identification for Possibility of heat integration in plant.

GreenTech Environ Management Pvt. Ltd

About Company

Greentech Environment Management Private Limited has been active in the work of Processing of municipal solid waste in several parts of India. Greentech Environ are into processing of Fresh Municipal solid waste, Bio-Remediation and Bio-Mining of Legacy waste and Bio Medical waste management Services. The company provide end-to-end services in all verticals of waste management. Greentech Environ have been in this business since its corporation in the year 2011.

About the Products



Converting MSW into charcoal reduces the amount of waste sent to landfills and provides an environmentally friendly alternative to conventional charcoal production methods. By transforming MSW into charcoal, valuable resources embedded in the waste, such as carbon and other organic compounds, can be recovered and put to beneficial use. Charcoal derived from MSW can serve as a renewable energy source, offering the potential for clean and sustainable power generation.

Best Practices

- Ongoing bio-remediation projects in West Bengal.
- Construction & demolition waste processing plant at Okhla SLF

Future Plans

Expansion of recycling Initiatives by increased diversion rates, innovative Recycling Technology or Public Education Programs. Focus on Circular Economy Solutions using Material Recovery Facilities (MRF) Development, Partnerships with manufacturers and product lifecycle Management. Adopting Sustainable Waste-to-Energy (WTE) Solutions. Use data analytics and IoT to optimize waste collection routes, reducing fuel consumption and costs. Implement sensors and predictive maintenance on machinery to reduce downtime and extend equipment lifespan. Provide customers with digital portals or apps to track waste production, recycling rates, and service schedules, enhancing transparency and engagement. Give Commitment to Carbon Neutrality and Environmental Impact Reduction. Community and Stakeholder Engagement by CSR Initiatives, Local Partnerships and Transparent Reporting. Innovation and investment in Research Development.

Inclusive Recycling Foundation - E[co]work

About Company

E[co]work is an exciting social enterprise that brings circularity and inclusivity to the e-waste recycling sector. E[co]work is an authorised e-waste recycler, with world-class standards that is accessible to informal entrepreneurs on a pay-as-you-go basis. Coupled with trainings and business support services, our unique model enables the transition of informal sector to a formal economy, benefitting all ecosystem.

About the Products

Rental Fees: Pay-per-use dismantling units, Pay-per-use storage space, Rentable office space, meeting rooms, desks; Ethical, safe, and trusted e-waste EPR credits and Awareness Activities; Fully authorised e-waste recycling facility registered with CPCB with documented evidence of recycling and awareness activities, workshops with live functional, engaging activities.

R & D Structure and Collaborations and Partnerships

E[co]work has collaborated with international organisations such as Resource Futures (UK), EMPA (Switzerland), Minimise (Germany) and Landbell GreenForest (India) to conduct primary on-ground research into various aspects of e-waste management that spans policy, capacity building, business modelling, human centred design and material composition and economic analyses. Ongoing collaboration with a design university for upcycling and eco-design, as well as with plastic recyclers and producers for better quality recycled plastics.

Best Practices

High attention to Environment, Health, and Safety (EHS) standards through ensuring workers use proper personal protective equipment (PPE) such as shoes, gloves, glasses and masks, appropriate tools, and a dust-free environment through innovative dust evacuation and mist fans Progressive policies on labour welfare, regular risk assessment for operational resilience and robust data documentation for traceability and ensuring compliance. Additionally, E[co]work emphasize the importance of continuous learning and improvement through regular training sessions and workshops. These cover not only the proper use of tools and techniques but also essential safety training, including first aid and fire safety.

Future Plans

A digital platform and marketplace designed to connect ecosystem partners, offering business support services for micro-entrepreneurs. This includes financial planning, management, reporting, compliance assistance, access to government benefits, and opportunities for both professional and personal development. Empowering growth and success for small businesses.

ITC Ltd

About Company

ITC is the only company in the world of comparable dimensions to be carbon positive 18 years, water positive 22 years and solid waste recycling positive for 16 years. The factory is also Green Platinum rated from IGBC with an all-India Highest Score of 94. The factory is powered by wind energy. The generated power from the wind energy is fed into the main grid and the factories at Bengaluru which as a part of ITC are under the main power supply. 90% is from renewable energy portfolio. Rainwater is harvested and stored in 4 ponds within the premises with a total capacity of 16,800 KL, through which 25 to 30% of our water requirement is met.

About the Products

ITC aims to building an Effective Waste Management Chain through Multi-Stakeholder Partnerships. ITC set 10 TPH Bio-Mass Boiler to recycle all generated waste with Online efficiency monitoring that generates high pressure dry steam for process. And low Emission levels compared to fossil fuel boilers. The company uses Fly Ash as manure. Average CO2 reduction 3000 Tons in last 3 years. ITC converts Canteen vegetable and garden waste into manure by vermicomposting.

R & D Structure and Collaborations and Partnerships

ITC's Well-being Out of Waste (WOW) initiative promotes awareness about the importance of source segregation and recycling and establishes systems to ensure effective practice. It collaborates with local municipalities to train waste workers and rag-pickers in these concepts and to provide an efficient collection system that covers virtually all segments: households, offices, schools, hospitals, commercial establishments, etc. Proper segregation reduces the amount of waste going to landfills while the dry waste collected provides competitive raw material to several industries, e.g. glass, paper and plastic. Rag-pickers and waste workers also earn higher and more regular incomes. Along with WOW, ITC is also implementing several other waste management projects along the same lines but tailored to local situations, e.g. promoting home composting or involving women's self-help groups.

Best Practices

ITC is promoting awareness to stimulate behavior change by High-impact public campaigns, Intensive programme in schools and Training for direct contact personnel, e.g. rag pickers, municipal workers, etc. Establishing efficient systems to support effective source segregation & recycling. Supporting sustainable livelihoods for rag-pickers and waste workers. Forming robust community groups and partnerships with local municipal bodies. The company focused on Plastic Recovery & Recycling by source segregation at household level, Secondary segregation at SWM Unit & Processing to recyclers. 528 MT Compost is produced using wet waste. And MSW processed 2.19 Lakh KG per month (by GPs).

Future Plans

Within the scope of its operations waste generation is minimized through systematic monitoring and improvement of efficiencies in material utilization as well as by maximizing recycling. Upstream, ITC focuses on research for optimizing its packaging to ensure that environmental impact is minimized without affecting product integrity. Outside the fence, ITC's initiatives focus on tackling the enormous problem of municipal solid waste by evolving sustainable and scalable solutions based on the principle of circular economy.

JBM Environment Management Pvt Ltd

About Company

JBM Environment Management Private Limited are committed towards providing holistic solutions to our customers and catering towards society at large and not just our base line. Giving back to society and assisting in nation building is of utmost importance to us. For over a decade now, JBM Enviro has been committed towards commissioning Waste to Worth (WoW) projects in India offering multiple environment sustainability solutions. JBM Enviro managed over 8 million tons of MSW in some of the biggest metropolitan cities in India. Owing to our lineage, expertise and strategic presence in the value chain, JBM Enviro is a leading player in this domain. Developing first of its kind projects with an Integrated Solid Waste Management (ISWM) proposition across India.

About the Products

JBM has adopted Integrated Solid Waste Management approach with Integrated mechanism of collection and transportation of MSW from all clusters and processing it into power & other products. JBM Enviro deploys more than 400 vehicles for Collection & Transportation (C&T) of Municipal Solid Waste (MSW) in the 4 Cities of Sonepat Cluster (including the cities of Sonepat, Panipat, Samalkha and Gannaur) with over 700 manpower. Sonepat Project is India's only Integrated Waste Management Project. Through its activities, JBM Enviro caters to more than 12 lac citizens, living in these cities. The technology designing has to be done as per calorific value and conditions of the Indian waste. Scientific handling and disposal of ash and residues. In addition to the Waste to Power projects, JBM Enviro is also developing the Compressed Bio-gas (CBG) projects.

Best Practices

TATA ACE are deployed for primary C&T and we operate door-to-door from households and / or market areas till Secondary Points ('SCP') / Transfer Stations ('TS'). All our vehicles has partitions for dry & wet waste, follow prescribed route-maps and operate strictly at

pre-informed timings. The wet / organic waste is collected and transported separately to the composting plants – Vermi compost and/or Mechanical compost. JBM also provide the necessary support and jointly operate along with the Municipal Corporations of Sonepat and Panipat for these compost plant(s). At the SCPs / TS, the segregation of waste is carried out.

In the process of (mechanical) sorting, all the valuables discovered are extracted and sent for re-processing. JBM Enviro has a Material Recovery Facility (MRF) equipped with all infrastructure.

The segregated MSW is transported to the JBM's processing facility located at Sonepat. At the WtE Plant, JBM Enviro processes the combustible MSW and convert it to power 8 MW and other valuables such as compost, bricks (from ash) etc. The power generated from our plant is supplied to the State owned grid and other valuables to different parties.

JBM has developed the state of the art facility at Sonepat and deploys Martin (incineration) technology with a flue gas cleaning system, and a complete mechanised system for the Rankine cycle. JBM employs more than 200 manpower in its WtE Plant. JBM Enviro's Vehicles, SCPs and TS are cleaned regularly and all its workers medically checked.

Future Plans

JBM has proven technology for processing MSW to power efficiently and consistently for over 20 years. Robust emissions monitoring and cleaning systems to protect the environment and public health via systematic improvement in MSW management. With more innovation, they are planning to scale up the MSW management system. JBM has signed an MoU with the MoPNG with an endeavor to develop 500 CBG projects. JBM, in the first phase, is developing projects in NCR, Uttar Pradesh and Karnataka, among other States.

JCB India Ltd

About Company

JCB India Limited, a subsidiary of J.C. Bamford Excavators, UK, is a premier name in earthmoving and construction equipment manufacturing with a deep-rooted presence in India. Established in 1979, JCB India became fully owned by its UK parent and expanded operations in 2006 with two cutting-edge factories in Pune. These Pune facilities are dedicated to producing Tracked Excavators, Wheeled Loaders, and Compaction equipment for the Heavyline segment, generating around 10,000 machines annually across 100 acres with a workforce of 4,000. Pune also houses JCB's largest design center outside the UK, with 400 engineers driving global innovation and supporting sustainable practices.

About the Products

JCB Excavators: The best-in-class range of JCB Excavators comprises heavy-duty Excavators that exhibit maximum performance, strength, efficiency and productivity.

Compactors: JCB's range of Compactors offers high level of precision and perfection, which makes them one of the finest compactors in the world. Leading the industry in output with more compaction per pass and equipped with unique features and robust structure, these phenomenal compactors enable to deliver exceptional results.

Wheeled Loader: JCB offers some of the best wheeled loaders in India that lead to a perfection driven performance. Their new range of Wheeled Loaders is designed to lead

the way in standards of Fuel Efficiency, Performance, Reliability, Operator Comfort, and Innovation.

Best Practices

JCB Talegaon employs innovative strategies to reduce waste generated during manufacturing. For instance, the facility has increased nesting efficiency, optimizing the layout of metal components during production to reduce metal scrap. Additionally, the use of electrostatic guns for paint application has cut down on paint waste, ensuring precise, efficient use and minimizing environmental impact. The facility has repurposing welding wire bobbins and spools, reusing plastic caps, and adopting returnable packaging. The facility recycles a range of materials, including paint thinner, paint sludge, and sewage treatment plant (STP) sludge. Through careful sorting and processing, these materials are recycled and reintegrated into the production cycle or repurposed, further contributing to JCB's zero-waste goal. The repair philosophy at JCB Talegaon is exemplified by the JCB Sarvottam and REMAN programs, designed to extend the life of machinery and components.

Future Plans

JCB Pune's aims for a 10% annual reduction in waste per machine, JCB is committed to improving its processes and materials. Plans include Forest Stewardship Council certification for wooden packaging to ensure responsible sourcing. JCB will reduce hazardous waste by introducing eco-friendly coolants in machining centers and achieve a 100% elimination of single-use plastics on-site. Additionally, the integration of IoT and AI will optimize maintenance, minimizing waste generated from breakdowns. JCB's "Road to Zero" plan focuses on minimizing emissions by developing hydrogen combustion engines, which offer efficient, rapid refueling for heavy equipment. JCB is also building green hydrogen infrastructure, targeting sustainable, zero-emission machinery suited for construction demands.

Nepra Resource Management Pvt Ltd

About Company

NEPRA is India's leading Sustainability Solutions Company, specializing in end-to-end waste management and recycling. With a focus on inclusive models, innovation, and technology, NEPRA pioneers in transforming waste into resources, driving a circular economy while contributing to India's Net-Zero and Swachh Bharat Mission goals.

About the Products

NEPRA operates advanced Material Recovery Facilities (MRFs) in multiple cities, focusing on material recycling. Its Plastic Recycling Facility in Sanand, Gujarat, transforms plastic waste into near virgin polymers, supporting the circular economy. NEPRA also operates a shredding facility that converts non-recyclable materials into Alternative Fuel and Raw material (AFR), for the cement industry contributing to waste-to-energy efforts.

R & D Structure and Collaborations and Partnerships

NEPRA's in-house R&D drives innovation with its EPR Connect platform, designed to streamline the supply and value chain of plastic waste management. The platform connects PIBOs (Producers, Importers, and Brand Owners with waste management authorities (WMA), pollution control boards (PCBs), and plastic waste processors (PWPs) to ensure efficient tracking, collection, and disposal of plastic waste. EPR Connect maintains traceability and ensures compliance with Extended Producer Responsibility (EPR) regulations. By optimizing the data flow, NEPRA provides a transparent and compliant system that helps stakeholders meet their plastic waste management targets effectively.

Best Practices

NEPRA has established a robust circular economy model through its end-to-end waste management approach. It collects and processes dry waste from multiple sources, including institutions, aggregators, and local communities. NEPRA designs, builds, and operates Material Recovery Facilities (MRFs), often in partnership with government bodies. Its high-tech plastic recycling facility produces near virgin-grade polymers, addressing the demand-supply gap in the recycling industry. Through the EPR Connect software, NEPRA ensures traceability, transparency, and compliance in waste management, helping its clients meet EPR targets. The company also converts non-recyclable waste into AFR, reducing landfill dependency.

Future Plans

NEPRA plans to scale its MRF operations across India, expanding its recycling infrastructure to more cities. It aims to enhance its plastic recycling capacity, integrating advanced technology to improve efficiency, while aligning its goals with India's Net-Zero commitment and global sustainability standards like the UN's SDGs.

Plasticycle Green Foundation

About Company

Plasticycle Green Foundation is a Section 8 company incorporated in July 2022. The current focus in Plasticycle is recycling of used polypropylene (rPP) non-woven (NW) waste into niche value-added commercial products that can cater to various industries such as automotive, agriculture, household, etc. Plasticycle has been co-founded by a team of polymer processing experts with backgrounds from premier institute like CSIR-NCL and is mentored by an eminent Board of Advisors.

About the Products

Plasticycle green foundation is knee to prepare different formulation and compositions of PP nonwoven waste. By using the filler and additives we can enhance the properties of the material. Recycled PP pellets/granules. Plasticycle can match mechanical properties suited for a given application. Plasticycle rPP pellets are available in different colors. Plasticycle have molded articles for automotive and agricultural applications.

R & D Structure and Collaborations and Partnerships

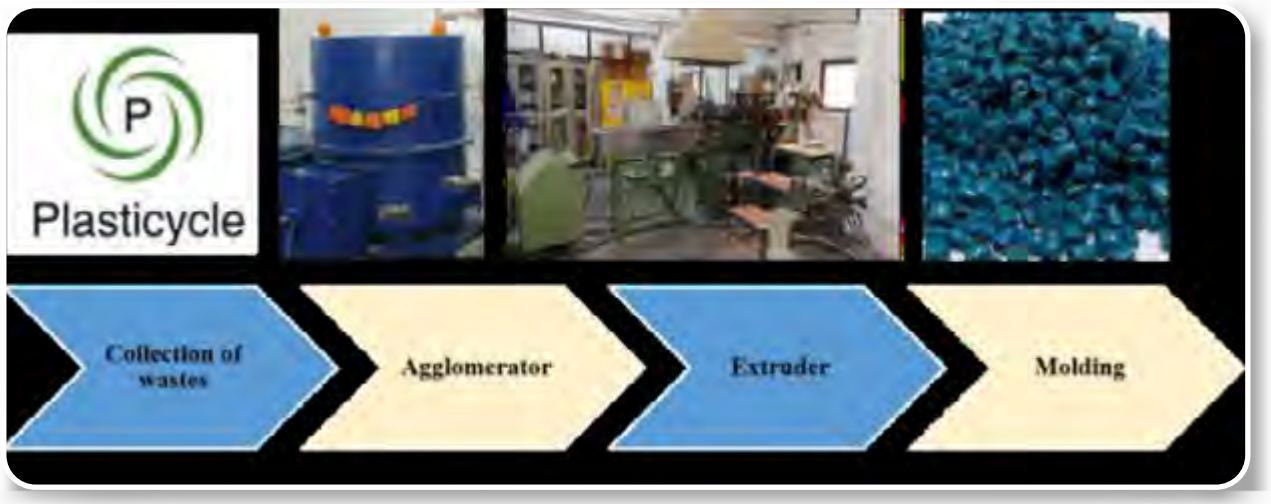
CSIR-National Chemical Laboratory, CSIR- Centre for Cellular & Molecular Biology (CCMB), Centre for DNA Fingerprinting and Diagnostics (CDFD)

Best Practices

Plasticycle has developed a technology by which they can convert plastics wastes into value added products. Plasticycle are getting waste from different resources. Plasticycle is getting their materials from waste collectors, waste pickers, NGOs, waste management companies, offices and household wastes. Plasticycle has set up a supply chain for collecting waste materials in Pune city at various locations. In the first step we will do sterilization/cleaning of the material. In the next step, shredding and agglomeration was done. In this step larger size polymeric junks were formed. This agglomerated material was used in the compounding to make polymer pellets. Polymeric pellets are used for the molding to make articles.

Future Plans

Nitrile gloves are used in food making industry, research laboratory, pharma companies and health care applications. Nitrile gloves are puncture, chemical and tear resistant, it can be used for acids, bases and organic solvents. Because of their properties, nitrile gloves are extensively used in research laboratory. The main task is to disposal off nitrile gloves.



Re Sustainability Ltd

About Company

Re Sustainability Limited (ReSL), a KKR-backed enterprise, stands as one of Asia's foremost providers of comprehensive environmental management services. With a robust infrastructure for recycling, resource recovery, and circular economy solutions, ReSL is also India's largest recycling company. ReSL expansive reach includes over 100 operating locations across India, Singapore, the UAE, Saudi Arabia, Qatar, Kuwait, Oman, Tanzania, and the USA, supported by a dedicated workforce of more than 22,000 people.

About the Products

a) LEED Platinum Certified Precious Metal Refinery: facility is dedicated to the extraction of precious metals like gold, silver, platinum, etc from e-waste, e-scrap, and industrial scrap

b) Construction & Demolition Waste Management: ReSL India's largest player in construction and demolition (C&D) waste management, processes over 3,000 tons daily across 8 state-of-the-art facilities. We recycle waste into valuable materials like sand, bricks, aggregates, tiles, and paver blocks, reducing reliance on natural resources and minimizing landfill usage.

c) Plastic Waste Management: Re Sustainability processes over 5,000 tons per day (TPD) of plastic waste across 4 state-of-the-art facilities in India, offering comprehensive solutions to transform waste into valuable products. ReSL approach includes collection, sorting, shredding, washing, formulation, and extrusion, ensuring efficient recycling and resource recovery.

d) End of Life Vehicles Recycling: ReSL operates India's largest ELV recycling plant in Jhajjar, Delhi, processing up to 100 vehicles daily, where we extract value from retired vehicles and promote circularity.

e) Corporate Recyclables Management: ReSL offers to help businesses optimize waste management practices and support sustainability goals

f) Industrial Waste Management and Resource Recovery: ReSL manages over 1.5 million tons of waste annually, leading the way in India with 20 advanced facilities across seven of the country's top eight industrial waste-producing states

g) Alternative Fuels and Raw Materials: ReSL provides innovative solutions through Alternate Fuels and Raw Materials (AFR) to replace conventional fuels and raw materials in industrial processes, particularly within the cement industry.

h) Urban Waste Management Solutions: ReSL is India's first provider, operating in three of the top four waste-generating cities, using IoT-enabled EV fleets for optimized waste collection and transportation

i) Waste to Energy: With over 200 MW of clean energy under development, ReSL is reducing landfill dependency and providing sustainable, eco-friendly alternatives to fossil fuels.

j) Other Services: Includes Health Care Waste Management & Services, Compressed Bio Gas, Integrated Sustainability Solutions, Re Analytical

Best Practices

Innovating in lithium-ion battery recycling, green coal production, and salt recovery projects while transforming waste into Refuse-Derived Fuel (RDF) and Alternate Fuels and Raw Materials (AFR). Creating compost and renewable fuels from organic waste, recycling e-waste and plastics, and capturing landfill gases for vehicle fuel. Deploying IoT-enabled electric vehicles for waste collection and advocating source segregation to improve recyclability.

Future Plans

ReSL aims to strengthen its presence in current markets across Asia while exploring opportunities in emerging and developed economies. ReSL is expanding Waste-to-Energy (WtE) projects, targeting over 200 MW of clean energy generation. ReSL is launching large-scale initiatives to promote waste segregation at source and circular practices. ReSL will expand its vocational training programs for waste pickers, improving their livelihoods and integrating them into formal employment.

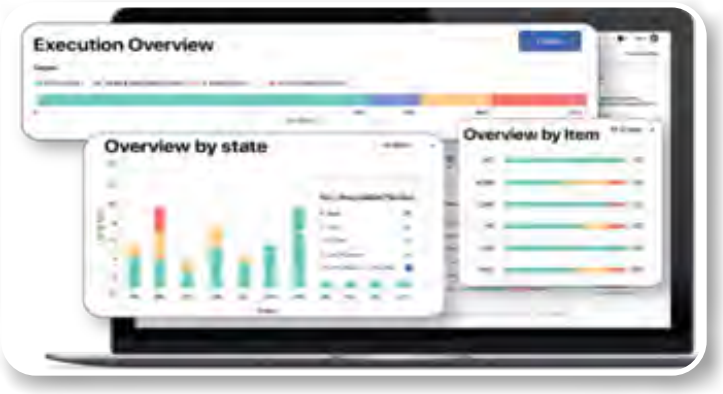
Recykal

About Company

Recykal is a cleantech startup, formalising waste management with holistic tech solutions for brands, aggregators, government bodies, and recyclers. A trusted sustainability partner for major brands, we have redirected over 12 billion plastic bottles, 100K+ MT of metal, and 90K MT of paper and E-Waste from landfills since 2023.

About the Products

EPR Loop: Recykal's EPR Loop platform helps brands digitally track EPR targets, transactions, and performance, offering complete transparency and traceability. digital Deposit Refund System (dDRS): A tech-led sustainability solution that enables seamless collection of post-consumer packaging by incentivising customers to bring back empty containers.



R & D Structure and Collaborations and Partnerships

Recykal' R&D includes a Reverse Vending Machine (RVM) specifically designed to collect QR-coded bottles and incentivize consumers for returning waste. Developed and researched AI-powered, IoT-enabled systems in India for efficient waste recognition, sorting, and tracking. Integrated with India's digital infrastructure, these innovations drive circularity while supporting the Swachh Bharat mission. Instant UPI-based refund processing

Over 50% of device materials are locally sourced, supporting the "Made in India" initiative, public procurement policies, and reducing reliance on imports. AI-powered item identification under 40 milliseconds. Category-wise segregation at

2 containers/second. Anti-spoofing drop detection to prevent fraud. Cybersecure as per OWASP 4.0 standards

Recykal collaborates with 675+ recyclers and 5000+ waste service providers, alongside 620+ brands like Unilever and Tata Group, to enhance compliance and circularity in waste streams like plastic, metal, e-waste, battery and tyre waste.

Best Practices

Digitization transforms waste management by offering real-time tracking, data integration, and automated processes, allowing for greater transparency and efficiency across the waste lifecycle. This enables stakeholders to better monitor waste generation, segregation, and disposal, improving compliance and sustainability outcomes. Additionally, multilateral cooperation between governments, industries, and local communities fosters a collaborative approach, ensuring that policies and practices are aligned. Such partnerships help scale waste management solutions, drive innovation, and ensure compliance with evolving regulations, ultimately contributing to more effective and sustainable waste systems.

Complete Waste Traceability: Through an advanced SaaS platform, Recykal provides end-to-end traceability in industrial waste management, enabling stakeholders to monitor and validate waste from collection to recycling, strengthening environmental accountability.

Enhanced Transparency: Real-time dashboards offer detailed insights into waste flows, fostering clear reporting for brands, recyclers, and regulatory bodies, which supports sustainable and data-driven decision-making.

Automated Compliance: Recykal's EPR Loop simplifies regulatory compliance with automated documentation, real-time reporting, and readiness for audits.

Smart Routing: Using AI-driven routing technology, Recykal optimises waste logistics, minimising environmental impact for a sustainable supply chain.

Future Plans

Recykal is committed to diverting at least 10% of waste from landfills, channeling it into recycling and reuse. Focused on advancing technology and strategic partnerships, Recykal aims to make impactful, scalable change, empowering industries and communities to drive lasting environmental stewardship.

REnergy Dynamics Pvt Ltd

About Company

REnergy Dynamics (RED) is an innovative bioenergy company dedicated to developing sustainable projects and manufacturing advanced bioenergy products. Operating with a commitment to environmental sustainability, RED integrates cutting-edge technology to reduce carbon footprints and enhance energy efficiency. Positioned as an integrated bioenergy platform, RED's mission is to support global sustainability initiatives by creating energy solutions that make a tangible impact.

About the Products

RED's flagship products include the Bio-Digester and Double Membrane Gas Holder, both designed to optimize bioenergy plant performance. The Bio-Digester enhances anaerobic digestion processes, improving biogas output while reducing waste. Meanwhile, the Double Membrane Gas Holder is engineered for CBG containment, providing superior durability, and full automation to ensure operational safety. RED's products are highly customizable, offering flexible solutions tailored to client needs and boosting project efficiency.

R & D Structure and Collaborations and Partnerships

RED's R&D efforts focus on continuous improvement in bioenergy technology, integrating advanced solutions for feedstock efficiency, plant performance, and durability. Its

R&D structure includes in-depth feedstock analysis, engineering for optimal bioenergy conversion, and material testing to ensure product longevity. Collaborations with industry experts like Emerson for instrumentation, Thermax for gas upgradation systems, Rostfrei Steels for material innovation, and European Sustainable Solutions (EuSuSo) for technology integration support RED's mission to bring international best practices to India's bioenergy sector.

Best Practices

Quality, safety, and sustainability are central to RED's operational ethos. RED ensures quality through rigorous standards, conducting real-time inspections and continuous audits to monitor vendor compliance and material quality. Its Health, Safety, and Environment (HSE) policies are designed to foster a proactive safety culture across all levels. Employee training, regular safety reviews, and stakeholder feedback loops ensure alignment with best practices and continuous improvement. In addition, RED partners with rural entrepreneurs provide machinery, financial support, and technical expertise, creating a symbiotic business model that uplifts local communities while promoting renewable energy adoption.

Future Plans

In the next three years, RED aims to establish 10 large-scale Compressed Bio-Gas (CBG) plants across India, each with a 500 TPD capacity. Through these projects, RED seeks to lead the transition toward renewable energy and contribute to India's carbon-neutral vision by 2070. This expansion reflects RED's commitment to a sustainable and energy-resilient future.

Schindler India Pvt Ltd

About Company

Schindler was founded in Switzerland in 1874, the Schindler Group is a leading global provider of elevators, escalators and related services. Schindler India was set up as a greenfield project in 1998 and is a 100% owned subsidiary of Schindler Group. "Leadership through Customer Service", is the cornerstone of Schindler India`s growth strategy and which is evident with their service presence across 50 major cities which include their branch offices in 35+ major cities in the country. The operation is headquartered in Mumbai and offers customers the latest models of their world-renowned range of products – technologically superior to those on offer in the Indian market. In addition to new installations, Schindler provide full modernization and maintenance services to transform and protect existing vertical transportation systems.

About the Products

Schindler 7000: Skyline of cities. The global customized solution for landmark, highrise buildings. The world's population is growing rapidly. Urbanization is on the increase with more people moving to cities. This creates a need for taller buildings with even more efficient and innovative mobility solutions. The Schindler 7000 elevator is famous around the world for delivering this and more. Capacity: upto 4'000 kg. Travel height: up to 500m. Speed: upto 10 m/s

Schindler 9500 AE: When long distances become a short-haul trip. A moving walk from Schindler can be integrated optically into any building. It has a full range of design features – glass balustrades in different shades, various handrail colors, deckings and lighting options, and aluminum and stainless steel floor covers.

R & D Structure and Collaborations and Partnerships

The journey for Schindler's India R&D started with a view to tap into India's large pool of engineering talent. The focus is to develop world class products for local and Indian markets. The journey began from Mumbai office with a small team and has now relocated to Chakan in Pune in June 2015 after a stint of 4 years in a makeshift office at Pimpri in Pune. The new CRD India facility is built alongside the factory and is spread over 10,750 sq. meter area with 72 meter high testing tower which has capacity of 8 shafts of varying height. Well equipped testing facilities for electronic and mechanical components are also available in the test tower.

Best Practices

Reduced 73000 site visits i.e. 25% of all breakdowns, 10 TCO2e & replaced 12k traditional site visits to e-Visits saving 22 TCO2e annually via Schindler Ahead iOT Tech. 30% Reduction in Power Consumption and almost nil oil usage by upgrading old Geared elevators into Gearless Machines,467 TCO2e. Converted 32% of all Physical Contracts to Digital Documents – Saving 7.24 Lac Pages, 3.3 TCO2e annually. 75 e-bikes given to service engineers resulting in 13 TCO2e saving yearly due to this initiative. Mass scale Defective material return process enabling 95% material to be returned from field sites to central warehouse to feed the repair centre. By extending life of electronic components, Repair centre operations provide 30% material savings by value and over the years have saved 2510 TCO2. 50% of our new product sales are with ISO rated A product and 99% are with regenerative drives.

Repair Centre initiative: 1.2 lac items repaired & integrated for elevator maintenance without compromising reliability. For eg, inverters, door sensors, fixtures, PCBA and similar 50 items, 2510 T CO2e

Future Plans

Expansion of Repair Centre: Facility expansion +3000 sq. ft. Addition of 10 components. Green jobs creation- 15%. Addition of simulators. Upgradation of Software / Tools. Improvement in Reliability. Other Green initiatives: Green contracts, Repair Centre & Corp offices are IGBC certified, Rooftop Solar installations of 140 MWh. TOC - Delivering services across IND to MENA region and expanding further. Expansion project for e-Bikes for new joinees.

SRF Ltd

About Company

Since the inauguration of SRF's first plant in 1974, the company has evolved into a manufacturing powerhouse with businesses spanning multiple verticals. With an annual turnover of ₹12,910 crore (US$ 1.6 billion), the company's diversified business portfolio covers Fluorochemicals, Specialty Chemicals, Packaging Films, Technical Textiles and Coated and Laminated Fabrics. Anchored by a strong workforce of ~9,000 employees from different nationalities working across thirteen manufacturing plants in India and one each in Thailand, South Africa and Hungary, the company exports to 100+ countries. Equipped with state-of-the-art R&D facilities, SRF has filed 458 patents for R&D and technology so far, of which 151 have been granted. A winner of the prestigious Deming Prize for two of its businesses, namely Tyre Cord and Chemicals, SRF continues to redefine its work and corporate culture with TQM as its management way.

About the Products

Packaging Films Business (PFB), a business of the multi-business chemical conglomerate SRF, is India's largest exporter of BOPET films to over 90 countries. With three manufacturing plants in Indore and one each in Thailand, South Africa and Hungary, SRF offer several standard and specialty products under two brand names – PETLAR for the entire range of Bi-axially Oriented Polyethylene Terephthalate (BOPET) films and OPLAR for Bi-axially Oriented Polypropylene (BOPP) films. Their brands are a testimony to their competence and commitment to consistently meet the demands and requirements of the global converting industry.

Best Practices

The key thought behind the best sustainability practices has been to reduce the consumption of virgin material. We have been focusing on 'Reduce, Reuse, Recycle and Repair'. Every day SRF spend 30 mins for doing 5S in their areas and performing Kaizens. Its key waste management initiatives include – Converting non-recyclable process waste into recyclable polymer and using it in the main process line. For doing this SRF partnered and collaborated with a domestic vendor for development of machine. This helped them in reducing carbon emissions by 918 MT/year and reduced the consumption of virgin polymer by 500 MT/annum.

SRF has developed a recycling setup that turns non-recyclable process waste into recyclable polymer for use in our process. They source post-consumer recycled waste from the market for use in film process and also reuse materials in their packaging, along with procuring used material from the market. This has helped them to reduce carbon emission by 1020 MT/annum and reduced virgin material reduction by 600 MT/annum

As SRF use wooden ply and pallets for packing our finished products, so on this front they have partnered with various dealers, and with this they have been able to reduce 935 Mt of wood, and 1620 MT of carbon emissions. For repairs, SRF developed a couple of domestic vendors for repair of our drives, and upskilled their employees to identify faulty components. They repaired 17 drives and saved 3.8 MT of carbon emissions.

Future Plans

Increasing use of recycled packing material to 70%. Horizontal deployment of practices to all other sites of PFB. Increasing Metallizer waste recycling capacity to 720 MT/annum. Increasing usage of PCR waste to 7000 MT/annum.

Swaaha Resource Management Pvt Ltd

About Company

Swaaha Resource Management Private Limited, founded in 2016, is a waste management startup specializing in sustainable solutions. Operating across multiple Indian cities, its flagship project, the Smart Mobile Waste Processing Van 3.0, offers decentralized waste processing, converting organic waste into slurry for biogas and compost while promoting environmental responsibility.

About the Products

Swaaha's Smart Mobile Waste Processing Van 3.0 (SMWP 3.0) is an innovative, selfcontained mobile unit for waste management. Swaaha processes waste at the source, reducing transportation needs and emissions. Key features include automated waste loading, shredding, pulverization, and IoT-based data collection for real-time monitoring. Designed to process 4000 kg of waste per shift, it promotes sustainable practices by converting organic waste into compost or biogas, enhancing efficiency while minimizing environmental impact.

R & D Structure and Collaborations and Partnerships

Swaaha's R&D fuels innovation in waste management through key partnerships. Swaaha collaborated with IITI DRISHTI CPS Foundation to develop IoT-based real-time waste monitoring systems, improving efficiency and optimizing waste collection routes. Additionally, Swaaha partnered with Bhabha Atomic Research Centre (BARC) for the Nisargruna Biogas Plant technology, converting organic waste into biogas and compost. These collaborations align with their mission to advance sustainable waste management solutions and promote a thriving circular economy.

Best Practices

Swaaha adopts several best practices in waste management to ensure sustainability and efficiency. One key practice is decentralized waste processing through their Smart Mobile Waste Processing Van (SMWP 3.0), which processes organic waste on-site, reducing transportation needs and emissions. This technology-driven approach incorporates IoT-based data collection to monitor waste levels in real-time, optimizing collection routes and improving service efficiency. Swaaha emphasizes community engagement by working closely with local communities for waste collection and education on sustainable waste practices. Their focus on safety and training ensures that staff and workers receive comprehensive training on handling waste, using protective equipment, and following environmental health and safety protocols. Additionally, Swaaha promotes a circular economy by converting waste into valuable products like biogas and compost, which are used as renewable energy and organic fertilizers. These best practices reflect Swaaha's commitment to innovation, environmental responsibility, and empowering communities.

Future Plans

Swaaha is committed to scaling up impact by expanding our Smart Mobile Waste Processing Vans to more cities, implementing zero-landfill events, and advancing waste-to-energy solutions like biogas plants. Swaaha has focused on enhancing plastic recycling, promoting a circular economy, and integrating smart waste management systems with IoT-based sensors for real-time, data-driven efficiency.

Tata Steel Utilities and Infrastructure Services Ltd

About Company

Tata Steel Utilities & Infrastructure Services Limited (Tata Steel UISL), established in 2004, is India's only all-encompassing urban infrastructure service provider, aligned with the mission to deliver "Quality Services for Life." It focuses on providing best value infrastructure and utility services in areas such as Waste Management, Water - Wastewater, and Power Distribution.

About the Products

In Waste Management Portfolio, Tata Steel UISL focus on two primary products:

1. Upcycled products: Tata Steel UISL had launched citywide Reduce, Reuse, Recycle (RRR) initiative to engage the community in sustainable waste management. From the donated and collected waste, upcycled products such as paver blocks from plastics, collection bin and pavement from plastic bottles, refurbished shoes, discarded clothes to Carpet (Kaleen), Dari and Doormats, discarded bedsheet and clothes to handbags.
2. Compost: Tata Steel UISL had installed State of Art compost plant in 2010 and is successfully operating it for 15 years with 80 MT per day compost production capacity.
3. Zero Waste Society: Tata Steel UISL advocates decentralized waste management with goal of disposing waste at the generation points itself. In Jamshedpur 10 Nos. of Zero Waste Societies have been developed each having food waste being processed in decentralized modular bio-methanation, dry waste in recycling center, and grey water in grey water treatment plant.

R & D Structure and Collaborations and Partnerships

Tata Steel UISL's R&D division focuses on integrating advanced technologies like IoT-based waste monitoring and AI solutions to optimize segregation. Collaborations with academic institutions such as IIT Madras and NIT Jamshedpur, ensure cutting-edge developments in areas like pipe health assessment and robotic waste management. Partnerships with start-ups and external consultants drive continuous innovation Practices.

Best Practices

Tata Steel UISL excels in community-driven waste management. Their Zero-Waste Society initiative encourages residential communities to practice at-source waste segregation,

significantly reducing landfill usage. Tata Steel UISL operates 26 biogas plants that convert organic waste into energy, reducing reliance on fossil fuels. Digital solutions are embedded throughout operations, with GPS-tracked EV fleets for waste collection, and IoT-based systems that monitor waste segregation from collection points. Furthermore, Tata Steel UISL's RRR (Reduce, Reuse, Recycle) centers upcycle waste into commercially viable products, contributing to a circular economy. The decentralized waste management model focuses on generating wealth from waste and lowering operational emissions.

Future Plans

Tata Steel UISL plans to scale up decentralized waste-to-energy systems, expanding its bio-methanation projects for food waste processing. The company also intends to further electrify its waste collection fleet, aiming to reduce carbon emissions and achieve zero-waste landfill status.

Other notable Success Stories in India: Transforming Waste to Worth

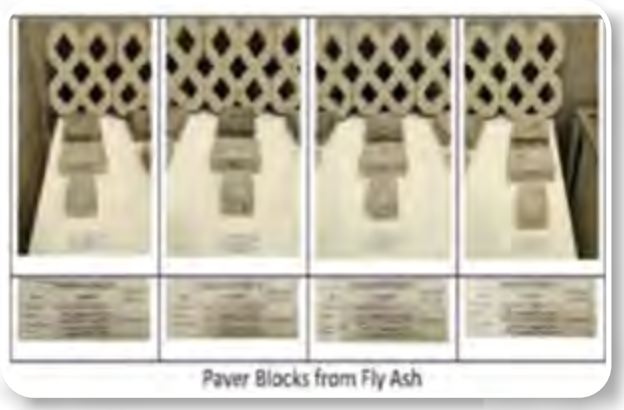
Abellon CleanEnergy Ltd (Research & Development Facility)

About Institute

Abellon is committed to low carbon dioxide emissions by creating sustainable alternatives to fossil fuel-based electricity and petrochemical products. Abellon transforms underutilized organic waste from agriculture, agro-processing, and urban environments into valuable resources, contributing to a cleaner, greener economy and a sustainable future.

About the Products

Abellon has Maiden RDF based WTE Plant in operation for Jamnagar City since Nov-2021; Biomass-Pellet Manufacturing; Eco-stove & Industrial-Burner; Integration of Mist Cooling System {with treated City Grey (STP) Water} in WTE Plant which otherwise goes into nature in unhealthy manner. Also Abellon has sustainable usage of fly ash coming out of WTE Plant and Versatile BioGas Plant: Conceptualized; Algae-Reactor: Developed-scalable-pilot-photo-bio-reactor; Vertical Dryer: In house pilot scaled Dryer developed and patent granted.



Paver Blocks from Fly Ash

Algae Reactor

R & D Structure and Collaborations and Partnerships

Abellon has various collaborative projects across the globe some of them are in United Kingdom, Germany, Canada, Spain, Switzerland.

Best Practices

For each potential opportunity, Abellon conduct 2-3 days detailed workshop. During this, all material information are displayed. Series of discussions took place among all domain experts and stakeholders. Their practices includes:

a) Use standard ideation process to generate new ideas/solutions for a given problem

b) Analyse the gaps/needs put forth by a given problem/challenge

c) Analyse the perceived benefits offered by each new idea

d) Prioritize the ideas based on their merit and relevance

Future Plans

Abellon has plan to Zero burden on Landfill Site. Efficient made in India Flue Gas Cleaning System and Maximize use of city grey water. Development of Material Recovery Facility and CO2 capturing & its utilization.

Anupam Rasayan India Ltd

About Company

Anupam Rasayan India Limited leads the sustainable chemical manufacturing sector, implementing a robust 4R strategy—Reduce, Recycle, Reuse, and Repair—to mitigate environmental impact and enhance resource efficiency. Its unwavering dedication to these principles is embedded in their corporate ethos, driving innovation and cultivating a culture of responsibility across our operations. By harnessing advanced technologies and best practices, Anupam Rasayan has effectively revolutionized our manufacturing processes to align with circular economy principles, establishing new industry standards.

About the Products

Its reduction initiatives begin at the source, focusing on minimizing waste generation across all stages of production. Through process optimization and lean manufacturing techniques, they have significantly decreased raw material consumption and energy usage. Advanced process control systems and real-time monitoring enable precise management of chemical reactions, reducing excess production and associated waste.

Recycling forms a cornerstone of their waste management strategy, emphasizing treating and reintegrating process effluents. Its state-of-the-art Soil Bio-Technology (SBT) system effectively addresses high Chemical Oxygen Demand (COD) and phenolic compounds, ensuring that treated water meets stringent quality standards. This advanced treatment allows us to recycle up to 70% of process effluent, significantly reducing our freshwater consumption and minimizing discharge.

Their reuse initiatives extend beyond water to encompass various waste streams and by-products. A prime example is its innovative approach to managing spent sulfuric acid, which is diverted from disposal and repurposed as a valuable raw material in cement production. Anupam Rasayan has achieved 100% diversion of process sludge and residue

from landfills and incineration facilities, channeling these materials to cement industries for co-processing.

R & D Structure

Anupam Rasayan's research and development team continuously explores novel synthetic routes and green chemistry principles to develop more efficient, less waste-intensive production methods.

Best Practices

Beyond facility boundaries, Anupam Rasayan India Limited has embarked on ambitious green belt development projects, acquiring and cultivating vast tracts of land in the Surat and Bharuch regions. This initiative enhances local biodiversity and serves as a natural carbon sink, offsetting their operational emissions and contributing to regional ecological balance. Their green belt areas, spanning 20,000 square meters in Jaghadia GIDC and 150 hectares in Surat, Tapi and regions, stand as a testament to their commitment to environmental stewardship and community well-being.

The financial implications of their 4R initiatives have been substantial, demonstrating that environmental responsibility and economic viability can go hand in hand. In the fiscal year 2022-23, 4R practices alone resulted in savings of 1148.96 lacs, a figure that grew to an impressive 2333.7744.96 lacs in 2023-24. With the addition of their repair initiatives, Anupam Rasayan anticipate even greater cost efficiencies in the coming years, further solidifying the business case for sustainable practices.

Future Plans

Anupam Rasayan India Limited's dedication to the 4R principles extends beyond mere compliance, representing a fundamental shift in how they approach resource management and environmental stewardship. By continuously innovating and refining their processes, Anupam Rasayan aims to set new industry standards for sustainable chemical manufacturing. Its holistic approach not only addresses immediate environmental concerns but also positions them as a resilient, future-ready organization capable of thriving in an increasingly resource-constrained world.

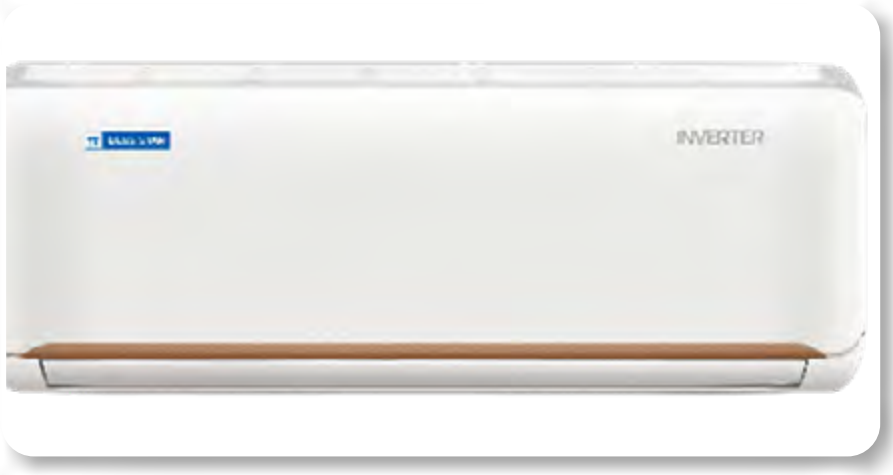
Blue Star Ltd

About Company

Blue Star is India's leading Heating, Ventilation, Air conditioning and Commercial Refrigeration (HVAC&R) Company, a network of 30 offices, 7 modern manufacturing facilities including the new state-of-the-art deep freezer facility at Wada, and Blue Star Climatech Limited's world-class facility at Sri City. The Company has 10,000 retail outlets for room ACs, packaged air conditioners, chillers, cold rooms as well as refrigeration products and systems.

About the Products

Blue Star has their flagship Q Series- Super Energy Efficient Inverter AC, High ISEER Of 6.25 will enable more savings in terms of electricity consumed, Smart Wi-Fi AC With Smart App allows you to set the desired temperature and control AC, Unique 6-in-1 cooling mode to run your AC at 6 different capacities as per the desired comfort. It optimizes power usage in real time as per your cooling needs. AC comes with PM2.5 Filter with Activated Carbon and High-density Dust Filter. Turbo Cool, pre-set mode to instantly cool the room during extreme summers. 4 Way Swing, designed with a motorized horizontal and vertical swing. iFeel, ensures the desired cooling comfort around you, with a sensor built in the remote. 100% Copper Condenser (IDU,ODU & Installation kit)



R & D Structure and Collaborations and Partnerships

Blue Star has world class R&D Centers in India and abroad which are known for developing cutting-edge products based on consumer insights across various fields of Heating,

Ventilation, Air conditioning and Commercial Refrigeration. Blue Planet have launched super-efficient AC's in 1 TR and 1.5 TR segment.

Blue Star's chiller test labs are AHRI certified, along with an accreditation from NABL for room air conditioners and ducted systems. A separate department has been created with a focus on electronics, algorithms and embedded firmware. Software used by the R&D team comprises Pro-Engineer, Pro Mechanics, HTRI, Mechanical Desktop, Rhino, Alias, CATIA, IDEAS, Patran, Hypermesh, Femap, Ansys, Nastran, Fluent, Flow Mechanica and Moldflow.

Best Practices

Separate dedicated area that has been assigned for E-waste and hazardous waste in all factories. Ensure 100% compliance with the RoHS (Reduction of Hazardous Substances) norms as per E-Waste Management Rules 2022. Defective Raw material returned to warehouse are recycled through CPCB authorised recyclers across India. More focus on Inverter based air-conditioners to conserve the energy. All refrigerants being used in the products are in compliance with Ozone Depletion Substance (ODS) rules. 6 office establishments have Electronic Repair Center (ERC) available for repair and reuse the electronic board- Delhi, Mumbai, Ahmedabad, Kolkata, Vijayawada.

Future Plans

Installation of Energy efficient meter for major power equipment for water flow, air flow, fuel flow. Solar / Renewable energy investments / installations. Surface finish through Pte-Treatment / Powder Coating of Pumps, Blowers, VFD Automation, Waste Heat Recovery. Water management through STP, ETP, RWH, Flow fixtures, Metering, Sensors, Reuse/ Recycle. HVAC-Retrofitting 7 yrs + old AC's with VRF. Maintain green Building Certification for factories. Heat Pumps in place of Electrical heating. Create channels for employee feedback on waste management practices and potential improvements.

CSIR Indian Institute of Chemical Engineering

About Institute

The Council of Scientific and Industrial Research-Indian Institute of Chemical Technology (CSIR-IICT), located in Hyderabad, a premier research institution under the CSIR network. Established in 1944, IICT is dedicated to chemical research and technology development. It focuses on advancing science in areas such as chemistry, biology, and chemical engineering, with an emphasis on creating sustainable and innovative solutions for various industries.

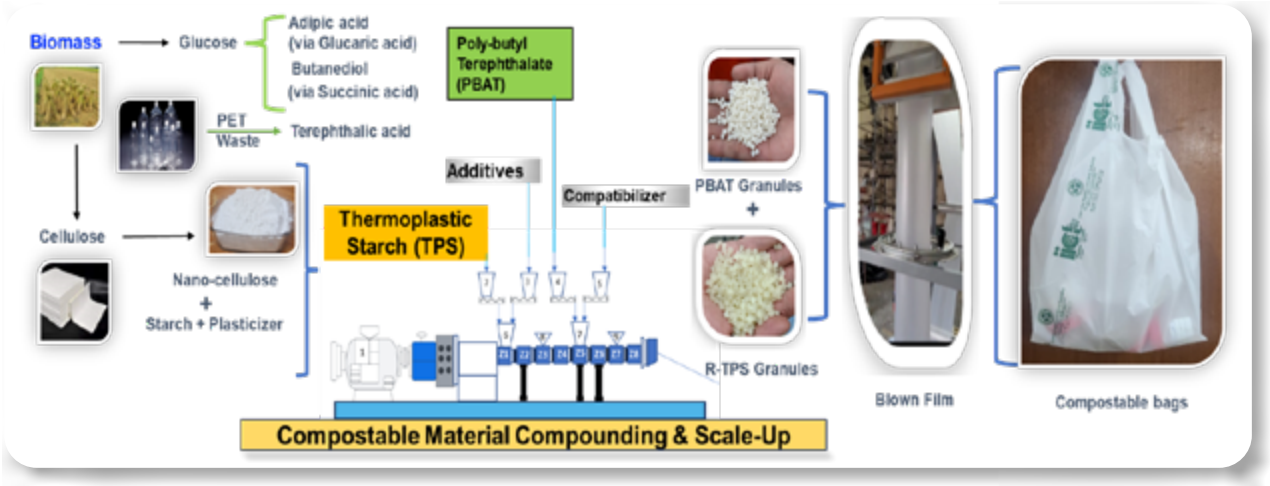
About the Products

CSIR-IICT, has developed process technology for preparation of nano-cellulose that is used as a reinforcement material in thermoplastic starch (TPS)-polybutylene adipate terephthalate (PBAT) biopolymer blend with a high bio-carbon content (> 60 %) for affordable and sustainable packaging film. The engineered nano-cellulose with a precise morphology of 103-135nm prepared through controlled two stage acid hydrolysis of agricultural feed-stock. This process has established at a pilot scale and demonstrated to industry at 1kg scale. The salient features of the process are: Total Processing Time: 09 h (Conventional dialysis: 6-7 days), Process Yield: 25-30 % (reported: 20 % with H2SO4), Process developed with resource recovery system (Water, Inorganics & Acid). The prepared nanocellulose has key feature of high crystallinity index >90%, Conductivity < 350µS, particle size (dia – 12-24nm, length – 119-135nm), high surface area >30m2g-1, thermal stability >250°C and its viscosity between 80-120cP. This preparation process under continuous mode has patented for PCT patents.

This developed nanocellulose has been reinforced in starch to prepare reinforced thermoplastic-starch (r-TPS) through co-rotating twin-screw extrusion at 5kg scale. This engineered biopolymer is blended with PBAT master-batches to prepare a compostable bio-polymer composite granule. An optimized blown parameters has been developed for this r-TPS/PBAT blend, resulting in uniform thickness and smooth films with better mechanical, thermal, and barrier properties. Currently, this developed process for compostable polymer is in TRL-7 and licensed to Green Works Private Limited (Hyderabad, Telangana, India). The produced films/bags are undergoing CIPET certification (ISO-170-88) for their compostability and biodegradability.

R & D Structure and Collaborations and Partnerships

The key areas of research include Chemical Engineering & Process Development, Biotechnology, Catalysis, Natural Products, Nanomaterials and Advanced Materials, Renewable Energy and Green Technologies, Environmental Science and Engineering. CSIR-IICT is well known for its activities of "Lab to Land" by making technologies that are developed in the lab scale to real-world applications, especially to benefit industries, farmers, and local communities. CSIR-IICT collaborates with industries, academic institutions, and international research bodies to facilitate the commercialization of its innovations, fostering innovations that address industrial and environmental challenges contributing to India's economic growth and technological advancement.



Best Practices

This engineered intervention has made significant strides in biodegradable plastic bag production by incorporating cellulose, paving the way for sustainability and economic market opportunities for biodegradable carry bag application.

CSIR-Advanced Materials and Processes Research Institute Bhopal

About Institute

CSIR-Advanced Materials and Processes Research Institute (AMPRI), Bhopal, Madhya Pradesh was instituted in May 1981 as 'Regional Research Laboratory' (RRL) and officially started functioning from CSIR, New Delhi. The institute covered wide spectrum of the science and technologies and carried out several projects on the synthesis and characterization of various innovative materials, waste to wealth and products development such as paddy straw particle board, hybrid composite from inorganic waste such as fly ash, marble waste, red mud, bamboo composite, metal matrix composite such as aluminum-graphite metal matrix composites, natural fibres, lightweight materials such as Al and Mg alloys, metallic and polymer based composites, foams, and functional materials; nano-materials; new materials based on industrial wastes, flexible devices, radiation shielding panels and tiles and graphene reinforced 3D printed metal products.

About the Products

CSIR- Advanced Materials and Processes Research Institute, Bhopal, have came up with a green technology to manage the paddy straw (Parali) agro waste at large and pilot scale level. AMPRI has introduced a new class of materials Parali-based particle board as a wood substitute for building applications so that consumption of timber in building and house construction can be minimized and Parali can be consumed in an eco-friendly manner. This technology also offers a potential solution for the effective utilization of other several industrial wastes such as paddy straw, wheat straw, marble waste, and fly ash. The evergreen hybrid ply and composite wood are stronger and environmental-friendly. The developed Parali product is an alternate material for wood/timber, plastic,

and synthetic wood such as MDF Board. The composite materials are fire retardant, self-extinguishing in nature, cost effective and maintenance free materials.

R & D Structure and Collaborations and Partnerships

CSIR-AMPRI Bhopal have transferred three technology "Evergreen Hybrid Composite of Parali (Agro waste) and Industrial Waste" to well known industry M/s Amit Densified (Doors) Private Limited, Sonipat, Haryana under brand of M/s Bhutan Tuff, M/s, Shubh Green Sheet Pvt. Bhilai, Durg (Chhattisgarh) Recently, they have transferred this technology to the M/s Magniro Global Pvt. Ltd. Raipur, Chhattisgarh under gracious presence of the Dr. Jitendra Singh Honorable Minister (Independent Charge) Ministry of Science & Technology, President, CSIR at Delhi. Particularly, very recently, their one of the licensee M/s Amit Densified (Doors) Private Limited, Sonipat, Haryana under brand of M/s Bhutan Tuff has also lunch the products Moreover, they have also installed our Paddy straw based particle boards at Conference center of the Indira Paryavaran Bhawan, Ministry of Environment, Forest and Climate Change, New Delhi, Govt of India and now conference hall is fully functional.

Best Practices

The developed ecofriendly Parali board (evergreen hybrid wood), is cheaper and stronger than the conventional particle Board and Counterpart. The developed technology can solve the long-standing problem of Parali burning by farmers in Haryana, Panjab, and NCR. The innovative composite evergreen hybrid parali particle board have a variety of application such as doors, false ceilings, flooring, architectural wall panels, partition, panels for locomotive (train) and other transport systems (Bus, ship,etc.) and furniture. It has other potential applications for infrastructure in the construction sector including locomotive (train) and other transport systems.

Future Plans

In future, CSIR-AMPRI Bhopal will showcase and exhibit the fabricated Parali product at various conferences/conclave for promoting startup company for commercialisation. CSIR-AMPRI will interact with industries located in Punjab, Madhya Pradesh Haryana and Delhi states with MSME for licensing.

ESREE Green Works Pvt Ltd

About Company

ESREE GREEN Works Private Limited is a startup company working circular economy and sustainability. It covers entire gambit of waste management IEC Activities training, collections and establishing Material Recovery Facility with a capacity of minimum 5 MT per day. ESREEs operations are in Karnataka, Tamil Nadu, Telangana.

About the Products

a) Plastic and paper waste for recycling: Most of the segregated waste from the households, commercials, corporates consist of paper like corrugated boxes, card boards, duplex, paper etc. These are segregated as separate products for adding value like kraft, white record, color record. From no value, these products can fetch a good rate.

b) Pet and Plastics: Plastic especially pet LDPE, HDPE etc. segregated and bailed in 80-120 kgs bales. From no value, these products can fetch a good rate.

R & D Structure and Collaborations and Partnerships

ESREE works in collaboration and partnership across the stake holders involved in waste generation, collection, processing and disposal to recycling. Green Works signs MOU establishes DRCC, Train waste pickers and carry on awareness campaigns across households, commercial establishment, school children and institutions. Waste collectors thus earn additional income by selling to DRCC. These centres are managed by SHG - especially women entrepreneurs. Add value by segregation of products into various recyclable items.

Best Practices

Material is collected from the Households, Corporates, Educational Institutions, schools brought to MRF.

a) Processing for value addition: All the material received at the MRF will be processed and segregated into various categories like paper, plastic, metals, MLL/LVP as per the flow chart. Plastics will be sorted in to different categories. All the sorted material will be bailed and kept ready for dispatch. E-waste if any will be sorted and kept separately.

b) Despatches / disposal - Paper : Paper depending upon the category like white record, color record, kraft will be sent to respective paper mills. Plastic: Segregated plastic like Pet, LD, PP will be dispatched to the recyclers who are making granules and other products. LVP/MLL: LVP / MLL will be dispatched to cement factories for co processing. E-Waste: E- waste will be sent to authorized recyclers.

Future Plans

With the establishment of POC in Karnataka, Tamilnadu and Telangana, ESREE has plan to expand the MRF across the other states in collaboration with ULBs and in major Metropolitan cities. Parallelly, establish recycling yards for segregation, processing and recycling of items. Forward integration setting up of recycling industries for making plastic granules, paper products.

Green Waves Environmental Solutions

About Company

Green Waves Environmental Solutions (GWES) is an award-winning startup and Andhra Pradesh's first authorized E-waste management unit. Green Waves specialize in sustainable waste management focusing on upcycling e-waste, plastic-, textile-, and floral- waste across India. Its initiatives include recycling, upcycling, and community engagement activities, promoting nature conservation and a sustainable circular economy.

About the Products

Green Waves valorise so-called waste materials into eco-friendly products through eco-innovation and upcycling. From floral waste, they produce incense sticks, soaps, and fragrances, while plastic waste is transformed into functional and decorative products. E-waste is repurposed into unique jewellery and showpieces, and textile waste is crafted into bags and home decor items. Green Waves also reclaim ghost nets, turning them into decorative products. Each product is a testament to their commitment to sustainability and reducing our environmental footprint.

R & D Structure and Collaborations and Partnerships

Green Waves' R&D is focused on innovative waste management and upcycling solutions. Green Waves collaborate with educational institutions, offer internships to foster environmental stewardship, and partner with local businesses, NGOs, and government bodies to drive community awareness through workshops. Notably, in collaboration with regional partners, the company installed statues and Christmas trees made from waste materials to showcase creative recycling.

Their partnership with the Vijayawada Municipal Corporation further supports floral waste valorisation, promoting a zero-waste solution.

Best Practices

At GWES, best practices are focused on sustainability, innovation, and community involvement. Its manual dismantling of e-waste ensures safe handling using personal protective equipment safeguards. The company prioritize source segregation and conducting awareness campaigns to educate communities on proper waste disposal and recycling. Upcycling is central to our operations, where GWES transform multiple waste into eco-friendly products. GWES encourage research by offering internships, fostering industry-academia collaborations. Through books and scientific publications, they enhance awareness of environmental issues and promote benchmark practices in the industry. GWES conduct regular workshops and awareness campaigns, partnering with Self-Help Groups (SHGs) to foster eco-innovation and sustainable livelihood. By integrating environmental consciousness into our work, GWES fosters a circular economy, reduces landfill waste, and contributes to cleaner, greener communities. Their efforts align with the UN's SDG 5, 11, 12, 13, 14, and 15 ensuring inclusive, sustainable growth and environmental stewardship across all operations.

Future Plans

GWES plan to expand operations to cities like Chennai, Bhubaneswar, and Pune, offering comprehensive waste management solutions. GWES aim to introduce sustainable practices in hilly regions, invest in advanced technologies like chemical recycling for e-waste and plastic, and publish our sustainability impact reports to enhance transparency and innovation.

Guru Gobind Singh Indraprastha University- Individual project by Dr Deeksha Katyal

About Institute

The University School of Environment Management (USEM) was established in the year 1998 in GGSIPU, with a vision to create skilled professionals who would address environmental problems by promoting sustainable use of natural resources. The School runs a Master's program in Environmental Management and a Bachelors program in Environmental Sciences . Prof . Deeksha Katyal , who has applied for these awards in Individual Capacity , has been teaching at USEM for last 16 years and has numerous research papers , books and many prestigious awards to her credit.

About the Products

Amongst the varied research carried out by Prof Katyal, she has concentrated mainly on two projects:

a) To cater to water-deficient areas, a novel Chitosan hydrogel composite has been synthesized that has extensive applications including retention of water in the soil for prolonged periods and slow release of nutrients to improve crop productivity. Chitosan is obtained from Chitin (through the process of deacetylation), which is a naturally occurring polymer of poly-N-acetyl glucosamine (p-GlcNAc) and forms the exoskeletons of crustaceans. Around 1000 billion tonnes of Chitin is produced annually and is second most abundantly found organic compound in nature after cellulose. This hydrogel majorly derived from Chitosan acts as suitable water holding agents and controlled release fertilizers, thus enabling retention of water and release of fertilizers for a prolonged period. Since the product is under provisional patent filing(and thus the details have not been published), not much is being divulged at this stage .

b) Removal of Radionuclides and heavy metals from water using Titanate Nanotubes and Reverse Osmosis (RO) membranes has also been studied. In this project, a comparative assessment of various commercially available RO membranes was done, after which Cellulose Tri-Acetate (CTA) and Thin Film Composites (TFC) were chosen because of

their structural superiority. These RO membranes were also checked for their heavy metal and radionuclides removal efficiency at various pH, Temp, Pressure & Salt concentration.

R & D Structure and Collaborations and Partnerships

While first project has been carried out in collaboration with Prof S.G. Warkar of Delhi Technological University, Delhi, second project has Dr. Vinod Sharma of INMAS, DRDO as a collaborator.

Best Practices

In India, its common knowledge that constant irrigation of farms leads to leaching of the top fertile soil of the farmlands. With this innovate hydrogel, farmers just need to swell hydrogels overnight and thereafter put it directly into farm. Because of water retention property of the gel the water retention of the soil increases to 5-6 days as compared to 2-3 days in neat soil. They have also carried out experiments on the general growth of plants after using the hydrogel and found that growth parameters like Plant height, Total fresh Biomass, stem fresh weigh and Leaf area were far better in soil amended with hydrogel.

In the event of a radiological accident, there will be a high probability of contaminated water coming through normal water supplies. In that case, the defense would be our household RO plants which have the ability to filter small amount of radiation. This study quantitatively evaluates that this first defense of commercially available RO membranes is highly efficient (98-99%) in removing radioisotopes (lower concentrations).

Future Plans

Currently the price of each of the pellet is coming around 6-7 rupees. The cost benefit analysis indicates that for a mass scale production , commercial level cost of each pellet shall reduce to 1-2 rupees, making the product economically viable. As indicated earlier, the Household RO treatment plant shall work effectively at low concentration accidental spillage of radionuclides in water. However, to concentrate the trapped radionuclides in a smaller region, it is essential that RO membranes be integrated with nanotubes, which would also lead to further enhancement of the efficiency of removal.

IIT Bombay- Individual project by Dr Swathy Manohar

About Institute

IIT Bombay, established in 1958, is a premier engineering and research institute in India, known for academic excellence, innovation, and interdisciplinary research across science, engineering, management, and humanities. Several centres and research groups at IITB works on sustainable and affordable ways of reducing carbon impact in the country, such as The Centre for heritage/ traditional materials, The Green Energy and Sustainability Research Hub (GESH), Centre for Climate Studies, Carbon Capture Utilisation and Storage (DST).

About the Products

Developed blocks (left) and the mortar (right)

R & D Structure and Collaborations and Partnerships

The business model submitted to CII by Prof Swathy Manohar and Ms Athira V. S. from IIT Bombay is developing of building blocks and ready-mix repair mortars made of traditional and sustainable construction materials such as lime and industrial by-products with CO2 absorption potential. The developed products are thermally comfortable, carbon mineralising, sustainable, and durable.

Best Practices

The work attempts to address two relevant social issues- reduce the impact caused by brick industry in harnessing raw materials for brick making, reuse waste materials for making blocks and plasters at a larger scale. The developed block will be sustainable and cheap and can even reduce the energy burden on residents making an impact on the economic aspect of the society. The proposed block and binder are carbon dioxide absorbing materials; hence they take up the carbon dioxide in the surroundings and are environmentally friendly.

Future Plans

A full-scale masonry structure is planned to be made with the developed block, mortar and plaster to assess the thermal properties and CO2 trapped inside the building. The repair mortars proposed will also be commercialized as ready-mix mortars for repair of heritage structures where the porosity will be the base of mortars, instead of strength as in conventional ways in near future.

IITI Drishti CPS Foundation

About Company

IITI DRISHTI CPS Foundation is the Technology Innovation Hub at IIT Indore, established under the National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) by the Department of Science and Technology (DST), Govt. of India. DRISHTI CPS are dedicated to advancing research and development, driving commercialization, and supporting tech startups in areas like Smart Cities, Digital Healthcare, Smart Manufacturing, AgriTech, and Sustainability. With over 65 incubated startups and 71 R&D projects, DRISHTI CPS are developing practical solutions that benefit society and improve technology.

About the Products

The Smart Waste Management System is an IoT-enabled solution that transforms door-to-door waste collection through real-time mapping of waste generation and GPS tagging. This innovative system has successfully diverted over 500 tons of waste from landfills each year, leading to a reduction of approximately 2,000 tons of CO2 emissions annually. With initiatives like Zero-Waste Events and Waste Disposal Services, it has ensured that more than 95% of waste from large events does not end up in landfills, making a significant contribution to urban sustainability in India. The system seamlessly integrates with ERP for efficient invoice generation, payments, and user charge collection, and can connect to ULB or Smart City dashboards. Currently, it is deployed in Swaaha's Smart Mobile Waste Processing Vehicles, undergoing in-field user testing ahead of full-scale deployment.

R & D Structure and Collaborations and Partnerships

DRISHTI CPS provide financial and mentorship support to over 70 projects using Science and Technology Innovations (STI) to create real impact. These projects are led by faculty members, undergraduate and postgraduate students, and researchers from different academic institutions across India, helping to build a knowledge-based economy. They also have a skilled technical team working on various research and development projects. DRISHTI CPS has secured funding and technical/ research collaboration with academic institutions like IITs, NITs. IIITs etc. and global partners like UC Louvain and University of Cambridge.

Best Practices

1. Zero Waste Approach: Emphasize the company's commitment to reducing landfill waste through systematic waste segregation and scientific processing. Swaaha's success in achieving over 95% waste diversion at large events through Zero Waste Events
2. IoT-Enabled Waste Management: Discuss how real-time mapping, GPS tagging, and ERP integration for waste collection improve efficiency and tracking. Mention how this system helps reduce CO2 emissions and manage invoices seamlessly.
3. Sustainable Innovations: Highlight innovative projects like smart mobile waste processing vehicles and AI-driven waste segregation technology
4. Community Engagement: Showcase efforts in creating awareness and engaging communities

Future Plans

DRISHTI CPS aim to scale AI-driven waste segregation technology from pilot projects to city-wide systems across multiple regions, while improving the efficiency of waste-to-energy plants by 10%, increasing energy output, and reducing costs. By expanding recycling programs to new cities and industries, they target a 15% reduction in landfill waste.

DRISHTI CPS are exploring partnerships to integrate these services into daily municipal operations and accelerating the development of Digital Twin Technology for urban sanitation and waste management. Additionally, DRISHTI CPS will support clean energy startups focused on waste-to-energy conversion and smart sanitation technologies, incubating 10 new startups and technology development programs centered on waste management innovation, all contributing to India's push for sustainability and a circular economy.

Indian Pollution Control Association

About Company

Indian Pollution Control Association (IPCA) is a not-for- profit, non-government organization (NGO). Over the years, the organization has been successful in providing solid waste management solutions to corporate, industries, educational institutes and residential colonies. IPCA is enlisted with Central Pollution Control Board at national level. It is also recognized as pioneer Waste management agency for executing EPR Action for Plastic Waste Management by CPCB at pan India level. IPCA has a network of Dry Waste Collection Centre for effective plastic waste management in 34 States/UTs.

About the Products

The plastic waste recycled sheets are being utilized in multiple applications like construction, developing playing equipment, school stationary products, gifting items, pallets in FMCG segment, planters, home decor items, office desk stationary, school benches, tree guards, dustbins, photo frames and many more. The quality and range of these products have been improved with more intensive R&D.

Recycle sheets are tested at NABL accredited laboratory for their strengths and possess the following characteristics: Water Absorption: 0.19 %, Tensile breaking load: 20.61 N/mm2, Screw holding capacity: 139 kg, Nail Holding capacity: 13.5 kg, Hardness: 96 Shore A, Flexural Strength: 24.65 N/mm2

R & D Structure and Collaborations and Partnerships

IPCA continuously enhance the quality of chipboards and other utility products by experimenting with various ratios of waste materials. Recently, IPCA achieved a significant improvement in chipboard quality by increasing the proportion of LDPE. Additionally, IPCA develop vibrant colored sheets by segregating waste based on color and type, and elevate their aesthetics through the application of diverse laminates. Plastic waste segregated on the basis of color enables and enhances the color in recycled sheets, with enhanced chromatic properties, thereby eliminating the need for additional colorants.

IPCA product development focus is on meeting societal needs, such as creating durable school benches for primary and elementary school children, as well as innovative gifting and felicitation items. IPCA is doing collaborations and partnership with SBI Cards, Payment Services Limited and Kia India Private Limited

Best Practices

Recycled plastic sheets derived from low value commercial plastic waste offer a superior alternative to plywood and virgin timber, boasting enhanced moisture resistance, termite resistance, and prolonged durability. This innovative material substitution contributes significantly to mitigate deforestation and promote sustainable practices. By leveraging recycled plastic waste, the company can reduce the demand for virgin wood products, thereby decreasing greenhouse gas emissions associated with deforestation and forest degradation. Additionally, this eco-friendly material solution supports the circular economy, promotes resource efficiency, and helps achieve the United Nations' Sustainable Development Goals (SDGs).

Future Plans

IPCA strategic expansion plan involves scaling up the production and distribution of recycled plastic sheets across various regions in India, while promoting the adoption of sustainable utility products. This initiative aims to drive environmental sustainability, cultivate eco-friendly practices, and contribute to a circular economy.

Indian Rubber Materials Research Institute

About Company

Indian Rubber Materials Research Institute (IRMRI), formerly known as IRMRA is a Premier Research and Development organization established in 1958 to serve the Rubber & allied industries. IRMRI is an autonomous institute under DPIIT, Ministry of Commerce & Industry, Govt. of India to support Rubber & Allied Industries.

About the Products

Waste tyres are pyrolyzed (10 tonnes/day) in inert atmosphere to produce value added chemicals like pyro char, pyro oil and limonene. The pyro char available from pyrolysis will be upgraded to carbon black and introduced into the market for different applications. The applications include primary use in rubber factories for pipes, conveyor belts and tyre making, and other usage in painting factory, inks, conductive packaging, and processing into carbon pellets for use in industrial heating. Limonene is a highly value-added chemical recovered from pyrolysis technology and can be used in pharmaceutical industries for making medicines.

R & D Structure and Collaborations and Partnerships

Indian Rubber Materials Research Institute (IRMRI) have taken up various projects to meet the Sustainability Development Goals (SDG) to address waste management of rubber products effectively. IRMRI have 4 centres all across India – Thane (HO), South Centre at AP (Sri City), East Centre at WB (Sarpol) and Oragadam at Chennai (SPDC) and all the centers are actively involved in waste management of tyre and non-tyre products by adopting many sustainable practices.

Best Practices

IRMRI is committed to align with national goals set up by Govt. of India and follow international benchmarks also to align with global compliance. Therefore, the best practices IRMRI are involved in regard to innovation, waste management, sustainability development goals and circular economy are use of recycled materials in rubber products through innovative technology. Use of bio-materials as compounding ingredients of rubber products (2 patents granted). Sustainable heating like induction heating in production and shop floor. Follow SDGs wherever applicable for better living. Water storage management like rainwater harvesting and rubber check dam. Solar energy harvesting (IRMRI has rooftop solar cells for electricity).

Future Plans

In upcoming year, IRMRI will take projects and utilize sponsored funds towards waste management of below mentioned items by mentioned technological approach:

1. Rubber Hoses – Sustainable formulation ingredients and recycling to generate value added chemicals to be used in circularity
2. Tyres –Technology under "cGanga" initiative for recycling of tyres using ultra-high pressure water jets
3. Footwear – Rubber and plastic based footwear need recycling to minimize or eliminate waste. IRMRI has taken up some initiative to carry out TRL 2 level research to recycle PVC and SBR sole materials used in footwear as a part of waste management.
4. Crumb rubber with concrete – IRMRI in joint collaboration with Anna University, Chennai is involved in mixing crumb rubber with concrete for construction industry.

Karma Ecotech Ltd

About Company

Dedicated to a sustainable tomorrow, EcoEx, a Waste Management Agency (WMA), offers Extended Producer Responsibility (EPR) services covering plastic, tyres, rubber, batteries, and e-waste. Manufacturers, importers, and producers can engage with us to meet their EPR obligations efficiently. Since 2018, EcoEx offered solutions that help organizations meet EPR obligations, manage waste effectively, and reduce environmental impact using a 360-degree IT-backed approach.

About the Products

a) EcoEx Marketplace- A platform connecting waste generators, aggregators, and recyclers for buying and selling recyclables like plastics, paper, and e-waste, ensuring transparency and traceability.

b) EcoEx Buyer & Seller App-An easy-to-use app for trading recyclables such as plastic, metal, and batteries, helping users trade responsibly and effortlessly.

c) EcoEx CRM- A customer relationship management tool tailored for waste commodity traders, streamlining trading operations, and maximising profitability through real-time data and analytics.

R & D Structure and Collaborations and Partnerships

EcoEx's R&D focuses on continuously improving waste management technologies, leveraging big data analytics, IoT, and blockchain for real-time insights and transparency in commodity trading. Collaborations include exclusive partnerships with Okhla Waste-to-Energy for EPR certificate sales and IFFDC for carbon credits. They also partner with Dabur for CSR initiatives.

Best Practices

At EcoEx, best practices guide everything company do. EcoEx prioritize transparency through blockchain technology, ensuring each waste transaction is traceable and verifiable. Data-driven insights using big data analytics help us make informed decisions on waste generation and recycling patterns. EcoEx optimize waste management operations with IoT sensors, providing real-time data for efficient waste disposal. Their commitment to sustainability extends beyond technology. EcoEx engage in partnerships

with reputed organizations like Okhla Waste-to-Energy for energy recovery and carbon credits, ensuring that the company contribute to a circular economy. Their EcoEx Marketplace also ensures hassle free waste trade by connecting stakeholders and enabling seamless transactions, creating a sustainable commerce ecosystem.

EcoEx also emphasize customer-centric solutions, providing tailored CRM platforms for traders, enabling smooth operations, and maximizing profitability.

Future Plans

EcoEx plans to expand green initiatives by introducing green audits and launching a carbon and plastic credit trade exchange. The company also aim to enhance our Green Credit Program to further promote environmental conservation and sustainability.

Malhari Projects

About Company

Malhari Projects have developed a technology to dispose of solid waste without any segregation. The machine can dispose of chemical/ pharmaceuticals/ dyes/ API/ Vaccines/ Drugs/ Textiles and other hazardous solid waste. This helps to Get ESG & carbon offset benefits by inhouse hazardous Waste Disposal Technology.

About the Products

The device Malhari Projects developed has the capacity to eliminate the waste at source without any handling and reducing the energy consumption. This same technology can be used for converting those wastes to value added products like solid carbon, ethanol, etc. The current stage of the product is the technology under approval from CPCB. This technology is far superior to Plasma Pyrolysis by technology (easy to use), Energy consumption, Operations skills and cost, Capital allocation, etc.

USP: By Lower than Landfilling cost, show remarkable 80-85% Hazardous waste reductions. Hazardous Dry Solid Waste, Semi Solids with high moisture & Liquid wastes also. SME/ MSME/ Smart city also can be carbon neutral by this implementation. Tax benefits, ESG Compliances Benefits, etc.

R & D Structure and Collaborations and Partnerships

a) MOU with sales channels who are already penetrated in the market.

b) An Enterprise Singapore firm to promote the sales channel in South Asia.

c) Pan India Network of well-known PSUs would help to penetrate the market. (Soft Talks to be their Technology Partner, sharing IP Rights)

Best Practices

a) Best potential venture by global juries. Best Team by STPI.

b) Award from MSME in presence of PM Sir.

c) 2 POC in the pipeline with Ahmedabad Municipal and NMCG.

d) Selected in Nexus Cohort by ACIR and US Embassy.

e) Best Innovation award under smart cities.

f) Several intents to procure.

Future Plans

Malhari Projects has planned to provide the waste disposal solution to the pharma and chemicals sector and to develop the product for textiles and allied industries. Also, to increase the sector servicing of drugs and vaccines along with formulations plants. And introduce new products in reversing climate change.

Neogi Technologies and Research(P) Ltd.

About Company

Founded in 1971, NEOGI specializes in innovative, indigenously made fuel and liquid management solutions. As India's first SME OEM for electronic fuel dispensers, NEOGI also offer flow meters, dispensers, and petrol pump accessories with a focus on sustainability and efficiency. NEOGI got many recognition some of them are National MSME Awards (5 times), EEPC Quality Award – Platinum, CII -EXIM BANK Award (3 Times), CII (ER) Quality Awards , CII Industrial Innovation Awards (3 times) , CII SHE Excellence Awards (4 Times), many more.

About the Products

NEOGI Flow Scope is a Dispenser used for Delivery of Measured Quantity of Various Types of Liquids. Its Compact Form facilitates its Static & Mobile Function.

NEOGI Flow Scope can be mounted on Tankers for 'door-step' deliveries at any location, especially, Semi-urban/Rural areas where traditional fueling station is not available. It is also used in mines, construction, and agriculture for onsite refueling of equipment, saving time, cost, and reducing carbon footprint.

R & D Structure and Collaborations and Partnerships

The Research And Development Department (R & D and Design Development) is responsible for conducting research, developing new products, processes, and technologies, and improving existing products.

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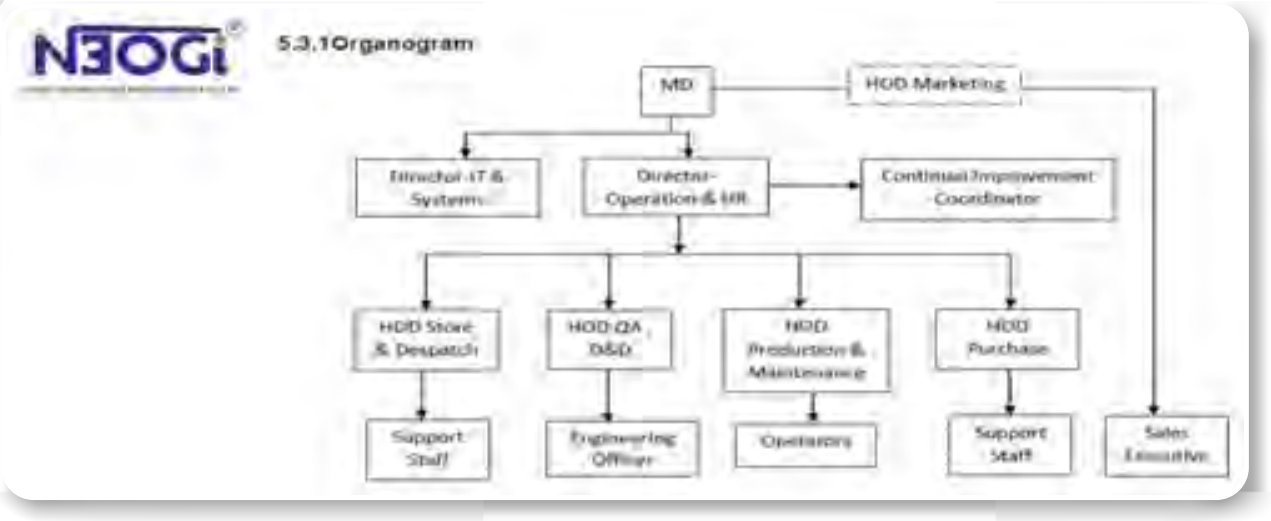


Best Practices

NEOGI design their product in line with the context of adapting Circular Economy Methodology. A few are:

Modular design allows for easy configuration (mobile or static). Modules can be replaced/ upgraded, extending product life. In the process of Product Development from Ideation to Production Plan and Quality Control we also consider the following :

a) Manufacturing Process: Energy Efficient as production done through Assembly.
b) Minimize material use through modular design; optimize size and weight to reduce emissions.
c) Design modular parts for interchangeable use, extending product life.
d) Use recyclable materials for components; enable easy disassembly for recycling.
e) Provision for Tech upgradation.
f) Versatile design Modular Design: Extend product life span with upgradable and replaceable parts.
g) Sustainability: Focus on eco-friendly materials and reducing environmental impact.

Future Plans

In concept 4R, NEOGI aims to focus on getting back the products after their useful life. Once products are returned, NEOGI plan to reuse the components and recycle the materials, all products have been designed with this purpose in mind.

Prasinos Tech Innovations Pvt. Ltd.

About Company

Prasinos Tech Innovations Pvt. Ltd is a clean tech startup pioneer in developing and promoting breakthrough scientific innovations and working towards translational research for sustainable development and circular economy. Prasinos offer diverse, high-quality products, supported by a wide distribution network, market presence, and competitive pricing. Prasinos patented technologies focus on ultrasonic and hydrodynamic cavitation with over 10 patents to date.

About the Products

Prasinos's flagship products include the "Ultrasonic Algae Control Device," designed to effectively eliminate harmful blue-green algae in water bodies without chemicals, ensuring eco-friendly water body remediation. Additionally, the "Nano-bubble Technology" offers a cutting-edge solution for water body management, improving oxygenation and enhancing water quality sustainability by breaking down pollutants, offering a small footprint, ease of installation, and minimal maintenance. It improves water clarity, increases dissolved oxygen and ORP, reduces BOD and COD, and effectively destroys or inactivates pathogens and viruses.

R & D Structure and Collaborations and Partnerships

Prasinos has a dedicated team of professionals, technocrats and entrepreneurs who have several decades of experience in the chemical industry, innovation and troubleshooting, technology development & commercialization. Their R&D structure involves collaborations

with CSIR, IITs, and NITs, alongside partnerships with leading MNCs to drive innovation and product development. Further, Prasinos are virtually incubated by PIEDS Pilani and SIIC IIT Kanpur.

Best Practices

a) Customer-Centric Focus: Understand and prioritize customer needs to create products or services that solve real problems.

b) Agility and Adaptability: Embrace flexibility by quickly pivoting strategies based on market feedback and evolving trends.

c) Lean Operations: Start lean to minimize costs, focus on essentials, and maximize resource efficiency.

d) Clear Vision and Goals: Maintain a well-defined mission with specific short- and long-term objectives to guide the team's efforts.

e) Strong Networking and Partnerships: Collaborate with industry experts, research institutions, and partners to enhance credibility and accelerate growth.

f) Continuous Innovation: Foster a culture of experimentation and iterative development to improve products and stay competitive.

g) Data-Driven Decisions: Use data to guide decisions and measure the effectiveness of strategies.

h) Effective Team Building: Assemble a diverse, skilled team aligned with the startup's mission and values.

Future Plans

Prasinos's future plans include scaling operations, expanding into new markets, enhancing product innovation through advanced R&D, and building strategic partnerships. Prasinos aim to strengthen their technology portfolio, focus on sustainable solutions, and drive long-term growth while maintaining a customer-centric approach.

Rajalakshmi Engineering College

About Institute

Rajalakshmi Engineering College (REC), an autonomous institution affiliated with Anna University in Chennai, was founded in 1997 under the Rajalakshmi Educational Trust. The college offers 18 undergraduate and 9 postgraduate programs, including an MBA, with an annual intake of 2070 students. REC is accredited with an 'A++' grade by the National Assessment and Accreditation Council (NAAC) and holds the 12(b) status from the UGC.

About the Products

The highlighted product for this competition is an in-house innovation for recycling waste plastic into filament material for 3D printing. The process involves collecting and shredding used thermoplastic waste from 3D printers into flakes, which are preheated and then extruded to create filament. This filament is subsequently used as raw material in 3D printers, supporting a sustainable cycle in material usage.

Current Practices in 4R (Reduce, Reuse, Recycle, Recover)

- Reduce: The college has adopted paperless administration for tasks such as attendance, grading, and feedback. Additionally, rainwater harvesting systems and water conservation awareness campaigns are implemented to reduce water consumption.
- Reuse: Initiatives include repurposing old furniture for various campus needs and reusing certain lab tools following strict hygiene protocols.
- Recycle: Composting facilities process cafeteria waste for campus gardens, and partnerships with certified e-waste recyclers ensure safe disposal of electronic waste.
- Recover: Small-scale anaerobic digesters convert organic waste to biogas, while treated wastewater is reused for garden irrigation.

R & D Structure and Collaborations and Partnerships

REC is a research-oriented institution with a dedicated Centre for Sponsored Research & Consultancy (CSRC), established to enhance research, foster industry collaborations, and support industry-relevant research. Recognized as a Scientific and Industrial Research Organization (SIRO) by the Department of Scientific and Industrial Research (DSIR), Government of India, REC is active in research and development.

Best Practices

- A.P.J. Abdul Kalam Innovative Project Cell: This cell encourages interdisciplinary student teams to develop innovative ideas and proofs-of-concept. Through iQuest, REC provides students with the platform to work on projects and implement creative solutions.
- Online Lecture Capturing System: The IMPARTUS system supports the teaching-learning process by enabling instructors to record, update, and share lectures online, allowing students access to recorded sessions for enhanced learning.

Future Plans

In the coming years, REC aims to integrate digital waste tracking systems to achieve a 10% reduction in waste generation. Plans include deploying IoT sensors to monitor waste collection systems in real-time, enabling optimized collection routes and reducing environmental impact.

SIM Digital Services LLP

About Company

SIM Digital, founded in 2018, is a cutting-edge technology startup transforming India's waste management sector. With expertise in IoT, AI, and data analytics, SIM Digital's innovative solutions empower efficient, sustainable, and transparent waste management.

About the Products

SIM Digital, a pioneering Indian startup founded by Sandeep Ganguly and his ex-colleague from Hughes, is driving this transformative initiative. With their expertise and vision, SIM Digital aims to revolutionize digitization and automation of India's waste management landscape.Focus Areas:

1. Rural and urban Municipal Solid waste management
2. Eco-sensitive areas and around National Parks
3. Biomedical waste management for hospitals using SIM Digital software platform

Solid Waste Management

1. Waste Tracking Systems: GPS-enabled waste collection vehicles and RFID tags on waste bins ensure real-time monitoring, optimizing routes and reducing collection frequencies.

2. Waste Management Software: Platforms provide automated routing, scheduling, and billing, streamlining operations.
3. Mobile Apps: Citizen engagement platforms, facilitate waste reporting, collection scheduling, and education.
4. Traceability Systems: solutions to track waste movement, ensuring accountability and transparency.

Biomedical Waste Management

1. Barcoding and RFID: Tracking systems ensure segregation, proper handling, and disposal of hazardous biomedical waste.
2. Electronic Waste Manifests: Digital records replace paper-based systems, reducing errors and enhancing accountability.
3. Segregation: Identify and separate different types of biomedical waste.
4. Source-to-End-destination Monitoring Systems: Real-time monitoring of processes ensures compliance with regulatory standards.

R & D Structure and Collaborations and Partnerships

SIM Digital collaborates with esteemed organizations like Saahas, Saahas Zero Waste, Biotic Waste Management, Waste-code LLP, E-Tech LLP and across various states such as Delhi, Rajasthan, Goa, Karnataka, Himachal Pradesh, North-east, Madhya Pradesh, Haryana.

Best Practices

Data Analytics: Leveraging data insights to optimize waste collection routes, reduce waste generation, and identify areas for improvement. Citizen Engagement: Educating communities through mobile apps, social media, and awareness campaigns. Public-Private Partnerships: Collaborative models promoting innovation, and expertise sharing.

Future Plans

The integration of IT tools in waste management has transformed the sector, promoting sustainability, efficiency, and innovation. By embracing these solutions, governments, organizations, and individuals can contribute to a cleaner, healthier, and more sustainable environment.

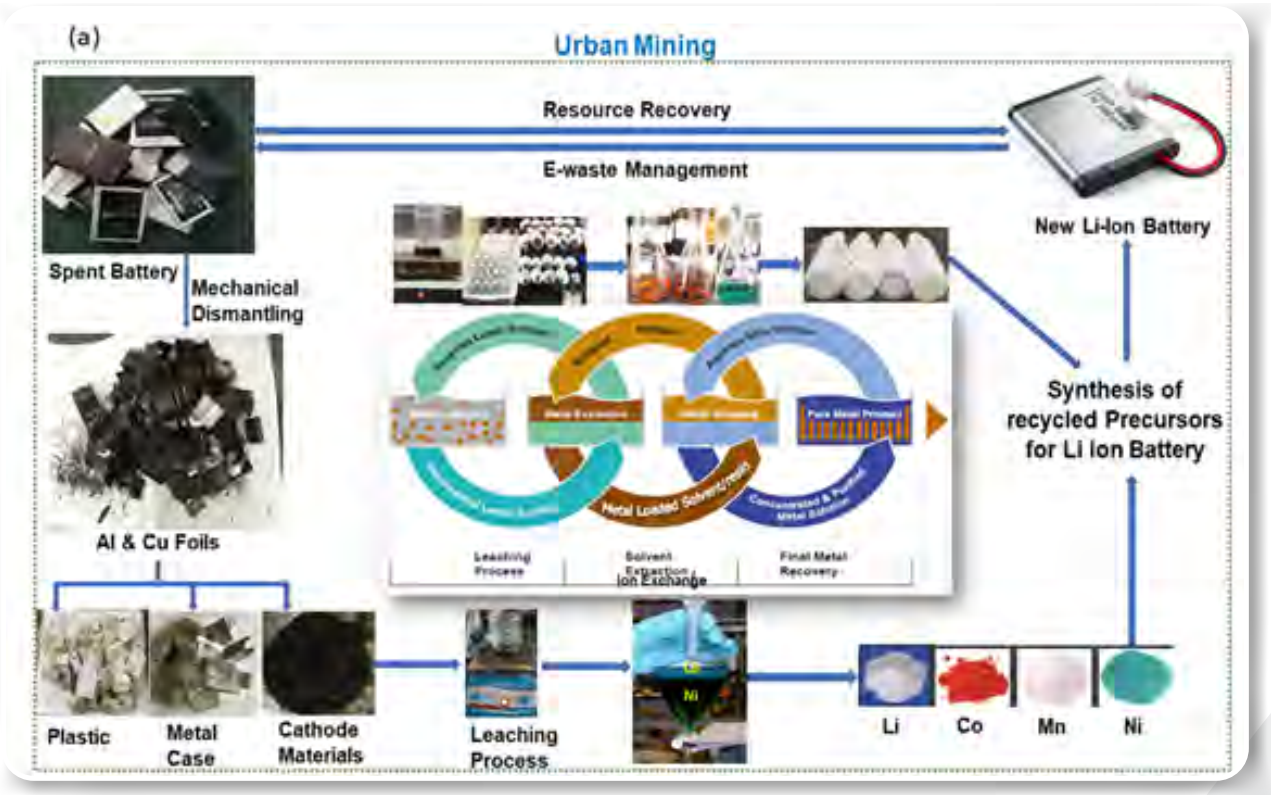
SRM University Andhra Pradesh

About Company

The resource management Lab at SRM University AP, India is dedicated to convert waste into secondary resource materials where different types of waste including battery, PCBs, LEDs, solar panels, plastics etc. are processed and recycled. This lab has collaboration with SRM -Amara Raja Centre for Energy Storage Devices where recycled metals from lithium-ion batteries are further used for synthesizing new battery materials.

About the Products

Further, to establish a cradle-to-cradle recycling of spent Li-ion batteries (LIBs), the cathode precursor has been synthesized as the final product of lab-scale study. Using that SRM University prepared coin cell, and the electrochemical properties are acquired and compared with that of the virgin materials. Innovative technology refers to the advanced hydrometallurgical extraction, involving solid-liquid and liquid-liquid mass transfer integrating the solvo-chemical extraction with electro-chemical reactions at one platform.

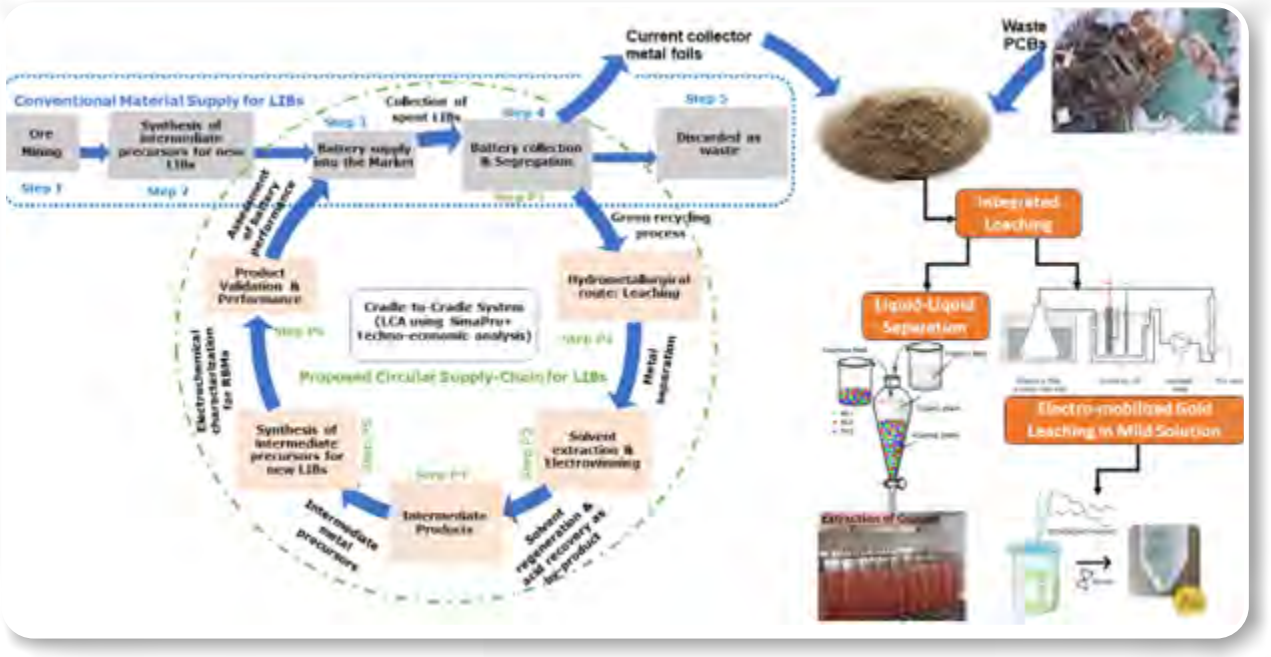


R & D Structure and Collaborations and Partnerships

An integrated recycling facility for treating waste PCBs with spent LIBs have been structured to process together, involving process integration of solvo-chemical and electro-chemical-hydrometallurgical operations for critical metals recovery. In research collaborations with AMRA Raja (India), Duy Tan University (Vietnam), and Luleå University of Technology (Sweden); the state-of-the-art recycling facility at SRM University-AP is being up-graded to lab-pilot for leaching and mixer-settler units for testing in continuous operations (funded by DST-GOI).

Best Practices

India, as the second-largest mobile phone producer, and targeting to shift 30% of transportation through electric vehicles. Therefore, the soaring demand for LIBs is foreseen on contrary to lacking primary extraction facilities of lithium and cobalt in India.



Recycling waste materials can be a sustainable solution; however, it lacks in cradle-to-cradle recycling facilities which could achieve true sustainability for LIBs manufacturing. In addition to that SRM University are also working on industrial ecology between PCBs and LIBs recycling facilities to establish best practice and responsible production with reduced reagent consumptions under the UN-SDGs.

Future Plans

SRM University are actively working on the up-scaling and validation of their batch study data in a continuous process. Simultaneously, they look to co-process waste PCBs and LIBs under industrial ecology and evaluating the techno-economic benefits. Treating solar panel waste is also in their plan, particularly, for their co-processing with the existing technology.

Tata Steel Ltd

About the company

Tata Steel was established in India as Asia's first integrated private steel company in 1907. Tata Steel is one of the most diversified integrated steel producers in the world. With this, Tata Steel also developed India's first industrial city at Jamshedpur. Today, Tata Steel are among the leading global steel companies. The company's annual crude steel capacity across Indian operations is in excess of 26 MnTPA.

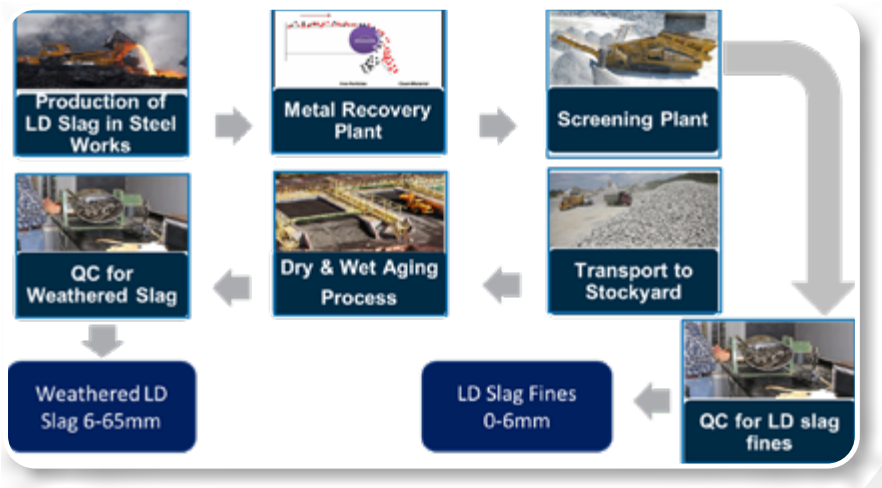
About the Product

Tata Steel has been pioneering value creation from the industrial by - products in its quest to contribute to a sustainable ecosystem in Iron and Steel industry. Tata Steel, IBMD has developed branded products by processing steel slag namely Tata Aggreto & Tata Nirman.

1. Tata Aggreto: Branded product of processed LD Slag in the fractions of 6-20mm, 20-40mm, 40-65mm. These steel slag aggregates have tremendous potential in Road and Rail as a replacement of natural aggregates.
2. Tata Nirman: Branded product of LD slag in the fraction of 0-6mm for usage as a replacement of sand and partial replacement of lime in fly-ash bricks and limestone in clinker making.

R&D Structure

Tata Steel believes in fostering cross-functional learning by leveraging synergies with multiple stakeholders. Any new product developed is the result of collaboration between various teams, including the Technology Group, Research & Development and Scientific Services, right from the drawing board



stage. Team engaged with reputed educational institutions (IIT KGP, IIT Madras), CSIR laboratories (CRRI, CBRI), NCCBM to continuously innovate new applications for utilization of By-products.

Best Practices

Tata Steel ensures waste segregation at the source and well – defined material handling processes guided by the 5S principles of waste management. A few of the key facilities are as follows:

a. Metal Recovery & Steam ageing Plant – Slag generated as a by-product during steelmaking undergoes crushing & screening followed by magnetic separation.

b. Scrap processing-storage-handling Facility – A major sustainability initiative has been undertaken to reduce CO2 emission intensity of the company by maximizing the scrap charge into steel melting shops.

c. New By-product value-creation centre – A state-of-art facility with bailing machine, specialized cut-to-length line, mechanized processing for Flat Product arisings has been set-up to deliver customized offering to external customers.

d. Slag Processing & Grinding Plant –Granulated BF slag is sold to the cement manufacturers whereas air-cooled slag is processed and utilized in road construction.

Future Plans

Tata Steel is committed to responsible growth, pursuing a decarbonisation roadmap to usher in a sustainable future. Through process improvements, Tata Steel optimises blast furnace fuel rates, increases pulverised coal injection, implements coke dry quenching and utilises waste heat. Carbon direct avoidance strategies include increasing steel scrap usage, bio-char and hydrogen injection in blast furnaces, and incorporating green electricity with electric arc furnace (EAF). Tata Steel has established a 5 TPD amine CO2 capture plant from blast furnace gas, running 24/7 for over a year in the Jamshedpur works. The captured CO2 (with 97% purity in wet basis) is used for reducing the pH of wastewater. More such units are planned to be installed in the future.

3R ZeroWaste Pvt Ltd

About Company

3R Zero Waste Pvt Ltd focuses on managing India's 1.8+ billion tons of waste by promoting reuse and recycling. Aligned with SDG11 and SDG12, the company specialize in e-waste and industrial waste, helping communities, industries, and campuses reduce their footprint. With 1M+ reached, the company aim for 5M by 2025 by empowering citizens to adopt sustainability.

About the Products

3R Zero Waste is developing an automated waste separation system that combines deep learning (AI) with a robotic arm. The system identifies and sorts materials like plastics, metals, and glass using sensor-captured images analyzed by a deep learning model. The robotic arm then handles sorting based on these predictions. This process includes data collection, preprocessing, model development, testing, deployment, and robotics engineering. With applications in municipal waste, recycling, industrial waste management, and smart cities, it enhances waste management efficiency, accuracy, safety, and sustainability. Automated systems minimize direct contact with hazardous waste like sharp objects, toxic chemicals, and biological contaminants, reducing the risk of injury or illness. To drive adoption and behavioral change in citizens 3R Zero Waste also have rewards and recognition-based App for sustainable gestures.

Best Practices

Implementing an automated waste separation system that integrates deep learning and robotic arms requires careful consideration of best practices to ensure efficiency, accuracy, and sustainability. Key best practices include Accurate Data Collection and Labeling, Efficient Data Preprocessing, Seamless Robotic Integration, Advanced Sensor Technology, Real-Time Monitoring and Feedback Loops, Continuous Maintenance and Calibration and Equip the system with an emergency stop function to prevent accidents if robotic arm malfunctions.

Future Plans

Efficient Data Preprocessing: Clean and preprocess data to improve image clarity for more accurate predictions. Deep Learning Model Optimization: Continuously improve and retrain the model with new data to adapt to changes in waste characteristics. Seamless Robotic Integration: Integrate sensors to detect obstacles or potential hazards, preventing damage to the arm or the waste being sorted. Advanced Sensor Technology: Use high-resolution cameras to accurately identify materials and differentiate between similar-looking objects like metals and plastics. Real-Time Monitoring and Feedback Loops: Provide a monitoring interface that gives insights into sorting accuracy, system performance, and errors for timely interventions. Scalability and Flexibility: Design the system to be scalable and adaptable for various waste streams, from municipal to industrial waste. Ensure the system can easily integrate with existing waste management infrastructure, such as conveyor belts and bins.

Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9,000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 365,000 enterprises from 294 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness, and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Through its dedicated Centres of Excellence and Industry competitiveness initiatives, promotion of innovation and technology adoption, and partnerships for sustainability, CII plays a transformative part in shaping the future of the nation. Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

For 2024-25, CII has identified "Globally Competitive India: Partnerships for Sustainable and Inclusive Growth" as its Theme, prioritizing 5 key pillars. During the year, it would align its initiatives and activities to facilitate strategic actions for driving India's global competitiveness and growth through a robust and resilient Indian industry.

With 70 offices, including 12 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with about 300 counterpart organizations in almost 100 countries, CII serves as a reference point for Indian industry and the international business community.

Confederation of Indian Industry
The Mantosh Sondhi Centre
23, Institutional Area, Lodi Road, New Delhi – 110 003 (India)
T: 91 11 45771000

E: info@cii.in • W: www.cii.in

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Reach us via CII Membership Helpline Number: 1800-103-1244