



**save waste.
waste saves**

ATTERO
RECYCLING {it's not waste
until it's wasted}



It's not waste, until it's wasted

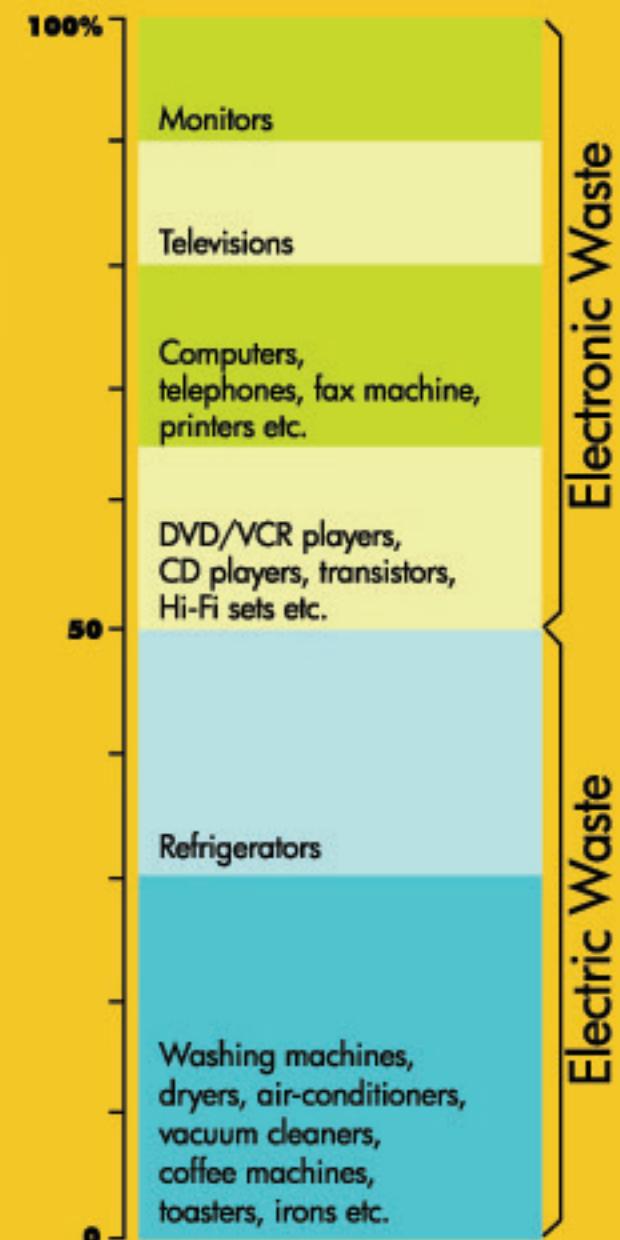
Your cellphone can make calls, deliver sms and emails, play songs, change skins and take photos but imagine if it could save the earth. Not just cellphones, anything with a plug, wire or battery that has turned obsolete can play a greener part if its potential is realised. We, at Attero Recycling recognise the potential in waste and believe it's not waste, until it's wasted.



{ giving meaning to e-waste }

Any thing that has a wire, a plug, a battery or runs on electricity that you probably aren't going to use ever again comprises of Electronic waste. E-waste, as it's popularly known, comprises your old computers & peripherals, your run down mobile phones, ipods, gaming consoles, fridges, TVs or the DVD players that have kept you company over the years. This new form of waste is now one of the fastest growing waste streams around the world and needs imperative action today.

Element	Use in Wireless Technology	Harmful Effects
Lead	Used primarily in soldering of circuit boards and other device components	Extremely harmful to the human body; damages both the central and peripheral nervous systems; can cause seizures, retardation, high blood pressure, damage to the kidneys and liver; adversely affects child development
Beryllium	Forms significant portions of electrical connectors and battery contacts	Long term exposure can be carcinogenic, especially for the lungs. Extreme exposure can lead to a potentially fatal condition known as Acute Beryllium Disease
Arsenic	Used in some integrated circuits and semiconductors	Arsenic is a notoriously potent poison; causes severe damage to the digestive tract
Mercury	Can be found to a degree in batteries and circuit boards	Attacks the central nervous and endocrine systems; harmful to mouth, teeth and gums; poses risk in the neurological development of unborn fetuses
Antimony	Used in production of diodes and batteries. Pure form used in semiconductor production	Toxic to humans in ways similar to arsenic; fatal in large doses
Cadmium	Used in soldering, semiconductors and chip resistors	Potentially carcinogenic; repeated exposure can damage lungs, kidneys and liver



a global reality

In a trade that's fast burgeoning, E-waste finds its way into the dumping grounds of the world, namely India, China and Africa. Indian cities such as Delhi, Mumbai and Bangalore, already burdened with the existing troubles of waste management, are now further pressurized by the heavy inflow of E-waste from domestic sources, and more heavily from the influx of e-waste from the western world.

Closer to home, with India generating an approximate 3,30,000 tonnes of e-waste in 2009, almost all of it is being recycled in many poor urban localities, it is indeed a grave challenge that is yet to be taken note of. About 25,000 workers are employed at scrap-yards in Delhi alone, where 10,000 to 20,000 tonnes of e-waste is handled every year, with computers accounting for 25 percent of it. Other e-waste scrap-yards exist in Meerut, Muradabad, Shelampur and Chennai.

The way e-waste is currently being disposed off is now a global concern. While the developed world has consumed the largest share of the 1 billion PCs sold, it's the less-developed countries that have tended to pay the price.

Average PC of approx. 31.5 kg wt. contains:	Two million Obsolete PCs would mean:	
7.24 kg	Plastics	14,427,000 kg
1.98 kg	Lead	3,962,700 kg
0.693 g	Mercury	1,386 kg
0.409 g	Arsenic	819 kg
2.961 g	Cadmium	5,922 kg
1.98 g	Chromium	3,969 kg
9.92 g	Barium	19,845 kg
4.94 g	Beryllium	9,891 kg



Ill effects of e-waste	Caused by
Global Warming	CO2 emissions
Health Hazards	un-authorised e-waste treatment mechanisms
Air Pollution	open burning
Water Pollution	open dumping and landfills
Soil Contamination	open dumping and landfills
Radioactive Contamination	open dumping and lack of protective gear

a waste age

E-waste, the darker side to the digital age we are in today, contains a witch's brew of over 1,000 different substances, many of which are toxic, and create serious pollution upon disposal. You may be an IT professional working on the latest laptop, a call-centre employee serving your first job, or the next-gen teenager tapping away at the speed of light on your newly purchased Playstation Portable, whatever bracket you fall in, have you once stopped to think what happens to your beloved e-companion when you have it replaced?





e-waste the problem

Landfills

E-waste cannot be wished away. Being highly hazardous and toxic, it could be a death wish, for all that is living, and all material that is life sustaining, such as land, water and air. When disposed off in land fills, no matter how secure these landfills might be, toxic chemicals from the e-waste seep into the ground. For people living in the vicinity of these landfills, it could mean permanent damage to the central and peripheral nervous system as well as health hazards such as seizures, retardation, kidney failures and even hinder child development.

Open Burning

Toxins generated from the open burning of Plastic shells, PCB boards and other non-ferrous materials contained in e-waste are a growing concern for health authorities in and around regions where such practices take place. In fact, due to the presence of PVC and brominated flame retardants in wires, the emissions contain high levels of both brominated and chlorinated dioxins and furans – two of the most deadly persistent organic pollutants (POPs). Even high traces of cancer causing polycyclic aromatic hydrocarbons (PAHs) are found in the emissions and the ash of E-waste being handled in a wrong manner, is becoming a huge threat to society at large.

Acid Stripping of Chips

Much of the work to remove chips from circuit boards is done for the ultimate purpose of removing precious metals. This is most often done by a very primitive process using acid baths, which are normally a mixture of 25% pure nitric acid and 75% pure hydrochloric acid. The studded PCBs are dipped into the acid mixture until the PVC is separated from the chips, after which this acid is irresponsibly drained out into the nearest drain or river. Water samples tested in and around the areas where such activities are carried out have been found to have dangerously high levels of toxins for even human contact, let alone human consumption.

CRT Cracking & Dumping

Lead-laden monitor glass, which qualifies as a hazardous waste as per the Basel Convention, is regularly dumped on land or pushed into rivers, after the copper laden yoke of the CRT monitor is extracted. This copper laden yoke is then sold to scrap metal dealers, but at a very heavy price to the environment.

Unfriendly Working Conditions

This illegal trade of e-waste management offers little or no protection to the people it employs. It often employs children under the ages of 15 years, all exposed to hazards that they are not even fully aware of. Deadly fumes are inhaled during the open burning process, dumped CRTs contaminate neighbouring water holes and ground water in general, and even land turns barren for many 100 years to come. The extreme exposure and intake of these toxins in various forms can lead to numerous fatal diseases.

waste or an opportunity



Waste at work

The same hyper technology that is hailed as a crucial vector for modern societal development has a not-so-modern downside to it, E-waste. But is E-waste really a downside? Or a potent resource waiting for technology to find a way to convert millions of tonnes into reusable, recycled energy?

Recycled energy, as we at Attero call it, is the energy saved or converted into usable products by simply handling E-waste in the right manner.

In a time of growing oil prices and climate change concerns, recyclable energy sources are an adequate solution and a compelling opportunity. All the energy saved helps reduce our CO₂ emissions and strengthen a crumbling environment.

E-waste is often richer in rare metals, containing 10-50 times more copper content than copper ore. A cell phone, for instance has 5 to 10 times higher metal content than an ore.

Using Attero's unique recycling techniques, valuable materials such as copper, iron, glass, aluminium and plastic could be extracted from electronic scrap, hence putting a stop to the tarnishing of the earth's facade.



what you can do



as an organisation

Steps to make sure that your E-waste doesn't end up in a landfill or an unauthorized recycling sector

- ☛ Organisations should take more responsibility while approving and implementing recycling initiatives
- ☛ A mandate on how the E-waste is to be handled, should be established, along with an auditory system to implement the same
- ☛ Only give your E-waste to recyclers authorised by the Central Pollution Control Board, who process your E-waste in an environment friendly manner.
- ☛ Ensure requisite documentation or certification from the vendor who manages your E-waste
- ☛ Engage yourself as a prime initiator for this entire revolution

as an individual

Evolve:

We are drowning in information, but starved for knowledge. In the era of Information and Technology, knowledge is hiding somewhere, waiting for our minds to get sharper. While the human mind evolved to technology, it did not evolve to its flip side, because of which 50 million tonnes of E-waste is generated globally. Ours can rightfully be called the Waste Age and it is in great need of informed and evolved mindsets that can bring about change.

Engage:

It is said that the voice of the intellect is a soft one, but it does not rest until it has gained a hearing. What good is a concern if not voiced, what good is wisdom if not heard and what good is knowledge if not shared? What the world needs is a collective voice. If everybody plays their part right, we, as a united force, can save the earth from drowning under the weight of the waste it produces.

Ecycle:

With the evolving lifestyle on the personal and business landscape and our heavy dependence on technology, E-waste only becomes corollary to the way we live. While it might not be possible to wish away this vice, it surely helps, if we, as informed and concerned citizens of the environment, ensure that our obsolete electronics only end up with authorized recycling vendors and not with the neighborhood scrap dealer.



Call 1800-419-3283 to have your E-waste handled right.



the right way to tackle it



The Attero way

Attero's recycling process is a balance between disassembly, mechanical separation of complex materials and metallurgical treatment, resulting in a minimization of the labor intensive manual disassembly.

- **First Stage**, manual segregation of components, where different parts of e waste are separated.
- **Second Stage**, the mechanical separation process is applied. In this process, ferrous, aluminum, plastic and non ferrous material is separated.
- **Third Stage**, the plastics are then recycled by Attero Group's innovative plastic recycling process. This is an indigenously developed process by Attero, a pioneer in transforming non-recyclable plastic to carbon black.
- **Fourth Stage**, the non ferrous metals are sent to Attero Group's metallurgical treatment plant where they are separated into constituent metals. This allows Attero Recycling to achieve higher efficiency and exceed recycling and recovery rates across the different WEEE categories.

Material recovery guarantees the destruction of sensitive information or hardware through size reduction, separation and refinement of individual materials.

Search and Research

Attero Recycling has a research and development wing which continuously works on enhancing the recycling process. Batch sampling is done on a regular basis to analyse materials and substances from the waste stream that have an environmental impact in downstream processes. This also helps the R&D team to make the process more efficient.





the services we offer

➤ **E-waste Collection:** Attero has tied up with a national level logistic service provider to transport e-waste to its facility. Attero uses close bodied trucks for all transports to ensure security and safety of the e-waste.

➤ **Recycling Solutions:** Attero extracts maximum value from the E-Waste due to its unique recycling process. Attero does end to end processing of e-waste. We not only dismantle the e-waste but we also treat it in our indigenously developed metallurgical unit.

➤ **Treatment of hazardous substances:** Hazardous substances recovered during the process of recycling of e-waste are disposed off through the Common Hazardous Waste Treatment, Storage & Disposal Facility, commonly known as CHWTSDF, authorized by the Pollution Control Board in the prescribed manner.

➤ **Data Security:** Electronic goods contain trade secrets, financial information, client data, employee records, software, and other valuable information that amounts to years of work. That's why when the time comes to retire or replace equipment containing your most sensitive files, you want a company you can trust to remove your data — carefully, thoroughly, and completely.

➤ **Transparency and Security:** To ensure that your E-waste only makes it to Attero's recycling plant, the entire process of Attero handling your E-waste is available on video surveillance. We also have the best security systems in place, ranging from Metal Detectors to Bio metric systems.

customer speak

“ It's a great feeling to associate with a cause that has not been given the kind of importance it deserves. I believe the coming together of Attero Recycling and Euronet India will provide the required impetus this cause needs.

Ashish Mehta
Director – IT & Infrastructure
Euronet Services India Pvt Ltd

“ In today's world of cut throat competition and ever increasing thirst for profits it's heartening to know that there is an organisation like Attero that has seen business where others only saw waste. I believe that Attero Recycling and Visa India will work towards making the earth a greener planet.

Janet Surana
Office Manager
Visa, India

“ E-waste is a burgeoning problem that has gained un-manageable proportions in the last decade. It gives us immense pleasure to announce that GE Thermometrics and Attero Recycling are coming together to fight this problem in the right way and in turn help save the environment.

Phanindra. K
IT Administrator
GE Thermometrics India Pvt Ltd

“ It's a great feeling to associate with a cause that has not been given the kind of importance it deserves. I would like to congratulate Attero for their novel initiative.

Mukesh Mittal
D.I.E.S.L (Drive India Enterprise Solutions Limited) A Tata Group Company

“ Attero Recycling has taken a great step and we appreciate this endeavor. We at MTV India take pride in this association and would ensure that this cause gets the attention it deserves.

Yogesh Butala
Viacom 18 (MTV India Private Limited)

“ Attero Recycling has proved that there is never a shortage of people who are willing to go that extra mile that makes the difference. I would hereby like to state that we as an organization would always be willing to help Attero in all possible ways and means.

U. C. Dubey
Executive Vice President (IT & Business Systems)
IFFCO Tokio General Insurance Company Limited

about attero

We are the only company in India to have set up an integrated E-Waste recycling plant. Making sure we have maximum recycling efficiency from the E-Waste due to our unique recycling process, we recycle E-Waste in the most environmentally friendly manner and adhere to stringent environmental policies.

We provide product pickup from anywhere in India, thus, tackling your need for storage and the ensuing problems. We guarantee regular updates of the status of the consignment from receipt to the final stages of e-cycling.

We conduct regular audits to ensure compliance with health, environment and safety standards. We can proudly say that we care about the environment and are working hard towards a cleaner and safer future for all.



investors

the team

Nitin Gupta

Nitin graduated with an MBA degree from NYU Stern School of business and a B.Tech degree in Electrical Engineering from Indian Institute of Technology, Delhi. Nitin's international experience has helped Attero in getting the best technologies and the cleanest environmental solutions. He is among the esteemed member of the Board of Directors and is a highly respected person.

Rohan Gupta

Rohan was the cofounder and COO at Cinesprite Entertainment Pvt. Ltd (a leader in online movie entertainment in India). He has previously worked at blue chip companies like SAP Labs. Rohan graduated with a B.E degree in Chemical Engineering from REC Jaipur and is a man with innovative and intelligent strategies that have the potential to take Attero to newer heights.

Dr. Kumar Shiraliagi

Kumar was previously the head of Intel Capital India, the venture capital group responsible for Indian investments. As the Country Director, he was responsible for Intel's India investment strategy and he brings on-ground experience in successfully making and managing investments and exits. He earned his PhD and MS in Electrical Engineering from Arizona State University and an MBA from Thunderbird, the American Graduate School of International Management. Dr. Kumar is a highly respected person in the industry. He with his wealth of knowledge will be instrumental in paving Attero's path to success.

Mohanjit Jolly

Mohanjit Jolly has spent the last ten years working with and investing in technology startups. Mohanjit Jolly was a Managing Director at Garage Technology Ventures, a seed and early stage venture capital firm and worked with over 30 companies. Mohanjit earned a B.S. and M.S. in Aeronautics and Astronautics from MIT, with a specialization in electric propulsion systems. Mohanjit Jolly with his technical expertise is fondly known for adding the midas touch to Attero.

NEA-IndoUS Ventures

NEA-IndoUS Ventures is a leading venture capital firm which provides early and mid-stage funding to new or growing businesses in India.

Draper Fisher Jurvetson

Draper Fisher Jurvetson is the pre-eminent venture capital firm with a global presence through a network of partner funds, with offices in more than 33 cities around the world and over \$5.5 billion in capital commitments. DFJ has been proud to back more than 300 companies across many sectors including such industry-changing catalysts as Hotmail (acquired by MSFT), Baidu (BIDU), Skype etc.





Contact Us

SOURCING

Please contact us via email at sourcing@attero.co.in
Call **1800-419-3283** to have your E-waste handled right.

LOCATIONS

Head Office

B-92 Sector 63 Noida, UP 201301
P: +91-120-4087100
F: +91-120-4087101

Regional Office
No. 201, 2nd Floor,
Dimple Arcade Premises,
Co-operative Soc. Ltd.
Thakur Complex,
Kandivali East, Mumbai
P: +91-22-40167986

Regional Office
No. 1064, 7/A Main, 3rd Block,
Koramangala, Bangalore 560034
P: +91-80-4092 7639

Recycling Facility
Roorkee



Call 1800-419-3283
to have your E-waste handled right.