

Recycle

123



Handbook

An initiative by:



Department of Environment, Parks and Recreation
Ministry of Development
Brunei Darussalam

Waste collection
 Plastic recycling
 Recycle bins
 Natural Resources
 Polycarbonate
 efficient
 Tyres
 Green society
 Ecology
 PVC
 Clean environment
 Composting
 Resourceful
 Recover
 Sustainable
 Green
 E-waste
 Green Waste

Recycle

The Department of Environment, Parks and Recreation aims to reduce the amount of wastes going into our landfills. Towards this, we introduce this recycling handbook as a quick reference and guide to provide easy tips on how we can recycle and dispose our wastes.



Introduction



How much waste goes to Sungai Paku landfill everyday?

around **400 – 500 tonnes**

It is estimated that by the year 2025, our landfill in Sungai Paku, Tutong District will be used up.



Recycling removes material from the waste stream and turns it back into useful products. It reduces the amount of rubbish and saves space in the landfills.

Brunei Darussalam's waste generation is around 1.4 kg per person per day.

1.4 kg

per person per day



Our waste mainly comprises :



36%

Food waste



18%

Paper



16%

Plastic

Brunei Darussalam aims to achieve a recycling rate of

15% by 2020



Safe Disposal of toxic and hazardous waste

Before purchasing a product containing toxic and hazardous materials, it is important to find out details about where to return it at the end of its life. In some cases, this handbook will guide you to proper and safe disposal of these materials.

Reusable Materials

Many other materials can be removed from the household waste junk, not necessarily for recycling but for reuse. You may no longer like your favorite things, but others may either like them or be in needs of such items.

Helpful Tips



Have a Garage Sale



Sell your used items through Facebook, Instagram, online marketing etc or...



Donate to your favorite charity

How about You? What do You Choose?

Recycling begins at home!!



Free Collection = at least 100 kg of any waste

Do's



- ✓ Identify items that can be recycled. Segregate into specific bins correctly.
- ✓ Clean and rinse recyclables such as food cans, plastic bottles and containers before putting them in the recycling bin.
- ✓ Not all recycling companies accept every recyclable materials. Check with the local recycling company what type of recycling materials they accept.
- ✓ Green and food waste are compostable. They can be processed into compost / organic fertiliser.
- ✓ Be a role model and lead by example when recycling.
- ✓ Educate them and give information about the value and appreciate why recycling is important and beneficial.

Don'ts

- ✗ Don't litter or burn your waste.
- ✗ Don't mix all recyclables into one bin.
- ✗ Don't put non-recyclable wastes into recycling bins.
- ✗ Don't recycle plastic bottles which have been used to store toxic chemicals and pesticides.
- ✗ Don't assume that all wastes can be recycled.
- ✗ Don't overfill the recycling bins.





Some of us may have not realised that many products nowadays are made from recycled materials. Many items you think are wastes can actually be used by others and be useful for other purposes. This handbook provides information that may help you get rid of unwanted materials by recycling them.

Getting everyone to recycle is simple! ...
All you need to do is :

- Take time to look through this handbook
- In this handbook, find whether your waste can be recycled
- Find your service provider
- Collect your waste
- Contact the service provider for more detailed information
- Take your waste to recycling bins or centre but some providers offer house collection
- Congratulations! Your action will make a difference to our environment



Frequently Asked Questions

Metal Waste

What types of metal can be sent for recycling in Brunei?

All types and sizes of metal scrap (both ferrous and non ferrous) are collected by waste metal collectors and recyclers.



What is the difference between Ferrous and Non-Ferrous metals?

Ferrous Metals Iron and Steel	Non-Ferrous Metals Aluminium, Copper, Brass, Bronze, Nickel
Magnetic Properties (use in manufacturing of large machineries, electrical appliances, hairsprays, paint cans etc)	Non Magnetic (use in small electronics and as electrical wiring)
Vulnerable to rust and corrosion	High resistance to rust and corrosion
Found in construction materials, industrial containers, large-scale piping, motor vehicles, hardware tools and kitchenware	This type of metal is light in nature that is commonly used for making cans, aircraft fuselage, gutters, water pipes, roofings, and road signs



Frequently Asked Questions



Examples of metal scraps?

- ✦ Steel in drink cans, aerosol cans, food containers, steel bars, beams, wires, pipes, chains, electrical goods, cars, etc.
- ✦ Stainless steel for clippings, sheets etc.
- ✦ Aluminium in drink cans, clippings, windows and door frames, aluminium castings and sheets, etc.
- ✦ Copper for copper wires, strips, etc.



“Non-Ferrous metals such as aluminium cans take from **300 to 500** years to decompose. Imagine, for ferrous metals, which are stronger and more durable, will take a longer time to decompose and pose a threat to our environment”.



How can you tell a steel or tin can from an aluminum one?

See if a magnet attaches to it. Steel is magnetic, and aluminum is not.

What do the metal collectors or recycling companies do with the scrap metals?

The metal scraps are sorted by ferrous and non-ferrous type manually or by using magnets. The sorted metals are then cut, sheared, shredded, baled for storage and transportation. These metal scraps are then exported overseas for recycling.



Where can I send my waste for recycling ?

There are several recycling companies that collect waste metal for recycling. You can either send your waste to recycling centres or request a company to collect your waste at home. List of recycling companies can be found at the end of this handbook.





Frequently Asked Questions



You can also send your metal wastes to the nearest recycling bins found in any of the communal waste collection centres.

Just make sure you put your metal waste into the right bin.

Common Recycled Metal Products?

Metal waste can be 100% recycled into one of these :



Simple Guide to get you to recycle your used cans :

Collect your used cans.



Rinse out with water before the residue dries out.

Crush to save space.



Pack and go.





Did you Know Aluminium is a resource that forms about 8% of the earth's crust and is the most cost-effective material to recycle ?

There is no limit to how many times aluminium can be recycled.

Due to huge energy savings of up to 95% of the primary production, recycling aluminium can conserve non-renewable fossil fuels, reduce energy consumption, reduce wastage of raw materials and reduce the emission of gases like CO₂ into the atmosphere.



Plastic Waste

How should I dispose my plastic waste?



The answer is **YOU SHOULDN'T**.

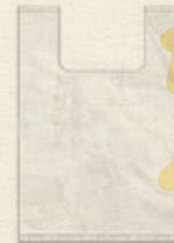
The right approach to eliminate plastic products is through **RECYCLING**. By recycling and reusing plastic as many times as possible will optimise its lifespan and eliminate the need to create new plastic.

Did you know?

Plastics are mostly today's material of choice and are used in a huge, and growing range of applications. 99% of all plastics are derived from crude oil.



A Plastic Bag takes **200 - 1000** years to decompose in the environment.





Frequently Asked Questions

Why should we recycle plastic?

You may start to wonder, is it worth the trouble? Why should you bother recycling plastic at all? The answer is simple, by recycling plastic, you:

- conserve energy.
- save natural resources.
- reduce the production of methane (Greenhouse Gas) in landfill site.
- reduce pollution to the environment.
- reduce the amount of plastic waste that goes into our landfill, oceans and natural environment.
- encourage a sustainable lifestyle among children and young-adults.

Plastic contains harmful chemicals mostly bisphenol A (BPA) that poses threats to human health and ecosystem. These chemicals tend to leech out into the environment when heated.



Did you know that it takes just 35 recycled plastic bottles to produce a polar fleece jacket?



$\times 35$



There is a wide range of products that can be produced from recycling plastics such as plastic bottles, carrier bags, bin liners, seed trays, fleece, variety of office accessories and many more.



Where can I bring my plastic waste for recycling?

You can either **send** your waste to recycling centers or arrange for home **collection**.

You can also send your plastic waste to the nearest recycling bins found in any of the communal waste collection centres.

Just make sure you put your plastic waste into the right bin.



* List of recycling companies can be found at the end of this handbook.





Frequently Asked Questions



Brunei Initiative

Brunei introduced the 'No Plastic Bag Weekend' campaign in 2011 as an initiative towards environment conservation. To date, 44 retailers have pledged their commitment to this initiative.



The 'No Plastic Bag' initiative is expected to cut 274,000 plastic bags every weekend or 13.152 million bags a year.



Be Green in Every way! Have a "No Plastic Bags Day"

Bring your own reusable bags from home. Keep several in your car, backpack and purse ready for use at your convenient.



Green Waste



What should I do with my green waste? Can I just burn it in my backyard?

No, do not burn your green waste. There are alternatives to dispose of green waste. You can do composting at home.

How to Compost at Home?

It is easy to compost at home. Follow steps as below:

- Step 1: Firstly, you need to find a holding unit or bin
 - Step 2: Choose a site with good drainage and partial shade
 - Step 3: Add your compost ingredients of **Greens** and **Browns** into the bin
 - Step 4: Build up your compost by layering
 - Step 5: Maintaining your compost by watering every 10 days or when dry, and tossing/turning your mix fortnightly
- "**Greens**": any greens from trees, leaves and vegetables.
 - "**Browns**": anything browns from trees such as twigs, branches, trunks.



Ratio

3 Browns ; 1 Greens





Frequently Asked Questions



WHAT IS COMPOSTING?

Composting is a natural process of recycling organic materials such as leaves and vegetable scraps into a rich soil amendment (compost) that is rich in nutrients and promote soil quality to aid plant growth.

How do I know when compost is ready?

When it has become dark, loose and crumbly. The composting process takes about 6 to 8 weeks (average), though an ideally mixed and tended pile may take less than 8 weeks to become a compost.



Benefits of composting at home:



- Improves garden health and soil structure by adding nutrients.
- Reduce water use in the garden.
- Saves money spent on fertilisers and mulch.
- Reduces greenhouse gases produced by rotting material in landfill.
- Saves landfill space.



TIPS



Place your compost pile/ bin in a sunny spot because the heat of the sun speeds up decomposition. However, the pile also dries out faster and requires more frequent watering than a pile in the shade.



For hot compost, we recommend a minimum volume of 1 m³. Insulation of the sides or top will help hold the heat of the process.



To avoid pest problems, DO NOT compost bones and meat scraps.



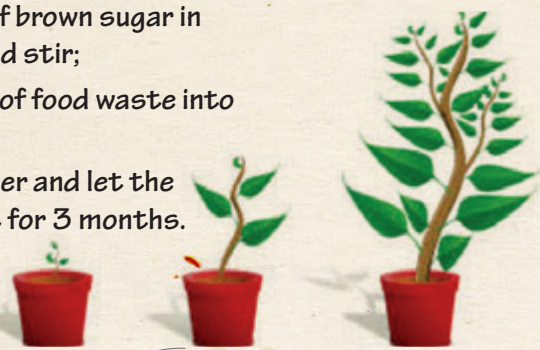
Turn the pile to supply more oxygen for the microbe population and to shift un-decomposed material on the edge of the pile to the center where it too will decompose.



Frequently Asked Questions

You can make food waste into liquid organic fertilisers (eco-enzyme) in 4 simple steps

- Step 1 : Pour 10 litres of water in a suitable container;
- Step 2 : Put 1 kilogram of brown sugar in the container and stir;
- Step 3 : Put 3 kilograms of food waste into the container;
- Step 4 : Seal the container and let the mixture ferment for 3 months.



Ingredients:

- Brown sugar
- Food waste (Vegetable leaves, fruit peels & etc)
- Water



The fermentation is successful when the liquid turns yellowish brown and a white layer forms on the surface.

pH value of below 4 after 3 months, means that it has fermented well.



Every tonne of food waste digested, rather than being sent to landfill could reduce emission by 0.5 and 1 tonne of CO₂ equivalent.

Oil Waste

Can I just discard my used oil from servicing of cars to the drain or my backyard?



- No, you cannot because it will affect the environment and ecosystem
- All types of oil including motor oil are insoluble in water
- Motor oil contains chemicals such as hydrocarbon and heavy metals which are toxic and harmful to the environment
- It easily clogs and sticks to everything including the bird feathers
- It can affect waterways which can result in pollution of drinking water sources.

Can I dispose the waste oil in our landfill at Sungai Paku?

No, waste oil is not allowed in Sungai Paku Landfill. It should not be disposed in the communal bins. Instead, you could send it to a recycling company where it can be treated and reused for other purposes.





Frequently Asked Questions



How many waste oil recycling companies are available in Brunei and where can I find the details?

At present, there is only one company that can recycle waste oil. List of recycling companies can be found at the end of this handbook.

Is there any minimum quantity of waste oil that can be sent for recycling?

You can send your waste oil in any amount. The more it is, the greater contribution you are giving in saving the environment and energy.

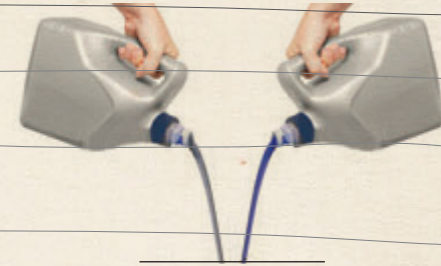


Types of oil that are available for recycling?

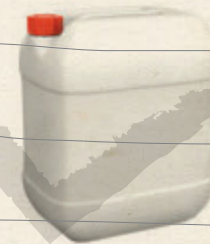
- 💧 Used Motor Oil
- 💧 Lubrication Oil
- 💧 Hydraulic Fluids
- 💧 Used Cooking Oil



TIPS



- 💧 Do not mix the oil with other automotive fluids or household chemicals such as differential oil, antifreeze, solvent, paint etc.
- 💧 Avoid using containers that were previously storing chemicals.



- 💧 Contain oil in a clean plastic or metal container with a tightly sealed lid; use only containers that are made of suitable plastic such as PE (polyethylene).



“Milk jugs are not a proper container for used oil, but you may consider reusing the original motor oil”





Frequently Asked Questions



Is there any home collection for my used cooking oil to be recycled? Or do I need to call certain company to collect my waste oil?

As yet, there is no home collection for the used cooking oil. However, you can send them directly to the recycling centre. List of recycling companies can be found at the end of this handbook.



Will I be charged for sending in my waste oil to the local recycling centre?

Unlike other types of waste, there will be charges in sending in waste oil and chemicals. For more information, you may contact the companies listed at the end of this handbook.

Did You Know?



- Allow used cooking oil to cool ;
- Carefully pour cooled cooking oil into a large, sturdy plastic or wax-coated leak proof container ;
- Cap the container tightly ;
- Store the container in a cool and safe place before sending to a recycling centre.



Did you know that two hundred million gallons of used oil are improperly disposed of each year ?

Recycling just 2 gallons of used oil can generate enough electricity to run the average household for almost 24 hours.

It takes 42 gallons of crude oil, but only 2 gallons of used oil, to produce 2.5 quarts of new, high-quality lubricating oil.





Frequently Asked Questions



Why do we recycle paper?

Recycling paper is a way to reduce waste and preserve the natural resources. Cutting down trees to get wood pulp for paper milling contributes significantly to deforestation which leads to global warming.

93% of paper comes from trees

Most of us use a paper product every day. Only a small proportion are collected and recycled, most of it ends up in the landfill.



Every tree produces enough oxygen for 3 people to breathe.



Paper Waste


What type of paper can I recycle?

-  Carton boxes
-  Magazines
-  Office paper
-  Paperboards
-  Newspaper



Where can I send my recyclable paper?

You can simply drop into the recycling bins provided in several waste collection points provided by the Department of Environment, Parks and Recreation or simply contact the recycling companies listed in this handbook.

-  Make sure you put your waste paper into the right bin.










Frequently Asked Questions

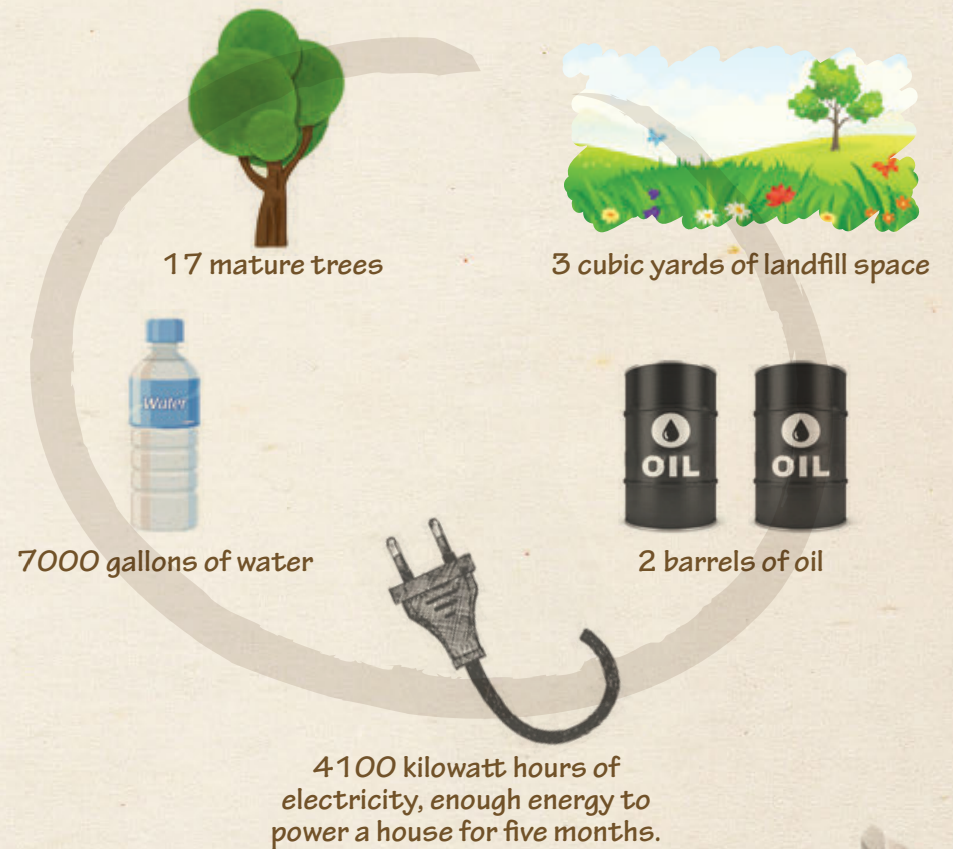


Office Tips

-  Reuse paper. If you've only used one side for example, collect them instead of throwing them away. You can bind these sheets and make a notebook using the other side. This small effort reduces paper waste by 50%.
-  If you already have a scanned copy of a file, don't print it anymore unless really needed.
-  Keep your file and notes in tablets, computers and smart phones.
-  Use email instead of paper when communicating with colleagues and clients.
-  Reduce the use of paper cups and disposable paper plates by keeping reusable items in the office pantry.

Recycling 1 ton of paper

saves





Frequently Asked Questions



The Sungai Paku Engineered Landfill does not accept tyres. So where do retailers send their customers' torn tyres to?

Used or torn tyres are sent to the Material Recovery Facility for Used Tyres in Bukit Udal, Tutong. The facility is run by a local company under Public Private Partnership (PPP).

How are used tyres being recycled at the facility?

Using a process called pyrolysis, in which used tyres are subjected to high heat in an oxygen-free atmosphere, they are recycled to produce pyro-oil, carbon black and steel wires.



Pyro-oil



Carbon Black



Steel wires



Used Tyres



Besides pyrolysis, what are other ways to recycle used tyres?

Tyres are often ground up into granules known as "crumb rubber" that are used for a number of recreational purposes, such as running tracks, playgrounds and sports fields. Tyre rubber can also be ground and melted into asphalt to improve road surfaces and quality.

Did You Know?



Used or spent tyres, after inspection and repair, can be retreaded. Not only it reduces the amount of used tyres generated, but it also saves a lot of money from making new ones!





Frequently Asked Questions

I have a few used tyres at home. Does the facility offer home collection service?

Unfortunately, it doesn't. However you can drop them off at the facility. Alternatively, you can reuse old tyres for other purposes like planters and tyre swings, and for the more adventurous individuals, you can transform them into magazines holder and coffee table and chairs!



Never burn tyres!

- Tyres, when burnt openly, release black smoke containing toxic pollutants and large number of fine particles, which when inhaled, will cause inflammation in the lungs. Burning tyres are very hard to extinguish too!



E-Waste



What is e-waste?

Electronic waste or e-waste is any discarded electrical and electronic devices. This includes televisions, mobile phones, computers and peripherals, radios, fridges, food processors and blenders, rice cookers, microwaves, air-conditioners lightings, etc.



Is it safe to dispose e-waste at landfill?

E-waste often contains heavy metals such as lead, mercury, cadmium, arsenic. If e-waste ends up in landfill, these metals could leak out and cause soil and water contamination.

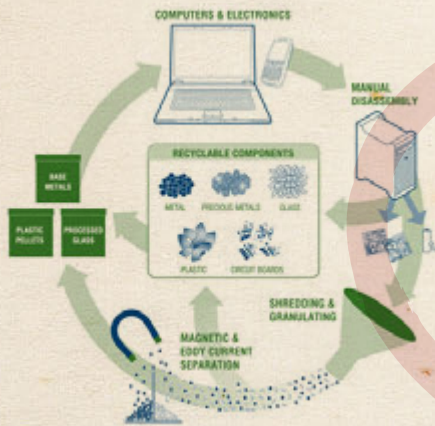




Frequently Asked Questions

So, how is e-waste being dealt with?

The best way is to recycle them. Electronics contain valuable materials and these materials require energy and natural resources to extract and produce. By recycling e-waste, not only you protect the environment (and human health), but you also save natural resources, especially precious metals like gold, silver and platinum, and energy!



I have some electronics I need to get rid of. Is there any company that accepts e-waste?

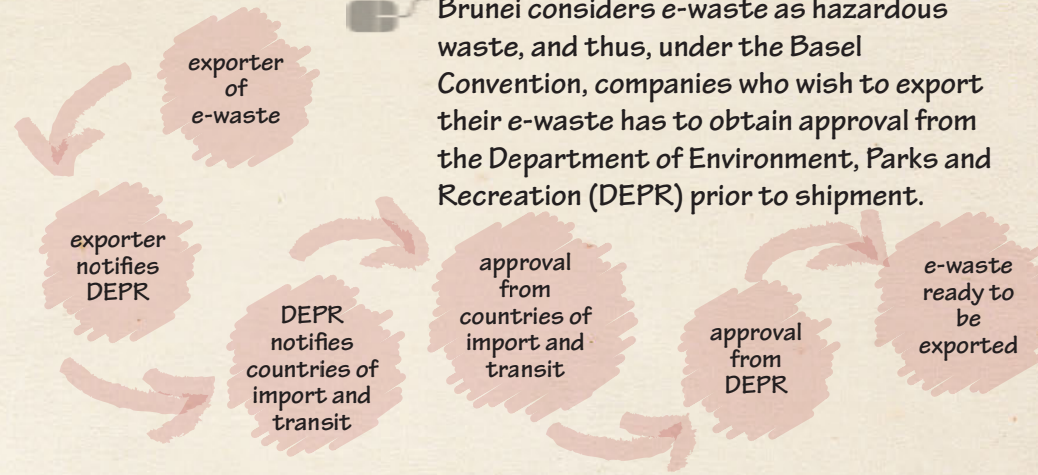
Yes, you can either **send** your e-waste to recycling centre or arrange for home **collection***.

* List of recycling companies can be found at the end of this handbook.



Did You Know?

Brunei considers e-waste as hazardous waste, and thus, under the Basel Convention, companies who wish to export their e-waste has to obtain approval from the Department of Environment, Parks and Recreation (DEPR) prior to shipment.



An estimated 50 million tons of e-waste are produced each year globally, and it only takes 41 mobile phones to produce 1g of gold.



41 mobile phones



1g of gold



Helpful Tips

Ensure an “**Extended Producer Responsibility (EPR)**” or introduce a “**take-back**” program.

Customers could return unwanted electronics to the retailers, which will be taken back by the suppliers or manufacturers.



LIST OF RECYCLING COMPANIES

Daikyo Environmental Recycling Sdn. Bhd.

Spg 287, Jalan Serasa, Muara, Brunei Darussalam

Contact Person: Jeffrey Hung

Phone: 2773380 Mobile: 7191389 Fax: 2773381

E-mail: daikyorecycling@yahoo.com

Website: www.daikyorecycle.com

Accepted waste: paper, plastic bottles, metals, e-waste, aluminium cans, nylon bags

Sallima Recycling Works

Spg 34, No. 12, Jalan Dato Haji Ahmad, Berakas BB3357, Brunei Darussalam

Contact Person: Jong Boon Hua @ Frederick

Phone: 2331266 Mobile: 8729983 Fax: 2331266

E-mail: sallimarecycle@gmail.com

Accepted waste: metals (copper, brass, aluminium, lead, stainless steel), used batteries, drink cans

Syarikat Perindustrian Perkembangan Pemotong dan Memasak Besi

Lot 12179, Kg. Kilanas, Kawasan Perindustrian Kampong Mulaut Spg. 41, Jalan Tutong 2520, Brunei Darussalam

Contact Person: Soon Kim Hai

Phone: 2662205 Mobile: 8720793 Fax: 2662750

Accepted waste: metals, used batteries, copper, aluminium

Kawan Bumi Sdn. Bhd.

No. 39, Spg 41-12-34, Jalan Kilanas, Mulaut, KM10, Jalan Tutong BF2520, Brunei Darussalam

Contact Person: Lim Wee Ann

Phone: 2670194 Mobile: 8726022 Fax: 2653651

E-mail: kawanbumi@gmail.com

Accepted waste: Paper, cartons, plastic PET, plastic HDPE, metals, aluminium

A Global Green Recycle Sdn. Bhd.

No. 19, Block B, Salambigar Industrial Estate, Forming Part of EDR, No. BD 52471, Lot No. 60363, Kg. Salambigar, Brunei Darussalam

Contact Person: Yii Sii Chin

Mobile: 8610882

E-mail: yiisichin@gmail.com

Accepted waste: paper (incl. newspaper, carboxes, magazines)

CIC Environmental Services Sdn. Bhd.

No. 6, Jalan Carey, Kuala Belait KA1931, P.O. Box 1447, Kuala Belait KA1189, Brunei Darussalam

Contact Person: Shaiful Arief Razak / Daniel Wong

Phone: 33302666 / 3330267 / 2655673

Mobile: 7181842

E-mail: arief.razak@cicgroup.com /

daniel.wong@cicgroup.com

Website: www.cicgrp.com

Accepted waste: used oil (incl. motor oil, turbo oil, lube oil, contaminated diesel), industrial wastewater

Kehasan (B) Sdn. Bhd.

Spg. 41-12-48, Jalan Kilanas Mulaut, Bandar Seri Begawan BF2520, Brunei Darussalam

Contact Person: Lau Ah Hwa / Jeffrey Shim

Phone: 2662310 Mobile: 8722540 / 8717976

Fax: 2662306

E-mail: law@kehasan.com / jshim@kehasan.com

Website: www.kehasan.com

Accepted waste: used tyres, used oil (incl. engine oil (mineral or synthetic), cooking oil, hydraulic oil, gear oil, grease), plastic

88 Charcoal Company

No. 27, Spg. 201, Jalan Jerudong BG3121, Bandar Seri Begawan, Brunei Darussalam

Contact Person: Summer Hee

Phone: 2610234 Mobile: 7198377 Fax: 2610266

E-mail: 88tradingco@gmail.com

Accepted waste: pure timber waste

Shaliz Waste Recycling

Lot 20002, Block B, Taman Alam, Jalan Telanai, Bandar Seri Begawan, Brunei Darussalam

Contact Person: Lim Fong Yee

Mobile: 8730505

E-mail: fylium@yahoo.com

Accepted waste: used cooking oil

VN Recycling Sdn. Bhd.

Spg. 41-12-48, Kg. Kilanas, Kawasan Perindustrian Kg. Mulaut, Bandar Seri Begawan, Brunei Darussalam

Contact Person: Rajen Siva

Phone: 2240257 Fax: 2240257

Accepted waste: used car batteries



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Hotlines

Ambulance – 991

Police – 993

Fire & Rescue – 995

Search & Rescue – 998

Talian Darussalam – 123

Disclaimer: The list of recycling companies is compiled to provide reference for public to facilitate materials recovery and recycling in Brunei Darussalam. This is a non-exhaustive list of recycling companies which operate in Brunei Darussalam. Inclusion in this list does not constitute any licence or endorsement or recommendations by the Department of Environment, Parks and Recreation.

USERS SHOULD CONTACT COMPANIES FOR MORE INFORMATION.