



3R Guidebook for Offices

Image courtesy of Singapore Tourism Board



**National
Environment
Agency**

Safeguard • Nurture • Cherish

TABLE OF CONTENTS

	Page
About this Guide	3

CHAPTER 1: INTRODUCTION

Overview of Solid Waste Management in Singapore	4
Strategies for Sustainable Solid Waste Management	5
Offices play an important role in Waste Minimisation	5

CHAPTER 2: BENEFITS OF REDUCING, REUSING AND RECYCLING SOLID WASTE

What are the 3Rs?	6
Benefits to Offices	6
Benefits to the Environment	7
Benefits to Singapore	7

CHAPTER 3: A STEP-BY-STEP GUIDE TO IMPLEMENTING A 3R PROGRAMME

Step 1 – Obtain Top Management’s Commitment and Support	8
Step 2 – Appoint a 3R Coordinator and Form a Green Committee / 3R Team	9
Step 3 – Conduct a Waste Audit	10
Step 4 – Evaluate Opportunities to Reduce, Reuse and Recycle	11
Step 5 – Engage Recycling Service Provider(s)	13
Step 6 – Develop a 3R Programme	14
Step 7 – Implement the 3R Programme	16
Step 8 – Monitor, Evaluate and Improve the 3R Programme	18

CHAPTER 4: CASE STUDIES

Case Study - Ricoh Asia Pacific Pte Ltd	19
Case Study - State Street Bank and Trust Company	23
Case Study - City Developments Limited	26
Case Study – Tanglin Trust School	30

FOR MORE INFORMATION

About this Guide

This 3R Guidebook is produced by the National Environment Agency (NEA) to help offices assess their current waste management practices, and identify opportunities to reduce, reuse and recycle waste materials so as to reduce waste disposal needs.

By adopting the 3Rs (reduce, reuse, recycle), offices can potentially reap some cost savings in procurement and waste disposal cost while contributing towards environmental sustainability.

Employees tasked to promote 3R practices in their organisations can refer to this guide for the planning and implementation of 3R plans.

Waste management companies and recycling service providers can also refer to this document to tailor their services for clients in the office environment.

What can be learnt from this Guide?

This guide does not provide a “one-size-fits-all” solution to developing the best 3R programme for offices. Rather, it seeks to provide general concepts and factors for consideration during the planning phase.

National Environment Agency (NEA)

Formed on 1 July 2002, the NEA is the leading public organisation responsible for improving and sustaining a clean and green environment in Singapore. The NEA develops and spearheads environmental initiatives and programmes through its partnership with the People, Public and Private sectors. It is committed to motivating every individual to take up environmental ownership and to care for the environment as a way of life.

By protecting Singapore's environment from pollution, maintaining a high level of public health and providing timely meteorological information, the NEA endeavours to ensure sustainable development and a quality living environment for present and future generations.

Visit <http://www.nea.gov.sg> for more information.



CHAPTER 1: INTRODUCTION

Overview of the solid waste management in Singapore

Over the years, Singapore's waste disposal quantities have increased significantly. From 1,260 tonnes of waste disposed of per day in 1970, the amount of waste disposed of has risen more than six times to 8,443 tonnes per day in 2017.

Since the 70s, much investment has gone into the building of waste-to-energy plants and landfills to manage the increasing amount of waste disposed. The waste-to-energy plants are designed to incinerate waste safely and are equipped with air emission cleaning equipment. These plants reduce the volume of waste by up to 90%, and recover energy to supply about 3% of Singapore's electricity demand. Ferrous and non-ferrous metals are also recovered from the incineration bottom ash for recycling.

The remaining ash is then transported to the offshore Semakau Landfill, the only landfill in Singapore.

If waste quantities continue to grow, there would be a need to build more waste-to-energy plants and landfills. This presents a key challenge for land-scarce Singapore.



Tuas South Incineration Plant



Semakau Landfill

CHAPTER 1: INTRODUCTION

Strategies for a Sustainable Solid Waste Management

As a small city-state with limited space, Singapore has to ensure prudent use of land for continued economic growth. Building more waste disposal facilities to handle the increasing amount of waste will mean less land for other uses such as industries, housing, water catchment areas, transportation and recreation.

The Sustainable Singapore Blueprint (SSB) 2015 outlines our national vision and plans for a more liveable and sustainable Singapore. For a vibrant and sustainable city, Singapore will work towards becoming a Zero Waste Nation and a Leading Green Economy. Among other goals, the SSB has set an overall waste recycling rate target of 70% by 2030.

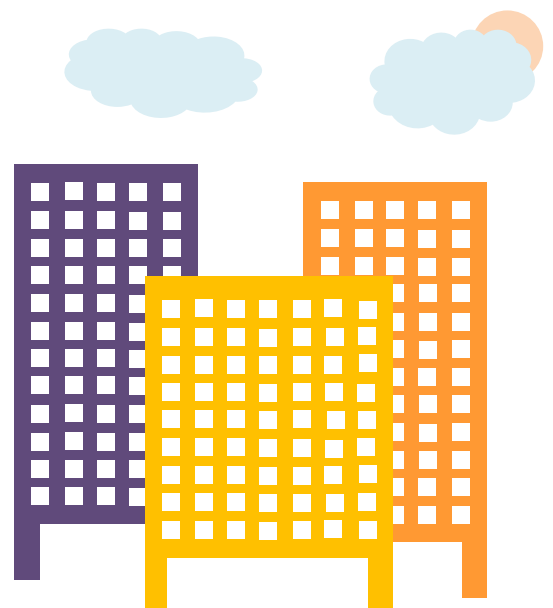
To achieve our vision, the National Environment Agency (NEA) has adopted a multi-pronged waste management strategy of waste minimisation. This is through the first 2Rs of reduce and reuse, maximising resource recovery through recycling, and volume reduction through incineration of all remaining incinerable waste to reduce waste sent to the landfill.

To achieve these targets, NEA will continue to engage and work in partnership with various organisations in the people, private and public sectors to plan and implement 3R and related educational programmes.

Offices Play an Important Role in Waste Minimisation and Recycling

Employees spend at least 8 hours of a work day in the office. There are opportunities for organisations to inculcate 3R values in their staff.

Offices produce significant quantities of waste such as paper which provide great potential for waste minimisation and recycling.



CHAPTER 2: BENEFITS OF REDUCING, REUSING AND RECYCLING SOLID WASTE

What are the 3Rs?

The 3Rs stand for:

- **Reducing** waste – to avoid waste at source so as to minimise the quantity of waste that needs to be treated or disposed of
- **Reusing** waste – to use an object or material again, either for its original or similar purpose, without significantly altering the physical form of the object or material
- **Recycling** waste – the process of transforming waste materials into reusable form which may or may not be similar to the original product



3R practices encompass all measures that minimise the amount of waste disposed of.

The preferred waste management practice is to **reduce** waste at source, i.e. to prevent waste from being generated. Where waste generation cannot be prevented other options such as **reusing** the item(s), followed by **recycling** of the waste should be considered.

Benefits to Offices

Good waste management can make good business sense. The benefits of practising the 3Rs go beyond reducing waste sent to disposal sites. It also yields many positive outcomes such as:

1. Reduced Disposal Costs

Practising waste minimisation in a business process can help reduce business costs. This helps improve efficiency and down waste handling and disposal costs.



2. Enhanced Corporate Image

Organisations with good environmental sustainability practices will be able to differentiate themselves in the marketplace as responsible and forward-looking businesses which are sensitive to environmental issues.

This could be an advantage as public awareness on environmental issues is growing and the CSR profile of an organisation is an increasingly important part of its overall reputation.

CHAPTER 2: BENEFITS OF REDUCING, REUSING AND RECYCLING SOLID WASTE

Benefits to the Environment

Practising the 3Rs is an effective way to protect our environment and conserve resources for the benefit of present and future generations.

Reducing waste at source leads to lower demand for virgin resources required to make new products, thereby conserving limited natural resources. Similarly, used products can be reused or recycled into new products, which would avoid further depletion of natural resources, reduce the amount of waste thrown away and lessen the need to build more disposal facilities.



An effective 3R programme will help to reduce the carbon footprint of an organisation.

Benefits to Singapore

Despite recycling, Singapore has had to increasingly commit more resources, including land to build disposal facilities, to manage the growing amount of waste. Presently, Singapore disposes about 3 million tonnes of solid waste a year, which is enough to fill more than 5,700 Olympic-sized swimming pools.

Notwithstanding, this amount could have been significantly higher if Singapore had not ramped up recycling over the years.

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

There are eight crucial steps for the implementation of a successful 3R programme in your office.

Step 1: Obtain Top Management's Commitment and Support

Management support is vital for the success of any 3R programme, as 3R initiatives would require an investment in time and possibly finances. It could also entail changes in responsibilities of some employees or in operational procedures.

A supportive management is crucial to the alignment of the environmental perspective of employees. Therefore, the first step is to secure and project a clear and strong signal of the management's commitment to supporting any 3R efforts.

Next, there is a need to identify opportunities to reduce, reuse and recycle waste, estimate the cost of wasted raw materials/consumables, and the potential savings that could be achieved.

3R Guidelines

There is a need to draw up 3R guidelines to communicate the objectives of the 3R Programme to employees, and they may encapsulate these main points:

- 1) Motivations for practising the 3Rs, such as reducing waste to landfill, cost reduction, and being an environmentally-responsible corporate citizen;
- 2) Reducing waste at source to eliminate waste is one of the main goals of the 3R programme;
- 3) Reuse and recycle as much waste materials as possible before disposing them as waste.

The 3R guidelines can be part of your organisation's overall Environmental Policy.

They can be endorsed by the senior management and displayed prominently to disseminate the information to all employees.

It would be desirable to have a staff meeting to explain the rationale and/or circulate the information through other communication channels. The meeting would be a good platform to seek feedback and ideas from employees as well. A positive signal from the management team will encourage staff to be involved in following the 3R guidelines.



CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Step 2: Appoint a 3R Coordinator and Form a Green Committee / 3R Team

The next step is for management to appoint a competent 3R Coordinator. The 3R Coordinator should be an individual with a passion for protecting the environment and who possesses strong leadership and communication skills, as well as be knowledgeable about the mall's operations, procurement and waste management procedures.

The formation of a Green Committee or a 3R Team helps to ensure the success of the office's 3R programme. Together with the 3R Coordinator, they will plan, develop and implement 3R initiatives for their colleagues. The Green Committee should comprise a mix of employees from different departments to disseminate information during the implementation of 3R initiatives.



Role of the Green Committee

The functions of the Green Committee are:

1. Plan, develop and implement a 3R programme in the office, including:
 - Setting of goals and targets under the programme
 - Implementing initiatives to educate employees in the 3Rs
 - Organising regular activities to raise overall awareness of the 3Rs
 - Providing necessary infrastructure to encourage 3R practices in the office
2. Work out a budget for the proposed 3R programme
3. Conduct waste inspections to identify areas where waste can be reduced, reused or recycled
4. Monitor participation in the implemented 3R initiatives
5. Generate progress reports in meeting goals and targets set under the programme
6. Evaluate effectiveness of the 3R programme and work with the Green Committee or 3R Team to improve it
7. Keep management and staff informed of the progress in meeting the goals and targets for the 3R Programme
8. Incorporate the descriptions of the roles and responsibilities of the committee members

The Green Committee should meet regularly to track the progress in implementing 3R initiatives, and brainstorm for new initiatives to cut waste further.

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Step 3: Conduct a Waste Audit

A waste audit can be carried out to estimate the amount and types of waste generated in the office. This profiles the waste by:

- Types of waste stream
- Estimated quantity of each waste stream
- How the waste was generated
- Why the waste was generated
- Where the waste was generated; and
- How the waste was managed after being generated



Conducting a waste inspection helps to identify areas of wastage and uncover opportunities to reduce, reuse or recycle in your office. The information can also be used as the baseline for measuring the effectiveness of the 3R programme.

To conduct a waste inspection, walk through your offices on different days of the week and make a visual inspection of the contents in the refuse bins. Take note of the types of waste in these bins. Gather information from relevant operational staff and document findings. Pay attention to areas in the office that tend to generate the largest amount of waste.

Create an inspection checklist and indicate the different types of waste streams observed during the inspection. A sample inspection checklist is provided below.

Sample audit checklist

Types of waste	Point of origin	Disposal (kg/month)	Cost of disposal as waste	Recycled (kg/month)	Cost of recycling	Other comments
Paper (including confidential paper)						
Carton boxes						
Plastic bottles						
Plastic packaging						
Metal cans						
Glass containers						
Electronic waste						
Others						
TOTAL						

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

In certain situations, waste may not be observed in the refuse bins during waste inspection, but could have been identified as possible waste materials from purchasing records. The types and quantities of such waste materials can be estimated based on the volume of materials purchased during the year.



Analyse each waste stream and document how these types of waste were generated, why they were generated, when they were generated, and how they were managed after being generated. These analyses will be useful when developing 3R strategies and procedures.

Step 4: Identify Opportunities to Reduce, Reuse and Recycle

Identify opportunities for intervention and develop strategies and procedures for 3R outreach and initiatives to target each waste stream.

Tips on Waste Reduction

- Proofread documents on screen before printing.
- Print on both sides of the paper.
- Flash materials during meetings on a screen instead of printing them for distribution.
- Subscribe to electronic mailing whenever possible.
- Avoid the use of disposable items.
- Do not ask for plastic carriers if packed food can be held in the hand.
- Bring own reusable lunchbox and cutlery for takeaways.
- Bring own mug to meetings to reduce use of plastic or Styrofoam cups.
- Order just adequate drinks and food for meetings, seminars, and events.
- Buy longer-lasting and useful items as corporate gifts.



Tips on Reusing

- Reuse files.
- Use the other side of used paper for drafting and taking notes, etc.



CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Tips on Waste Recycling

Identify Waste that can be Recycled

For waste materials that cannot be reduced or reused, check if they can be recycled.

Recyclable waste generally found in offices include:

Common waste types	Paper	Office paper, cardboard boxes/packaging, newspapers, telephone books, magazines, brochures, posters, junk mail, shoe boxes, milk and juice cartons
	Metal	Used aluminium cans and containers, tin and steel cans and containers
	Glass	Used wine and beer bottles, sparkling or still water bottles, sauce bottles, jars (for cookies, jam, etc.)
	Plastic	Mineral water bottles, sauce bottles, detergent bottles, food containers, food and goods packaging, shrink wraps, plastic garment bags, CDs and DVDs
Other waste types	E-waste	Photocopier and printer cartridges, electrical and electronic equipment of any kind to be discarded
	Lighting	Fluorescent lamps and compact fluorescent lamps



CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Step 5: Engage Recycling Service Provider(s)

After identifying the potential waste and the estimated quantities that can be recycled, arrange for the consolidated recyclables to be sent for recycling. This can be done by either tapping on the recyclables collection service (if any) provided at the building, or engaging a separate recyclables collector to provide recycling bins and collection services.

If your building does not have a recyclables collection service, you can engage your own recyclables collector. There are a number of recycling companies that accept different types of common recyclables. Some waste disposal contractors are also able to provide recycling services.

A list of recyclables collectors for individual waste streams can be found at <http://www.nea.gov.sg/energy-waste/3rs/collectors-traders-and-local-recycling-facilities>.

There are also collectors that provide recycling bins and/or collection of specialised waste streams, such as e-waste and lighting waste. Large quantities of confidential documents can be sent to paper shredding companies for secure shredding and recycling.

Costs of Recycling Services

There are 3 main cost components which can be offset by the revenue derived from the sale of the recyclables as follows:

- | | |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i. Container Rental Fee | This is the monthly fee charged by the contractor for rental of large recycling bins on-site. |
| ii. Haulage Charge | This is the fee charged by the contractor for collecting and transporting recyclables to their Material Recovery Facility (MRF) or to other recycling companies for further processing. |
| iii. Processing Fee | This is the fee charged by the MRF or recycling companies for sorting, baling and processing the recyclables. |
| iv. Revenue | There is a market value for some sorted and/or processed recyclables. When your contractor sells sorted and/or processed recyclables to traders or manufacturers, they will earn and keep this revenue. |



CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

If the value of the recyclables is greater than the combined cost components, the contractor may be able to transfer some savings to the client. If the combined cost components are higher than the revenue, the contractor might charge a fee for the recycling services, but it should be lower than the disposal fee if the recyclables are disposed of as refuse instead.

The waste recycling and collection business is a highly competitive business. When sourcing for contractors to provide recycling services, do obtain a few price quotations before selecting the one(s) which best meets your organisation's needs. As it might be convenient to bundle waste disposal and recycling services, you may also wish to explore available options with your building management.

The storage location of the collected recyclables and the frequency of scheduled collection should be agreed upon with your recycling service provider.

In addition, provisions should be made in the cleaning contracts to stipulate that recyclables are to be collected and stored separately from general waste.

Step 6: Develop a 3R Programme

Develop, tailor and document a 3R programme for your office:

1. List targeted waste types for waste reduction, reuse and recycling
2. Propose 3R initiatives for targeted waste types
3. Estimate costs and/or cost savings involved
4. Estimate the potential quantity of waste reduced (i.e. kg) for each waste type
5. Plan an implementation schedule of the options (steps or phases and timing for implementation)
6. Gather the requirements for implementation (e.g. equipment, tasks and staff assignment)
7. Train the personnel involved (if applicable)
8. Set measurable performance indicators and targets, such as waste reduction or recycling rate
9. Work out a timeline for achieving the targets

A summary table of the proposed 3R Programme can be drawn up as follows:

Waste Type	Quantity (kg)	Proposed 3R option (reduce/reuse/recycle)	Waste reduction/reuse/recycling target (kg)	Estimated costs/savings	Personnel in-charge	Start Date	End Date	Status

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Setting up Recycling Infrastructure

Recycling bins should be easily distinguished from refuse bins. A good recycling bin design includes clear labelling.

Segregated or Commingled Recycling Bins

Recyclables can be collected in segregated or commingled recycling bins. Either type can be used depending on the collection method of the recycling service provider.



Segregated bins, each for 1 waste stream only

Segregated recycling bins can be provided for different types of materials such as metal (drink cans), plastics (bottles, plastic packaging), paper (cardboard, office paper), and glass (bottles). The bins should be colour-coded, with customised bin lid openings for easy identification and proper usage. Premises should ensure that their cleaners do not mix the segregated recyclables during collection



Commingled recycling bin (right) for multiple waste streams

In a commingled recycling bin, all types of recyclable materials are mixed/stored together; paper and cardboard carton boxes are usually collected separately.

Commingled recyclables are sorted after collection and sent for recycling. This system requires fewer recycling bins and requires less space. Though the collection efforts by cleaners can be reduced, higher recycling service fees might be incurred, as the contractor will have to sort the recyclables backend. The value of commingled recyclables might also be lower than sorted recyclables.

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Locations for Recycling Bins

Bins should be placed in conspicuous and strategic locations where staff can conveniently deposit their recyclables. Where a particular type of waste material is generated in large volumes, additional bins can be placed there as well. For other types of recyclables that are collected by a different collector (e.g. e-waste / lighting waste recycling bins, secure bins for confidential paper), bins can be placed at appropriate locations, or at centralised locations together with the other recycling bins. Some examples of strategic locations include:

- Bins for paper and/or ink cartridges in the printing room
- Bins for aluminium/glass/plastic in the pantry
- Bins for electronic waste in the storage room or printing room
- Bins for paper, publications and cardboard in the printing room or store room
- Bins for paper/plastic/metal/glass waste at lift lobbies
- Bins for confidential paper (if applicable) in the printing room

Recycling bins should also be co-located with refuse bins for staff to conveniently separate the recyclables from the rest of their waste.



Set of recycling and refuse bins at the entrance of an office building



Recycling bins beside a photocopier

CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Step 7: Implement the 3R Programme

Before launching the programme, the 3R initiatives should be well promoted and effectively communicated to staff.

Communication of the 3R Programme

Provisions should be made in the cleaning contracts for cleaners – both existing and new - to be properly educated on the need for segregation of recyclables from general waste in their collection rounds.

Educating and motivating employees to practise the 3Rs is also critical to the success of the programme. The 3R goals, plans and implementation timeline should be displayed prominently in the offices. Regular updates on the progress of the programme should also be communicated.

Education and Raising Awareness

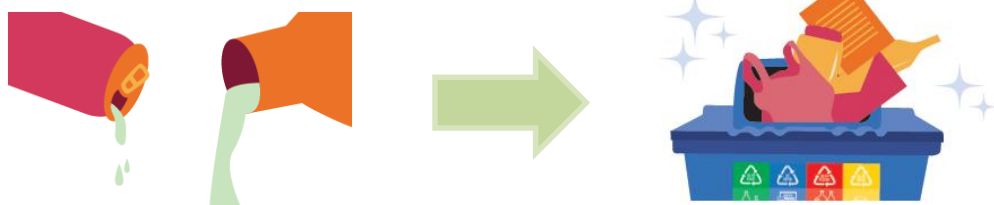
It is very important that every staff is familiar with the recycling programme that has been put in place, as this ensures the programme's success. Here are some suggestions on how education and awareness can be carried out:

- Provide information to staff through posters/ email alerts to encourage the 3Rs, at the start of the programme and at regular intervals
- Display reminder notices at strategic locations, e.g. at printing or photocopying areas; poster on food waste reduction at the staff canteen
- Make 3R tips available to staff through the intranet and emails
- Collaborate with NEA to organise 3R talks for staff
- Organise visits to waste management facilities (e.g. Waste-To-Energy (WTE) plants, Semakau Landfill) as part of 3R outreach to staff. Click [here](http://www.nea.gov.sg/energy-waste/waste-management/visit-nea-installations-plants) for more information: <http://www.nea.gov.sg/energy-waste/waste-management/visit-nea-installations-plants>.



Contamination of Recyclables

Recyclables that are contaminated by food or liquid waste cannot be recycled. It is important to emphasise to staff that all containers have to be fully emptied before depositing them into the recycling bins, and food or liquid waste cannot be thrown into the recycling bins.



CHAPTER 3: A STEP-BY-STEP GUIDE TO A 3R PROGRAMME

Step 8: Monitor, Evaluate and Improve the 3R Programme

After the 3R programme is up and running, monitoring and evaluation should be carried out on a regular basis.

- **Track the quantity of waste reduced/reused/recycled after the implementation of the 3R Programme**

Request that the recycling service provider provide monthly tonnage reports on the amount of recyclables collected. Alternatively, invest in a weighing machine to obtain the tonnages.

- **Calculate cost savings achieved after implementation of the 3R Programme**

Maintain accurate and up-to-date records of the waste disposal fees and recyclables collection fees or revenue. Calculate and record the monthly cost savings in the form of reduced disposal costs and/or revenue obtained from the sale of recyclables.

- **Monitor contamination levels of the recycling bins**

Work with your cleaning contractor/recyclables collector to obtain the contamination levels of each type of recyclables. Perform routine visual inspections of the recyclables to get a gauge of the contamination levels. If contamination levels are high, engage staff through various avenues to inform them of what cannot be thrown into the recycling bin.

- **Obtain feedback from staff**

With the information collected, solicit feedback from staff to evaluate the 3R Programme and make changes where required. You could introduce new ideas and initiatives, or review the waste reduction/reuse/recycling goals based on the progress made in your 3R Programme.

- **Conduct annual reviews of the 3R Programme**

This includes a waste audit to identify new 3R opportunities, making changes to initiatives if needed and setting higher waste reduction/recycling targets

Case Studies

The following pages provide case studies of organisations that have successfully incorporated a 3R programme in their offices. We hope that with the case studies and the steps provided in this guidebook, your office can work towards more waste reduction/reuse/recycling, and help contribute towards a sustainable waste management system in Singapore.



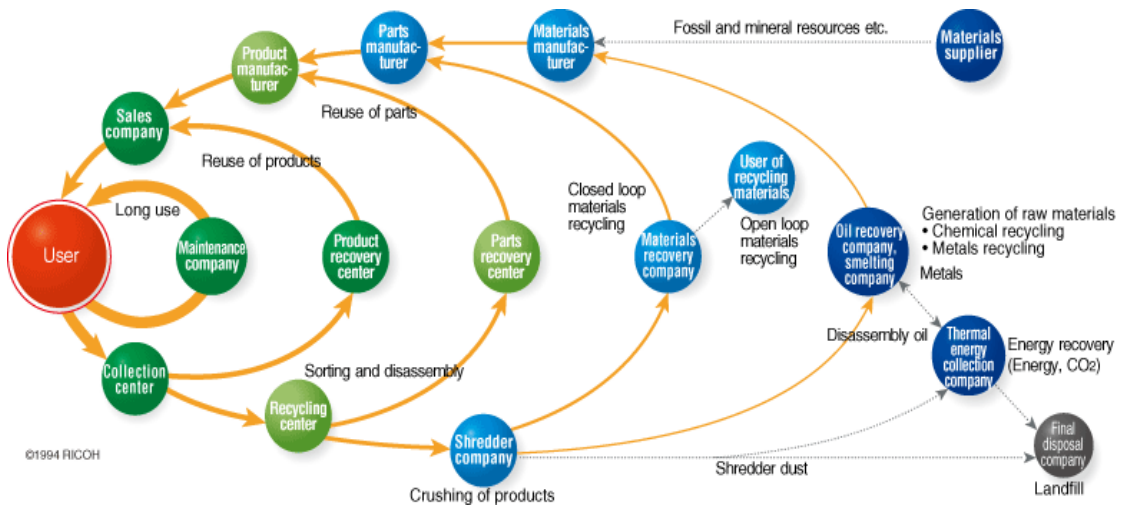
CHAPTER 4: CASE STUDIES

Case Study: Ricoh Asia Pacific Pte Ltd

Background

Ricoh Asia Pacific Pte Ltd, exclusively owned by Ricoh Company, Ltd, Japan, is a regional headquarters that oversees its marketing and sales activities in South East Asia, South Asia, Oceania regions and China. Ricoh provides customers with necessary office equipment and business solutions, while contributing to the development of a sustainable society based on the Comet Circle concept.

The Comet Circle concept encapsulates Ricoh's environmental impact reduction scheme, which includes measures taken to ensure sustainability of the entire lifecycle of their products, including upstream and downstream business activities. For example, their office solutions include several document management services to assist clients to track paper usage to reduce wastage.



Ricoh's Comet Circle

Ricoh Asia Pacific has in place a comprehensive environmental management system and has been ISO14001 certified for more than 10 years. It is also the first private company in Singapore to be awarded the Eco-Office Certification by the Singapore Environment Council (SEC) in 2004.

3R Practices in the Offices

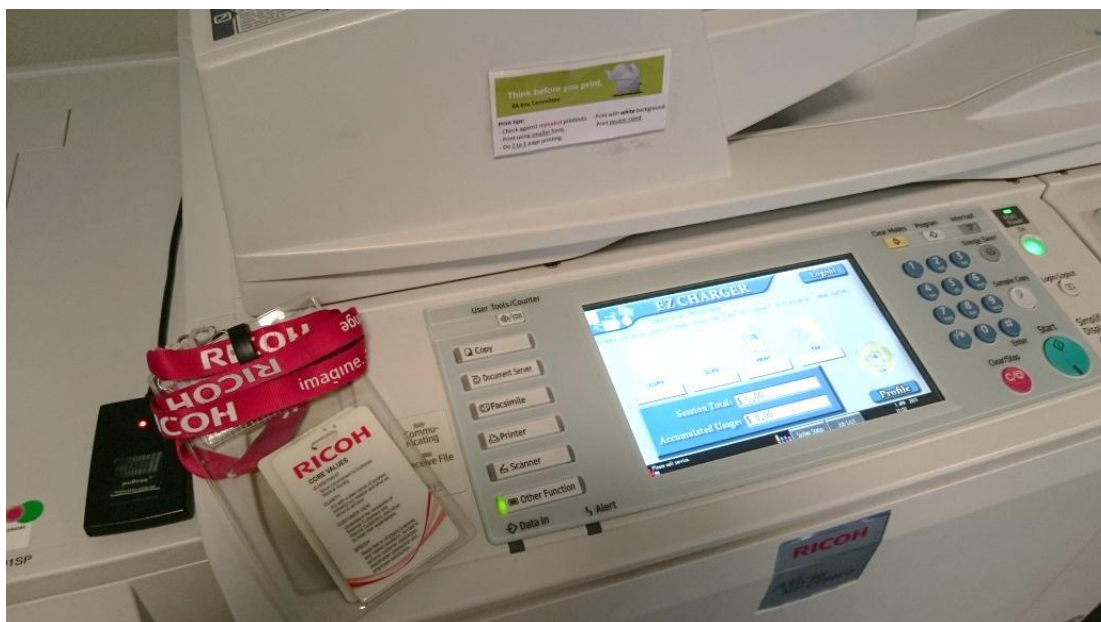
Waste Minimisation

Ricoh recognises that there is huge potential for the reduction of paper usage in offices. Thus, the default printer setting at its office is set to duplex printing and its EZ Charger and Green Report allow for the tracking of the amount of paper being printed at both the individual and department levels.

CHAPTER 4: CASE STUDIES

Card-scan access to the printer requiring the use of a staff pass card to confirm the printing job also enables staff to cancel accidental print jobs or print jobs that are not required later.

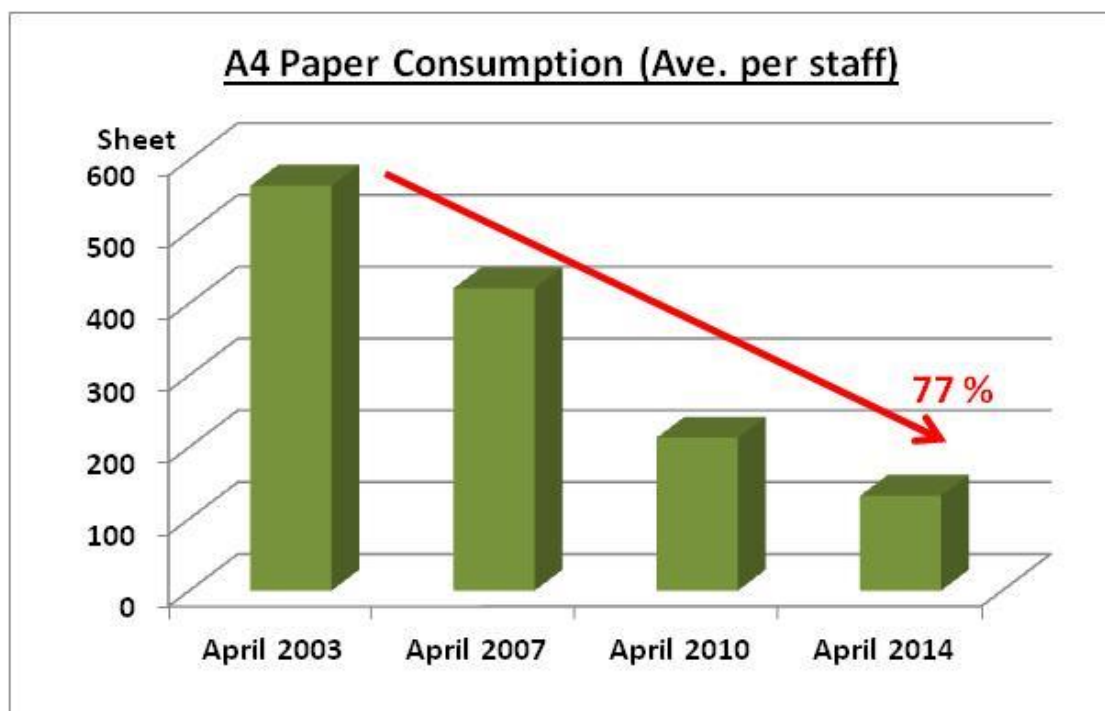
Ricoh also encourages its staff to use 2-in-1 or 4-in-1 printing and to archive soft copy records of corporate procedures, forms, claims, meeting minutes instead of hardcopies. The staff project slides for discussion at meetings instead of distributing hard copy print-outs. If printing has to be done, 100% recycled paper is used.



The EZ Charger is a tracking system for monitoring the document output costs of printers.

Other waste minimisation measures include using refillable stationery, such as pens, highlighters, correction tapes, whiteboard markers, and providing ceramic mugs for use by staff instead of paper cups. Incoming fax documents are not printed but stored digitally and transferred electronically to recipients instead. Notices to employees are also distributed electronically. Medical and reimbursement claims, business proposals, business trip reports and meeting minutes are also handled electronically.

CHAPTER 4: CASE STUDIES



Ricoh's waste reduction efforts have seen a steady decrease in paper consumption over the years.

As a result of these measures, A4 paper consumption per staff at Ricoh has decreased by 77% from 563 sheets/staff in 2003 to 132 sheets/staff in 2014!

Waste Recycling

Ricoh places segregated recycling bins for paper and plastic packaging materials/ bottles at easily accessible locations around its office. Confidential paper are shredded and sent for recycling.

Personal litter bins are removed from cubicles to encourage staff to dispose of their waste at a centralised waste bin. It also has a take-back programme for used toner cartridges and electronic equipment.



Segregated bins for waste paper, plastic and metals are placed at strategic locations around the office

CHAPTER 4: CASE STUDIES

Green Education and Outreach

Ricoh has made tremendous efforts at reaching out to its staff to cultivate good environmental habits.

This includes having green corners around the office, informative posters on sustainability, an environmental handbook, quarterly environmental training for new staff, conducting periodic competency checks on staff, and implementing environmental awareness programmes.

Examples of such programmes are its monthly Eco-Action Day, environmental movie screening, water resource learning trail (Marina Reservoir) and its annual tree planting event.



Educational posters at Ricoh's green corner

Ricoh also welcomes visitors to its office to share its environmental practices and challenges in its Eco-Office journey.

CHAPTER 4: CASE STUDIES

Case Study: State Street Bank and Trust Company

Background

State Street Bank and Trust Company, a subsidiary of the State Street Corporation, is a custodian bank organised as a Massachusetts trust company specialising in services to mutual funds and their advisers, collective investment funds, corporate and public pension funds, insurance companies, operating companies and non-profit organisations. They have operations in more than 100 geographic markets globally.

State Street Corporation is committed to being a leader in environmental sustainability and has set a goal to achieve zero waste and a 90% diversion rate of waste in its global operations by 2020. An internal publication, “Zero Waste Guide”, is circulated to global State Street employees.

In 2015, it attained a global waste diversion rate of 83% and their buildings around the world have received various environmental certificates, such as the Leadership in Energy & Environmental Design (LEED) Certification, ENERGY STAR Certification, and ISO 14001 Certification.

Its global “Green Your Team” initiative injects healthy competition where global State Street offices are encouraged to improve their environmental sustainability - whether at the office, departmental or group level - to earn Gold, Silver or Bronze certifications. It also has a Sustainability Pledge for their employees.

The local State Street office has a staff strength of about 240. It has a green committee to look into implementing environmental sustainability practices and aligning itself with global practices.

3R Practices in the Offices

Waste Minimisation

At its Singapore branch, State Street provides for online storage of faxes, and has an online platform for auditing and portfolio tracking. Printers are equipped with access card control to proceed with requested print jobs so that incidences of accidental/wrong print jobs and resulting paper wastage are avoided. Duplex printing is set by default for all its printers, and only FSC-certified paper is used.

Instead of paper cups, bottled water, and disposable cutlery, reusable mugs and cutlery are provided for staff.



Printer with access card control to minimise incidences of accidental/ wrong print jobs, thereby minimising paper wastage.

CHAPTER 4: CASE STUDIES

Waste Minimisation



Reusable cutlery is provided at the staff pantry instead of disposable ones

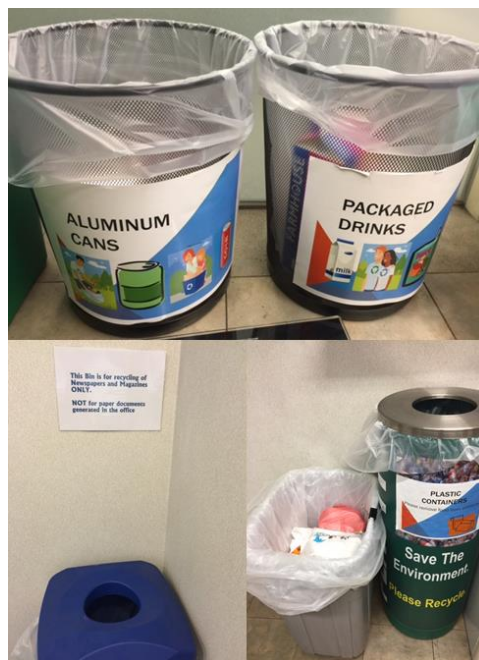


Reusable mugs are provided instead of paper cups and bottled water

Waste Recycling

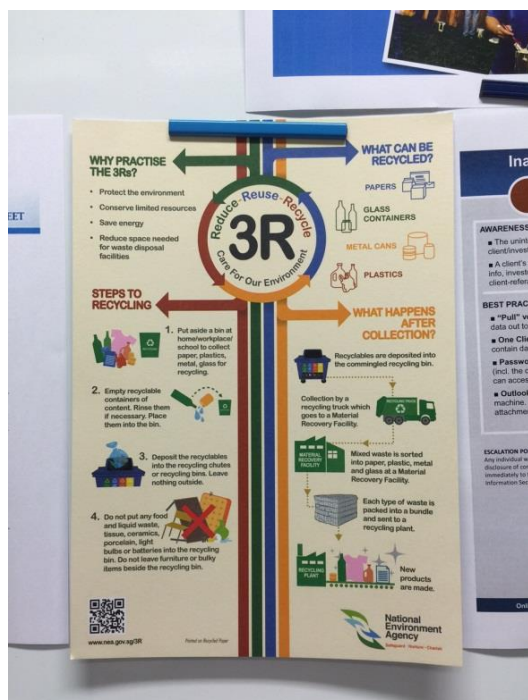
The State Street office has an extensive recycling programme. It provides segregated recycling bins for shredded paper, normal paper waste, plastic packaging materials/bottles, aluminium cans and packet drinks at different parts of the office. Confidential documents are also sent to an external vendor for secure shredding and recycling

To educate staff on the 3Rs, a poster has been put up on the staff notice board, which also serves as a reminder to staff to recycle. Waste and recyclables tonnages are monitored monthly and areas where further waste minimisation and recycling can be carried out are explored.



Segregated recycling bins are provided at strategic points in the office for aluminium cans, used beverage cartons, plastic containers, as well as magazines and newspapers.

CHAPTER 4: CASE STUDIES



Poster on the noticeboard to educate staff on the 3Rs



Recycling bins for used toiletries/cosmetic containers

State Street Earth Day

State Street has a strong environmental sustainability culture, which is built upon the strong support of its management. Global offices are encouraged to institute State Street Earth Day, where local Green Teams coordinate community-based activities such as a coastal clean-up in Chek Jawa on Pulau Ubin as part of an annual exercise by International Coastal Cleanup Singapore (ICCS).

Employees are passionate about giving back to the communities in which they live and work, and response to environmental activities have been good. For example, 20 employees formed five teams to participate in the CapitaCommerical Trust Eco-Race in 2014 by racing around the CBD against 45 other teams to complete environmental-related challenges.

State Street also organises seminars, workshops and talks for staff on topics such as the 3Rs, renewable energy, ocean or habitat preservation, climate change, or home energy efficiency.

State Street employees are encouraged to form teams to participate in its “Green Your Team” programme, to further support activities on environmental topics such as green commuting, responsible use of resources, sustainable events and meetings. These efforts contribute towards building a meaningful Earth Day for State Street employees

CHAPTER 4: CASE STUDIES

Case Study: City Developments Limited

Corporate Profile

City Developments Limited (CDL) is a Singapore-listed international real estate operating company with a global footprint of 94 locations in 26 countries and is one of Singapore's largest commercial landlords.

CDL has established itself as one of the leading companies in environmental sustainability and corporate social responsibility. CDL was ranked Top Real Estate Company in the Global 100 Most Sustainable Corporations in the World 2016 ranking, and is the first Singapore corporation to be listed on three of the world's leading sustainability benchmarks – FTSE4Good Index Series (since 2002), Global 100 Most Sustainable Corporations in the World (since 2010) and Dow Jones Sustainability Indices (since 2011).

In 2002, CDL, together with the Singapore Environment Council, launched Project: Eco-Office, a nation-wide campaign to advocate environmentally-friendly habits in the workplace.

3R Initiatives for Office Tenants

CDL works closely with office tenants to increase recycling efforts in its commercial buildings. Tenants are advised on how they can set up a recycling programme at their offices, for e.g. through placement of recycling bins and segregation of waste for recycling. In addition, tenants are also provided with Eco-Office kits, which includes items such as posters that can be displayed to educate staff on eco-friendly habits. Tenants are also constantly engaged through circulars and updated on any new recycling initiatives implemented at the building.



Contents of the Eco-Office Kit that is given to all tenants

CHAPTER 4: CASE STUDIES

Provision of Recycling Bins

As offices typically generate large amounts of paper waste, CDL provides every office tenant with paper recycling bins for recycling of office paper, including shredded paper. Once the bins are full, tenants would transfer the paper waste to a designated recycling corner for bulk storage of paper waste which will be collected and sent for recycling.

CDL's paper recycling programme has seen increasing tenant participation from 68% in 2005 to 94% in 2015. Recycling corners with segregated recycling bins are strategically located at common areas such as lift lobbies – for easy access and to serve as a constant reminder to tenants to recycle.



Recycling bins for paper are strategically placed beside photocopiers in the office



Recycling bins in the common areas

CHAPTER 4: CASE STUDIES

Recycling of Used Lamps

Besides recycling common items such as paper, cans and plastics, CDL introduced a new initiative for its commercial tenants to recycle used lamps in 2013, in collaboration with Global Lamp Recyclers (GLR).

Used lamp tubes in common areas or within tenants' units are deposited into a designated bin provided by GLR. Once the bin is full, CDL's building management will contact GLR for collection.

To raise awareness and encourage tenant participation, an e-circular was sent to explain the entire recycling process of used lamps and how recycling them can reduce pollution and impact on the environment. Under the programme, about 14,500 lamps from CDL's commercial buildings were recycled in 2015.



Used lamps collected for recycling

CHAPTER 4: CASE STUDIES

Collection of Pre-loved Items

In December 2015, CDL and sustainability firm Eco-Business jointly launched EcoBank – a national campaign that aims not just to increase awareness on sustainable consumption, but also to raise funds for a good cause.

The ‘reduce and reuse for good’ initiative promotes waste reduction through encouraging the public to extend the life of daily items they no longer need by donating them, or by buying from the EcoBank Bazaar to reduce waste and raise funds for charity.

Designated collection bins were set up at CDL’s City Square Mall – Singapore’s first eco mall – and six other CDL commercial properties. The response was overwhelming with over 6,000kg of pre-loved items collected over a period of three weeks. CDL employees and partners contributed over 500 volunteer hours to sort and organise the collected items to be sold at the EcoBank Bazaar. The 2-day bazaar raised about S\$48,000 for disadvantaged women and children after a dollar-for-dollar match from the Care and Share movement under Community Chest. True to the spirit of waste reduction, all unsold items were given to charity thrift shops for sale.



Besides reducing waste, the EcoBank Bazaar also helped to raise funds for charity through the sale of pre-loved items.

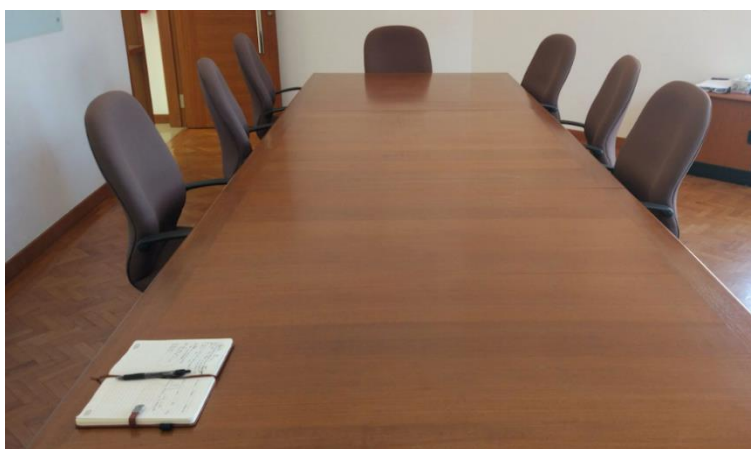
CHAPTER 4: CASE STUDIES

Case Study: Tanglin Trust School

Background

Tanglin Trust School (TTS) is a British international school in Singapore, sited at its present campus since the 1970s.

TTS is currently undergoing expansion, which requires the construction of a new 11-storey educational institution block, among other things. Construction commenced in July 2019 and is expected to complete in two years. Due to the planned demolition of one of its buildings where 50 items of office desks and chairs were located, TTS engaged Double Loop Solutions (DLS) to discuss ways to efficiently manage its old furniture. DLS is a social enterprise that specialises in circular economy solutions for the office by connecting organisations with surplus furniture assets to community organisations for asset reuse.



Old furniture assets such as these are redistributed for asset reuse

Exploring Reuse and Repurposing Options

TTS first checked internally to see if there were other departments that could reuse the 50 items within the school. When all internal reuse options had been exhausted, TTS approached DLS for reuse and repurposing solutions.

DLS created an asset register to detail the type, dimensions and quality of the items available. This was to ensure that the next users of the furniture would be clear about the condition and types of items that they would be taking in. Once the asset register was completed, DLS explored and evaluated best reuse cases for the assets in the community. Reuse of furniture would allow community organisations to save money on the furniture that they would otherwise have purchased.

DLS identified and confirmed five community organisation partners as having the need for the desks and chairs. Subsequently, DLS checked the asset condition and delivery requirements for each partner organisation, carried out asset tagging and cleaned each piece of furniture before coordinating the transfer of the items to their respective new homes.

CHAPTER 4: CASE STUDIES



Old furniture ready to be transferred to their respective new homes

Circulating the Assets

According to one of the community organisations, Transition Plus @ Jalan Bukit Merah, the redeployed furniture provided the opportunity for its children to do homework on proper furniture instead of on the floor. Another recipient organisation furnished two of their rooms with 12 additional chairs.

In total, all 50 items were redeployed to the community for reuse. This project avoided an estimated 2000kg of waste, enabled five organisations to reap cost savings and directly impacted more than 70 individuals of the recipient community organisations.

For More Information

More information can be found at:



- www.nea.gov.sg/3r
- this QR code



- myENV mobile app

Locations of collection points for electronic waste, used lamps and 2nd hand goods, as well as Cash-for-Trash stations – where recyclables can be exchanged for cash – can be found on the myENV mobile app for mobile devices.

They can also be viewed on OneMap. For OneMap, visit <https://www.onemap.sg> and select Themes → Environment → [layer, e.g. Cash For Trash]

