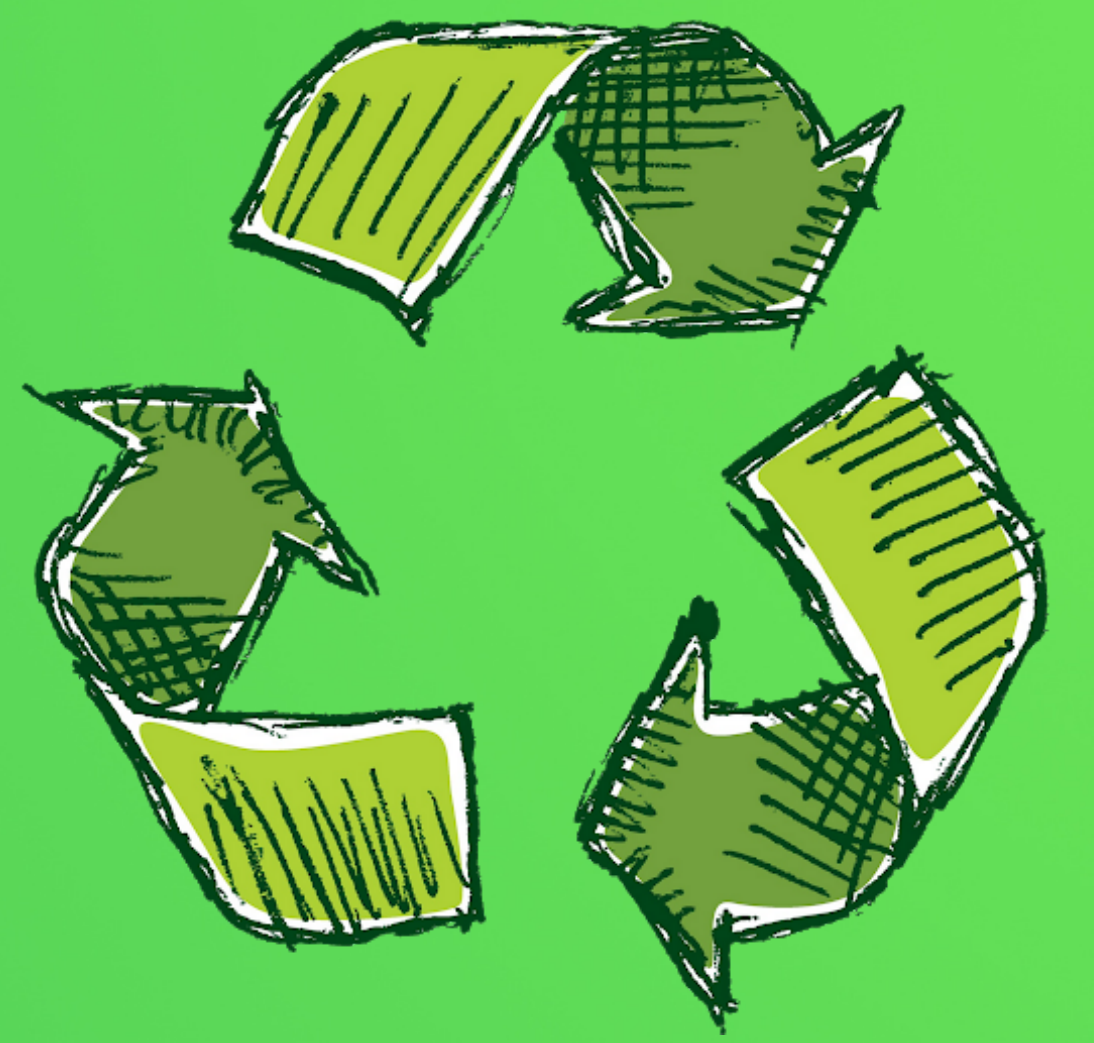


# IS RECYCLING AND REPAIRING WORTH IT?

Group 4

by Chiam Wooi Chin, Goh Jo Ey, Ng Jing Er, Ong Yin Ren  
School of Computing, Faculty of Engineering



## INTRODUCTION

“According to the Environmental Protection Agency, it is estimated that 75 percent of the waste stream in the United States is recyclable, but just about 30 percent of the waste stream is recycled” [10]. Throwaway society emerged with the industrial revolution, disposable items are very common in today society.[5] People prefer to dispose items compared with 3R practices with the reasons of convenience and cost savings benefits. However, recycling and repairing bring benefits such as prevent throwaway society [3], conserve natural resources, reduce environmental impacts. But some may argue that recycling is a time-consuming task that costs more resources.

BENEFIT (1) : PREVENT THROWAWAY SOCIETY	BENEFIT (2) : REDUCE ENVIRONMENTAL IMPACTS	BENEFIT (3): HELPS TOWARD SUSTAINABLE LIVING
<p><b>WHY?</b> Recycling and repairing reduce the amount of waste generated [2].</p> <p><b>HOW?</b></p> <ul style="list-style-type: none"><li>• Implementation of active paper recycling [8] -reduced the wood harvestation to 20% by 2010</li><li>• Extend objects lifetime [8] -conserving renewable resource, reducing the need for replacement.</li><li>• Reducing the use of packing [9] -minimize the amount of trash, reduce the use of natural resources</li></ul>	<ul style="list-style-type: none"><li>• Turning trash into treasure can aid in the reduction of environmental pollution.<ul style="list-style-type: none"><li>◦ Air Pollution</li><li>◦ Water Pollution</li></ul></li><li>• Recycling can help to offset greenhouse gas emissions -requires less processing to turn waste into usable products [1].</li><li>• Reduce the carbon footprint and help in the global climate</li><li>• Reduction of waste that results in landfills and water pollution. -decomposition of waste will result in greenhouse gasses and increase the toxicity in water.</li><li>• People should reduce trash by recycling and repairing items to avoid harming our planet.</li></ul>	<ul style="list-style-type: none"><li>• Reduce waste and impact on the environment such as landfills. -reduce cost of landfills and incineration,save landfill space involuntarily[7]</li><li>• Increase the job opportunities -recycling and reuse create at least 9 times more jobs</li><li>• Prevent pollution and save energy. -conserves energy by eliminating the need to create new materials [4].</li><li>• Reduces water pollution and water consumption. -manufacturer can produce items with less energy by applying recycled materials instead of new natural resources</li><li>• Produce a healthy environment by reducing the needs of the landfill. -reduce carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) generated [7].</li></ul>

## OPPOSITION (1)

- People have their opinion that repairing has required a high cost of repairs and a lot of time.
- Gharfalkar et al. (2021) stated that a repair can be a chance to alternate manufacture and maintenance services.
- Repairing has the potential to stimulate employment in the repair service sector.
- The reuse centers also have job opportunities for people troubled with jobs [9].
- The opinion of most people is inaccurate and arguable.
- In fact, repairing and reusing aids in the decreasing of the throwaway culture by reducing waste pollution and providing economic benefits to citizens.

## OPPOSITION (2)

- One of the challenges to recycling and repairing is the amount of time it takes.
- People may argue that such actions are unprofitable, they are preoccupied with their jobs and the recycling action is complicated [6].
- However, people should realize the impacts of the throwaway society.
- The public perception of recycling programs and efforts is also influenced by recycling facilities and other infrastructural services.
- It is not difficult when it becomes your daily basis
  - The individual should set a goal for the recycling practice and setting up a recycling spot in their house.
- The time required for the recycling process is far less than the time required to cope with the consequences of a throwaway culture.

## CONCLUSION

The waste produced by humans has led to a throwaway society which brings the various pollution that causes disastrous damage to the ecosystem and environment. Recycling and repairing items is the solution that aids in the abolition of the throwaway culture. Repairing and recycling help to conserve natural resources, thus reduce environmental impacts and contribute to sustainable living. Some people argue that recycling require a lot of cost and time. However, the benefits of recycling and repairing products outweigh the disadvantages. Therefore, is repairing and 3R principle practice can help reduce waste pollution although it is a waste of time?

## REFERENCES

- [1] Asmatulu et al.(2011). Importance of recycling education: a curriculum development at WSU. Journal of Material Cycles and Waste Management, 13(2), 131-138. <https://doi.org/10.1007/s10163-011-0002-4>
- [2] Bovea et al. (2020). Repair vs. replacement:Selection of the best end-of-life scenario for small household electric and electronic equipment based on life cycle assessment. Journal of Environmental Management, 254, 109679. <https://doi.org/10.1016/j.jenvman.2019.109679>
- [3] Clean Water Action (n.d.). The Problem - Our Throwaway Lifestyle. <https://www.cleanwateraction.org/features/problem-our-throwaway-lifestyle>
- [4] Harmony Enterprise Inc. (2016, July 21). How Recycling Saves Energy. Harmony. <https://harmony1.com/recycling-saves-energy/>
- [5] Herberz et al. (2020). Sustainability Assessment of a Single-Use Plastics Ban. Sustainability, 12(9), 3746. <https://doi.org/10.3390/su12093746>
- [6] Langley, J. (2012). Is Green a Grey Area? Sustainability and Inclusivity: Recycling and the Ageing Population. The Design Journal, 15(1), 33–56. <https://doi.org/10.2752/175630612x13192035508507>
- [7] Lino, Ismail. (2015). Municipal Solid Waste as Sustainable Energy Source for Brazil. International Journal of Energy and Power Engineering. <http://doi.org/10.11648/j.ijepe.20150404.12>
- [8] National Institutes of Health (n.d.). Benefits of Recycling. <https://nems.nih.gov/environmental-programs/Pages/Benefits-of-Recycling.aspx>
- [9] Samiha, B. (2013). The Importance of the 3R Principle of Municipal Solid Waste Management for Achieving Sustainable Development. Mediterranean Journal of Social Sciences, 4(3), 129. <http://dx.doi.org/10.5901/mjss.2013.v4n3p129>
- [10] Saphores et al. (2012). Willingness to engage in a pro-environmental behavior: An analysis of e-waste recycling based on a national survey of U.S. households. Resources, Conservation and Recycling, 60, 49–63. <https://doi.org/10.1016/j.resconrec.2011.12.003>

## ACKNOWLEDGEMENTS

We would like to express our gratitude to the lecturer for the help and team members for their continuing contributions throughout the project.