VERSION 1:
JUNE 2024

CIRCULAR PRINCIPLES FOR PACKAGING DESIGN

in the ANZPAC region

ANZPAC
PLASTICS
PACT

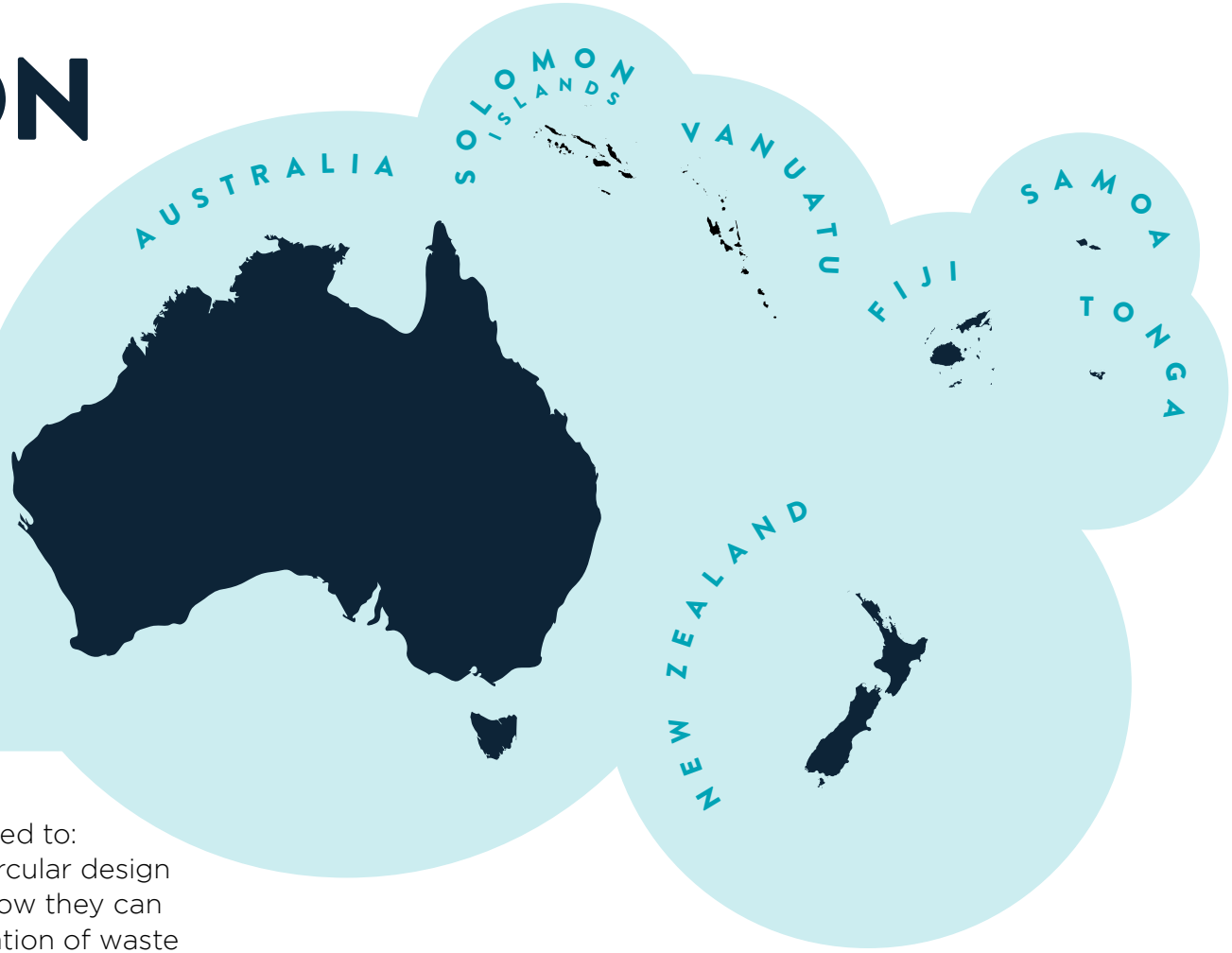
SUPPORTED BY
APCO

CONTENTS

INTRODUCTION

The ANZPAC Plastics Pact is working to create a circular economy for packaging where plastic never becomes waste or pollution.

By bringing key players together across our region, we aim to find solutions to minimise the amount of unnecessary and problematic plastic used in packaging and develop circular pathways to ensure necessary plastic packaging can be kept in the economy and out of the environment.



ANZPAC aims to accelerate progress towards circularity by better **understanding** shared problems and local issues, aligning **assets** and leveraging **cross-border** relationships to **create scaled solutions** to tackle plastic pollution.

The *Circular Principles for Packaging Design* have been created to equip ANZPAC Members with the knowledge required to develop packaging for this region with circularity in mind.

It has been designed to:

- introduce key circular design principles and how they can prevent the creation of waste
- demonstrate how these principles can be used in practice in ANZPAC's local and regional contexts and highlight business and environmental benefits
- provide access to resources for circular packaging design.

This resource is designed to be used with the whole value chain of plastic packaging in mind, from packaging design to end-of-life and everything in between.

Why do we need
ANZPAC'S CIRCULAR PRINCIPLES FOR PACKAGING DESIGN?

Plastic packaging waste is a major environmental issue, while chemicals within plastic have the potential to pose a serious health issue to humans.

There are many factors that impact how much packaging waste we produce - from the design choices we make, to the disposal infrastructure available to consumers.

These factors determine whether packaging is avoided entirely, goes to landfill, or can be composted, reused or recycled.

An estimated **1.3 MILLION TONNES** of plastic packaging enter ANZPAC markets each year

Only about **16.6%** of this is effectively recovered through recycling.

Here in Oceania, recovery and recycling services are not always readily available. Each market is unique and requires a targeted approach.

For packaging to both fulfil its function and achieve circularity, it's critical to understand the context it is being used in.

This includes understanding the different markets in our region, the needs of the local communities and the issues they face, along with the availability of waste collection and recycling infrastructure.

It's important to consider that in the ANZPAC region, materials that are recyclable in one market may not be recyclable in another. For example, due to the lack of recycling infrastructure in the Pacific, most imported plastic packaging becomes problematic and is destined for landfill, regardless of its recyclability in other markets.

The Solution

ANZPAC's *Circular Principles for Packaging Design* builds on the Ellen MacArthur Foundation's Principles of Circularity, bringing an Oceania-specific lens to explore the challenges of operating in our unique regional markets[2].

By understanding the regional circumstances, capabilities and contexts of these markets, along with what "unnecessary and problematic" means in each country, we can develop tailored **solutions** to minimise the amount of plastic packaging produced and used, and **prevent** plastic from ending up as waste or pollution.

Principle 1
ELIMINATE AND REDUCE

To stop plastic packaging becoming waste and pollution, we need to tackle it at the root cause, by eliminating where possible or reducing the amount of unnecessary packaging materials we create and use.

The solution starts with packaging design.

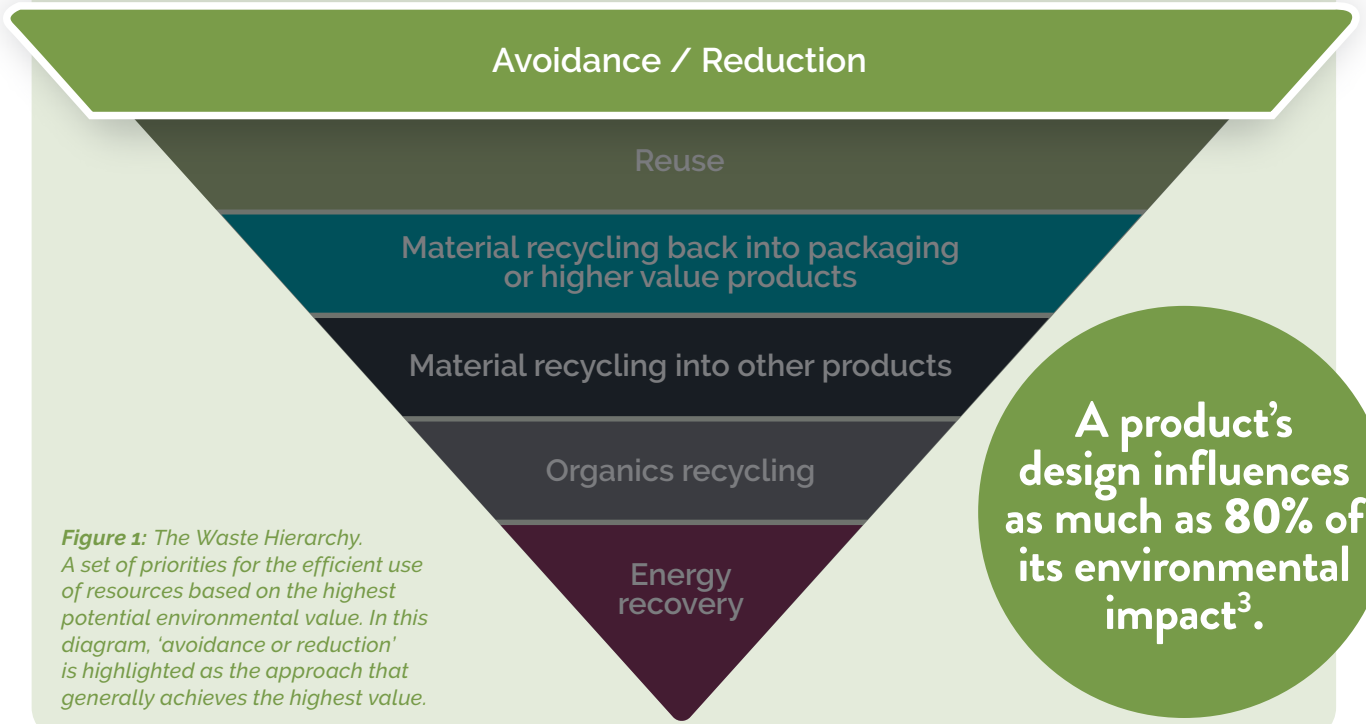


Figure 1: *The Waste Hierarchy. A set of priorities for the efficient use of resources based on the highest potential environmental value. In this diagram, 'avoidance or reduction' is highlighted as the approach that generally achieves the highest value.*

A product's design influences as much as 80% of its environmental impact[3].

Consider the whole lifecycle of your packaging, from design to recovery, and identify areas where you can reduce the amount of unnecessary plastic packaging being used. By reviewing this at the outset and assessing the importance of each component to the overall function of the product, you can eliminate unnecessary plastic that may otherwise end up in landfill.

Of course, this must be balanced with the additional needs placed on packaging when products travel to remote locations – including both sufficient protection during transit, along with the need to provide adequate shelf life in different climates.

Key considerations to determine whether to eliminate a packaging component include:

- Does it extend the shelf life of the product?
- Does it protect the product from damage?
- Will the function of the product be compromised without it?
- Is there an alternative solution that could eliminate the need for packaging, while maintaining the quality of the product?

Principle 1 ELIMINATE AND REDUCE

Considerations for remote and regional areas

It's important when designing packaging for remote or regional areas to work with local communities and organisations to:

- understand the challenges they face
- be aware of how they consume/use products
- understand existing waste management practices and infrastructure
- learn from cultural practices such as using traditional materials (like palm leaves or banana fibre in the Pacific) to eliminate plastic
- identify who the relevant groups and organisations are that you can collaboratively develop solutions with

Learn from Indigenous communities working to eliminate waste

There are many learnings we can take from Indigenous cultural practices. Indigenous communities often have a strong and respectful relationship with nature, which can provide insights into how we can better design and manage packaging at end-of-life.

Many ANZPAC countries have single-use plastic packaging bans in place[4]. Some Pacific Island countries are eliminating single-use packaging by replacing it with traditional materials such as banana and coconut fronds, which are used to weave baskets for storage and take-away packaging. Natural fibres are also used to create reusable products such as bilum bags.

KEY LEARNING:

By engaging with local stakeholders and communities, brand owners and manufacturers can develop new and innovative solutions to eliminate where possible or reduce plastic packaging and pollution.

Principle 2
DESIGN TO CIRCULATE

To develop a circular economy for packaging, we have to change the way we view and design product packaging.

The solution starts with circular thinking: what if you could redesign packaging to stay in the economy?

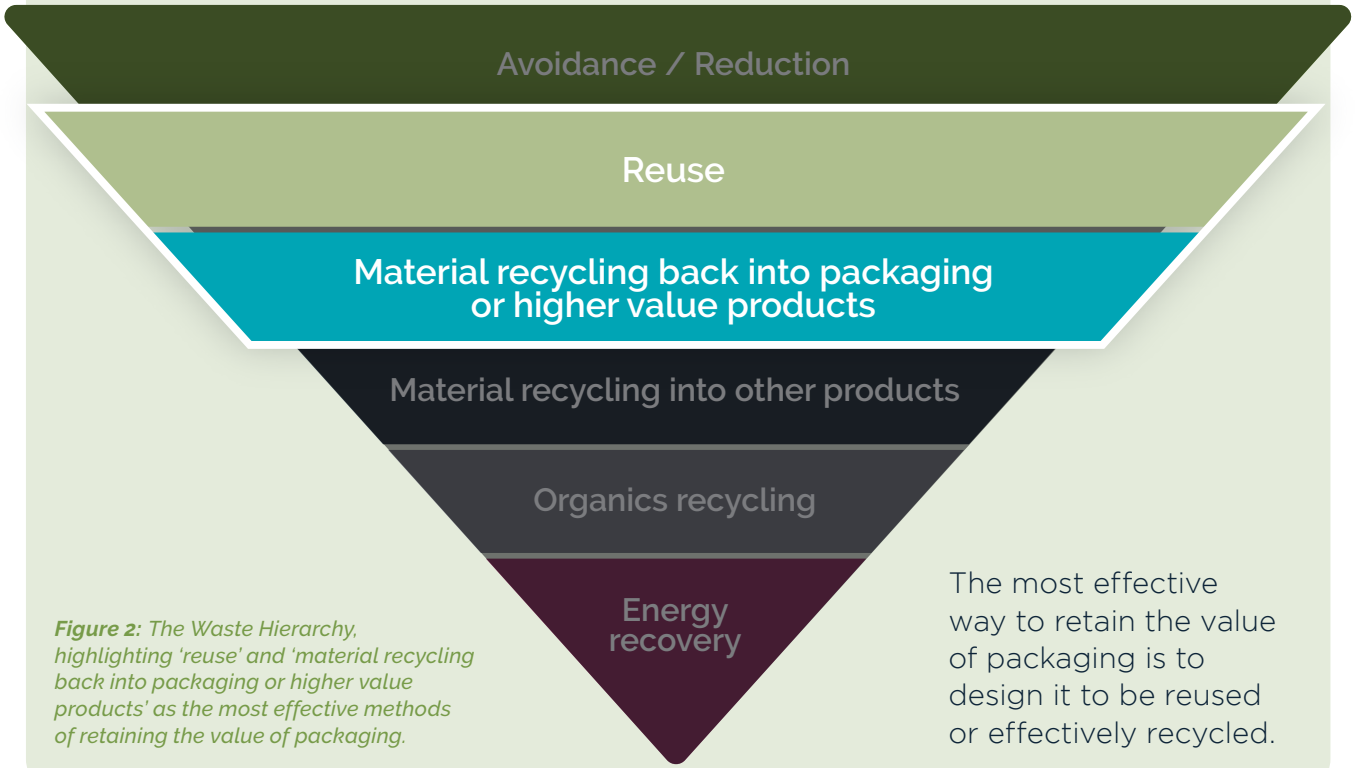


Figure 2: *The Waste Hierarchy, highlighting 'reuse' and 'material recycling back into packaging or higher value products' as the most effective methods of retaining the value of packaging.*

The most effective way to retain the value of packaging is to design it to be reused or effectively recycled.

By transitioning from a take-make-waste model to a circular economy where materials are designed to stay in the economy and out of the environment, we both reduce plastic pollution and retain the value of the materials being used.

In the ANZPAC region, 83% of plastic packaging is not recovered, and therefore destined for landfill. All the material, energy, resources and labour used to create this packaging is lost.

Principle 2 DESIGN TO CIRCULATE

How you can design packaging for a circular economy

REUSE

Designing for reuse means creating packaging that can be refilled or used for the same purpose over and over again. Supported by a system that allows for the packaging to circulate and be reused in a safe and efficient way.

Key considerations to guide designing for reuse include:

- Could you design the packaging to withstand multiple use cycles?
- How many average use cycles could you achieve, and are these sufficient to achieve a net environmental benefit? Consider completing a Life Cycle Analysis (LCA) to understand the full ramifications of using different kinds of packaging.
- Would most consumers/customers return or refill the packaging for another use?
- Does a collection and re-distribution system exist or could you establish such a system?

RECYCLING

Designing for packaging to be recycled means using materials that can be successfully collected, sorted and reprocessed into another product in practice and at scale.

Key considerations to guide designing for recyclability include:

- Could you design the packaging to be made from only one, highly recyclable material?
- Know the recovery pathways in the markets where your packaging will be present, understand how they differ from each other. Realistically, what will happen to your packaging at end of life?
- If your packaging is not recyclable, could you work with local stakeholders to establish a collection and recycling system?

Principle 2 DESIGN TO CIRCULATE

Learn from other organisations designing packaging for circulation

Reuse in Business-to-Business (B2B)

Transit packaging such as pallets, crates or drums are commonly used by many industries to transport products across distances. Single-use plastic shrink wrap and/or film is commonly used to secure these loads and contributes to the growing volume of non-recyclable soft plastics across the ANZPAC region.

Innovative solutions are being developed by many organisations to transition this material into a reusable system. For example, companies such as, *Gaprie* and *Bearhug* have introduced reusable pallet wrappers.

Images provided by Bearhug and Pallet Nets.

Reuse in Business-to-Consumer (B2C)

Single-use coffee cups are a common component of many people's daily lives, yet they contribute significantly to waste as they are often not recyclable. Reusable cups are a key example of sustainable packaging in consumer settings.

Companies like *Huskee* and *KeepCup* are addressing this issue by creating reusable coffee cups. They aim to reduce waste and encourage a culture of reuse, helping to mitigate the environmental impact of disposable coffee cups.

Images provided by KeepCup and Huskee.

KEY LEARNING:

It is critical to understand the reality of recovery pathways across all regional markets when designing packaging.

Only by utilising this knowledge can packaging be effectively designed for recovery in the ANZPAC region. With the relative lack of recycling infrastructure in many remote and regional areas, designing packaging for reuse over recycling is an area that businesses should explore more closely.

Principle 3

COLLABORATE FOR IMPACT

ANZPAC's remote and regional areas face a host of unique challenges - from smaller markets to relative geographic isolation and seasonal accessibility.

To address these unique challenges and find solutions, collaboration is essential, by both industries and countries across the entire plastics value chain.

WE NEED TO:

INNOVATE to design fit-for-purpose and transparent systems that serve local capabilities.

TRIAL solutions that explore new packaging options or mechanisms for recovery.

COLLABORATE with local stakeholders and communities to understand the challenges they are facing and design suitable interventions.

LEARN from existing models in similar regions and archetypes that can be adapted[5].

Principle 3 COLLABORATE FOR IMPACT

Examples of collaborating for impact

The circular economy is still a developing field of expertise, which calls for new and innovative solutions that are specifically designed for different regions, countries, and cultures.

Regulations Driving Change

National, state and territory governments have started implementing single-use plastic bans and working with local organisations to eliminate single-use plastic packaging items, including Fiji, New Zealand, Samoa and the Solomon Islands, along with state/province-level bans in Australia and Vanuatu[6]. To operate in this stronger regulatory environment, businesses must look for opportunities to innovate and collaborate to develop new packaging solutions with greater sustainability outcomes.

Extended Producer Responsibility Schemes (EPR)

Another way to manage the life cycle impact of packaging is to implement an EPR scheme. EPR schemes widen a brand owner's scope of responsibility for a product to include the post-consumption phase, and require them to ensure viable recovery pathways exist.

In 2020 the development of a product stewardship scheme for plastic packaging was mandated in New Zealand.

Several states and territories in Australia have active container deposit schemes (CDS), an example of extended producer responsibility. CDS work by offering a refund on the return of specific packaging (such as PET bottles).

CDS schemes exist in the Federated States of Micronesia, Kiribati, Palau, Marshal Islands, and Tuvalu, while a scheme is under development in Vanuatu. In addition, Mission Pacific Fiji, while not a traditional Container Deposit Scheme, works on a similar principle. Run by Coca-Cola Europacific Partners, the scheme allows PET bottles and aluminium cans to be returned for cash.

Principle 3 COLLABORATE FOR IMPACT

Integrating Traditional Knowledge

Many organisations in the Pacific, New Zealand and Australia align with indigenous beliefs and cultural practices and apply them to their packaging choices. This demonstrates a deep reverence for cultural traditions while promoting environmental conservation.

For example:

The **Samoa Women's Association of Growers** has a local market where fresh, organic and local produce are sold. This is the only market in Samoa that bans single-use plastic and styrofoam. They offer shoppers reusable bags or *ato lau niu* (coconut leaf basket).

Kokonut Pacific Group in the Solomon Islands is known for its hand-made bowls that are made from reclaimed coconut shells.

Traditional Owners in Arnhem Land, Australia use *Pandanus* leaves to weave baskets and mats.

Incorporating cultural knowledge into waste management practices and encouraging collaboration between community organisations and large businesses is vital. As part of its Waste Management and Minimisation Plan 2024, **Auckland Council partnered with Māori leaders** to inform the principles, objectives and actions of the plan.

By treating the environment as a *taonga* (treasure), people are more likely to adopt practices that prevent pollution, environmental degradation, and transform waste into resources. Incorporating Māori knowledge into solutions and decision-making can promote long-term behavioural change to protect the environment.

KEY LEARNING:

By collaborating with key players including brands, manufacturers, governments and local communities, we can develop tailored solutions that work within the diverse geographies of the ANZPAC region and contribute towards building circularity in the packaging ecosystem.

FURTHER READING

Regional and global resources are available to link these *Circular Principles for Packaging Design* to the practicality of different markets and offer manufacturers and brands practical support to develop circular packaging across the ANZPAC region.

Want to learn more about designing packaging for a circular economy?

CHECK OUT THESE HELPFUL RESOURCES:

Regional

- ***Australia:*** *Sustainable Packaging Guidelines (APCO)*
- ***New Zealand:*** *RePlastics Design Guide (Plastics New Zealand)*
- ***Pacific Island:*** No specific Design Guides for packaging, but key considerations for the Plastics Treaty negotiations '*Reducing plastic production to achieve climate goals*' (Secretariat of the Pacific Regional Environment Programme)
- *Action Guide to Eliminate Single-Use Plastic Packaging (ANZPAC)*

Global

- *Upstream Innovation – A guide to packaging solutions* (Ellen MacArthur Foundation)
- *Golden Design Rules* (The Consumer Goods Forum)
- *Designing for a Circular Economy* (CEFLEX, re: flexible packaging)
- *Packaging Design for recycling: a global recommendation for circular packaging design* (World Packaging Organisation)
- *PR3 Reuse Standards* (PR3)

Endnotes

1 World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, 2016. The New Plastics Economy: Rethinking the future of plastics. Available at: *https://www.ellenmacarthurfoundation.org/the-new-plastics-economy-rethinking-the-future-of-plastics*

2 Ellen MacArthur Foundation. What is a circular economy? Available at: *https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview#:~:text=It%20is%20based%20on%20three,%2C%20people%2C%20and%20the%20environment.*

3 Boston Consulting Group, Le Mouëllic, M., Ventura, A., Heller, K., Loh, A., Roch, R., Spitzbart, J., & Zanotelli, P., March 2023. Six strategies for designing sustainable products. Available at: *https://www.bcg.com/publications/2023/six-strategies-to-lead-product-sustainability-design*

4 World Economic Forum, June 2023. What can we learn from indigenous people about waste management? Available at: *https://www.weforum.org/agenda/2023/06/indigenous-peoples-modern-waste-management/*

Phys Org, August 2022. Study supports a return to Indigenous-led solutions to reverse plastics pollution. Available at: *https://phys.org/news/2022-08-indigenous-led-solutions-reverse-plastics-pollution.html*

5 ANZPAC Plastics Pact, July 2022. Roadmap to 2025. Available at: *https://anzpacplasticspact.org.au/wp-content/uploads/2022/07/ANZPAC_Roadmap_FV.pdf*

6 ANZPAC Plastics Pact, February 2024. ANZPAC Action Guide to Eliminate Single-Use Plastic Packaging. Available at: *https://anzpacplasticspact.org.au/wp-content/uploads/2024/02/HRZ247_ANZPAC_SUPs-Elimination-List_final-design.pdf*

We thank all ANZPAC Members that contributed to the development of this resource.

GET IN TOUCH

If you have any questions about the ANZPAC Plastics Pact, please contact the ANZPAC Team via anzpac@apco.org.au

FURTHER INFORMATION

anzpacplasticspact.org.au

ANZPAC PLASTICS PACT | PLASTICS PACT