LEARNING CASE

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Environmental Impact of Microplastics: An Australian Scenario

Plastic Pollution Mitigation Policy Framework for the Continent of Australia

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Abstract:

Considering the increasing production of plastics all over the world, handling and managing their disposal in a rational manner is becoming a tedious task. Improper disposal and land filling practices based on political expediency rather than scientific evidence are subsequently causing tremendous damage to environmental ecology and biodiversity. There is an urgent need to curb excessive use of plastics by finding potential solutions based on the 4Rs (Reuse, Replace, Recycle and Refuse). A stringent policy framework is an important aspect to design the rules and regulations for plastic producers, retailers, and consumers to avoid environmental and ecological damage. This section will deal with numerous action plans and policy programs framed by States and Territories of Australia for effective implementation of plastic use. Australian state and territorial governments have the primary responsibility for managing waste plastic through legislation, policy, regulations, strategy and planning, as well as permitting and licensing of waste transport, storage, and treatment and disposal operations. The policy frameworks in each state and territory differ, but there are common themes and some coordination through the Australian Federal Government or through direct discussions and sharing by the states and territories.

Learning objectives:

- Understand the relationship between the policy and plastic mitigation programs.
- Understand the importance of policy and its application on risk management and risk assessment projects for plastic pollution.

Subjects covered:

Plastic pollution mitigation policies, programs and action plans for states and territories of Australia

Setting:

Australian states and territories

DISCLAIMER:

Sincere effort has been made to present accurate information for education purposes. All information in this case study was cited from the recent announcement of National Waste Policy, 2018 by the Ministry of Environment of the Government of Australia, and other research on similar topics.

Australian Government Action on Plastics and Packaging: Policies and Programs

At the Meeting of Environment Ministers on 27 April, 2018, it was announced that a voluntary phase-out of microbeads is on track — with 94% of cosmetic and personal care products in the country now microbead free. Ministers announced that they remain committed to eliminating remaining microbeads, and examining options to broaden the phase-out to other products. Ministers also endorsed a target of 100% of Australian packaging being recyclable, compostable, or reusable by 2025, to be delivered by the Australian Packaging Covenant Organization[1].

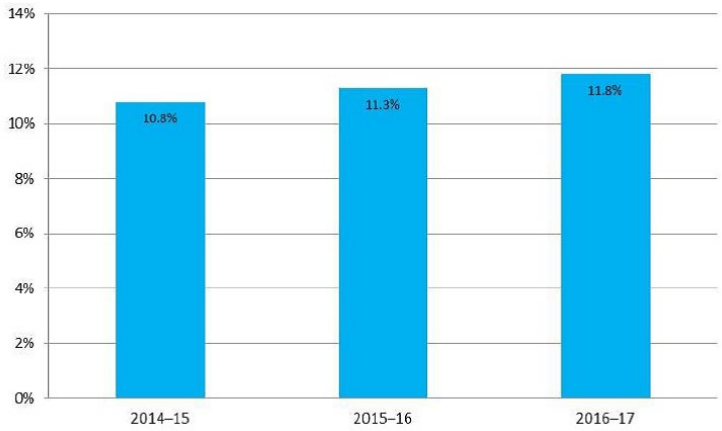

Figure 1. Annual Australian Recycling Rates 2014-15 to 2016-17[2]

National Waste Policy

The National Waste Policy provides a national framework for waste and resource recovery in Australia. It outlines roles and responsibilities for collective action by businesses, governments, communities, and individuals. The National Waste Policy guides continuing collaboration between all Australian governments, businesses, and industries. It does not remove the need for governments, businesses, and industries to implement tailored solutions in response to local and regional circumstances. The first National Waste Policy was published in 2009. An updated National Waste Policy was published in 2018[3].

The 2018 National Waste Policy (Less waste, More Resources) (Fig. 2) provides a framework for collective action by businesses, governments, communities, and individuals until 2030. The 2018 National Waste Policy will guide continuing collaboration between all Australian governments, business, and industry. It does not remove the need for governments, businesses, and industries to implement tailored solutions in response to local and regional circumstances.

The policy identifies five overarching principles underpinning waste management in a circular economy. These include:

- Avoid waste
- Improve resource recovery
- Increase use of recycled material and build demand and markets for recycled products
- Better manage material flows to benefit human health, the environment and the economy
- Improve information to support innovation, guide investment and enable informed consumer decisions.

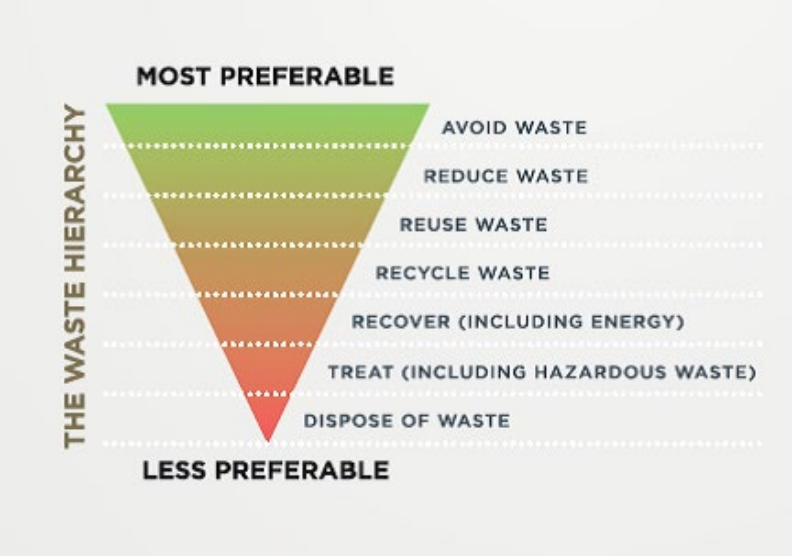

Figure 2. The 2018 National Waste Policy (Less waste, More Resources) Framework[3]

Threat Abatement Plans (TAP)

Threat abatement plans address key threatening processes listed under section 183 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). A key threatening process is 'a process that threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community'. If the environment minister decides, with advice, that a feasible, effective and efficient way of addressing a listed key threatening process is the development of a threat abatement plan, the Australian Government works with stakeholders to develop a plan under section 270A of the EPBC Act. The EPBC Act describes the process, content, and consultation required when making a threat abatement plan[4].

The Australian Government implements actions under threat abatement plans that are its direct responsibility. It also guides the implementation of actions where other groups (e.g. state or territory governments, industry, or community groups) lead the implementation of a threat abatement plan. The Australian Government undertakes the threat abatement planning process with assistance from stakeholders including other governments, scientific experts, industry, non-government agencies, and the community. To progress actions under the threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans, the Australian Government will rely on engagement from all stakeholders involved in this complex problem.

Objectives and Action Plan of TAP

This plan provides national guidance on action to prevent and mitigate the impacts of harmful marine debris on vertebrate marine life through five major objectives:

1. Contribute to long-term prevention of the incidence of marine and aquatic debris
2. Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities, and locations

3. Remove existing marine debris
4. Monitor the quantities, origins, types, and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris
5. Increase public understanding of the causes and impacts of harmful marine debris, including microplastic and hazardous chemical contaminants, to bring about behavior change.

The criteria for success remain consistent with those in the previous TAP and with national indicators for estuarine, coastal, and marine ecosystems:

- A general decline in the presence and extent of harmful marine debris in Australia's marine environment
- A general decline in the number of marine vertebrates dying and being injured from ingestion of and/or entanglement in harmful marine debris, such as microplastics.

Australia is banning plastic bags!

China's 2017 and 2018 announcements restricting imports of particular types and grades of waste materials for recycling has been a major development for the waste and resource recovery sector[5]. This has severely impacted on policy revision for waste management. Hence, Australia has joined a long list of countries taking action against single-use plastic bags with large retailers introducing a charge for reusable ones to encourage shoppers to bring their own.

The Circular Economy

A concept gaining currency in waste policy is the circular economy, which envisages keeping products, components, and materials at their highest utility and value at all times. This contrasts with the 'take, make and dispose' economic model, which relies on plentiful, cheap, and easily accessible materials and energy. Several states and territories of Australia are developing waste policies within a circular economy framework[5].

Concluding Remarks

Given these influences and current trends, how can we expect plastic waste quantities and their management to change into the future?

The long term trend in plastic waste management is towards increasing levels of recycling and driven by public demand and government policy, there is little reason to imagine this will change. Of course, for some materials the cost of recycling is high and the benefits are low. However, there are plenty of wastes for which resource recovery can be significantly increased to the benefit of the community. The high cost of energy is likely to drive the development of energy from waste facilities.

References

[1]Plastics and Packaging. http://www.environment.gov.au/protection/waste-resource-recovery/plastics-and-packaging

[2]2016–17 Australian Plastics Recycling Survey – National report

[3]National Waste Policy. Department of Energy and Environment, Government of Australia. http://www.environment.gov.au/protection/waste-resource-recovery/national-waste-policy

[4]Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans, Commonwealth of Australia 2018'.

[5]Pickin J, Randell P, Trinh J, Grant B. (2018) National Waste Report. Department of Environment and Energy, Australian Government.