Chapter 6

Source reduction – consumer behaviour and infrastructure

6.1 Submitters and witnesses supported the reduction of plastic debris at source in order to address the growing problem of marine plastic pollution. The CSIRO, for example, stated that 'the most effective way to reduce and mitigate the harmful effects of marine debris is to prevent it from entering the marine environment: cleaning up our oceans is a much less practical solution'.[1] Similarly, Professor Tony Underwood commented that, while recognising the contribution of science to identifying solutions, marine plastic pollution is a waste management issue.[2]

6.2 The committee received considerable evidence on source reduction strategies with many submitters supporting the banning of products including microbeads and single-use plastic bags and the introduction of container deposit schemes. Other strategies canvassed in submissions included improvements to stormwater systems, improved product stewardship and greater enforcement of existing regulations targeting waste.

6.3 Many of these strategies operate in conjunction with programs and measures designed to change consumer behaviour, for example, through anti-littering campaigns, and education on recycling and plastic alternatives.

6.4 This chapter will focus on the importance of community awareness and education campaigns, infrastructure to prevent litter moving into the marine environment, and beverage container deposit schemes. Chapter 7 canvasses product stewardship and legislative and regulatory frameworks.

Community awareness and education campaigns

6.5 Community awareness and education campaigns on the threat to marine ecosystems from plastic pollution, key sources of pollution, and source reduction strategies, have been an integral component of threat reduction frameworks. These education campaigns have been implemented in schools and local communities, and there have also been education campaigns targeting specific user groups. Community-based organisations such as Clean Up Australia and the Tangaroa Blue Foundation, and state and territory and local governments have all implemented education campaigns.

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1 CSIRO, *Submission 7*, p. 11.

2 Professor Tony Underwood, *Committee Hansard*, 18 February 2016, p. 23.

6.6 The committee received evidence that education campaigns have proven more effective in reducing marine pollution than clean-up programs. The CSIRO found that education programs and campaigns against illegal dumping have proven particularly successful in reducing the amount of debris found in coastal areas.[3]

6.7 The importance and value of education campaigns was also supported by the Sydney Coastal Councils Group which stated that education and behaviour change programs should be a major focus in developing mitigation strategies. It also suggested that a national educational campaign for plastic avoidance and correct disposal should be developed as it has been found that the promotion of descriptive norms[4] to influence behaviour is valuable in mediating community action and change.[5]

6.8 Mr Kiernan AO, Founder of Clean Up Australia, stated that Clean Up Australia particularly targets young Australians in education campaigns because they are 'the environmental watchdogs' who often encourage parents to make environmentally positive behavioural changes.[6] Similarly, Ms Rowan Hanley, Committee member for the Northern Beaches Branch of the Surfrider Australia Foundation, informed the committee that programs in schools can be particularly useful because 'it feeds into a much larger educational understanding and awareness'.[7]

6.9 The value of community awareness has also been recognised by the Australian Government with a number of organisations providing evidence of educational campaigns being delivered. For example, the CSIRO pointed to its school-based education campaigns. It stated:

> We also developed curriculum content using marine debris as a teaching tool for science and mathematics to meet the Australian national curriculum guidelines. CSIRO scientists inspired students to explore their world through science in ways that were meaningful and relevant, motivated teachers through innovative learning, and helped increase capacity and networks for educators and citizen scientists, in Australia and

3 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', p. 11; see also CSIRO, *Submission 7*, Appendix 3, 'Input to Department of Environment Threat Abatement Plan', p. 11.

4 Descriptive norms are typical patterns of behaviour, which are generally accompanied by the expectation that people will behave accordingly. These norms are generally informal and emerge through social interaction rather than being enforced by the criminal justice system or other formal authority.

5 Sydney Coastal Council Groups Inc., *Submission 8*, p. 6.

6 Mr Ian Kiernan, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 38.

7 Ms Rowan Hanley, Surfrider Foundation Australia, *Committee Hansard*, 18 February 2016, p. 62.

> beyond…Overall, we reached more than one million Australians, helping to educate them about and increase their understanding of marine debris.[8]

6.10 Similarly, the Great Barrier Reef Marine Park Authority (GBRMPA) noted that under the Reef Trust Fund's Great Barrier Reef Marine Debris Clean-Up project, funds had been allocated to 'presentations to key stakeholders, school activities, community clean-up days, source reduction workshops and community installations'.[9] It explained that $90,000 had been allocated to marine plastic source reduction awareness campaigns with local communities and stakeholders within the Great Barrier Reef catchment, including source reduction workshops delivered by the Tangaroa Blue Foundation. GBRMPA also stated that $10,000 had been allocated to engage with Reef Guardian Schools to promote awareness. A further $94,000 has been allocated to targeted marine debris communications throughout the operation of the Reef Marine Debris Clean-Up project.[10]

6.11 Local government is also active in increasing awareness of the effects of litter and debris and reduction at source. Dr Madhu Pudasaini, Manager, Technical Support from the Liverpool City Council, commented that local governments regularly provide education programs. However, Dr Pudasaini went on to note that resourcing for education programs remains a challenge. He stated that:

> One of the agendas in our water quality improvement strategy is to focus on the community education source control—that is what I call it—because that is a more sustainable way of reducing litter in our system. If people are aware of those things it becomes a culture in households. That gets carried over from generation to generation, so it is a more sustainable way of reducing litter. We are trying to focus on that. Again, funding can be challenging for us, but we are trying to look at every opportunity to implement those initiatives.[11]

6.12 The committee received evidence in support of education campaigns targeting particular user groups. For example, the Sydney Coastal Council Group submitted that education campaigns should be targeted at specific user groups such as boat users, fishers, and beach visitors.[12] The National Environmental Law Association also supported the use of targeted campaigns.[13]

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8 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', pp. 10–11.

9 Great Barrier Reef Marine Park Authority, answers to questions on notice, 10 March 2016, (received 24 March 2016), p. 2.

10 Great Barrier Reef Marine Park Authority, answers to questions on notice, 10 March 2016, (received 24 March 2016), p. 2.

11 Dr Madhu Pudasaini, Liverpool City Council, *Committee Hansard*, 18 February 2016, p. 42.

12 Sydney Coastal Council Groups Inc., *Submission 8*, p. 7.

13 National Environmental Law Association, *Submission 132*, p. 14

6.13 OceanWatch Australia is one group engaged in education campaigns specifically targeting the recreational fishing community and the issues around the disposal of fishing line. Mr Brad Warren, Executive Chair of OceanWatch Australia, stated that the *T'Angler Bin* campaign was designed to raise awareness, as well as providing a responsible method of fishing line disposal.[14] Mr Warren stated that through raising awareness and fostering a sense of fishing location stewardship, OceanWatch Australia is attempting to influence people to do the right thing.[15] Mr Warren also told the committee that OceanWatch Australia ran a campaign regarding responsible crabbing practices which included television ads and community outreach.[16]

6.14 OceanWatch Australia noted that it has engaged with the commercial fisheries and aquaculture industries in order to influence behavioural changes. It has developed codes of practice and environmental management systems with a number of seafood producers. However, Mr Warren commented that at a forum with representatives from the fisheries sector, there was a lack of understanding of the potential implications of marine plastic pollution.[17] Mr Warren stated:

> …we held a national fishing and aquaculture forum in June 2014, bringing together 20 representatives of commercial, recreational and Indigenous customary fishing sectors, and aquaculture operators from around Australia. While marine debris was identified as a threat to the health of the marine environment, when participants were asked to prioritise the identified threats not one vote out of the total of 54 votes cast was assigned to marine debris.[18]

6.15 A number of community-based organisations provided evidence that they are also undertake awareness-raising and education campaigns on the issue of marine plastic pollution. For example, Ms Heidi Taylor, Managing Director, stated that the Tangaroa Blue Foundation has an education program on its website that is aligned to the national curriculum and also runs school presentations whenever it can. Ms Taylor concluded that education was vital but it could be not relied upon to 'fix this problem'.[19]

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14 Mr Brad Warren, OceanWatch Australia, *Committee Hansard*, 18 February 2016, p. 61; see also OceanWatch Australia, *Submission 75*, p. 7.

15 Mr Brad Warren, OceanWatch Australia, *Committee Hansard*, 18 February, p. 61.

16 Mr Brad Warren, OceanWatch Australia, *Committee Hansard*, 18 February, p. 63.

17 Mr Brad Warren, Oceanwatch Australia, *Committee Hansard*, 18 February 2016, p. 63.

18 Mr Brad Warren, Oceanwatch Australia, *Committee Hansard*, 18 February 2016, p. 58.

19 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 33.

6.16 However, the committee received evidence that in order to effect further reductions in the amount of plastic debris, adequate funding for education campaigns, particularly those provided by not-for-profit organisations, is necessary. Australian Seabird Rescue stated:

> More funding for non-profit groups to increase education and awareness is so important and funding has dropped dramatically over the last ten years. It is difficult for wildlife rescue groups to find the time to fundraise as well as caring for the creatures affected by plastic pollution.[20]

6.17 Ms Susie Crick, Board Member of the Surfrider Foundation Australia told the committee that the community:

> …want funding and subsidising for educational programmes and advertising. They want state government run advertising, information and education programs to shine a big light on this program so that everybody is informed. People will comply with anything once they know the reason why. Nobody wants to pollute.[21]

6.18 Similarly, Ms Taylor noted the funding constraints around providing education campaigns and commented that 'it is a funding thing for us as well. We try to maximise our dollars so that they go as far as possible, but we cannot cover everywhere in Australia'.[22]

6.19 Mr Warren stated that as a federally recognised Natural Resources Management (NRM) organisation, OceanWatch Australia currently receives funding under the National Landcare Programme. Administration and funding is a joint undertaking by the Department of Agriculture and Water Resources, and the Department of the Environment. However, Mr Warren noted that OceanWatch is the only NRM which does not receive funding from the Department of the Environment. This is despite being the 'first and only national marine focused NRM organisation'.[23]

Improvements to infrastructure

6.20 Infrastructure such as stormwater drainage systems and rubbish bins are both contributors to the problem of plastic pollution in the marine environment, and important source reduction measures. Stormwater drainage systems in particular are known to facilitate the transport of plastics from the urban environment into the marine environment. However, the installation of infrastructure such as gross pollutant traps provides an opportunity for urban litter to be collected and removed before it reaches the marine environment.

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20 Australian Seabird Rescue, *Submission 80*, p. 5.

21 Ms Susie Crick, Surfrider Foundation Australia, *Committee Hansard*, 18 February 2016, p. 62.

22 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 33.

23 Mr Brad Warren, OceanWatch Australia, *Committee Hansard*, 18 February 2016, p. 58.

6.21 Similarly, litter which overflows from public rubbish bins has also been found to contribute to marine plastic pollution. However, the provision of public rubbish bins has also been found to change consumer behaviour, and reduce levels of littering.

Stormwater systems

6.22 The committee received evidence that stormwater systems provide a well-recognised pathway for urban litter to reach the marine environment.[24] For example, Mr Kiernan told the committee that:

> …whatever you drop on the ground, whether it be on a mountaintop or a beach or a riverside, has every chance of ending up driven by the stormwater system through the rivers and creeks into the world's oceans, where it accumulates.[25]

6.23 Associate Professor Mark Osborn, provided a case study which explained the extent of litter transported by stormwater systems:

> Across Melbourne, stormwater systems (comprising ~1,400 km of drains around Melbourne, including over 300 stormwater drains emptying directly into the bay) transport rainwater runoff and flush our litter into creeks, rivers and ultimately into Port Phillip. The extent of this litter transport is evidenced by the need for frequent, sometimes daily emptying of Parks Victoria litter traps on the Yarra River and that the Victorian government spent $80 million in 2012/13 alone on removing litter, including the removal of over 7,800 tons of litter and debris (including plastics) from Melbourne waterways.[26]

6.24 Since the 1990s stormwater treatment devices designed to remove plastic pollution from waterways have been deployed by local councils.[27] These include gross pollutant traps (GPT) which are designed to trap and isolate pollutants, only allowing filtered stormwater to continue on to the marine environment. There are a variety of gross pollutant traps available, and they can remove contaminants such as litter, oil, grit, and sediment.

6.25 The stormwater system in Australia is generally the responsibility of local government with Mr Nari Sahukar, from EDOs of Australia, commenting that local councils 'are often on the front line' in responding to the issue.[28]

6.26 This was supported by evidence provided by Dr Pudasaini who stated that the Liverpool City Council has installed 114 GPTs, and has assessed that a further 150 are required to adequately manage stormwater in the Liverpool area. Dr Pudasaini

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24 This is further discussed in Chapter 2.

25 Mr Ian Kiernan, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 32.

26 Associate Professor Mark Osborn, *Submission 16*, p. 2.

27 SPEL Environmental Integrated Water Solutions, *Submission 138*, p. 4.

28 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 62.

acknowledged that 'when it comes down to implementation it is a huge cost burden to council. It is outside the capacity of local government areas'. Dr Pudasaini commented that:

> My rough estimate of 150 GPTs is about $20 million in capital investment and various ongoing costs associated with cleaning the GPTs. We are also talking about other devices that can improve water quality in our river system. That is the sort of cost we are talking about.[29]

6.27 Dr Pudasaini explained that the Liverpool City Council currently collects $1.2 million per annum through a stormwater levy. However this levy is used to service the entirety of the stormwater system, rather than gross pollutant traps specifically. Dr Pudasaini estimated that the Liverpool City Council spends $300,000 per annum (on average) for the installation of new gross pollutant traps.[30] In addition to capital costs, maintenance costs are also an issue. The Liverpool City Council is currently undertaking a review of its cleaning regime. Dr Pudasaini explained:

> …we normally clean them every three months. At the moment we are reviewing that and the effective frequency of cleaning and the costs involved. We are looking at optimising that process. For example, in the rainy season we may need to clean more frequently than in autumn or when there is not much rain.[31]

6.28 While it was recognised that stormwater infrastructure has improved, witnesses pointed to continued concerns with current systems. Professor Underwood, for example, commented that:

> …we have improved immensely over the last 30 years with stormwater outfalls, trapping of waste and so on. But I am not sure we are doing it well enough. Even in those things, if you have a big storm, a lot of material goes out of the traps and into the sea. It solves a day-to-day running issue, but I do not know if anyone has evaluated how much is still going out. So I think there are areas where we still need substantial improvement.[32]

6.29 A further issue raised was that of the costs associated with gross pollutant costs which act as a disincentive for councils. SPEL Environmental Integrated Water Solutions submitted:

> Many Councils are actively discouraging the implementation of these devices [gross pollutant traps] in their area because they don't have an adequate budget to empty the litter once it is captured. SPEL feels that this is a false economy that simply shifts the cost from the catchment management 'silo' to the beaches 'silo'.[33]

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29 Dr Madhu Pudasaini, Liverpool City Council, *Committee Hansard*, 18 February 2016, p. 41.

30 Dr Madhu Pudasaini, Liverpool City Council, *Committee Hansard*, 18 February 2016, p. 41.

31 Dr Madhu Pudasaini, Liverpool City Council, *Committee Hansard*, 18 February 2016, p. 42

32 Professor Tony Underwood, *Committee Hansard*, 18 February 2016, p. 12

33 SPEL Environmental Integrated Water Solutions, *Submission 138*, p. 5.

6.30 SPEL Environmental Integrated Water Solutions recommended that the Australian Government develop policy to ensure that gross pollutant traps are installed on all stormwater outfalls, and that the maintenance of these devices be ensured. It also commented that incentive and grant schemes would encourage the implementation of gross pollutant trap projects.[34] SPEL also recommended that effective management of water catchments should occur at a regional level as this would prevent the 'ad hoc planning observed with Council boundaries that pay no regard to catchment boundaries'.[35]

6.31 The problems with the maintenance of GPTs was also noted by Professor Smith who commented that while most coastal local councils have protocols for removing accumulated debris from GPTs, these are not often met due to staffing and/or funding issues. In addition, Professor Smith commented that recent research indicated that GPTs were effective in removing larger items of debris from stormwater but this was not the case for smaller items which are more likely to be ingested by wildlife.[36]

6.32 SPEL Environmental Integrated Water Solutions commented that the 'stormwater industry has a range of innovative measures available for its practitioners to use to capture plastic pollution and improve water quality'. These measures were developed in response to the regulatory requirement to remove gross pollutants from Port Phillip Bay and Sydney Harbour. SPEL explained that the EcoRecycle and Stormwater Trust NSW funded the introduction of innovative proprietary designed gross pollutant traps across Australia. SPEL encouraged the Australian Government to provide leadership and require the national implementation of innovative gross pollutant traps which comply with both domestic and international protocols.[37]

6.33 Stormwater Australia also stated that 'there should be a level of investment in complementary technologies that trap and retain litter and make the management of the water flowing towards marine environments more effective'.[38] However, as noted by Tangaroa Blue, retrofitting of existing systems is expensive 'so that it is not as common as it should be'.[39]

6.34 The value of gross pollutant traps in reducing pollution, has been acknowledged by the Australian Government, and the Department of the Environment

34 SPEL Environmental Integrated Water Solutions, *Submission 138*, p. 7.

35 SPEL Environmental Integrated Water Solutions, *Submission 138*, p. 6.

36 Professor Stephen Smith, *Submission 27*, pp. 6–7.

37 SPEL Environmental Integrated Water Solutions, *Submission 138*, p. 6. See also Take 3, *Submission 72*, p. 4.

38 Stormwater Australia, *Submission 67*, p. 2.

39 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 29.

committed $1 million over four years from 2014–2018 for the installation of floating litter traps in the lower Yarra River, and raising community awareness.[40]

6.35 In 2015, the Senate Environment and Communications References Committee conducted an inquiry into stormwater management in Australia. This inquiry examined a number of issues including the implementation and management of stormwater infrastructure, and associated government policy. The committee made a number of recommendations, including the implementation of a National Stormwater Initiative and new funding models.[41]

Rubbish bins

6.36 Like stormwater systems, public rubbish bins can be a source of marine plastic pollution, and an important mitigation measure. The widespread implementation of infrastructure such as rubbish bins can encourage significant changes in consumer behaviour, and result in a reduction of marine plastic pollution.

6.37 The committee received a number of submissions which provided anecdotal evidence of the amount of plastic pollution which escapes into the marine environment from overflowing bins, or when rubbish bins are emptied. For example, Ms Erin Rhoads submitted that:

> While there are bins around the [Maribyrnong] river I believe the fundamental cause of the plastic pollution to be from rubbish brought down to the river from local households during storms, rain or high winds… Most of the trash I pick up is either done on a Thursday and Friday after the garbage and recycling bins have been collected. Bins up and down the street are full to overflowing.[42]

6.38 Similarly, Mr Robert McAlpine stated bins in his area of Wollongong are frequently blown over and spill rubbish which is subsequently blown into the ocean.[43] Professor Stephen Smith also commented on the problems with rubbish escaping from bins and submitted that:

> …even if people "do the right thing" placing items in the bins provided, these items may be transported onto the beach through: strong winds which lift the lids and mobilise lighter items; birds and animals that scavenge and remove items.[44]

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40 Department of the Environment, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 46.

41 See Senate Environment and Communications References Committee, *Stormwater Management in Australia*, December 2015.

42 Ms Erin Rhoads, *Submission 162*, p. 1.

43 Mr Robert McAlpine, *Submission 122*, p.1.

44 Professor Stephen Smith, *Submission 27*, p. 6.

6.39 A number of submitters identified that the regular emptying of public rubbish bins is crucial in reducing the amount of plastic pollution escaping into the marine environment. For example, Professor Smith stated that the frequency of emptying bins is a key issue but this is 'often too low to deal with the rate of disposal leading to the placement of items outside the bins where they are more likely to be blown/transported into coastal habitats'.[45] Professor Smith added that 'flexible management by Councils, such as more frequent servicing during busy periods or at sites where litter disposal rates are high' could reduce the amount of pollution.[46]

6.40 An example of the problems of overloaded bins in popular areas was highlighted by Mr Dave West, Environmental Economist advising Clean Up Australia. Mr West told the committee that:

> …we have to recognise is that littering is not largely the 'tosser' any more. Government campaigns on that have had a profound effect.
>
> You would be staggered at the level of what we call 'bin bounce'. Go down to Darling Harbour at lunchtime. You cannot empty that bin fast enough, and bottles go 'ptoing!'. They hit the concrete and then they are down there. Or people put their bag down to eat their lunch and it blows away.[47]

6.41 However, despite the evidence that rubbish bins may be contributing to marine plastic pollution, the committee also received evidence that targeted infrastructure can in fact reduce pollution levels. Coca-Cola Amatil highlighted the 2008 *Litter Management in Australia* report published by the then Environment Protection and Heritage Council which found that of those surveyed, the most common reason given for littering was 'no bin nearby'.[48] Similarly, the Australian Food and Grocery Council submitted that 'research and studies have found that littered areas attract more litter'.[49]

6.42 The CSIRO told the committee that research into state, territory, regional and local government infrastructure, policy and expenditure has identified that coastal rubbish bins have been found to significantly reduce the amount of plastic pollution reaching the ocean. The CSIRO also explained that further research is being

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45 Professor Stephen Smith, *Submission 27*, p. 6.

46 Professor Stephen Smith, *Submission 27*, p. 6.

47 Mr Dave West, environmental economist advising Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 39.

48 Coca-Cola Amatil, *Submission 192*, p. 4. See also, Environment Protection and Heritage Council, *Litter Management in Australia*, November 2008, http://www.nepc.gov.au/system/files/resources/020c2577-eac9-0494-493c-d1ce2b4442e5/files/wastemgt-rpt-litter-management-australia-200811.pdf, (accessed 31 March 2016), p. 4.

49 Australian Food and Grocery Council, *Submission 193*, p. 5.

conducted in order to assess the cost-effectiveness of local, regional and state initiatives. [50]

Container deposit schemes

6.43 Container deposit schemes (CDS) refer to programs for the collection of used beverage containers in exchange for a small amount of cash (for example, 10 cents per container). Containers can be returned to manufacturers via retailers, collected at designated depots, returned though reverse vending machines, or recovered as part of existing waste or recycling collection systems. Both South Australia and the Northern Territory have successfully implemented container deposit schemes.[51]

6.44 Previous iterations of the Environment and Communications Committee have conducted inquiries into the implementation, and management of container deposit schemes. These inquiries received evidence both in support of, and in opposition to, container deposit schemes. The committees found that there was widespread community support for such schemes and that there was generally evidence to support the claim that the schemes reduced litter in the environment. However, there were concerns raised regarding potential associated costs of operation both to manufacturers, retailers, consumers, and the broader community. There were also concerns regarding a lack of consensus on an appropriate model for implementation.[52]

6.45 The committee accepts the findings of these previous inquiries and has chosen to examine the evidence provided in the context of identifying mitigation strategies to reduce the threat of marine plastic pollution.

6.46 Container deposit schemes work on littering behaviour by providing 'an incentive for people to change their behaviour to try and redeem the reward'.[53] Not only is the person consuming the beverage encouraged to hold onto the empty container for later redemption, but also other people are provided with an incentive to pick up littered containers to receive the redemption. This increases the number of beverage containers entering the recycling stream rather than landfill or litter, and ultimately the marine environment.

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50 CSIRO, *Submission 7*, p. 16.

51 For more information on the operation of these schemes see http://www.epa.sa.gov.au/environmental_info/container_deposit and http://www.ntepa.nt.gov.au/container-deposits.

52 See Senate Environment and Communications References Committee, *Operation of the South Australian and Northern Territory container deposit schemes*, November 2012; Senate Environment, Communications and the Arts Legislation Committee, *Environment Protection (Beverage Container Deposit and Recovery Scheme) Bill 2009*, September 2009; and Senate Standing Committee on Environment, Communications and the Arts, *Management of Australia's waste streams (including consideration of the Container Recycling Bill 2008)*, September 2008.

53 Australian Food and Grocery Council, *Submission 193*, p. 6.

6.47 The following discussion canvasses the effectiveness of CDSs in reducing marine plastic pollution and community and government support for CDSs. The various models of CDSs are outlined and the evidence provided by industry is examined.

Effectiveness of container deposit schemes

6.48 The Total Environment Centre submitted that the single largest source of marine plastic pollution is beverage sector waste, with plastic bottles, lids, straws and cups representing about half of the material (by volume) in the litter stream, and 60 per cent of all plastic rubbish recovered from beaches and waterways.[54] Similarly, Dr Britta Denise Hardesty, CSIRO, commented that beverage containers make up a significant proportion of litter found in coastal areas. Dr Hardesty stated:

> Globally, it is approximately 40 per cent of all the litter that is found in coastal areas. That is based upon several decades of clean-up data through the International Coastal Cleanup. Within Australia, we find similar amounts that are beverage industry associated.[55]

6.49 Apart from South Australia and the Northern Territory, 'the predominant form of recycling is kerbside collection…which captures material that is consumed largely at home'. Mr Ian Kelman, Executive Officer of the Association of Container Deposit Scheme Operators, commented that kerbside recycling 'does not capture material consumed in clubs, pubs, entertainment and sporting venues' and this material generally goes into landfill or is littered.[56]

6.50 As has previously been noted, the CSIRO has conducted an analysis of litter found in Australian coastal areas. The results of this analysis indicate that in states which have implemented beverage CDSs there is a noticeable reduction in this type of litter. Dr Hardesty stated:

> We used the Clean Up Australia Day data from 2012 and did an analysis across all the different sites and all the states and territories. What we find is that there is a highly significant difference in the number of beverage container items in South Australia, compared to the other states and territories. For example, in some of the other states and territories, one of three items that you pick up on the beach would be a beverage container—we limited it very strictly to caps, glass bottles, plastic bottles and aluminium cans. When you look in South Australia, it is one in 12 items that you find. That is a very notable difference, and it is a highly statistically significant difference. It would appear that that could be correlated with the existing container deposit scheme in South Australia.[57]

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54 Total Environment Centre, *Submission 1*, p. 5.

55 Dr Britta Denise Hardesty, CSIRO, *Committee Hansard*, 26 February 2016, p. 2.

56 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 73.

57 Dr Britta Denise Hardesty, CSIRO, *Committee Hansard*, 26 February 2016, p. 2.

6.51 The CSIRO concluded that South Australia's CDS was 'very successful, reducing the number of beverage containers, the dominant plastic item in the environment, by a factor of three'.[58]

6.52 CDSs have been implemented in forty other jurisdictions around the world. Professor Smith commented that 'container deposit schemes have been shown to be effective everywhere they have been introduced'.[59] Mr Angel added that CDSs provide a means to address a large percentage of marine plastic pollution quickly and effectively as overseas schemes have proven.[60]

6.53 Witnesses commented on the expected benefits of the implementation of a CDS by all states and territories. Mr Kelman explained that a national CDS could be estimated to remove an additional 35,000 tonnes from the waste stream. This material is currently either littered or disposed of in landfill. Mr Kelman stated that globally, CDSs achieve a recycling capture rate of between 80 and 96 per cent of beverage containers. This is in comparison to the overall recycling rate of 42 per cent currently achieved in Australia.[61]

6.54 Mr Kelman also noted that in New South Wales, 44 per cent of the volume of litter recorded is estimated to be waste associated with the beverage container industry. The introduction of a CDS could reduce the volume of litter by up to 40 per cent, in line with the New South Wales Government litter reduction target.[62]

6.55 The benefits of introducing a CDS are also seen in the differences in recycling rates between South Australia and New South Wales:

> In South Australia the recycling rates are as high as 85 per cent. In the Northern Territory the diversion from landfill is coming to millions and millions of containers. In New South Wales we are lucky to get 35 per cent. In Tasmania you are lucky to get 30 per cent.[63]

6.56 Clean Up Australia noted that improved recycling rates with CDSs are due in part to addressing 'the most problematic aspect of the waste stream—providing both the collection infrastructure and interface with consumers to address away from home

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58 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', p. 11.

59 Professor Stephen Smith, *Committee Hansard*, 18 February 2016, p. 7.

60 Mr Jeff Angel, Total Environment Centre, *Committee Hansard*, 18 February 2016, p. 48.

61 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 73.

62 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 73.

63 Ms Terrie-Ann Johnson, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 36.

consumption i.e. hospitality outlets, public venues and recreational consumption'. In these areas recycling rates are very low, often less than 10 per cent.[64]

Community support for beverage container deposit schemes

6.57 The committee received over 100 submissions supporting the introduction of a national CDS. In addition to the submissions, the committee also received approximately 700 form letters calling, in part, for the introduction of a national scheme.

6.58 Clean Up Australia submitted that market research conducted by Newspoll for both Clean Up Australia and the Boomerang Alliance has shown high levels of community support for CDSs over the past decade. It commented that the most recent poll conducted in February 2015 showed that 85.10 per cent of respondents supported the introduction of CDSs.[65]

6.59 Clean Up Australia also submitted that in follow-up activity conducted with clean-up volunteers, discontent has been expressed in the perceived lack of leadership in developing and implementing plastic pollution mitigation measures, including CDSs. Ms Johnson commented further:

> There is petition after petition being run around the country…for the integration of container deposits. They are looking for assistance on being able to bring in preventative measures, because there is a level of fatigue on cleaning it up. We are actually working with people now on preventing it in the first place.[66]

6.60 A number of witnesses also highlighted the additional benefits arising from the introduction of a CDS. Mr Sahukar told the committee that container deposit schemes have been proven successful because they 'internalise the costs of littering and create community incentives to recycle more'.[67] The encouragement of widespread community-based litter collection and recycling was also noted by Mr Angel from the Total Environment Centre, who stated:

> The point about container deposits that attracts us very strongly is that you are essentially creating hundreds of litter collectors out there every week looking for the empty containers that have a 10 cent refund on them. You do not actually have to pay anybody—the system motivates that collection and the 10 cent refund changes behaviour, where some people may say, 'I am not going to throw it away anymore, because I want my 10 cents back.[68]

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64 Clean Up Australia, *Submission 9*, p. 7.

65 Clean Up Australia, *Submission 9*, pp. 4–5.

66 Ms Terrie-Ann Johnson, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 40.

67 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 66.

68 Mr Jeff Angel, Total Environment Centre, *Committee Hansard*, 18 February 2016, p. 50

6.61 Mr Kelman also commented that in South Australia the introduction of a CDS has resulted in a 'cultural phenomenon' where:

> …individuals…perhaps pensioners or homeless people in those areas, have an area of the state which is their turf, as they describe it. It might be a couple of beaches or a few parks. That individual generally goes through the area and collects whatever empty containers they can. They obviously make some additional income for themselves.[69]

6.62 Community groups have also benefited from the implementation of container deposit schemes. In particular, Beachpatrol Australia pointed to the Scouts in South Australia who have been able to generate significant profits through engagement with CDSs.[70]

State and territory, and local government support for container deposit schemes

6.63 As has already been noted, South Australia and the Northern Territory have both established state-based CDSs. Other states are currently investigating the implementation of such schemes.

6.64 South Australia established a CDS in 1977, which is now administered under the state's *Environment Protection Act 1993*. In 2011, the Northern Territory also passed legislation to establish a CDS which commenced in 2012. The Northern Territory scheme was designed to operate in alignment with the South Australian CDS. In 2011, an Intergovernmental Agreement was signed between the South Australian and Northern Territory governments which provided for mutual assistance, and where possible, alignment of each jurisdiction's CDS. This Agreement also called for the promotion of consistency in the regulation, development and administration of the schemes, in particular ensuring that similar types of containers are regulated.[71]

6.65 On 12 February 2015, the New South Wales Premier, the Hon Mike Baird MP, announced that New South Wales will implement a CDS by July 2017. The CDS is designed to complement litter reduction strategies currently implemented under the $465.7 million project, *Waste Less, Recycle More*.[72] The NSW Government is

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69 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, pp. 73–74.

70 Beachpatrol Australia, *Submission 168*, p. 3. See also: Environment Protection Authority South Australia, http://www.epa.sa.gov.au/environmental_info/container_deposit/testimonials.

71 Northern Territory Environment Protection Authority, *Review of containers regulated under the NT Container Deposit Scheme*, February 2014, p. 8, http://www.ntepa.nt.gov.au/__data/assets/pdf_file/0006/352815/cds_review_containers_report_rawtec.pdf, (accessed 10 March 2016).

72 New South Wales Environment Protection Authority, http://www.epa.nsw.gov.au/waste/cds-intro.htm, (accessed 10 March 2016).

currently exploring CDS models, governance, and alignment with other state and territory jurisdictions.[73]

6.66 Similarly, the Queensland Department of Environment and Heritage Protection established an Advisory Group in 2015 to investigate state-based options for the implementation of a CDS. Recommendations from the Advisory Group are expected to be released in early 2016.[74]

6.67 Support for the implementation of CDSs has also come from local governments. Dr Pudasaini commented that the Liverpool City Council is:

> …actively lobbying to get a container deposit scheme implemented. We really want to get that implemented ASAP, and the state government has got a plan to do that from 1 July 2017. We are actively participating in the discussion on how that could be implemented effectively. Any forum that gives us an opportunity to raise this and talk about what we experience we participate in.[75]

6.68 In discussing state and territory support for the implementation of CDSs, Mr West noted that over the past 12 years, 'every single opposition [party] has been pro container deposits' however once in government, they continue to express support for such schemes but:

> …play a disingenuous game of "We would like a national scheme. Oops—the national scheme did not get up!" The national leadership—rightfully—says it's the state's responsibility and we didn't get an accord.' And it bounces backwards and forwards, backwards and forwards.[76]

Container deposit scheme models

6.69 The committee received evidence on the relative effectiveness of a variety of CDS models. The committee also received evidence on the costs associated with these models.

6.70 CDSs operate through a system where a deposit value is added to the cost of a beverage, and this deposit is redeemed when the container is returned to a collection point. In South Australia and the Northern Territory the deposit is 10 cents per

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73 New South Wales Environment Protection Authority, *NSW Container Deposit Scheme: Discussion Paper*, 19 December 2015, http://www.epa.nsw.gov.au/resources/waste/container/150286-CDS-discussion-paper.pdf, (accessed 10 March 2016).

74 Queensland Department of Environment and Heritage Protection, https://www.ehp.qld.gov.au/waste/container-deposit-scheme.html, (accessed 10 March 2016).

75 Dr Madhu Pudasaini, Liverpool City Council, *Committee Hansard*, 18 February 2016, p. 41.

76 Mr Dave West, environmental economist advising Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 36.

container, but in Europe the deposit is much higher, up to 25 Euro cents, about A35c to A40c.[77]

6.71 Mr Kelman described the deposit as the 'primary mechanism' of a CDS. The deposit is 'an incentive to retain that container' rather than letting it enter the waste stream or become litter.[78] Mr Kiernan similarly stated 'instead of seeing some waste on the beach, beside the road or in the park, you are seeing money'.[79]

6.72 Ms Johnson commented that incentive-based models are 'world's best practice' and that:

> It is a well-worked model and it encourages people so that even if you leave it to one side you can be sure that some smaller person will go and collect that for you because they want that 10c. It puts a value on the container.[80]

6.73 Mr Kelman highlighted the importance of establishing infrastructure for the collection of containers, and the ability for consumers to redeem their deposit. The operation of return mechanisms such as reverse vending machines, and container recycling depots can either fall under the jurisdiction of the beverage industry, the retail sector, or private sector operators. Mr Kelman provided examples from a variety of jurisdictions. For example, Norway sets:

> …a target rate for recycling, and if the industry does not achieve that target rate then the industry is taxed a certain amount. So the industry have an incentive to make sure that they reach their target, which is in the range of 90 per cent return rates. The industry then manage the scheme on their own. They run the scheme and have a private organisation that operates it. That organisation then buys reverse vending machines from the market. They have other people operate those systems and, again, they apply a handling fee for that service by the recycling sector.[81]

6.74 This is in comparison to what Mr Kelman described as jurisdictions which apply a 'retailer obligation' which requires retailers having an obligation to recover containers which have been purchased wholesale from producers and brand owners. For example:

> In Europe…you will generally find that reverse vending machines and automatic collection centres are established inside the Aldi or the Lidl supermarket itself. Consumers will go in and dispose of their containers

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77 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 74.

78 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 73.

79 Mr Ian Kiernan, Clean Up Australia *Committee Hansard*, 18 February 2016, p. 32.

80 Ms Terrie-Ann Johnson, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 35.

81 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 74.

> through the reverse vending machines. At the back of the machine are a whole lot of sorting and compaction conveyors et cetera which put the materials straight into a certain bin—an aluminium bin, a three colours of glass bin et cetera. They get a coupon, which they then take to the checkout, and they get that redeemed amount of deposits—if they put 10 bottles in, let's say it is 2.5 euros, and they will get that discounted off their shopping.[82]

6.75 Globally, CDS infrastructure is paid for through private sector investment. This investment is achieved through the payment of handling fees. Mr Kelman stated that:

> Every container has a 10c deposit placed on it that the consumer pays and gets back. In addition to that, in New South Wales there is likely to be something like 3½c to 4½c per container that is recouped by the private sector operator via either a manual depot or, potentially, an automated reverse vending machine or some facility like that...Every scheme in the world has a payment system to the private sector to collect.[83]

6.76 There are a number of different ways to set handling fees under CDSs. In some jurisdictions, handling fees are mandated by legislation, while others are negotiated between beverage manufacturers and recycling companies. However, Mr Kelman argued that a CDS can be managed at a neutral cost through unredeemed deposits, and offsets to handling fees through the sale of collected material. Mr Kelman stated that:

> …for 100 per cent of containers that are sold, the consumer pays a deposit. An 80 per cent return rate, as occurs in South Australia, means that you have got 20 per cent of deposits that have been paid but not redeemed by the consumer. That is a considerable amount of money. In New South Wales I think they are working on the basis of 4.5 billion containers; that is $450 million worth of deposits. Twenty per cent of $450 million is $90 million worth of unredeemed deposits. That then offsets the producer's handling fees.[84]

6.77 Mr Kelman explained that in South Australia, collected material has been valued at 2 cents per container. This money, in addition to the amount collected through unredeemed deposits, can result in a scheme which should be cost neutral to the producer.[85]

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82 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 74.

83 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 74.

84 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 75.

85 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 75.

6.78 Costs can also be reduced through technological efficiencies. Mr Kelman told the committee that the net handling fee in South Australia (after the use of unredeemed deposits) is 5 cents per container as 'it is a manual scheme and it has not automated…with all the efficiencies and cost gains as a result of that'.[86] Mr Kelman told the committee that there are currently 100,000 automated reverse vending machines operating globally, and that the majority operate on a coupon system. Coupons are able to provide a refund while reducing the risk of vandalism to the machine which may occur if cash refunds were provided. Reverse vending machines also play a pivotal role in data collection as they are able to scan a barcode and report back to a central system which allows for the invoicing of the brand owner.[87]

Industry views

6.79 The committee received evidence that the Australian beverages industry 'recognises that marine plastic pollution is a complex and very real problem and therefore needs an informed and considered approach to any solutions framework'.[88] However, there is widespread industry concern that 'in 2016, we must be beyond litter and recycling models that are nearly 50 years old'.[89] Mr Kelman told the committee that in relation to the implementation of container deposit schemes, 'Coca-Cola are very much a driver of the opposition globally'.[90]

6.80 In particular, Coca-Cola Amatil raised concerns with the associated costs of refund-based container deposit schemes and commented on the proposed CDS in New South Wales. While stating that 'the first priority of any waste solution must be a cleaner NSW', it went on to comment that:

> …we believe it must also minimise the cost impact on consumers and industry, avoid duplication of existing waste collection and disposal infrastructure and ensure NSW remains an attractive place to do business.[91]

6.81 Coca-Cola Amatil submitted that the introduction of a CDS in New South Wales would have set-up costs of approximately $120 million and annual operating costs of approximately $200 million. Coca-Cola Amatil was also concerned that it will increase the cost of beverages to consumers.[92] The Australian Food and Grocery Council (AFGC) also estimated that there will be a $63 million impact on the

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86 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 75.

87 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 75.

88 Mr Geoff Parker, Australian Beverages Council, *Committee Hansard*, 31 March 2016, p. 2.

89 Mr Geoff Parker, Australian Beverages Council, *Committee Hansard*, 31 March 2016, p. 2.

90 Mr Robert Kelman, Association of Container Deposit Scheme Operators, *Committee Hansard*, 18 February 2016, p. 75.

91 Coca-Cola Amatil, *Submission 192*, p. 2.

92 Coca-Cola Amatil, *Submission 192*, p. 4.

beverage industry through reduced consumer demand.[93] The AFGC went on to submit that the reduction in demand will effect investment and employment in the sector. The AFGC stated:

> Modelling by ACIL Allen forecast a national Refund CDS to result in the loss of 1,700 jobs (or 3.5%) from the Australian beverage and related packaging industry. This equates to a reduction in cumulative labour incomes of $2.6 billion or a net present value of –$1.0 billion and a reduction in cumulative gross value added of $6.3 billion or a net present value of –$2.6 billion.[94]

6.82 The beverages industry, represented by the AFGC, has developed a program which offers an alternative to the proposed introduction of a refund-based CDS in New South Wales. Coca-Cola Amatil submitted that the *Thirst for Good* program involves:

> …funding bin infrastructure, collection and litter clean collection and litter clean-up activities in hotspots such as roads and public places, Reverse Vending Machines (RVMS) in convenient areas and donations to local charities and community groups when individuals return their drink containers.[95]

6.83 The Boomerang Alliance challenged the beverage industry's assertion that *Thirst for Good* would provide a more cost effective initiative than the introduction of a refund-based CDS. The Boomerang Alliance stated that from its analysis of the *Thirst for Good* program, it is 'apparent' that the initiative 'operates at a rough cost of 95c per container recovered ($8983.20 per tonne)' which is 'around 4 times the current cost of litter abatement ($2900/tonne)'. It concluded that 'it is clear that Thirst for Good is less cost efficient—coming at a cost some 20 times greater (per unit recovered) than the gross operating costs of a modern CDS'.[96]

6.84 The 100 reverse vending machines proposed under the *Thirst for Good* program will offer non-financial incentives such as movie vouchers or tickets to sporting events.[97] However, Mr Ian Kiernan from Clean Up Australia criticised this initiative as it will remove 'the commercial incentive' from container deposit schemes.[98] Ms Johnson added that internationally, schemes which used donation rather than a direct commercial incentive have been shown not to work.[99] The

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93 Australian Food and Grocery Council, *Submission 193*, p. 5.

94 Australian Food and Grocery Council, *Submission 193*, p. 6.

95 Coca-Cola Amatil, *Submission 192*, p. 3.

96 Boomerang Alliance, *Supplementary Submission 77.1*, p. 2.

97 Australian Beverages Council, *Submission: NSW Container Deposit Scheme—Discussion Paper*, http://australianbeverages.org/wp-content/uploads/2013/10/Australian-Beverages-Council-NSW-CDS-Discussion-Paper-Submission1.pdf, (accessed 10 March 2016).

98 Mr Ian Kiernan, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 36.

99 Ms Terrie-Ann Johnson, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 35.

Boomerang Alliance further noted that globally, the two most successful non-financial based schemes—the *Reimagine* program rolled out in Texas, and the Tesco rewards program in the UK—were 'better researched and supported' than *Thirst for Good*, but still ultimately failed. Both of these programs were abandoned after four years, and recorded low participation rates with *Reimagine* only achieving 20 per cent of its monthly target at its peak. The Boomerang Alliance described the reverse vending component of the *Thirst for Good* program as 'basically pointless and will have little impact other than a visible face to promote the beverage industry'.[100]

6.85 Mr Gary Dawson, Chief Executive Officer of the AFGC, told the committee that the program provides a viable alternative to a refund-based CDS and that it meets the five criteria that the New South Wales Government has set for the introduction of a CDS. Mr Dawson stated:

> It is particularly targeted at those five criteria…that it be cost effective, use financial incentives, target away-from-home consumption, not undermine kerbside, and use reverse vending machines and modern technology. Over the last year, that Thirst for Good package has been developed to specifically target that. We believe it can deliver that target that New South Wales has set faster than any alternative scheme. It is an example of very constructive engagement on this broader challenge around litter and recycling, which contributes to the issues around marine pollution…[101]

6.86 Similarly, the Australian Beverages Council submitted that:

> …action must first start with identifying the exact nature of the problem, targeting strategies to where they are most needed and addressing consumer behaviour. This last piece must include initiatives like education programs, greater penalty enforcement, targeting coordination of hotspots and more away-from-home recycling options of unique, innovative and tailored models for reducing litter and increasing recycling, like the industry-funded Thirst for Good scheme in New South Wales, which achieves these objectives.[102]

6.87 The AFGC argued that 'while a refund CDS incentivises people to clean up beverage containers, it does not address the existing stock of non-beverage container litter'.[103] Ms Tanya Barden, Director of Economics and Sustainability explained that:

> …to be effective in the litter space you need to be really active across a number of areas: cleaning up existing litter, because litter acts as a magnet and will attract other sources of litter; education to try and get behaviour change amongst consumers; enforcement of littering behaviour when it occurs; and infrastructure…Under a CDS, if only beverage containers are

100 Boomerang Alliance, *Supplementary Submission 77.1*, p. 3.

101 Mr Gary Dawson, Australian Food and Grocery Council, *Committee Hansard*, 31 March 2016, pp. 1–2.

102 Mr Geoff Parker, Australian Beverages Council, *Committee Hansard*, 31 March 2016, p. 2.

103 Australian Food and Grocery Council, *Submission 193*, p. 5.

cleaned up, then remaining litter could still be a magnet for attracting other types of litter, including beverage containers.[104]

6.88 The AFGC submitted that the *Thirst for Good* program seeks to 'reduce not only beverage litter, but all litter'.[105] Mr Dawson told the committee that 'any effective approach has to be broader than just beverage containers'.[106] Similarly, Mr Geoff Parker, Chief Executive Officer of the Australian Beverages Council, commented that 'to focus on just one part of the waste system is antiquated, inefficient and ineffective'.[107]

6.89 However, the Boomerang Alliance criticised the litter collection component of the *Thirst for Good* program as being insufficient to recover an amount of litter that would 'make a meaningful difference'.[108] It also submitted that litter would build up between litter collection activities, and expressed doubt that additional bins would have a significant impact, noting that the existing widespread availability of public bins in New South Wales has done little to prevent littering.[109]

6.90 Coca-Cola Amatil argued that in New South Wales, where 4.2 billion beverages are sold per annum, 'ninety-six per cent of beverage containers are already collected through existing systems'[110] and that a container deposit scheme fails to address other types of litter. The committee notes that the remaining four per cent of beverage containers not captured through landfill or recycling are littered, and in New South Wales alone, this constitutes an estimated 160 million containers entering the environment annually. This is a significant number of containers and in New South Wales, beverage containers represent 44 per cent of the litter volume, almost twice the volume of the next largest category—take-away cups and food containers.[111]

6.91 Further, the committee notes that a capture rate of 96 per cent includes both 32 per cent entering landfill, and 64 per cent entering existing recycling systems. The New South Wales Government has stated that the objective of a CDS is to make sure that 'containers that are diverted away from litter, or that would have otherwise been

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104 Ms Tanya Barden, Australian Food and Grocery Council, *Committee Hansard*, 31 March 2016, p. 4.

105 Australian Food and Grocery Council, *Submission 193*, p. 3.

106 Mr Gary Dawson, Australian Food and Grocery Council, *Committee Hansard*, 31 March 2016, p. 6.

107 Mr Geoff Parker, Australian Beverages Council, *Committee Hansard*, 31 March 2016, p. 2.

108 Boomerang Alliance, *Supplementary Submission 77.1*, p. 4.

109 Boomerang Alliance, *Supplementary Submission 77.1*, p. 1.

110 Ms Liz McNamara, Coca-Cola Amatil, *Committee Hansard*, p. 3.

111 New South Wales Environment Protection Authority, *NSW Container Deposit Scheme: Discussion Paper*, 19 December 2015, p. 4, http://www.epa.nsw.gov.au/resources/waste/container/150286-CDS-discussion-paper.pdf, (accessed 10 March 2016).

landfilled, are recycled'.[112] The committee is unconvinced that the *Thirst for Good* campaign would achieve such outcomes for recycling given the apparent focus on increasing rates of litter collection.

6.92 Evidence of industry support for research specifically targeting the threat of marine pollution was also provided to the committee. The AFGC explained that that the National Packaging Covenant Industry Association (NPCIA), as the service delivery body for the Australian Packaging Covenant is contributing to research efforts understand the pathways of land-based litter into the marine environment. The NPCIA is jointly funding a study with the CSIRO that will use spatial statistical modelling across the Australian coastline to evaluate likely routes for debris to move into the marine environment. The study will also examine the effectiveness of government initiatives in reducing marine plastic pollution.[113]

6.93 Coca-Cola Amatil also submitted that it is 'committed to working collaboratively with industry, government and environmental groups to help reduce litter and increase recycling outcomes across Australia'.[114] It provided evidence of its commitment to seeking new technologies and initiatives to reduce its environmental impact across the supply chain. These include a reduction in the amount of PET used in the production of bottles, increasing the amount of recycled content in PET packaging, the introduction of lightweight label packaging, and the self-manufacture of bottles at all Australian manufacturing facilities.[115]

Impact on kerbside recycling

6.94 The beverage industry raised concerns that the implementation of new CDSs would have negative effects on existing kerbside recycling schemes. For example, the AFGC submitted that a Refund CDS would divert a substantial number of beverage containers from the kerbside system into the new scheme. AFGC argued that a CDS, by its nature, 'provides an incentive for people to change their behaviour to try and redeem the reward' but the incentive does not distinguish between containers consumed at home versus those consumed away from home and potentially littered. It concluded that 'a 10c deposit would devastate the existing kerbside system, with only an estimated 7% of containers remaining in the system'.[116]

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112 New South Wales Environment Protection Authority, *NWS Container Deposit Scheme: Discussion paper*, 19 December 2015, p. 4, http://www.epa.nsw.gov.au/resources/waste/container/150286-CDS-discussion-paper.pdf, (accessed 10 March 2016).

113 Australian Food and Grocery Council, *Submission 193*, pp. 3–4. See also, Australian Packaging Covenant, correspondence dated 15 April 2016, p. 2.

114 Coca-Cola Amatil, *Submission 192*, p. 4.

115 Coca-Cola Amatil, *Submission 192*, p. 2.

116 Australian Food and Grocery Council, *Submission 193*, p. 6.

6.95 Ms McNamara, Group Head of Public Affairs and Communications for Coca-Cola Amatil similarly expressed concern about the 'cannibalisation of the existing kerbside system' through the introduction of a CDS. Ms McNamara argued that consumers will hold the container and return it directly rather than through the kerbside system.[117]

6.96 Mr Jeff Maguire, Director of Statewide Recycling, a subsidiary of Coca-Cola Amatil, pointed to the rates of kerbside recycling in South Australia to support this argument and commented that:

> My organisation only receives about 12 per cent of its recycled content from kerbside in South Australia because the CDS system has been there and has been entrenched in South Australia for a long time. If we were to introduce a CDS system in New South Wales, it would certainly cannibalise what is an existing low-cost system in kerbside, to a large extent.[118]

6.97 However, this view was challenged by Clean Up Australia and the Boomerang Alliance. Clean Up Australia noted that currently, in states and territories that have not implemented a CDS, 'we do not have any incentives for recycling' and as a result, only 20 per cent of items are recycled—and this is largely achieved through kerbside recycling.[119]

6.98 The Boomerang Alliance pointed to a study by PricewaterhouseCoopers conducted in 2010 into ways to recover used beverage containers. Systems in Europe, North America, Japan and Australia were evaluated. The findings included that:

- Deposit Systems are more sustainable than kerbside collection of beverage containers;
- Deposit Systems for beverage containers enable higher collection rates and better recycling;
- One way deposit systems are not necessarily more expensive than kerbside collection;
- Deposit Systems are more cost effective than kerbside collection; and
- Deposit Systems and kerbside collection can co-exist very well.[120]

Committee view

6.99 The committee accepts the evidence that source reduction rather than clean-up should be the focus of mitigation strategies. Source reduction encompasses changes in consumer behaviour, implementation and maintenance of infrastructure such as gross

117 Ms Liz McNamara, Coca-Cola Amatil, *Committee Hansard*, 31 March 2016, p. 7.

118 Mr Jeff Maguire, Statewide Recycling, *Committee Hansard*, 31 March 2016, p. 7.

119 Ms Terrie-Ann Johnson, Clean Up Australia, *Committee Hansard*, 18 February 2016, p. 33.

120 Boomerang Alliance, *Submission 77*, p. 29.

pollutant traps and public rubbish bins, and waste management initiatives such as beverage container deposit schemes that both change consumer behaviour and provide a disposal mechanism.

6.100 Community awareness and education campaigns which provide information designed to change the choices and behaviour are crucial to effective threat mitigation. These campaigns are frequently conducted with limited funding by non-government and community organisations, and local government. Similarly, the implementation and management of infrastructure such as gross pollutant traps and rubbish bins have associated financial impost on local government. The evidence indicates that such infrastructure is critical to reducing the amount of urban litter moving into the marine environment. The committee is of the view that education and awareness-raising campaigns, and infrastructure should be adequately funded and supported by Commonwealth, and state and territory governments.

6.101 Evidence that CDSs provide a simple, cost-effective mechanism that will reduce the number of beverage containers found in urban litter, and in marine debris, was presented to the committee. Such schemes create behavioural change as containers are diverted from landfill and litter by those seeking to redeem the deposit. Further, it was argued that they reduce costs associated with clean-up activities and landfill management.

6.102 The committee notes industry concerns regarding costs associated with the implementation of refund-based schemes. The committee also notes the alternative models proposed by the beverages industry.

6.103 However, the committee accepts the evidence that CDSs provide a cost-effective and efficient mechanism to successfully reduce the volume of beverage containers found in the marine environment. The committee is of the view that the Australian Government should actively encourage the implementation of container deposit schemes by states and territories which have not already done so.