

Tobacco in Australia

Facts & Issues

Relevant news and research

10.16 The environmental impact of tobacco use

Last updated October 2020

Research:

Kotz, D, & Kastaun, S. (2020). Do people know that cigarette filters are mainly composed of synthetic material? A representative survey of the German population (the DEBRA study). *Tob Control*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32300028>

Qamar, W, Abdelgalil, AA, Aljarboa, S, Alhuzani, M, & Altamimi, MA. (2020). Cigarette waste: Assessment of hazard to the environment and health in Riyadh city. *Saudi J Biol Sci*, 27(5), 1380-1383. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32346349>

Bonanomi, G, Maisto, G, De Marco, A, Cesarano, G, Zotti, M, Mazzei, P et al. (2020). The fate of cigarette butts in different environments: Decay rate, chemical changes and ecotoxicity revealed by a 5-years decomposition experiment. *Environ Pollut*, 261, 114108. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32044614>

Dobaradaran, S, Schmidt, TC, Lorenzo-Parodi, N, Kaziur-Cegla, W, Jochmann, MA et al. (2020). Polycyclic aromatic hydrocarbons (PAHs) leachates from cigarette butts into water. *Environ Pollut*, 259, 113916. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32023793>

Kurmus, H, & Mohajerani, A. (2020). Recycling of Cigarette Butts in Fired Clay Bricks: A New Laboratory Investigation. *Materials (Basel)*, 13(3). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32050481>

Rahman, MT, Mohajerani, A, & Giustozzi, F. (2020). Possible Recycling of Cigarette Butts as Fiber Modifier in Bitumen for Asphalt Concrete. *Materials (Basel)*, 13(3). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32041180>

Valiente, R, Escobar, F, Pearce, J, Bilal, U, Franco, M, & Sureda, X. (2020). Estimating and mapping cigarette butt littering in urban environments: A GIS approach. *Environ Res*, 183, 109142. <https://www.ncbi.nlm.nih.gov/pubmed/32004828>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Gong, M, Daniels, N, & Poppendieck, D. (2020). Measurement of chemical emission rates from cigarette butts into air. *Indoor Air*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31955455>

Kurmus, H, & Mohajerani, A. (2020). The toxicity and valorization options of cigarette butts. *Waste Management*, 104, 104-118. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31978829>

Poppendieck, D, Gong, M, & Pham, V. (2020). Influence of temperature, relative humidity, and water saturation on airborne emissions from cigarette butts. *Science of the Total Environment*, 712, 136422. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31931215>

Marinello, S, Lolli, F, Gamberini, R, & Rimini, B. (2019). A second life for cigarette butts? A review of recycling solutions. *J Hazard Mater*, 384, 121245. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31585286>

Torkashvand, J, Farzadkia, M, Sobhi, HR, & Esrafil, A. (2019). Littered cigarette butt as a well-known hazardous waste: A comprehensive systematic review. *J Hazard Mater*, 383, 121242. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31563043>

Green, DS, Boots, B, Da Silva Carvalho, J, & Starkey, T. (2019). Cigarette butts have adverse effects on initial growth of perennial ryegrass (gramineae: *Lolium perenne* L.) and white clover (leguminosae: *Trifolium repens* L.). *Ecotoxicol Environ Saf*, 109418. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31327493>

Montalvao, MF, Chagas, TQ, da Silva Alvarez, TG, Mesak, C, da Costa Araujo, AP, Gomes, AR et al. (2019). How leachates from wasted cigarette butts influence aquatic life? A case study on freshwater mussel *Anodontites trapesiali*. *Sci Total Environ*, 689, 381-389. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31277005>

Sun, H, Li, Y, Zhu, Z, Mu, P, Wang, F, Liang, W et al. (2019). Photothermal conversion material derived from used cigarette filters for solar steam generation. *ChemSusChem*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31336029>

Xu, EG, Richardot, WH, Li, S, Buruaem, L, Wei, HH, Dodder, NG et al. (2019). Assessing Toxicity and in Vitro Bioactivity of Smoked Cigarette Leachate Using Cell-Based Assays and Chemical Analysis. *Chem Res Toxicol*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31286770>

Montalvao, MF, Chagas, TQ, Gabriela da Silva Alvarez, T, Mesak, C, Pereira da Costa Araujo, A, Gomes, AR et al. (2019). Cigarette butt leachate as a risk factor to the health of freshwater bivalve. *Chemosphere*, 234, 379-387. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31228840>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Hoek, J, Gendall, P, Blank, ML, Robertson, L, & Marsh, L. (2019). Butting out: an analysis of support for measures to address tobacco product waste. *Tob Control*. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/31147475>

Novotny, TE. (2019). Environmental accountability for tobacco product waste. *Tob Control*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31147479>

Stigler-Granados, P, Fulton, L, Nunez Patlan, E, Terzyk, M, & Novotny, TE. (2019). Global Health Perspectives on Cigarette Butts and the Environment. *Int J Environ Res Public Health*, 16(10).

Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31130709>

Araujo, MCB, & Costa, MF. A critical review of the issue of cigarette butt pollution in coastal environments. *Environ Res*, 2019. 172, 137-149. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30782533>

Hardy, SD, & Bartolotta, J. Plastic cigar tips debris: Exploring use and disposal issues for Lake Erie beaches. *Mar Pollut Bull*, 2018. 137, 262-266. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30503434>

Rebischung, F, Chabot, L, Biaudet, H, & Pandard, P. Cigarette butts: A small but hazardous waste, according to European regulation. *Waste Manag*, 2018. 82, 9-14. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30509599>

Bandi, R, Devulapalli, NP, Dadigala, R, Gangapuram, BR, & Guttena, V. Facile Conversion of Toxic Cigarette Butts to N,S-Codoped Carbon Dots and Their Application in Fluorescent Film, Security Ink, Bioimaging, Sensing and Logic Gate Operation. *ACS Omega*, 2018.3(10), 13454-13466. Available from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6217634/pdf/ao8b01743.pdf>

Montalvao, MF, Sampaio, LLG, Gomes, HHF, & Malafaia, G. An insight into the cytotoxicity, genotoxicity, and mutagenicity of smoked cigarette butt leachate by using *Allium cepa* as test system. *Environ Sci Pollut Res Int*, 2018. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30460649>

Hopkinson, NS. Tobacco smoke and environmental injustice. *BMJ*, 363, k4201. Available from:

<https://www.bmj.com/content/bmj/363/bmj.k4201.full.pdf>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Loizidou, XI, Loizides, MI, Orthodoxou, DL. Persistent marine litter: small plastics and cigarette butts remain on beaches after organized beach clean-ups. *Environ Monit Assess*. 2018 Jun 20;190(7):414. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29926242>

Selmar D, Radwan A, Abdalla N, Taha H, Wittke C, et al. Uptake of nicotine from discarded cigarette butts - a so far unconsidered path of contamination of plant-derived commodities. *Environ Pollut*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29454497>

Kungskulniti N, Charoenca N, Hamann SL, Pitayarangsarit S, and Mock J. Cigarette waste in popular beaches in thailand: High densities that demand environmental action. *International Journal of Environmental Research and Public Health*, 2018; 15(4). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29596385>

Gill H, Rogers K, Rehman B, Moynihan J, and Bergey EA. Cigarette butts may have low toxicity to soil-dwelling invertebrates: Evidence from a land snail. *Sci Total Environ*, 2018; 628-629:556–61. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29454197>

Chevalier Q, El Hadri H, Petitjean P, Bouhnik-Le Coz M, Reynaud S, et al. Nano-litter from cigarette butts: Environmental implications and urgent consideration. *Chemosphere*, 2018; 194:125–30. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29197815>

Suarez- Rodriguez M and Garcia CM. An experimental demonstration that house finches add cigarette butts in response to ectoparasites. *Journal of Avian Biology*, 2017; 28(10). Available from: <http://onlinelibrary.wiley.com/doi/10.1111/jav.01324/full>

Ogundare SA, Moodley V, and van Zyl WE. Nanocrystalline cellulose isolated from discarded cigarette filters. *Carbohydr Polym*, 2017; 175:273–81. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28917867>

No authors listed. Program reduces cigarette litter by 60 percent. *Clean Link*, 2017. Available from: <http://www.cleanlink.com/news/article/Program-Reduces-Cigarette-Litter-By-60-Percent--20681>

Murugan K, Suresh U, Panneerselvam C, Rajaganesh R, Roni M, et al. Managing wastes as green resources: Cigarette butt-synthesized pesticides are highly toxic to malaria vectors with little impact on predatory copepods. *Environ Sci Pollut Res Int*, 2017. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28913784>

Mohajerani A, Tanriverdi Y, Nguyen BT, Wong KK, Nishamal Dissanayake H, et al. Physico-mechanical properties of asphalt concrete incorporated with encapsulated cigarette butts. *Construction and*

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Building Materials, 2017; 153:69 – 80 Available from:

<http://www.sciencedirect.com/science/article/pii/S0950061817314241?via%3Dihub>

Metcalfe S, Murray P, and Schousboe C. A kick in the butt: Time to address tobacco waste in New Zealand. *New Zealand Medical Journal*, 2017; 130(1456):65–9. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/28571050>

Joly FX and Coulis M. Comparison of cellulose vs. Plastic cigarette filter decomposition under distinct disposal environments. *Waste Manag*, 2017. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/29153904>

Hamano Y, Manabe S, Morimoto C, Fujimoto S, and Tamaki K. Forensic age prediction for saliva samples using methylation-sensitive high resolution melting: Exploratory application for cigarette butts. *Sci Rep*, 2017; 7(1):10444. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28874809>

Dobaradaran S, Schmidt TC, Nabipour I, Ostovar A, Raeisi A, et al. Cigarette butts abundance and association of mercury and lead along the persian gulf beach: An initial investigation. *Environ Sci Pollut Res Int*, 2017. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29214478>

Dobaradaran S, Nabipour I, Saeedi R, Ostovar A, Khorsand M, et al. Association of metals (cd, fe, as, ni, cu, zn and mn) with cigarette butts in northern part of the persian gulf. *Tobacco Control*, 2017; 26(4):461–3. Available from:

<http://tobaccocontrol.bmj.com/content/tobaccocontrol/26/4/461.full.pdf>

Begum AN, Aguilar JS, and Hong Y. Aqueous cigarette tar extracts disrupt corticogenesis from human embryonic stem cells in vitro. *Environ Res*, 2017; 158:194–202. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/28647514>

Wallbank LA, MacKenzie R, and Beggs PJ. Environmental impacts of tobacco product waste: International and Australian policy responses. *Ambio*, 2016. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/27844421>

Purchia R. Will cigarette recycling cans encourage smoking? *SF Examiner*, 2016. Available from:

<http://www.sfexaminer.com/will-cigarette-recycling-cans-encourage-smoking/>

Mohajerani A, Kadir AA, and Larobina L. A practical proposal for solving the world's cigarette butt problem: Recycling in fired clay bricks. *Waste Manag*, 2016. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/26975623>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Lee K, Carrillo Botero N, and Novotny T. 'Manage and mitigate punitive regulatory measures, enhance the corporate image, influence public policy': Industry efforts to shape understanding of tobacco-attributable deforestation. *Global Health*, 2016; 12(1):55. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27650401>

Dobaradaran S, Nabipour I, Saeedi R, Ostovar A, Khorsand M, et al. Association of metals (cd, fe, as, ni, cu, zn and mn) with cigarette butts in northern part of the persian gulf. *Tobacco Control*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27384342>

Di Giacomo S, Mazzanti G, and Di Sotto A. Mutagenicity of cigarette butt waste in the bacterial reverse mutation assay: The protective effects of beta-caryophyllene and beta-caryophyllene oxide. *Environ Toxicol*, 2016; 31(11):1319–28. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25728712>

d'Heni Teixeira MB, Duarte MA, Raposo Garcez L, Camargo Rubim J, Hofmann Gatti T, et al. Process development for cigarette butts recycling into cellulose pulp. *Waste Manag*, 2016. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27825703>

Curtis C, Novotny TE, Lee K, Freiberg M, and McLaughlin I. Tobacco industry responsibility for butts: A model Tobacco waste Act. *Tobacco Control*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26931480>

Robinson J. Man slapped with £575 fine for dropping cigarette end outside place of work. *Lancashire Telegraph*, 2015. Available from: http://www.lancashiretelegraph.co.uk/news/11775586.Man_slapped_with_575_fine_for_droppi ng_cigarette_end_outside_place_of_work/

Lee W. and Lee C. C. Developmental toxicity of cigarette butts—an underdeveloped issue. *Ecotoxicology and Environmental Safety*, 2015; 113:362–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25531833>

Javadian S, Stigler-Granados P, Curtis C, Thompson F, Huber L, et al. Perspectives on Tobacco product waste: A Survey of framework convention alliance members' knowledge, attitudes, and beliefs. *International Journal of Environmental Research and Public Health*, 2015; 12(8):9683–91. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26295244>

Di Giacomo S, Mazzanti G, and Di Sotto A. Mutagenicity of cigarette butt waste in the bacterial reverse mutation assay: The protective effects of beta-caryophyllene and beta-caryophyllene oxide. *Environ Toxicol*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25728712>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

de Granda-Orive JI, Giron-Matute W, and Lopez-Yepes L. Cigarette butts: The collateral effects of cigarettes on humans, animals and the environment. Arch Bronconeumol, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26497414>

Booth DJ, Gribben P, and Parkinson K. Impact of cigarette butt leachate on tidepool snails. Marine Pollution Bulletin, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25913792>

Booth D. J., Gribben P., and Parkinson K. Impact of cigarette butt leachate on tidepool snails. Marine Pollution Bulletin, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25913792>

Bonanomi G, Incerti G, Cesarano G, Gaglione SA, and Lanzotti V. Cigarette butt decomposition and associated chemical changes assessed by ¹³C cpmas nmr. PLoS ONE, 2015; 10(1):e0117393. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25625643>

Oliver J, Thomson G, and Wilson N. Measurement of cigarette butt litter accumulation within city bus shelters. New Zealand Medical Journal, 2014; 127(1395):91–3. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24929699>

Novotny TE and Slaughter E. Tobacco product waste: An environmental approach to reduce Tobacco consumption. Current Environmental Health Reports, 2014; 1:208–16. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25152862>

Novotny T. E. and Slaughter E. Tobacco product waste: An environmental approach to reduce Tobacco consumption. Current Environmental Health Reports, 2014; 1:208–16. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25152862>

Lee W and Lee CC. Developmental toxicity of cigarette butts - an underdeveloped issue. Ecotoxicology and Environmental Safety, 2014; 113C:362–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25531833>

Curtis C, Collins S, Cunningham S, Stigler P, and Novotny TE. Extended producer responsibility and product stewardship for Tobacco product waste. International Journal of Waste Resources, 2014; 4(3). Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26457262>

Smith EA and Novotny TE. Whose butt is it? Tobacco industry research about smokers and cigarette butt waste. Tobacco Control, 2011; 20(suppl. 1):i2–9. Available from: http://tobaccocontrol.bmj.com/content/20/Suppl_1/i2.abstract

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Smith EA and McDaniel PA. Covering their butts: Responses to the cigarette litter problem. Tobacco Control, 2011; 20(2):100–6. Available from:

<http://tobaccocontrol.bmj.com/content/20/2/100.abstract>

Smith E. A. and McDaniel P. A. Covering their butts: Responses to the cigarette litter problem. Tobacco Control, 2011; 20(2):100–6. Available from:

<http://tobaccocontrol.bmj.com/content/20/2/100.abstract>

Slaughter E, Gersberg RM, Watanabe K, Rudolph J, Stransky C, et al. Toxicity of cigarette butts, and their chemical components, to marine and freshwater fish. Tobacco Control, 2011; 20(suppl. 1):i25–9. Available from: http://tobaccocontrol.bmj.com/content/20/Suppl_1/i25.abstract

Schneider JE, Peterson NA, Kiss N, Ebeid O, and Doyle AS. Tobacco litter costs and public policy: A framework and methodology for considering the use of fees to offset abatement costs. Tobacco Control, 2011; 20(suppl. 1):i36–41. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i36.abstract

Sawdey M, Lindsay RP, and Novotny TE. Smoke-free college campuses: No ifs, ands or toxic butts. Tobacco Control, 2011; 20(suppl. 1):i21–4. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i21.abstract

Novotny TE, Hardin SN, Hovda LR, Novotny DJ, McLean MK, et al. Tobacco and cigarette butt consumption in humans and animals. Tobacco Control, 2011; 20(suppl. 1):i17–20. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i17.abstract

Moerman JW and Potts GE. Analysis of metals leached from smoked cigarette litter. Tobacco Control, 2011; 20(suppl.1):i30–5. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i30.abstract

Marah M and Novotny TE. Geographic patterns of cigarette butt waste in the urban environment. Tobacco Control, 2011; 20(suppl. 1):i42–4. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i42.abstract

Healton CG, Cummings KM, O'Connor RJ, and Novotny TE. Butt really? The environmental impact of cigarettes. Tobacco Control, 2011; 20(suppl. 1):i1. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i1.short

Harris B. The intractable cigarette “filter problem”. Tobacco Control, 2011; 20(suppl. 1):i10–6. Available from: http://tobaccocontrol.bmj.com/content/20/Suppl_1/i10.abstract

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Barnes RL. Regulating the disposal of cigarette butts as toxic hazardous waste. *Tobacco Control*, 2011; 20(suppl. 1):i45–8. Available from:

http://tobaccocontrol.bmj.com/content/20/Suppl_1/i45.abstract

Vardavas CI, Mangiaracina G, and Behrakis P. 'Environmentally friendly'™ brand promotion activities: Cigarette butt clean-up campaigns. *Tobacco Control*, 2010; 19(3):259. Available from:

<http://tobaccocontrol.bmj.com/content/19/3/259.short>

Novotny TE, Lum K, Smith E, Wang V, and Barnes R. Cigarettes butts and the case for an environmental policy on hazardous cigarette waste. *International Journal of Environmental Research and Public Health*, 2009; 6(5):1691–705. Available from: <http://www.mdpi.com/1660-4601/6/5/1691/pdf>

Moriwaki H, Kitajima S, and Katahira K. Waste on the roadside, 'poi-sute' waste: Its distribution and elution potential of pollutants into environment. *Waste Management*, 2009; 29(3):1192–7. Available from: http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VFR-4TN8BTS-1&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=921d0d83e1569b87f2509c762bc4fd7d

Oigman-Pzczol S and Creed J. Quantification and classification of marine litter on beaches along armacao dos buzios, rio de janiero, brazil. *Journal of Coastal Research*, 2007; 23(2):421–8.

Martinez-Ribes L, Basterretxea G, Palmer M, and Tintoré J. Origin and abundance of beach debris in the balearic islands. *Scientia Marina*, 2007; 71(2):305–14. Available from: http://www.google.com.au/url?sa=t&source=web&ct=res&cd=4&url=http%3A%2F%2Fwww.icm.csic.es%2Fscimar%2Fdownload.php%2FCd%2F2581537c63671c47b35953d160904dca%2FIdArt%2F3518&ei=k8DqSbHANYaCkQWmwlimCA&usg=AFQjCNEDaUePQnfl9AI8V2YMqQZPzli9_Q&sig2=B2uNv0v_dnP5s9ULoz1C6UA

Micevska T, Warne M, Pablo F, and Patra R. Variation in, and causes of, toxicity of cigarette butts to a cladoceran and microtox. *Archives of Environmental Contamination and Toxicology*, 2006; 50(2):205–12. Available from: <http://www.springerlink.com/content/p433v47q31282841/>

Chapman S. Butt clean up campaigns: Wolves in sheep's clothing? *Tobacco Control*, 2006; 15(4):273. Available from: <http://tobaccocontrol.bmj.com/content/15/4/273.full>

Simpson D. New Zealand: Butt bids. *Tobacco Control*, 2005; 14(4):224–5. Available from: <http://tobaccocontrol.bmj.com/cgi/content/extract/14/4/224-a>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Novotny T and Zhao F. Consumption and production waste: Another externality of tobacco use. A review. *Tobacco Control*, 1999; 8(1):75–80. Available from: <http://tobaccocontrol.bmj.com/cgi/content/full/8/1/75>

Cope J, Huffman K, Allred L, and Grossnickle W. Behavioral strategies to reduce cigarette litter. *Journal of Social Behavior and Personality*, 1993; 8(4):607–19.

10.16.1 Health claims, environmental impacts and cost

Green, DS, Kregting, L, & Boots, B. (2020). Smoked cigarette butt leachate impacts survival and behaviour of freshwater invertebrates. *Environ Pollut*, 266(Pt 3), 115286. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32781211>

Lee, T, Jung, S, Lin, KA, Tsang, YF, & Kwon, EE. (2020). Mitigation of harmful chemical formation from pyrolysis of tobacco waste using CO₂. *J Hazard Mater*, 401, 123416. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32763706>

Green, DS, Kregting, L, & Boots, B. (2020). Smoked cigarette butt leachate impacts survival and behaviour of freshwater invertebrates. *Environ Pollut*, 266(Pt 3), 115286. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32781211>

Lee, T, Jung, S, Lin, KA, Tsang, YF, & Kwon, EE. (2020). Mitigation of harmful chemical formation from pyrolysis of tobacco waste using CO₂. *J Hazard Mater*, 401, 123416. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32763706>

Mansouri, N, Etebari, M, Ebrahimi, A, Ebrahimpour, K, Rahimi, B, & Hassanzadeh, A. (2020). Genotoxicity and phytotoxicity comparison of cigarette butt with cigarette ash. *Environ Sci Pollut Res Int*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32666442>

Schneider, JE, Scheibling, CM, Peterson, NA, Granados, PS, Fulton, L, & Novotny, TE. (2020). Online Simulation Model to Estimate the Total Costs of Tobacco Product Waste in Large U.S. Cities. *Int J Environ Res Public Health*, 17(13). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32629929>

Dehdari, T. (2020). A qualitative exploration of Iranian smokers' experiences in terms of cigarette butt littering behaviour. *Int J Environ Health Res*, 1-9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32436392>

Dobaradaran, S, Schmidt, TC, Lorenzo-Parodi, N, Jochmann, MA, Nabipour, I, Raeisi, A et al. (2019). Cigarette butts: An overlooked source of PAHs in the environment? *Environ Pollut*, 249, 932-939. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30965545>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Dobaradaran S, Nabipour I, Saeedi R, Ostovar A, Khorsand M, et al. Association of metals (cd, fe, as, ni, cu, zn and mn) with cigarette butts in northern part of the persian gulf. *Tobacco Control*, 2017; 26(4):461–3. Available from:

<http://tobaccocontrol.bmj.com/content/tobaccocontrol/26/4/461.full.pdf>

10.16.2 Tobacco industry response to environmental concerns

Kurmus, H, & Mohajerani, A. (2020). Leachate Analysis of Heavy Metals in Cigarette Butts and Bricks Incorporated with Cigarette Butts. *Materials (Basel)*, 13(12). Retrieved from

<https://www.ncbi.nlm.nih.gov/pubmed/32630391>

10.16.3 Policy response

News reports:

No authors listed. Greenwashing. *Tobacco Tactics*, 2020. May 7, 2020. Retrieved from

<https://tobaccotactics.org/wiki/greenwashing/>

Van Velthooven, E. New research estimates 10 billion cigarette butts littered around NZ. *1 News Now*, 2019. Sept 2, 2019. Available from: <https://www.tvnz.co.nz/one-news/new-zealand/new-research-estimates-10-billion-cigarette-butts-littered-around-nz>

Root, T. Cigarette butts are toxic plastic pollution. Should they be banned? *National Geographic*, 2019. Aug 12, 2019. Available from: <https://www.nationalgeographic.co.uk/environment-and-conservation/2019/08/cigarette-butts-are-toxic-plastic-pollution-should-they-be>

No authors listed. Smokers to face \$500 littering penalty. *Canberra Times*, 2019. June 7, 2019.

Available from: https://customreport.mediaportal.com/#/articlepresenter/c5f8d4e2-76df-43df-9849-847012364392/499431658/1158318827?_k=9ste43

Lazarus, S. Cigarette filters are the No.1 plastic pollutant ... and don't prevent cancer. *CNN*, 2019. Jan 25, 2019. Available from: <https://edition.cnn.com/2019/01/24/health/dirty-truth-about-cigarette-filters/index.html>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Puiu, T. Tobacco industry's carbon footprint mirrors entire countries — cost of cigarettes should reflect the environmental damage, WHO says. ZME Science, 2018. Available from: <https://www.zmescience.com/ecology/tobacco-industry-carbon-footprint-05343/>

Dangerfield, K. Cigarette butts are polluting the ocean more than plastic straws — so why not ban these? Global News, 2018. Sept 3, 2018. Available from: <https://globalnews.ca/news/4418956/cigarette-butts-ocean-pollution-ban/>

No authors listed. Littered cigarette butts are poisoning our oceans. Keep Britain Tidy, 2018. Aug 29, 2018. Available from: <http://www.keepbritaintidy.org/news/its-flicking-blue-murder>

Taylor, James. Lit cigarettes get Victorians hot under the collar. Surf Coast Times, 2018. Aug 8, 2018. Available from: <https://freelocalnews.com.au/surfcoasttimes/news/lit-cigarettes-get-victorians-hot-under-the-collar/>

No authors listed. France orders tobacco industry: stub out cigarette butt pollution. Reuters, 2018. June 18, 2018. Available from: <http://news.trust.org/item/20180614142528-mrykj/>

O'Neill, Katie. Smokers held responsible for most littering. The Times, 2018. June 21, 2018. Available from: <https://www.thetimes.co.uk/article/smokers-held-responsible-for-most-littering-lb0wqzjc5>

No authors listed. Philip Morris International Sustainability Report Shows Relentless Business Shift toward Smoke-Free Future. Business Wire, 2018. May 22, 2018. Available from: <https://www.businesswire.com/news/home/20180515005727/en/Philip-Morris-International-Sustainability-Report-Shows-Relentless>

Philip Morris International. Sustainability Report 2017. Philip Morris International Inc. (PMI), 2018. May 22, 2018. Available from: <https://www.pmi.com/docs/default-source/pmi-sustainability/pmi-sustainability-report-2017.pdf>

Robinson C. New bespoke ashtray ballot boxes uses butts. Lurgan Mail, 2017. Available from: <http://www.lurganmail.co.uk/news/new-bespoke-ashtray-ballot-boxes-uses-butts-to-vote-1-8188566>

Pujol-Mazzini A. Small changes, big impact: How to reduce waste in your daily life. Reuters, 2017. Available from: <http://www.reuters.com/article/us-global-waste-factbox/small-changes-big-impact-how-to-reduce-waste-in-your-daily-life-idUSKCN1BF043>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

No authors listed. Some birds use discarded cigarettes to fumigate their nests, in *The Economist* 2017. Available from: <https://www.economist.com/news/science-and-technology/21729739-they-help-keep-parasites-bay-some-birds-use-discarded-cigarettes-fumigate>.

No authors listed. How to pave over our big (cigarette) butt problem. Science Daily 2017. Available from: <https://www.sciencedaily.com/releases/2017/08/170806185625.htm>

No authors listed. Cigarette litter prevention programme. Keep America Beautiful, 2017. Available from: <https://www.kab.org/cigarette-litter-prevention>

No authors listed. Litter Strategy for England. UK 2017. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/607747/litter-strategy-for-england-2017.pdf.

Lindsey P. Smokers quizzed over albion's survival chances at the litter bin. The Argus, 2017. Available from: http://www.theargus.co.uk/news/15480380.Will_Albian_survive_is_part_of_cigarette_trial/

Jayaraman K. Cigarette butts to eliminate mosquitoes? The Economic Times, 2017. Available from: <http://economictimes.indiatimes.com/news/science/cigarette-butts-to-eliminate-mosquitoes/articleshow/60791804.cms>

Hurst D. Tokyo aims to stub out smoking in homes with children. The Times, 2017. Available from: <https://www.thetimes.co.uk/article/tokyo-aims-to-stub-out-smoking-in-homes-with-children-xm8wmqb7n>

Sinoski K. Metro mayor proposes return-it deposit on cigarette butts. Canada.com, 2016. Available from: www.canada.com/health/hold+onto+your+butts+north+mayor+proposes+return+deposit/12013633/story.html

Purchia R. Will cigarette recycling cans encourage smoking? SF Examiner, 2016. Available from: <http://www.sfexaminer.com/will-cigarette-recycling-cans-encourage-smoking/>

No author listed. Why smoking bans could help the environment. The Global Dispatch, 2016. Available from: <https://www.theglobaldispatch.com/why-smoking-bans-could-help-the-environment-87855/>

listed Na. How an aussie invention could make cigarette butts valuable. Australian Broadcasting Corporation - Triple J radio, 2016. Available from:

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

<http://www.abc.net.au/triplej/programs/hack/aussie-invents-way-of-turning-cigarette-butts-into-bricks/7452634>

Burgmann T. No butts about it: B.C. Study says tobacco companies must deal with waste butts. Info News, 2016. Available from: <http://infotel.ca/newsitem/no-butts-about-it-bc-study-says-tobacco-companies-must-deal-with-waste-butts/it28465>

Robinson J. Man slapped with £575 fine for dropping cigarette end outside place of work. Lancashire Telegraph, 2015. Available from: http://www.lancashiretelegraph.co.uk/news/11775586.Man_slapped_with_575_fine_for_dropping_cigarette_end_outside_place_of_work/

Phillips A. How one company is making cigarette butt recycling not only possible, but popular. Fusion, 2015. Available from: <http://fusion.net/story/207224/cigarette-butt-recycling/>

No authors listed. Tobacco tax 'must help clear litter' - MPs. BBC News, 2015. Available from: <http://www.bbc.com/news/uk-31882078>

No authors listed. Declare cigarette as toxic waste, ngo tells ngt. Daily Pioneer, 2015. Available from: <http://www.dailypioneer.com/state-editions/dehradun/declare-cigarette-as-toxic-waste-ngo-tells-ngt.html>

No authors listed. Paris distributes 15,000 pocket ashtrays to tackle cigarette butt pollution. NewsPress.fr, 2015. Available from: http://www.newspress.fr/communiqu_e_290513_3470_RSS-EN-TS-48.aspx

Phillip Morris International. Philip Morris International inc. Is awarded an 'a list' ranking in CDP's world leaders report on climate change Phillip Morris International News Release, 2014. Available from: http://www.pmi.com/eng/media_center/press_releases/Pages/201410150800.aspx.

Philip Morris International. Philip Morris International inc. Is awarded an 'a list' ranking in CDP's world leaders report on climate change Phillip Morris International News Release, 2014. Available from: http://www.pmi.com/eng/media_center/press_releases/Pages/201410150800.aspx.

O'Shea M. Smokers caught littering can swap fines for shopping vouchers. Wandsworth Guardian, 2014. Available from: http://www.wandsworthguardian.co.uk/news/11572820.Smokers_caught_littering_can_swap_fines_for_shopping_vouchers/

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

O'Rourke J and Johnston S. Soft councils are letting sydney's beach smokers puff free by not enforcing ban legislation. The Daily Telegraph, 2014. Available from: <http://www.dailytelegraph.com.au/news/nsw/soft-councils-are-letting-sydneys-beach-smokers-puff-free-by-not-enforcing-ban-legislation/story-fni0cx12-1227169624588?nk=7a23785a7bf2a5dce71d8f4d83da1a90>

No authors listed. Reemtsma recognized for action on co2. Tobacco Reporter, 2014. Available from: <http://www.tobaccoreporter.com/2014/10/reemtsma-recognized-for-action-on-co2/>

Hope C. Government push to clean up britain and make dropping litter 'as socially unacceptable as drink driving'. The Telegraph, 2014. Available from: <http://www.telegraph.co.uk/news/earth/environment/11218158/Government-push-to-clean-up-Britain-and-make-dropping-litter-as-socially-unacceptable-as-drink-driving.html>

Hickmann M. Vancouver aims to stomp out cigarette litter with new recycling scheme. Mother Nature Network, 2013. Available from: <http://www.mnn.com/lifestyle/recycling/blogs/vancouver-aims-to-stomp-out-cigarette-litter-with-new-recycling-scheme>

Fletcher T. No butts about it: Vancouver council likes idea of cigarette-butts-for-cash program. The Province, 2013. Available from: <http://www.theprovince.com/news/butts+about+Vancouver+council+debates+merits+cigarette/8582701/story.html>

Clean Up Australia. Why we need a container deposit scheme. Sydney: Clean Up Australia, 2011. Last update: Viewed Available from: <http://www.cleanup.org.au/au/Whatelsewesupport/why-do-we-need-a-container-deposit-legislation-.html>.

McGregor Tan Research. Keep Australia beautiful National litter index. Annual report 2009-10, prepared for keep Australia beautiful National association. Adelaide: McGregor Tan Research, 2010. Last update: Viewed Available from: http://www.kab.org.au/files/NLI/NLI%20homepage/0910%20Reports/100923_4_mtr_nli_0910_report.doc.

Clean Up Australia. Rubbish report 2010. Sydney: Clean Up Australia, 2010. Last update: Viewed 01 August 2011. Available from: http://www.cleanup.org.au/download/cuad_rubbish_report_2010.pdf.

Butt Littering Trust. Size of the problem. Melbourne, Australia: Butt Littering Trust,, 2009. Last update: Viewed Available from: <http://www.buttlitteringtrust.org/about-butt-littering/size.html>.

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

McGregor Tan Research. Keep Australia beautiful National litter index. Annual report 2007-08, prepared for keep Australia beautiful National association. Adelaide: McGregor Tan Research, 2008. Last update: Viewed Available from: http://www.kab.org.au/files/NLI/NLI%20homepage/0910%20Reports/100923_4_mtr_nli_0910_report.doc.

Imperial Tobacco Group. Corporate responsibility review 2007. Bristol, UK: Imperial Tobacco Group, 2008. Available from: <http://www.imperial-tobacco.com/files/environment/cr2007/index.asp>.

Victorian Litter Action Alliance. Litter prevention kit. Cigarette butts. Melbourne, Australia: Victorian Litter Action Alliance, 2007. Available from: http://www.litter.vic.gov.au/resources/documents/Butt_Kit_Whole22_5_07.pdf.

Sustainability Victoria. Getting people to bin their butts. Melbourne, Australia: Sustainability Victoria, 2007. Last update: Viewed Available from: <http://www.sustainability.vic.gov.au/www/html/2597-campaign-tracking-and-results.asp?intSiteID=4>.

Keep Australia Beautiful NSW. New South wales has a big butt problem!!! [media release]. Sydney: Keep Australia Beautiful NSW, 2007. Last update: Viewed 30 May, 2008. Available from: <http://www.kabnsw.org.au/content/documents/Cigarette%20Butts%20Project%20MR.pdf>.

Department of the Environment Water Heritage and the Arts. A national day of action on cigarette butt litter. Cigarette butt litter: Facts and figures. Canberra, Australia: Department of the Environment, Water, Heritage and the Arts, 2007. Last update: Viewed Available from: <http://www.environment.gov.au/settlements/waste/pubs/cigarette-litter-day-facts.pdf>.

The Cancer Council New South Wales. The butt littering trust. TAGLines May/June 2006 Sydney: The Cancer Council New South Wales, 2006. Last update: Viewed Available from: <http://www.cancerCouncil.com.au/editorial.asp?pageid=303>.

Ms Coffey Executive Officer. 21 March, S Chapman Professor of Public Health the University of Sydney, Editor 2006, Butt Littering Trust: Sydney.

Department of Environment and Conservation NSW. NSW extended producer responsibility priority statement 2005-06. Sydney: Department of Environment and Conservation NSW 2006. Available from: http://www.environment.nsw.gov.au/resources/warr/2005624_prioritystatement2005_06.pdf.

10.16.1 Health claims, environmental impacts and cost

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Vuse. Vuse Driving Forward on a Multi-Million-Dollar, Multi-Year Commitment to Assist Disabled Veterans. *Cision PR Newswire*, 2020. August 18, 2020. Retrieved from <https://www.prnewswire.com/news-releases/vuse-driving-forward-on-a-multi-million-dollar-multi-year-commitment-to-assist-disabled-veterans-301113749.html>

No authors listed. Global Tobacco packaging market analysis & trends Report 2018- Industry forecast to 2027: Growing demand for alternate Tobacco products and increasing demand for sustainable packaging. PR Newswire, 2018. Available from: <https://www.prnewswire.com/news-releases/global-tobacco-packaging-market-analysis--trends-report-2018--industry-forecast-to-2027-growing-demand-for-alternate-tobacco-products-and-increasing-demand-for-sustainable-packaging-300601882.html>

10.16.3 Policy response

Smulian, M. Pow threatens tobacco firms over litter. *MRW*, 2020. August 18, 2020. Retrieved from <https://ash.us14.list-manage.com/track/click?u=3d5578d8735672472bede942b&id=9426571373&e=0741a2b768>

Cole, R. GOVERNMENT TO CONSIDER LEGISLATING OVER CIGARETTE BUTT LITTER. *Resource*, 2020. July 13, 2020. Retrieved from <https://resource.co/article/government-consider-legislating-over-cigarette-butt-litter>

Hogan, B. NY Democrats want to ban sale of single-use cigarette filters known as 'butts'. *New York Post*, 2020. Jan 17, 2020. Retrieved from <https://nypost.com/2020/01/17/ny-democrats-want-to-ban-sale-of-single-use-cigarette-filters-known-as-butts/>

No authors listed. Cig tossers face tough penalties. *Barrier Daily Truth*, 2020. Jan 24, 2020. Retrieved from <https://customreport.mediaportal.com/#/articlepresenter/b193887d-4794-44da-9aee-99eb9b32cb0d/563503077/1340137782? k=1wapqi>

No authors listed. Hefty fine for flicking butts. *Sound Telegraph*, 2019. Nov 29, 2019. Available from <https://customreport.mediaportal.com/#/articlepresenter/0d665c6c-f9c5-4197-971e-cbbdc84585df/545177930/1292539223? k=wcdnjc>

No authors listed. Tough litter laws pass ACT Assembly. *Canberra Times*, 2019. Oct 23, 2019. Available from <https://customreport.mediaportal.com/#/articlepresenter/b7651252-4a02-4837-9a92-dedb0bfe8a7a/535382381/1261904675? k=xnxme2>

tobaccoinaustralia.org.au

Tobacco in Australia

Facts & Issues

Carrington, D. Britain is nation of litter louts, says Jeremy Paxman *The Guardian*, 2019. Sept 12, 2019. Available from <https://www.theguardian.com/environment/2019/sep/12/britain-is-nation-of-litter-louts-says-jeremy-paxman>

No authors listed. Bin Your Butt. *Keep Australia Beautiful*, 2019. Aug 28, 2019. Available from <https://www.kabc.wa.gov.au/campaigns/bin-your-butt>

No authors listed. Smokers to face \$500 littering penalty. *Canberra Times*, 2019. June 7, 2019. Available from: <https://customreport.mediaportal.com/#/articlepresenter/c5f8d4e2-76df-43df-9849-847012364392/499431658/1158318827?k=9ste43>

Rafanelli, A. Bill Proposed to Cut Toxic Cigarette Waste. *Santa Barbara Independent*, 2019. May 20, 2019. Available from: <https://www.independent.com/2019/05/20/backdoor-butt-ban-proposed/>

O'Connor, T. Merton Council to give out free ashtrays in littering crackdown. *This is Local London*, 2019. Apr 16, 2019. Available from: <https://www.thisislocallondon.co.uk/news/17576598.merton-council-to-give-out-free-ashtrays-in-littering-crackdown/>

Batchelor, T. Cost of cigarettes must rise to reflect environmental damage from tobacco industry, WHO says. *Independent*, 2018. Oct 3, 2018. Available from: <https://www.independent.co.uk/environment/cost-cigarettes-rise-tobacco-industry-smoking-environment-who-climate-change-pollution-a8564796.html>

tobaccoinaustralia.org.au