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Leading the Circular Future: South Australia's Potential Influence on Circular Economy Development in Asia-Pacific Region

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Abstract: Circular economy is among the most influential concepts relating to the realization of Agenda 2030 and the Sustainable Development Goals. Advocates of the circular economy promote its potential to achieve a decoupling of growth from material consumption. Academic critiques describe the circular economy concept as poorly defined and insufficiently concerned with other problems associated with consumerism, globalization, and inequality. South Australia has built a reputation as a first mover in waste management regulations and has recently positioned itself as a leader in the transition to the circular economy. However, the Asia-Pacific region contains a wide variety of socioeconomic, geographic, and climatic conditions that impact waste generation, resource recovery, and circular economy potentials. There are questions about the appropriateness of transferring waste strategy and technologies to different settings. Therefore, this paper explores the basis of South Australia's leadership credentials and discusses its potential influence over the region. This research is based on an analysis of policy documents produced by the South Australian Government. This study found that while multiple South Australian policy documents highlight a desire to lead in circular economy transition, South Australia's leadership reputation had been built prior to its adoption of circular economy ideology. The South Australian Waste Strategy 2020–2025 projects a vision of circular futures aligned to circular modernism and planned circularity. The paper concludes that any transfer of waste strategy should occur with sensitivity to existing waste management systems including the informal sector. Asia-Pacific countries, including Australia, should consider decentralized, low-tech circular economy projects to help to achieve the Sustainable Development Goals.

Keywords: circular economy; agenda 2030; SDGs; leadership; circular futures; waste strategy



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1. Introduction

In 2016, representatives of 35 countries (Afghanistan, Australia, Bangladesh, Bhutan, Cambodia, the People's Republic of China, India, Indonesia, Japan, Kazakhstan, Kiribati, Kyrgyzstan, the Republic of Korea, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, Nepal, Niue, Pakistan, Palau, the Russian Federation, Samoa, Singapore, Solomon Island, Sri Lanka, Thailand, the Philippines, Timor-Leste, Tonga, Tuvalu, Vanuatu, and Viet Nam) gathered in Adelaide, South Australia, to sign the "Adelaide 3R Declaration towards the Promotion of Circular Economy in Achieving Resource Efficient Societies in Asia and the Pacific under 2030 Agenda for Sustainable Development". This "good-will, voluntary, and legally non-binding declaration" established common ground for aligning the implementation of circular economy across Asia and the Pacific to meet the Sustainable Development Goals (SDGs) for the 2030 Agenda for Sustainable Development ([1], p. 0). The declaration recorded "a growing commitment, reflected in the Paris Agreement on Climate Change, that the region needs to embark on

an alternative model of economic growth that is decoupled from increasing resource use, waste, and emissions" [1].

The seventeen SDGs were adopted in September 2015, shortly after The Paris Agreement committed governments to keep global warming under 2 °C [2]. Agenda 2030 is the latest in a series of globally significant goals, summits, commitments, frameworks, and agreements organised by the United Nations to transform humanity in the face of planetary problems. Its purpose is ambitious, resolving to "end poverty and hunger everywhere" and to "build peaceful, just, and inclusive societies" whilst ensuring "lasting protection of the planet and its natural resources" by 2030 ([3], pp. 3–5). Unprecedented global coordination is required to achieve this grand vision [4].

The circular economy has become one of the most influential concepts relating to sustainable development and the realisation of Agenda 2030. Acceptance of the circular economy is accelerating across business, government, and academia, but interest from different stakeholders has pulled the concept in a variety of opposing directions [5]. A 2017 study gathered 114 definitions of the circular economy to demonstrate the diversity of conceptualizations this term has come to represent [6]. Several literature reviews examine the conceptual and theoretical underpinnings of the circular economy and find environmental and ecological economics, industrial ecology, and cradle-to-cradle as antecedents [7,8]. Another study concluded that there was no consensus about the underlying general economic or social theory in circular economy discourse [9].

Despite the ambiguity, developing more circular economies is now a major policy goal with powerful support from international non-governmental organisations such as the United Nations (UN), the World Economic Forum (WEF), and the Ellen MacArthur Foundation (EMF). These thought leaders offer a globally oriented formulation of circular economy that focuses on material efficiencies driving profits for a better, greener form of growth [10]. Circular economies have been promoted as a road to recovery following the disruption caused by COVID-19 pandemic responses. In their report "The Circular Economy: A transformative COVID-19 recovery strategy", the EMF states "many see beyond the pandemic a rare opportunity to build a resilient and low-carbon economic recovery" and ask policymakers to embrace the moment suggesting that "how governments act today will shape the post-COVID-19 world for generations to come" ([11], pp. 4–6).

Tempering this enthusiasm is a growing academic concern that a centralised, neo-liberal version of circularity is dominating the discourse, offering only a weak approach to sustainability [12]. Some scholars have suggested that the circularity-for-growth perspective limits the transformative potential this idea could have for society and ignores other problems associated with rampant consumerism, centralisation, and globalisation [13]. De Angelis and Ianulardo (2020) conceptualize modern society to be trapped in societal addictions whereby circular economy-inspired visions can act as therapy but claim that the philosophical and socioeconomic implications of circular economies are under-researched [14]. Bauwens et al. (2020) likewise point to a scarcity of research detailing possible circular futures and argue that there are multiple ways to organise a circular economy with different pros and cons [15]. Clube and Tennant (2020) find that seminal circular economy texts do address environmental, human, and economic needs simultaneously, but this has gradually been lost in its evolution from theory to practice [16].

With time running out on Agenda 2030 amid increasingly urgent calls to accelerate and scale up circular economies, these critiques suggest the importance for policymakers, businesses, and citizens to understand the consequences of moving towards a circular future. Even within the EMF's "Universal Circular Economy Policy Goals" report, there is an admission that "the transition will need to respond to local opportunities, strengths, and challenges" and "to be mindful of trade-offs brought about by industrial restructuring" ([17], p. 28). It is likely that the type of circular economy implemented will significantly impact how benefits are distributed between stakeholders and the success of the SDGs [18].

According to the Circularity Gap report, the world is now 8.6% circular, suggesting a vast scope for improvement. Several countries in the Asia-Pacific region have been front-runners in developing circular economy-related policy. For example, China's Circular Economy Promotion Law (2009) and Japan's Fundamental Law for Sound Material-Cycle Society (2001) provide modern frameworks that build upon the region's traditional circular values [19]. The benefits of a more circular economy would have a profound impact on an area that is a global manufacturing hub. The region's rapid population growth, urbanisation, and industrialisation of the past century have created a critical need for more sustainable practices. The Asia-Pacific region generated around 61% of the world's plastic waste in 2019, and some countries have waste collection and recycling rates well below the global average, a significant cause of marine pollution [20].

Australia's adoption of the circular economy has in part been motivated by regulatory actions elsewhere in the region. China's National Sword Policy restricted the import of mixed plastics and fibres in 2018 and created a need to invest in domestic recycling infrastructure [21]. Lee (2021) suggests that this reaction to the crisis demonstrates that in Australia, the circular economy is "a pragmatic strategy to stimulate economic recovery rather than some radical change towards environmental sustainability" ([22], p. 1). Melles (2021) notes that state and federal level policy and funding initiatives narrowly focus on waste management, recycling, and market creation, although other interpretations of circular economy are evident in intermediary organisations [23].

As alluded to in the Adelaide 3R declaration, achieving the transition from a linear to a circular economy is commonly thought to require a foundation of cohesive waste management systems based on the waste hierarchy concept of 3Rs—reduce, reuse, and recycle [24]. Governments around the world have adopted some version of the 3Rs concept as a guiding principle of their waste strategies, including European Commission waste policy since the 1970s [25] and the South Australia Government in its Zero Waste SA Act 2004. It has been observed that conceptualisations of circular economy focusing heavily on the 3R aspects often underplay the systemic shifts required for radical change or fail to acknowledge existing circular behaviours outside of the formal economy [26]. Whilst governments throughout the Asia-Pacific region are encouraged to improve their waste management systems to help to meet SDGs, there is cautionary evidence in the literature that suggests that introducing formalised resource recovery projects into "developing" economies can disrupt existing networks of informal sector waste workers and their families [27]. Transfer of waste strategy—including policy, technology, and knowledge—is recommended to be sensitive, incremental, and participatory in approach to avoid undermining other aspects of sustainable development [28].

Leadership is the process of persuading a group of followers to pursue objectives held by the leader or shared by the leader and the followers [29]. The topic of leadership for the circular economy at the institutional level is not well researched. Two recent book chapters explore the topic of circular economy leadership broadly [30,31]. Metcalf and Hinske (2022) claim that a new type of leader is required to realize the circular economy. Similarly, in the Global Leadership for Sustainability model, Fry and Egel (2021) call for leaders and organizations to have a higher purpose beyond enriching themselves and financial stakeholders [32]. Beehner (2023) argues that numerous system leaders are needed to achieve circularity at the necessary scale and impact [33].

South Australia has built a reputation as a first mover in waste management and resource recovery. For example, in 1977 South Australia became the second state in the world and first in Australia to implement a container deposit scheme. The Zero Waste SA (ZWSA) institute was launched in 2004 as a statutory corporation to guide the South Australian waste management and resource recovery strategy with five-year state-wide waste strategies that established metrics, targets, and priorities. Since then, the state has gained praise for regulatory actions including a plastic shopping bag ban (2008) and recent single-use plastic ban on items such as plastic straws, cutlery, and plates (2020) [34]. Crocker et al. (2022) state that South Australia's leadership in waste management and resource

efficiency is “extraordinary and exceptional, and is largely unrecognised beyond the state’s borders, even if many in Asian nations are aware of this” ([35], p. 45).

In 2016, ZWSA changed to Green Industries SA (GISA), and the state began to move away from its zero waste era. Circular economy is now central to the South Australian Waste Strategy 2020–2025 and part of the guiding principles of its waste management legislation. The current waste strategy and business case for GISA positions South Australia as a global leader in transitioning to a circular economy. The shift to circularity in South Australia occurred against a policy backdrop where both major political parties remain committed to a view that increasing economic growth is the driver of prosperity for all. South Australia’s “The Growth State” economic policy emphasises business-led growth through natural resource extraction and exports and a priority to create jobs. Reconciling the state’s aim of increasing both growth and circularity presents some interesting challenges and potential contradictions. It also provokes questions about the vision of circularity South Australia has adopted in its ambitions for leadership and how suitable this is for its regional neighbours.

Therefore, the purpose of this paper is to enquire about the appropriateness of waste strategy transfer between countries in the Asia-Pacific region regarding the circular economy; in doing so, we discuss South Australia’s position as a leader in the field. This paper conducts a document analysis of a selection of waste policy documents to understand official South Australian discourse on circular economy and the potential influence of its leadership on circular economy development in the Asia-Pacific region.

2. Materials and Methods

A small number of previous studies regarding circular economy discourses and futures provide a theoretical foundation for this research. Calisto-Friant et al. (2020) developed a typology of circular discourses based on positions on regarding social, technological, political, and ecological issues [9]. A different perspective on the variability of circular economy visualisation comes from Bauwens et al. (2020) who mapped out possible circular futures based upon a 2-axis matrix—one axis represents the degree of centralisation, and the other axis shows the degree of technological complexity [15]. This produces four possible circular futures—‘circular modernism’ (centralised and complex), ‘planned circularity’ (centralised and simple), ‘bottom-up sufficiency’ (decentralised and simple), and ‘peer-to-peer circularity’ (decentralised and complex) [15]. Both these approaches highlight a variety of possible circular futures with potentially conflicting priorities and assumptions.

Several studies have analysed circular discourses in particular settings. A recent paper by Alberich et al. (2023) used Bauwens et al.’s (2020) circular futures approach to assess policy in the European Commission, using a content analysis of policy documents [36]. They found that a predominance of techno-optimism and centralised governance is leading to a weak version of circular modernism in the European Union. Other notable relevant research considered discourse coalitions [37] and sociotechnical imaginaries [38] in Norway, spatial circularity in Japan [39], and optimal circular economy policy packages in Finland, Greece, and Republic of Korea [40].

Governments comprise many departments and institutes, several of which have influence over waste strategy and development of the circular economy. Texts such as government documents are considered a naturalistic form of data, being produced without the researcher’s involvement, offering a benefit over other common qualitative data sources such as interviews and surveys [41]. Policy documents tell the official story of what an institution plans and attempts to do [42]. Plans in government documents state a vision and can give timetables, targets, and budgets. Zaman and Ashan (2020) state that performance indicators are integral to creating a strategic framework [43]. Targets set by governments in waste strategies point to priorities and beliefs, contain explicit and implicit values, and show or hide intentions and ideas [44]. In other words, it is through policy documents that researchers can observe institutional ideologies.

Ideologies are socially shared foundational beliefs that allow members of society to organise activity or development [45]. This paper takes a similar stance to that of De

Angelis and Ianulardo (2020) in finding that circular economy has multiple conflicting interpretations under the same umbrella [14]. Ortega Alvarado et al. (2020) also see circular economy as competing visions, a set of discourses, about an unrealised future [37]. These visions about what a circular future should be contain assumptions that are inherited from a deeper ideology, for example attachment to the economic growth imperative [10] or concerns about insufficient resources in a crowded world [46]. As these visions become enacted into projects through investments, one future stabilises and sets a pathway for further innovation. In this way policy documents connect ruling relations with people's everyday worlds [42].

Policy document analysis is a useful tool for comparing the development of circular economy across different jurisdictions. Policy transfer is the process of ideas, knowledge, and institutions being adopted by another political system [47]. To investigate the influences concerning policymaking, this study adopted a line of enquiry described by Steiner-Khamsi (2022) from the field of comparative education policy in using the term “reference society” [48]. Originally coined by macrosociobiologist Reinhard Bendix [49,50], a “reference society” or “(transnational) reference space” signals an example nation that has attributes worth emulating. Waldow (2017) notes that the term originally covered reactions, both positive and negative, to another country's values and institutions and emerged to describe a pathway of modernisation when “developing” nation governments frequently referenced a Global North system ([51], p. 648).

The rise in evidence-based planning has seen an increase in referencing as an authority in policymaking [48]. Steiner-Khamsi (2022) notes “the disclosure of the source of information to make a case for the credibility of evidence, that is, the reference, has become as important, if not more so, than the information itself” ([48], p. 37). There is also a trend of dominating influence of international organisations in propagating a standardisation of policy goals, often by championing systems that perform well by a set of metrics even if comparisons are problematic. We suggest that a similar phenomenon can be observed in circular economy policymaking. For example, the UN's Solid Waste Management in the World's Cities Report (2010) assigned Adelaide, South Australia, as a reference city and declared its waste and resources management system to be “in some respects global best practice” ([52], p. 47). In the case of a potential leadership bid, by examining both the references used to establish authority and the reference societies presented as models for emulation it is possible to discern the influences behind policymaking and better understand the vision being put forth for others to follow.

Data selection and analysis—Policy documents were obtained from the Green Industries SA website and other South Australian Government public websites.

The following documents were selected for analysis (Table 1):

Table 1. Documents selected for analysis.

Publication Title	Year of Release	Published by
Integrated Waste Strategy for Metropolitan Adelaide 1996–2015 [53]	1996	Environmental Protection Agency South Australia
South Australia's Waste Strategy 2005–2010 [54]	2005	Zero Waste SA
South Australia's Waste Strategy 2011–2015 [55]	2011	Zero Waste SA
South Australia's Waste Strategy 2015–2020 [56]	2015	Zero Waste SA
Vision of a Circular Economy: South Australia's Waste Strategy 2020–2025 (consultation draft) [57]	2020	Green Industries SA

Table 1. *Cont.*

Publication Title	Year of Release	Published by
Supporting the Circular Economy: South Australia’s Waste Strategy 2020–2025 [58]	2020	Green Industries SA
Zero Waste SA Business Plan 2015–2016 [59]	2016	Office of Green Industries SA/Zero Waste SA
Creating Value: The Potential Benefits of a Circular Economy in South Australia [60]	2017	Report prepared by Lifecycles, EconSearch, Colby Industries and the University of Queensland, for Green Industries SA
GISA Strategic Plan 2021–2025 [61]	2021	Green Industries SA
GISA Business Plan 2022–2023 [62]	2023	Green Industries SA
Zero Waste SA Act 2004 [63]	2004	Zero Waste SA
Green Industries SA Act 2004 [63]	2016	Green Industries SA
Green Industries SA corporate website [64]— www.greenindustries.sa.gov.au (accessed on 30 June 2023)	2023	Green Industries SA
Circular360: The Global Centre of Excellence in Circular Economy website [65]— www.circular360.org (accessed on 24 August 2023)	2023	Circular 360

These documents were selected to include all four five-year state-wide waste strategies and a previous waste strategy that covered the Adelaide Metropolitan Region. The waste strategies were selected to better understand how top-level policymaking has evolved over time with regards to the use of references. Also included are the latest strategic plan and business plan for GISA, the business plan for ZWSA for the time of the institutional rebranding towards circular economy, the waste legislation, a report commissioned by GISA into circular economy opportunities, the GISA corporate website, and the Circular360 website. The corporate website for GISA contains more resources including case studies and reports, but these were deemed out of scope for this study.

The policy documents were closely read over several months, and texts related to the following topics and categories were highlighted.

Circular economy credentials and achievements—first mover/early adopter, performance indicators, investments, projects, and recognition.

Influences—sources of influence, either references or mentions of reference societies considered to be models for emulation.

Leadership ambitions—specific mentions about being leaders, leadership motivations, and potential followers.

3. Results

3.1. South Australia’s Circular Economy Credentials and Achievements

South Australia can be considered an early adopter of circular economy. The concept of “Circular economy” was first featured in the South Australian Waste Strategy 2015–2020, released in 2015 [56]. In this same document, the transition from ZWSA into GISA was publicized, marking a change in ideology for South Australia. In 2016, the legislation previously known as the Zero Waste SA Act 2004 was changed to Green Industries SA Act 2004, and “The Principles of the Circular Economy” was added to its guiding principles above the waste hierarchy [63]. It does not specify what the principles of the circular economy are.

Momentum was gathered following a 2017 report commissioned by GISA, titled “Creating value—The Potential Benefits of a Circular Economy in South Australia” which framed the opportunity as “moving towards a more circular economy, South Australia could decouple its economic growth and development from the consumption of finite resources”. The study estimated that transitioning to a circular economy could create 27,000 green jobs and reduce greenhouse gas emissions by 25 per cent [60].

In early 2020, the South Australian Government, via GISA, released a consultation draft of its waste strategy for 2020–2025, titled “A Vision for a Circular Economy”. It set several ambitious targets for the future, with the overarching target being zero waste to landfill by 2030 ([57], p. 47). The consultation draft explained that the Waste Strategy 2020–2025 will form “a framework of policies, strategies and plans meeting South Australia’s priorities for economic growth and employing more people, investment, reducing the cost of living, and providing better service to the community” ([57], p. 13).

The final version of this policy was released with the changed title, Waste Strategy 2020–2025 “Supporting the Circular Economy” [58]. Interestingly, in the section outlining purpose and perceived benefits the text had been revised to a narrower scope of “a framework of policies, strategies and plans meeting South Australia’s priorities for economic growth” ([58], p. 7). Why “employing more people, investment, reducing the cost of living, and providing better service to the community” ([57], p. 13) was removed is unclear. Another noteworthy observation from the Waste Strategy 2020–2025 is the complete removal of the “zero waste” concept. Although, the Waste Strategy 2020–2025 claims “we are diverting more than 80 per cent of all waste generated from landfill disposal to better purposes through recycling” ([58], p. 6), no explanation is given as to why the zero-waste ideology was discarded so thoroughly.

3.2. South Australia’s Influences

The South Australian Government has released four state-wide waste strategies since 2004, these followed a 1996 Integrated Waste Strategy that covered the Adelaide Metropolitan Region. Over this period, there has been a change in the use of references. In the 1996 policy, there were no references given. In the first state-wide waste strategy produced by ZWSA, covering 2005–2010, the References section has twenty-one references, three of which are international sources—European Commission, New Zealand, and Nova-Scotia, Canada. Most references are reports from South Australian or Australian institutes [54]. Waste Strategy 2011–2015 has twenty-five references with three international sources, two being from United Nations reports [55]. Waste Strategy 2015–2020 has thirteen references with only one international reference from the United Nations [56]. The situation changes in the latest Waste Strategy 2020–2025 with 72 references, 35 of those being international sources. The three authorities referred to the most, other than references to in-house reports, are the Ellen MacArthur Foundation (fifteen references to nine reports), the United Nations (six reports), and the World Economic Forum (three reports) ([58], pp. 65–67).

The Waste Strategy 2020–2025 acknowledges the international inspirations that provide the foundation for South Australia’s direction. These include UNSDGs, Ellen MacArthur Foundation, The European Commission, Wales, China, Scotland, the Netherlands, Japan, Flanders (Belgium), and “Major global businesses such as Google, Unilever, Nike, Cisco and Renault” for “investing heavily in the circular economy” ([58], p. 62).

GISA Strategic Plan 2021–2025 includes a section referring to the SDGs 8,11,12,13, and 17 as aligned with their work and priorities ([61], p. 5).

3.3. South Australian Leadership Ambitions

South Australia’s leadership ambitions have grown stronger and louder since the establishment of ZWSA in 2004. In the “Integrated Waste Strategy for Metropolitan Adelaide 1996–2015”, the policymaking institute was the Environmental Protection Agency (EPA) who aimed to provide leadership to other South Australian institutes [53]. The first state-wide waste strategy, covering 2005–2010, produced by the newly formed Zero Waste

SA mentioned the leadership topic twice. In the first instance, the document credited the European Union as leaders in waste management reform and policy development ([54], p. 9). The second instance was a statement of ambitions for the State Government “to become a leader in the field of ‘green business’” ([54], p. 29). By the time of Waste Strategy 2011–2015, South Australia claimed to have “established its place amongst the leaders in waste management reform and resource recovery in the nation” ([55], p. 3).

The ZWSA Business Plan 2015–2016 introduced the plan to transform Zero Waste SA into Green Industries SA. It states that one of the roles of this new organization is to “help businesses to find new overseas markets for their waste management knowledge and skills” [59]. It goes on to say about our regional neighbours, “Often the equipment is available and the regulations are in place. However, the knowledge and capacity to implement systems that feed the technology is missing” ([59], p. 16).

The United Nations Centre for Regional Development (UNCRD) funded ZWSA to develop a waste strategy for Ahmedabad in Gujarat India with the assistance of a local consultant [59]. The business plan also identified ongoing projects to develop export and investment opportunities in China and an engagement strategy in Southeast Asia focusing on Indonesia, Malaysia, and Singapore. This last project highlighted “export potential for South Australian expertise in engineering and design, policy development and regulation, training, and education in addition to off-the-shelf products” ([59], p. 16).

The 2015–2020 Waste Strategy is showing signs of positioning as an international leader claiming “South Australia has shown leadership in relation to waste management that has been recognized at the national and international level” ([56], p. 21). The foreword by Ian Hunter (Minister for Sustainability, Environment and Conservation and Minister for Climate Change) claims “South Australia is perfectly placed to capitalize on overseas business opportunities by supplying our expertise, knowledge and technology.” Hunter emphasized “increasing challenges and complexities we face in maintaining South Australia’s world-class leadership in environmental management” ([56], p. 4).

The South Australian Government’s confidence appears to have grown since its transition towards Green Industries SA and the circular economy ideology. Hon David Spears MP, Minister for Environment and Water, wrote “Our state has rightly earned a reputation as a global leader in recycling and resource recovery and for building a resilient resource recovery sector” ([58], p. 5). Spears writes about opportunities to “boost” a developing circular economy and markets for recyclables. Kevin McGuiness, Presiding Member for Board of Green Industries SA, remarks on a “firm reputation as a global leader in recycling, resource recovery, and transition to a circular economy” ([58], p. 6).

South Australia’s most notable project for leading the circular economy is The Global Centre of Excellence in Circular Economy, established as a follow-up to the Adelaide 3R declaration. Its Global Leadership Program in Circular Economy is an initiative supported by UNCRP and GISA that seeks to educate senior sustainability leaders, CEOs, and executives to “develop a comprehensive understanding of the circular economy in the areas of governance, enforcement, policy, technology, market instruments, community partnership, and education while in the company of international peers and experts” [65].

4. Discussion

South Australia, through Zero Waste SA and then Green Industries SA, has made valuable contributions to the waste management and resource recovery discourse at the institutional level, building a national and international reputation as a forward thinker. South Australia has clearly stated its ambitions to use this reputation to act as a leader in the circular economy. It has developed a business case to cultivate the South Australian waste management and resource recovery industry and help to export their products, services, and expertise overseas. The motivation behind this leadership bid is described as an opportunity to export South Australia-based technology or knowledge to new markets. The launch of the Circular360 centre extends South Australia’s reputation as an education

destination, and its backing by the United Nations Centre for Regional Development (UNCRD) implies an acknowledgement of the expertise in South Australia.

GISA identified several elements that contribute to their leadership including “container deposit legislation, the plastic bag ban, high-performing kerbside systems, collection of hazardous waste, capture and reuse of stormwater, wastewater reuse, renewable energy and investment in resource recovery infrastructure” [64]. These actions would benefit a transition to a more circular economy but are still predominately focused on the lower levels of the waste hierarchy, managing waste after it has been generated and diverting away from landfill. However, South Australia’s economy remains heavily involved in globalised linear supply chains. It is an exporter of raw materials such as copper and iron ore and consumer goods such as meat, wool, wheat, and wood products [66]. Metrics such as diversion from landfill do not capture how regions such as South Australia can effectively offshore upstream waste and pollution generated during production processes by importing many goods, especially electronics [67].

There has been a noticeable trend in the increased use of references in the South Australian waste strategy policy documents since the turn to circular economy, in particular the use of international sources. This could be attributed to the wider trend of “evidence-based” policymaking that was highlighted by Steiner-Khamsi (2022) [48]. The use of references gives the policy a more scientific and authoritative feel, building confidence that the vision portrayed is part of a global consensus. Another interpretation could be that the nebulous character of the circular economy concept has policymakers searching for credibility through reference to well-funded international think tanks. As South Australia aims to establish itself as a reference society for others, it has increasingly associated its policymaking with recognised institutions.

The Waste Strategy 2020–2025 helpfully acknowledges the “international work that provided the foundation for South Australia’s direction” ([58], p. 62). The reference societies mentioned align with the centralised hemisphere of the Bauwen et al.’s (2020) matrix, with influences displaying characteristics of both ‘circular modernism’ and ‘planned circularity’ [15]. These scenarios are connected to the current discourse espoused by the Ellen MacArthur Foundation and the World Economic Forum, a technological path to sustainability that retains economic growth as the central goal. There are less indications in the Waste Strategy 2020–2025 to projects or influences relating to ‘bottom-up sufficiency’ and ‘peer-to-peer circularity’ [15]. This suggests an industry-focused conceptualisation of the circular economy that prioritises financial values and can overlook other less profitable aspects such as repair, minimalism, sharing, small-scale composting and bio energy, off-grid self-sufficiency, and permaculture.

In one sense, in a globalised economy, common materials such as plastic, glass, or cardboard are dealt with in every waste management system irrespective of the material’s origin. From an engineering perspective, a machine that recycles plastic (for example) should work just as well in Seoul and Sulawesi as it does in South Australia. However, in practice, urban megacities and “developing” economies are often reliant on a significant informal waste sector to manage solid wastes and recover resources [68]. These localised responses to the waste and values of lifestyles in a settlement evolve over time and develop circular characteristics [69]. There is a risk that exporting solutions that have worked in South Australia to a different context could cause unintended consequences. For example, there has been an ongoing struggle for informal waste workers located at landfill sites to secure access to waste when faced with competition from formal sector companies such as those in the energy from waste sector [27]. Without adequate support for this transition, many families in precarious conditions who rely on waste work can face hardships, hindering the SDGs [28].

The South Australian Government has embedded the SDGs into its waste policy. This paper takes the view that the circular future being advocated by the South Australian Government has similar features to the overly centralised and profit-oriented vision that has attracted much criticism from academics [70]. The “decoupling” narrative overlooks

the fact that the current paradigm of consumerism, inequality, and materialism is ultimately proving to be unsatisfactory [71]. Whilst the endeavours of circular modernists and planners are necessary to innovate global supply chains, this approach does not seem sufficient to fully realise the grand vision of Agenda 2030 and the SDGs [72]. It is also important that low-tech, decentralised solutions are supported for long-term prosperity, resilience, and harmony with natural systems.

5. Conclusions

This paper established that South Australia has built a reputation as a first mover or early adopter of regulatory action in waste management and resource recovery and is now positioning itself as a leader in the transition to a circular economy. GISA has developed a business case to export its expertise in waste strategy and promote South Australian businesses to overseas markets. The analysis of the South Australian policy documents found a vision of a circular future associated with circular modernism and planned circularity, according to the Bauwen et al.'s (2002) circular futures matrix. The latest of the documents, the South Australian Waste Strategy 2020–2025: Supporting the Circular Economy, explicitly states its purpose as “meeting South Australia’s priorities for economic growth” ([57], p. 7).

Therefore, this paper takes a cautionary perspective on the possibility of propagating the current vision of a circular economy as described in South Australian Waste Strategy 2020–2025 across the Asia-Pacific region. Whilst it is commendable that the South Australian Government aspire to be leaders of their region, it should be noted that there are limits to transferring waste strategies (including technologies and business models) to other locations. Given the variety of conditions to which the circular economy is being implemented across the Asia-Pacific region, there is a risk of creating unintended consequences. Factors such as informal waste sector participation, various forms of urban settlement density and transportation networks, and climates and cultures should be considered with any policy transfer. Adopting a broader vision of circular economy that recognises the diversity of potential approaches would both strengthen future versions of the South Australian Waste Strategy and make their leadership more relevant.

The findings of this study could help policymakers in South Australia to communicate their leadership more effectively and find appropriate opportunities to export waste strategy components more sensitively to Asia-Pacific neighbours whilst recognising opportunities to learn. For other policymakers in the region, these findings could help to understand the types of activity that have given South Australia their leadership credentials and decide how appropriate these are to emulate. From a theoretical perspective, these findings suggest some promise in developing a method to understand what type of circular future a policy is proposing based on disclosed influences.

This research is limited in that it is based on a selection of policy documents for an analysis. This suggests multiple avenues for further research. For a more thorough understanding of the South Australian Government’s leadership in the circular economy, it is recommended to interview those involved in developing the policies, funding the initiatives, and building the companies that comprise the circular economy ecosystem. This could take place via surveys, focus groups, or in-depth interviews. Another valuable extension to this research would be a more thorough analysis of the South Australian vision of a circular future, using Bauwens et al.’s (2020) approach [15]. This could be the foundation of an exploration into the circular capabilities of the countries co-signing the Adelaide 3R declaration and assessing the opportunities for sharing expertise to encourage cross-pollination of circular economy initiatives for a more balanced circular future. Finally, it could be revealing to investigate the projects and businesses awarded grants and investments by GISA and see how these relate to possible circular futures and the waste hierarchy.

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