

Article

Regional Cooperation in Waste Management: Examining Australia's Experience with Inter-municipal Cooperative Partnerships

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Abstract: Effective governance and inter-organisational cooperation is key to progressing Australia's journey toward the circular economy. At the local governance level, inter-municipal cooperative partnerships in waste management ('IMC-WM' partnerships) are a widespread phenomenon throughout Australia, and the world. This paper aims to analyse waste management in Australia through a governance perspective and inaugurate the scholarship on understanding the complex interactions between actors and institutions designed for regional cooperation. To this end, we explore the partnerships' institutional characteristics, joint activity outputs and the internal relations observed between participants. Data were collected through a nationwide census survey of Australia's IMC-WM partnerships and a short online questionnaire to the municipal policy actors (councillors, executives and council officers) who participate in them. The investigation observes that a diversity of innovative institutional responses has emerged in Australia. However, within these partnerships, a culture of competitiveness antithetical to sustainability is also detected. Despite competitive behaviours, the partnerships perform very well in cultivating goodwill, trust, reciprocity and other social capital values among their participants—as well as a strong appreciation of the complexity of municipal solid waste (MSW) policy and the virtues of regional cooperation. This dissonance in attitudes and engagement dynamics, it is suggested, can be explained by considering the cultural-cognitive influence of broader neoliberalist paradigms. As the first scholarly investigation into Australia's experience with regional cooperation in waste management, this research reveals the macro-level structures and ascendent micro-institutional dynamics shaping the phenomenon.

Keywords: waste management; inter-municipal cooperation; inter-governmental relations; municipal solid waste; public administration; governance; regional engagement; governance paradigms; collaborative governance



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1. Introduction

Australia's generation of municipal solid waste is the 12th highest in the world per capita [1]. The impacts of waste generation have been well-researched and include various environmental, social and economic costs [2]. With landfill activities currently contributing at least two percent of Australia's greenhouse emissions [3], the need for effective waste management strategies represents a local, global and inter-generational imperative.

Local governments (councils) are widely recognised as playing a key role in Australia's journey toward a less wasteful, more 'circular' society [3,4]. Of interest to policymakers is how councils are working together to enhance their overall effectiveness.

In establishing inter-municipal cooperation arrangements to support waste management ("IMC-WM partnerships"), councils are led toward a 'systems thinking' mindset that can potentially improve the overall sustainability of the partnership region. This change in how governance takes place represents a shift from *intra-council* to *inter-council* decision-making which, in itself, is an evolution from a vertical hierarchical structure to

a horizontal forum among peers toward common goals. According to scholars, the rise of this kind of collaborative approach is representative of a broader paradigm shift in the public sector that has been accelerating since the turn of the 21st century [5,6].

Despite the prevalence of IMC-WM partnerships throughout Australia's states and territories, the phenomenon of 'regional cooperation in waste management' has yet to be the focus of any Australian scholarly investigation. Indeed, the only existing empirical research of the phenomenon has taken place through localised surveys [7,8] or case studies [9,10] which explore municipal service sharing in general. With local government structures, responsibilities and their relations with central and subnational governments being so heterogeneous around the world, it is also difficult to gain valuable insights on the Australian context by referring to the international body of work.

With these realities in mind for Australian policymakers, this paper aims to analyse waste management in Australia through a governance perspective and build a foundation for understanding the complex interactions between actors and institutions for decision-making.

Accordingly, the study generates new empirical data and insights across three broad areas of investigation:

- the macro-level institutional structures that have emerged in Australia to facilitate cooperation;
- the institutional outputs (joint waste management and policy activities) which they are facilitating; and
- how the attitudes and engagement dynamics that exist within these partnerships shape their effectiveness.

2. Literature Review

2.1. Local Government, Waste Management and Administrative Borders

In Australia, the scope of local governments' responsibilities has increased in complexity over time. This evolution has been described as a "gradual but significant shift from 'services to property' to 'services to people'" [11]. As councils began to see themselves as more sophisticated instruments of change, they became more proactive in policy areas such as strategic transport planning, nurturing the wellbeing of their residents and evidence-based environmental policy [11].

While a council's jurisdictional authority is bound to its administrative borders—and its 'constituents' are those within it—taking a systems thinking view to municipal solid waste (MSW) management integrates the componentry and stakeholders beyond these borders.

Khan and Bajracharya [11] write that the geographic boundaries of councils can "become barriers to tackling wider issues", and councils who do not take a holistic approach risk creating gaps in coverage, inefficient management, public discontent and the exacerbation of environmental issues. When policymakers take a broader view, they can see how a system is contextually embedded, leading to more effective strategy design and improvements in sectors such as waste management [12].

The benefits of adopting a governance perspective at the regional level is advocated by the United Nations (UN) to synergise environmental and economic links. This can be seen throughout the Sustainable Development Goals [13,14] as well as the UN's New Urban Agenda which asks signatories to adhere to sustainability principles that foster stronger integration and coordination between local governments [15].

Within Australia, several government inquiries have resulted in recommendations for enhanced regional cooperation [16]. For example, one report suggested enhancing regional council networks because they represented "a way for councils to share experience and resources, tackle common tasks, or take advantage of economies of scale" [17]. At the federal level, a 2003 parliamentary report recommended the Australian Government work closer with high-performing regional collaborations of councils [18].

While most government publications on regional integration focus on the broad suite of benefits in inter-municipal cooperation, a more nuanced perspective can be found in the Australian Productivity Commission’s 2006 inquiry on waste management [19]. Although this particular report is now 15 years old (and, notably, produced prior to the impacts of the China National Sword policy), it remains one of the most comprehensive examinations of Australia’s waste management landscape ever conducted. The report identifies that while local governments are increasingly forming partnerships and adopting regional approaches [19], it should be noted such arrangements still require appropriate expertise and capital backing. Further, the report advises that the ‘not-in-my-backyard’ (NIMBY) issues of siting waste facilities remain a challenge in regional networks, leading the commission to recommend that such matters are better handled by state or territory governments. Other sections of the report recognise the importance of the Federal Government in facilitating regional cooperation and helping to develop more coordinated waste policies [19].

2.2. The Value of Regional Partnerships in Enabling the National Waste Policy 2018

Australia’s current national framework, the National Waste Policy 2018 [3], came about in the wake of China’s recycling import ban. Across five principles—*Avoid Waste, Improve resource recovery, Build local demand, Better manage key materials* and *Improve waste information*—the policy assigns tasks to all three tiers of governments and the business community through its associated Action Plan [20].

While the policy has been critiqued for not taking more ambitious steps, such as setting explicit targets for reuse and repair [21], the National Waste Policy 2018 is still undoubtedly the boldest policy produced to-date to guide Australia toward greater circularity. Within the policy, numerous actions are found to be conducive to regional cooperation via IMC-WM partnerships, as demonstrated in Table 1.

Table 1. National Waste Policy 2018 actions identified as conducive to regional cooperation.

Target	Action	Action Description ¹
Target 1	Action 1.3	The development of new markets for recycled products and materials in the region.
	Action 1.9	New regulations in the region to prevent the landfilling of recyclable materials.
Target 2	Action 2.5	The delivery of targeted programs in the region to build businesses’ capability to identify and act on opportunities to avoid waste and increase materials’ efficiency and recovery.
	Action 2.7	Support community-based reuse and repair centres in the region, enabling communities to avoid creating waste.
	Action 2.12	Support circular economy principles in the region’s urban planning, infrastructure and development projects.
	Action 2.15	Undertake research to better understand the contributing factors to contamination in kerbside recycling bins, to inform future interventions.
	Action 3.16	Explore opportunities to leverage existing regional development programs to support better waste management and resource recovery.
Target 3	Action 3.17	Increase access to waste and resource recovery infrastructure for regional, remote and Indigenous communities.
	Action 4.1	Actions to increase the amount of recycled content used in road construction in the region.
Target 4	Action 4.3	Work with industry to increase the uptake of recycled content in other government infrastructure and building projects with priority given to plastics, glass and rubber.
	Action 4.7	Supporting or promoting the region’s businesses that are applying circular economy practices, such as by running a recognition scheme or awards program.
Target 5	Action 5.9	Better manage the import, export, use, manufacture and end-of-life disposal of products and articles containing hazardous substances.

Table 1. Cont.

Target	Action	Action Description ¹
Target 6	Action 6.3	Provide support to develop distributed infrastructure solutions to process organic waste, including composting infrastructure.
	Action 6.4	Delivering a FOGO (Food Organics and Garden Organics) service to a region or parts of it.
Target 7	Action 7.2	Efforts to adjust a region's waste data and reporting practices to support harmonisation with Australian Government practices and other jurisdictions.

¹ Action descriptions adapted to project context (inter-municipal partnerships).

2.3. Regional Engagement, Mechanisms, and Conditions

Inter-municipal cooperation (IMC) is defined as two or more local governments working together in a voluntary capacity to deliver services such as “administrative services, water provision, public transport” or joint activities inside of broader policies such as “the promotion of local economic development” [22]. Cooperation can take place across a wide spectrum of arrangements, from low-risk information exchange to complex service delivery partnerships [23]. IMC is a field of inquiry concerning governments of the same tier working together—a form of “horizontal” intergovernmental relations.

Throughout Australia and the world, waste management is one of the policy areas that regularly brings councils together to cooperate horizontally [16,24]. The institutional arrangements to facilitate this come in many different institutional modalities.

Regardless of the policy area, councils' motivations for cooperation are typically rationalised around expected financial benefits in achieving economies of scale [25]. That said, motivations to cooperate can also be driven by expected benefits in social capital and fostering goodwill within a region or improving environmental sustainability. This trifecta of economic, social and environmental benefits reveals IMC to be relevant to all ‘three pillars of sustainability’ [26].

Urban planning scholars perceive a number of ‘precursor conditions’ which are facilitative of cross-boundary engagement [27,28]. In one of the most comprehensive publications on IMC to date, Teles [23] distils the literature on facilitators into eight conditions. Teles' eight conditions are provided below alongside other findings in the literature that contextualise it within the realm of MSW management and policy.

- **The nature of problems:** When problems have a high degree of complexity or are wicked problems such as waste management, they can present a challenge for a single authority to effectively address.
- **History of previous collaboration:** In the Australian context, a legacy exists of strong 1970s and 1980s regionalist policies [29] that are relevant to current and future IMC-WM partnership formations.
- **Identity and territorial context:** The idea that shared identity can act as a condition to forming waste partnerships is supported in the findings of Kołsut [30].
- **Balanced power relations:** A previous study found IMC-WM partnerships which feature one council of a disproportionately larger population are less efficient [31].
- **Institutional context:** The variation of waste levy programs between Australian states affirms the idea that regulatory incentives are a strong precursor condition to cooperation. For example, in New South Wales (NSW), a portion of levy funds is provided to support IMC-WM partnerships through the Waste Less, Recycle More fund [32].
- **External influence:** The acute challenges that many Australian councils have experienced following the ramifications of the China National Sword policy [33] could perhaps be considered a prime precursor condition for cooperative engagement.
- **Expected outcomes:** The view that IMC-WM partnerships save councils costs is supported by a recent meta-regression analysis study undertaken by Bel and Sebo [25].
- **Organisation profile:** Leadership styles, administrative and public management profiles, organisational culture and norms, and decision-makers' risk-taking attitude

can create the disposition or institutional ability towards collaboration in the waste management sector.

In looking at intergovernmental cooperation theory more broadly, Foster [28] identifies 10 categories of ‘impulses’ that push governments either toward or away from regional cooperation, as presented in Table 2.

Table 2. Regional impulses (adapted from Foster 1997, 377).

Impulse	Pro-Regional Factors	Anti-Regional Factors
Natural Resource	Shared resources (e.g., streams, air)	Natural barriers within the region (e.g., rivers, mountains)
Macro-economic	Common mode of production (e.g., industrial or agricultural)	Mixed modes of production
Centrality	High central-city dominance; High centre-periphery interdependence	Low central-city dominance; Low centre-periphery interdependence
Growth	Common growth and development experiences	Uneven growth and development experiences
Social	Similar cross-jurisdiction socioeconomic status	Dissimilar cross-jurisdiction socioeconomic status
Fiscal	Similar cross-jurisdiction fiscal capacity; Potential for economies of scale; Fiscal exploitation (for the exploited party)	Dissimilar cross-jurisdiction fiscal capacity; Fiscal exploitation (for exploiting party)
Equity	Support for redistribution	Resistance to redistribution
Political	Common political affiliation; Desire for a united front	Mixed political affiliations; Geographically concentrated minority groups
Legal	State and federal incentives favouring regionalisation	State and federal incentives constraining regionalisation
Historical	History of inter-jurisdictional cooperation and successful regional efforts	History of inter-jurisdictional antagonism and failed regional efforts; Long-standing local political borders

2.4. Institutional Dimensions of IMC Partnerships

Although the term *institution* is often used synonymously with the term *organisation*, there are distinct differences in the sociological implications of these concepts. For example, institutions are characterised by procedures that end up manifesting as the “rules of the game” [34], or grounded in the “humanly devised constraints that shape human action” [35]. Davis and North [36] introduced the concepts of the ‘institutional environment’ and the ‘institutional arrangement’ to understand the cooperation between institutions. The institutional environment refers to the broader political, social and legal norms of the economic system within which the institution operates. The institutional arrangement refers to the norms and behaviours that are implicitly or explicitly agreed to by the participants of the institution itself.

In the context of IMC-WM partnerships in Australia, each of these institutions develops its own ‘rules of the game’ among participants through their governance agreements (e.g., their Memorandum of Understanding or Establishment Agreement) as well as the social dynamics that the participants cultivate together. These internal ‘micro-institutional factors’ are the componentry of what Davis and North conceptualise as the institutional arrangement.

In seeking to classify IMC partnerships by their institutional dimensions, there are two frameworks available in the literature that can be applied, although they are each suited to different types of study. The first framework (see Table 3) is the typology recently developed by Villalba Ferreira et al. [37], following their case study of IMC-WM partnerships in an

Ecuadorian metropolitan region. Following their observations, the researchers categorised their typology into Indirect, Transactional and Collaborative levels of cooperation, with the caveat that different arrangements can span more than one category [37].

Table 3. Typology matrix of IMC-WM partnerships.

<i>Dimensions/Types of Cooperation</i>	Indirect	Transactional	Collaborative
Type of interaction	Knowledge exchange	Buying/Selling	Shared management
Commitment	Uncommitted	Contractual	Partnership
Governance complexity	Low	Middle	High
Representation	Unclear	Managers	Elected officials
Degree of institutionalisation	Informal	Formal	Formal
Type of interaction	Knowledge exchange	Buying/Selling	Shared management

The second framework that can be applied to classify institutions is Richard Feiock’s taxonomy of “integration mechanisms”, which was developed following his observations of metropolitan institutions throughout the United States. While there are undoubtedly many differences in the political systems of the United States and Australia, both countries are highly developed market economies that apply indirect democracy through a Federal system where a significant amount of authority is devolved to State and local tiers [38].

Feiock explains that local municipal policy actors have a variety of integration mechanisms available to them to confront institutional collective action dilemmas [39]. His taxonomy of integration mechanisms can be visually depicted as a matrix corresponding with two-dimensional axes, as shown in Figure 1.

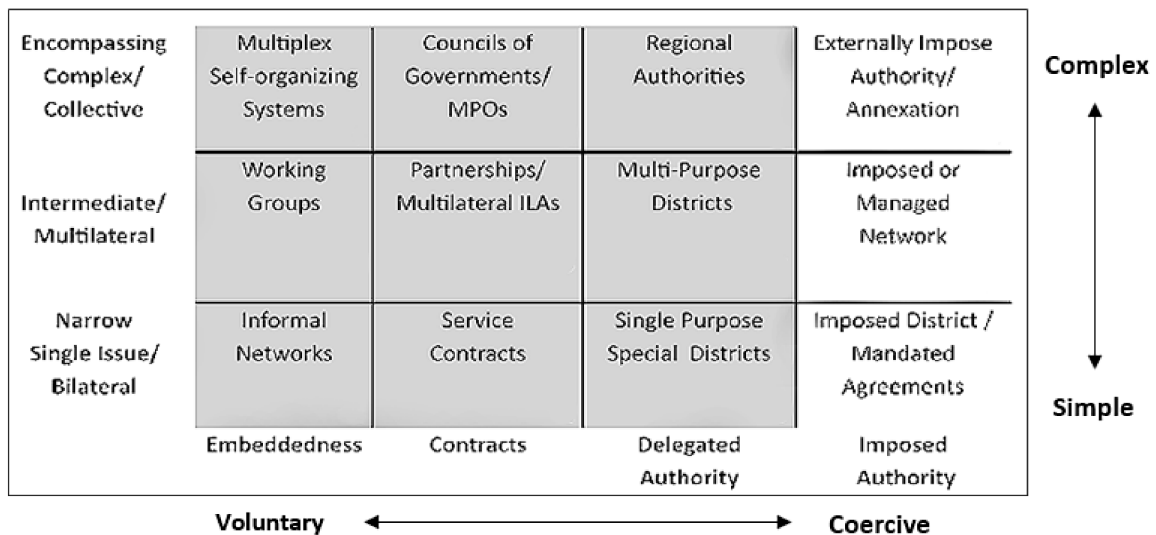


Figure 1. Feiock’s taxonomy of integration mechanisms (Feiock 2013, 401).

2.5. Existing Empirical Research into Australia’s ‘Shared Services’ Experience

The literature review identified that although some case study research and localised surveys have been undertaken on Australia’s IMC experience, no works so far have focussed on IMC partnerships oriented around waste management.

Professor Brian Dollery, Australia’s most published scholar on IMC-related topics, laments the “paucity of work directed at establishing the empirical outcomes of shared service models in actual practice” [16].

In 2016, Dollery, Kortt and Drew summarised and reviewed the available empirical literature on Australia’s experience with IMC/shared services. They identified four case

studies from South Australia (SA) and NSW, a literature review conducted by the Local Government Association of Queensland and three surveys undertaken of councils in NSW, SA and Western Australia (WA) [10].

Of these works, the surveys provide the most generalisable insights on the activity sharing taking place via IMC. In 2007, a survey of 34 councils in SA identified the six most frequent areas of activity sharing as: 1. waste management, 2. urban planning, 3. joint purchasing and shared physical assets, 4. 'back-office' operations, 5. shared IT services, and 6. financial and corporate services [9]. The surveys of WA and NSW councils [7,8] identified the top areas suitable for shared services arrangements are: 1. waste collection and disposal, 2. IT services, 3. library and museum services, and 4. land management services [10].

It should be noted that these surveys—conducted in 2005, 2006 and 2007—are all now potentially outdated inquiries. As discussed earlier in this literature review, local government activities are constantly evolving in response to changing circumstances and, therefore, it cannot be assumed that the findings of these investigations can reliably be applied to today's contexts. Another perspective to consider with these surveys is that they explored all types of municipal activities, leading to a lack of depth on the actual program activities being shared with each policy area.

For example, it is notable that every survey reveals MSW management to be the area most frequently delivered through IMC. However, MSW management is itself a vast municipal policy area with numerous 'sub-components' conducive to activity sharing (e.g., joint facility management, regional behaviour change campaigns, etc.).

These deficits in the literature represent two unfortunate gaps on the Australian experience: firstly in how outdated our knowledge on activity sharing is, and secondly, in how lacking in depth our knowledge remains concerning the intricacies of MSW management activity sharing.

2.6. Governance Paradigms and Internal Relations

Rhodes [40] explains that "patterns of governance" (referred to as 'internal relations' in this study) emerge within inter-organisational partnerships as "the contingent products of drivers, actions and political struggles informed by the beliefs of agents". In its most simple dichotomy, the internal relations of municipal policy actors engaged in IMC-WM partnerships can be classified as either competitive or collaborative.

Establishing an IMC-WM partnership represents a shift from intra-council to inter-council decision-making which, in itself, represents a shift from a vertical hierarchical structure to a horizontal forum among peers toward common goals [41]. According to scholars, the rise of this kind of collaborative approach in the public sector is representative of a broader paradigm shift that has accelerated since the turn of the century [5,6]. This emergent 'collaboration focused' paradigm is known as New Public Governance (NPG).

NPG is predicated on a worldview that society is in a state of pluralism and should be governed with this reality in mind [42]. To understand the significance in the rise of this new 'collaborative governance' approach, it is important to consider the two earlier cultural paradigms which shaped public administration over the last two centuries—Traditional Public Administration (TPA) and New Public Management (NPM).

During the TPA period that dominated until the early 1980s, the public sector was often perceived as being highly bureaucratic, devoid of customer service principles, oriented around the rule of law, hierarchical and centrally administrated [6,43].

Dickinson [43] explains that TPA began to be critiqued over time, particularly for its inefficiency and for "serving the interests of public service professionals rather than those of citizens". The Cold War further fuelled this perspective against the TPA approach to government, which entrenched a new political perspective that frowned upon the welfare state and other socialist ideas [44].

In response to the perceived problems of TPA, a new paradigm was seen to emerge in the public sector across Australia, New Zealand, the United Kingdom, United States,

the Scandinavian countries and a few other western nations [45]. Known now as the ‘New Public Management (NPM)’ paradigm, NPM sought to transform the culture and practices of government entities so that they become more ‘business-like’ and resemble organisations in the private sector. This was achieved by prioritising cost-cutting wherever possible, treating citizens as customers, and nurturing competitiveness between organisations, departments and staff [46]. Van Assche et. al. describe NPM as a “governance by numbers” approach which offers both benefits and downsides for the coordination of strategy and fostering of long-term perspectives [47]. On the one hand, NPM helps articulate public goods via its penchant for quantification, goal setting and indices. On the other hand, NPM’s simplicity and reductionist outlook comes at the cost of meaningfully grappling with complexity, leading to a “reduced insight in all the governance options and designs” that may be available [47].

NPM ideas and practices boomed in the 1980s and 1990s, driven by the sharp rise in neoliberalist practices throughout western societies [48]. At some points, NPM represented such an extreme shift toward neoliberalist deregulation that certain advocates even began to question whether *public policy* should be allowed to have any effect on *public management* [6].

The key elements of the three paradigms are shown in Table 4.

Table 4. Key elements of theoretical public sector paradigms (adapted from Osborne 2006, 383).

<i>Paradigm/Key Elements</i>	Traditional Public Administration (TPA)	New Public Management (NPM)	New Public Governance (NPG)
Paradigm peak	1800s to 1970s	1980s to today (fading)	2000s to today (rising)
Theoretical roots	Political science and public policy	Neoliberalism, economics (esp. public choice theory), and management studies	Organisational sociology and network theory
Nature of the State	Unitary	Disaggregated	Plural and pluralist
Focus	How policy is made	Intra-organisational management	Inter-organisational governance
Governance mechanism	Hierarchy	Market through traditional contracts	Trust or relational contracts
Value base	Public sector ethos	Competition in market context	Neo-corporatist

To date, most scholarly studies on the rise of NPG have explored cases of inter-organisational governance between state and non-state actors [49].

While cooperation between municipalities forms a seemingly mundane manifestation of the NPG movement (compared to network governance for example), it is important to recognise how the same theoretical dynamics are still in play. This is because councils are still individual and autonomous actors in a broader system, where the actions of each actor can affect the others. Villalba Ferreira [37] builds on this idea by arguing that NPG is pertinent in understanding IMC-WM partnerships because within each council is a sub-system of other stakeholders, and applying the network governance theoretical approach of NPG provides the most holistic lens to capture the multiplicity within the actors’ dynamic.

It is important to recognise that NPG is still an emergent paradigm in the public sector. Van Gestel et. al. [50] writes that currently “NPM and NPG models are simultaneously at play” and their distinction and characterisations do not “necessarily imply that one has replaced another”. Some scholars argue that what has actually occurred in practice is a shift toward network models while retaining old NPM principles [51,52].

For example, in Martin’s 2010 study looking into the United Kingdom’s Local Strategic Partnerships, Sustainable Community Strategies and Local Area Agreements (all forms of network governance), he writes that current policies actually represent a blending of old

forms of traditional bureaucracy and Thatcherism-inspired thinking (i.e., NPM principles) with a stated desire to adopt network governance practices [52].

2.7. Pitfalls to Regional Cooperation

While cooperative approaches are a logical response to a pluralist world, the increase in complexity can lead to potential dysfunctionality in governance [53].

Governing and joint program delivery through cooperation can be more time-consuming, result in partnership fatigue [54], can create new opportunities for conflict and a shared sense of purpose may not be easily achieved despite working together. In cases where developing social unity requires effort, questions arise as to whether the amount of compromise and effort required to achieve this can be justified or whether the approach should be viewed as a fundamentally inefficient way to govern [53].

2.7.1. The Multiple Principal Problem

The multiple principal problem (MPP) is defined as the “collective action problem that organisations face when they must balance (competing) interests of multiple stakeholders under joint service delivery” [55].

In the literature, MPP issues have been identified in situations where councils establish a separate entity, such as a waste management authority or regional council, which is governed by the councils but managed by a separate director [56]. Voorn, van Genugten and van Thiel write that MPP manifests itself in these scenarios in a number of ways, such as ‘free riding’ by member councils (e.g., not reporting their full use of a shared facility) or lobbying the Director for outcomes beneficial to an individual council [55].

Interestingly, the researchers explored potential solutions to these issues but concluded that when a lack of goodwill exists and persists in an IMC arrangement, it becomes virtually impossible to prevent the collaboration from being undermined [55]. For example, member councils always have some capacity to withhold important information from the other members of the network. The researchers give the example that a pro-recycling council has the ability to not report information that demonstrates the costly nature of recovering certain recycling streams, while a fiscally conservative council may be less likely to report positive feedback from residents about a program that is perceived as too costly [55].

2.7.2. Deficits in Social Capital between Network Partners

The viability of an IMC arrangement can be undermined if there is a lack of goodwill, transparency and trust. These three attributes are closely related to the concept of ‘social capital’, which Dollery, Grant and Crase [57] identify as a reason why Australian attempts at regional cooperation have collapsed in the past.

The OECD (Organisation for Economic Co-operation and Development) defines the concept of social capital as the value and opportunities that arise from having “shared norms, values and understandings that facilitate co-operation within or among groups” [58]. The concept was popularised through publications by political scientist Robert Putnam in the 1990s [59].

Dollery, Grant, and Crase [57] argue that researchers and governments have failed to recognise how important social capital is to the sustainability of IMC partnerships. Instead, most attempts to understand and improve these partnerships have “relied almost entirely on the economics of the problem, to the exclusion of other factors” [57]. As per some studies [30,60], research findings frequently show signs that scale economies and cost savings alone do not result in successful partnerships.

Taking an acute focus on economics and costs fails to consider that it is *humans* who interact with each other, on behalf of the member councils, in inter-organisational networks. In the Australian context, an examination into the demise of NESAC (New England Strategic Alliance of Councils), a former strategic alliance of cooperating councils in New South Wales, identified that the collapse occurred because of “intangible social factors revolving around a lack of trust between NESAC members” [57].

In the lead up to the collapse of this IMC partnership, 10 interviews were conducted by researchers [61] with the partnership's delegate mayors and general managers. In the interviews, several comments were made that highlighted how the councils had failed to develop a regional identity or cultivate social capital amongst the group, with comments being made such as "we don't see ourselves being connected with the other councils" and "there was nothing in the meeting procedure that allowed us to say 'I don't trust you'" [61]. The authors conclude their analysis by commenting that, in the case of NESAC, suspicion and distrust had become part of their "storylines" and the councils retreated further into an anti-cooperative culture with each other.

The scholarship of Dollery and his contemporaries on Australia's experience with regional organisations [10,16,57,61] shows that even in cases which meet the theoretical precursor conditions described in Section 2.3, IMC partnerships will likely fail where they lack social capital qualities such as a shared sense of identity and purpose, shared norms, shared value, trust and transparency.

2.8. Key Findings from the Literature

To build an understanding of the phenomenon of IMC-WM partnerships, this literature review has traversed several areas of inquiry. At the outset, it was identified that the role of local government is continually evolving. Waste management is a policy area where an increasingly sophisticated approach is being taken by councils and the pursuit of greater sustainability has led many councils toward regional engagement. In looking closer at regional engagement, the review explored the typical precursor conditions to cooperation and the institutional dimensions of regional partnerships. Precursor conditions, as per the work of Teles [23] and Foster [28], were shown to span across a suite of geographic, social, historical, political, fiscal, economic and cultural factors. Feiock [39] (2013) and Villalba Ferreira et. al. [37] provided tools to support the classification of regional partnerships. The final area of inquiry in this review has been to explore the internal relations experienced by interdependent municipal policy actors who participate in regional partnerships. As per the two most recent public sector paradigms shaping the Australian public sector, municipal policy actors are thought to behave in either a neoliberalist-oriented dynamic of *competitiveness* (the 'New Public Management' paradigm) or a pluralism-oriented dynamic of *collaborativeness* (The 'New Public Governance' paradigm).

Notably, this literature review has highlighted a serious deficit of scholarly investigation into Australia's experience with regional partnerships for waste management. This is despite previous surveys [7–9] identifying that waste management is the area most frequently subject to regional cooperation by Australian councils.

As the first academic study into Australia's experience with regional cooperation in waste management, this paper aims to provide a foundational understanding by exploring the following research questions (RQ):

- **RQ1:** What institutions and engagement practices exist in Australia to support regional cooperation in waste management?
- **RQ2:** What are the outputs (joint waste management activities) arising through these partnerships?
- **RQ3:** What are the internal relations and attitudinal characteristics of the municipal policy actors engaged in regional cooperation, and what are their implications for sustainability?

3. Conceptual and Theoretical Framework

Taken together, the research questions aim to 'build a picture' of regional cooperation for waste management in Australia by looking at certain key components. As shown in Figure 2, the components investigated in this study are conceived to be a nested system.

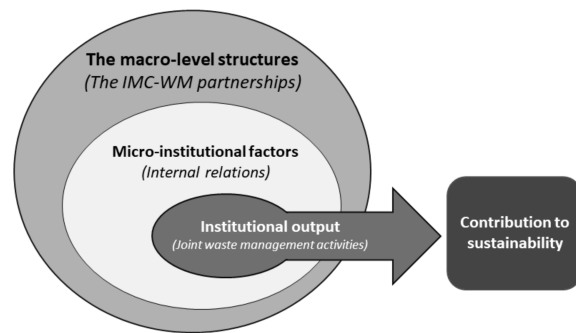


Figure 2. Conceptual framework of the study.

As macro-level structures, the various IMC-WM partnership types provide the setting for local governments to engage with each other. Within these settings, we see the micro-institutional factors manifest as the internal relations between the member councils via their delegated municipal policy actors. Finally, the institutional outputs are seen to emerge in the form of joint waste management activities, and these activities can be seen to contribute (in varying capacities) to Australia’s journey toward sustainable waste management.

The overarching theory that provides the foundation for the Theoretical Framework (Table 5) is the theory of institutions, as understood through the scholarship of Douglass North [36]. Accordingly, the theoretical scope of an *institution* is seen to include not only the macro-level structure (the IMC-WM partnership arrangement) but also the way the participants co-produce the engagement experience together through their norms and behaviours (internal relations), which, in turn, shape the outcomes of their engagement (joint waste management activities).

Table 5. Theoretical framework of the study.

Theoretical Component ¹	Aspect of Inquiry	Indicators
Macro-level structures	IMC-WM partnerships	<ul style="list-style-type: none"> Institutional characteristics (e.g., legislative status, governance arrangement, tenure) Cooperative engagement activities (e.g., cross-boundary meetings, information sharing practices)
Micro-institutional factors	Internal relations	<p>Engagement dynamic indicators:</p> <ul style="list-style-type: none"> Signs of collaborativeness—as informed by the theoretical basis of New Public Governance paradigm and ‘Regionalist thinking’ Signs of competitiveness—as informed by the theoretical basis of New Public Management paradigm and ‘Localist thinking’ <p>Attitudinal indicators:</p> <ul style="list-style-type: none"> As informed by the literature, attitudes toward MSW policy and the value of regional cooperation (systems thinking, the ‘Integrated Solid Waste Management’ framework, etc.)
Institutional output	Joint waste management activities	<ul style="list-style-type: none"> Frequency of cooperation in waste management activities identified as conducive to regional cooperation Alignment with National Waste Policy 2018 Action Plan

¹ Adapted from North’s theory of institutions.

4. Research Methodology and Methods

The study applies a mixed-method approach by considering both the qualitative and quantitative nature of the investigation. The following data collection tools are employed to answer the research questions:

1. A nationwide census survey of Australia’s IMC-WM partnerships, and

2. A questionnaire to the municipal policy actors participating in IMC-WM partnerships on behalf of their respective councils.

4.1. Census Survey and Participation Procedures

As a census survey, it was important to ensure all units within the population were invited to participate. To facilitate this, a comprehensive catalogue of Australia's IMC-WM partnerships was created through:

- a desktop review involving a review of each state or territory's waste policy publications (e.g., strategy documents, waste grant recipient lists, etc.) to identify all State Government-recognised IMC-WM partnerships;
- phone and email inquiries to local government associations, waste industry associations and dominant local governments in a region;
- a 'snowball' strategy which entailed phoning remotely located IMC-WM partnerships and asking them to list all other remotely located IMC-WM partnerships they were aware of within their state.

This process yielded 58 partnerships. A further review of these partnerships led to the decision that partnerships that were 'single-purpose operational' in nature—such as those solely in place to operate a shared landfill or a collection contract—should be excluded from the study. It is acknowledged that many such uni-dimensional sharing arrangements exist between councils throughout Australia [62], but as they function in such an acutely operational scope, they were deemed insufficiently relevant to the research questions. Following the exclusions, a total of 49 partnerships were identified for inclusion in the study.

A web-based survey was designed and conducted using Curtin University's commissioned Qualtrics survey software. Tactics to increase the participation rate throughout the recruitment period included sending personalised emails, phone calls and a follow-up email to non-responses at intervals of two weeks and then four weeks.

The census survey (Appendix B) contained questions about institutional characteristics, shared waste management activities, contributions to the National Waste Policy Action Plan [20], a section to upload documentation about their institution and activities, knowledge sharing and collaborative engagement and, lastly, optional open-ended questions to share final thoughts.

A risk of potential problematic data was identified for partnerships' ability to self-identify their regional designation. It was noticed during the design of the survey that the terms 'regional', 'rural' and 'metropolitan' were highly subjective and without a clear legend, any data generated would not be reliably comparable. To alleviate this, a map of Australian regional designations as per the Australian Bureau of Statistics (see Figure 3) was included as a legend for the census survey respondents.

4.2. IMC-WM Census Survey Response Rate

In total, 35 out of 49 of the IMC-WM partnerships responded to the census—a response rate of 71.42%. Census responses came from a diverse spread of metropolitan and regional contexts.

Aside from the Australian Capital Territory jurisdiction (which does not have any local councils as these affairs are managed by their territory government), partnerships from every Australian state and territory jurisdiction participated.

The map provided in Figure 4 shows Australia's local government boundaries at the time of data collection (May 2021). Coloured in white are the areas of Australia where no IMC-WM partnerships were identified that fit the study's criteria. The areas coloured in green represent the member councils of the IMC-WM partnerships who responded to the census and the magenta areas represent the areas of IMC-WM partnerships that either declined or did not respond.

Using the map below as a guide, please estimate the 'remoteness mix' of your IMC-WM partnership's area.



Figure 3. Map included in the IMC-WM Census Survey to facilitate accuracy in respondents' self-assessment of their regional context (image sourced from GeoSciences Australia).

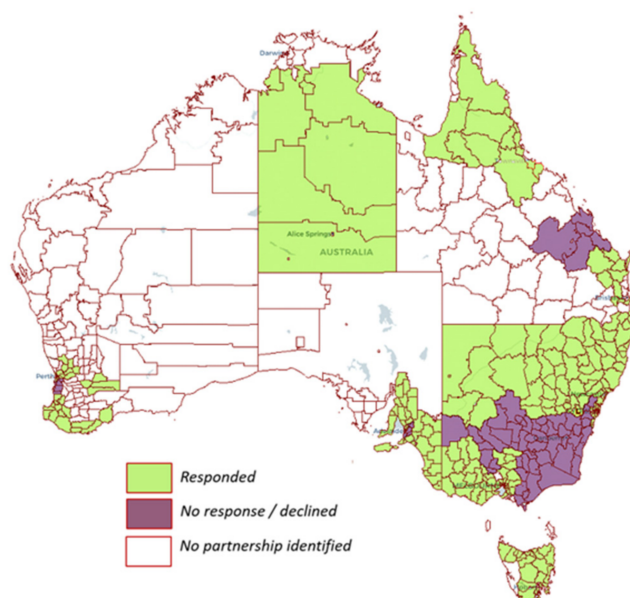


Figure 4. IMC-WM Census Survey response coverage.

4.3. Design of Questionnaire to Municipal Policy Actors

The second data collection tool in the research design was a short online questionnaire to municipal policy actors involved in IMC-WM partnerships. As the scope of the term *policy actor* is impractically vast, for this study the term 'municipal policy actor' was chosen to specify those policy actors who derive from and exist within local government institutions, either politically or bureaucratically. This population group includes participants such as councillors, executives, branch managers, technical officers and any other individual who participates in an IMC-WM partnership as a delegate.

In line with the intent that participation should take less than five minutes, only a limited number of questions were asked of these respondents. The questions included a demographic question, two blocks of Likert statements informed by the literature and two open-ended questions (refer to Appendix A).

One block of Likert statements was designed to gain insights into the internal relations between the municipal policy actors, specifically whether it was a more *cooperative* or *competitive* dynamic. The second block of Likert statements sought to generate insights

on the respondents' attitudes to the complexity of MSW policy and value in regional cooperation in this regard.

Prior to implementation, pilot feedback on the questionnaire was sought from two accomplished waste management industry professionals who had experience interacting with the questionnaire's target population.

4.4. Questionnaire Response Rate

A total of 57 responses were received out of an estimated 320 invites (220 directly invited, around 100 indirectly invited). The exact number of indirect invitees is unknown because some of the recruitment emails were forwarded on by a person within a partnership when the municipal policy actors' emails were not available in the public domain.

As can be seen in the visualisations provided in Figure 5, the responses received represent a balance of politico-administrative functions, regional contexts, genders and governance roles.

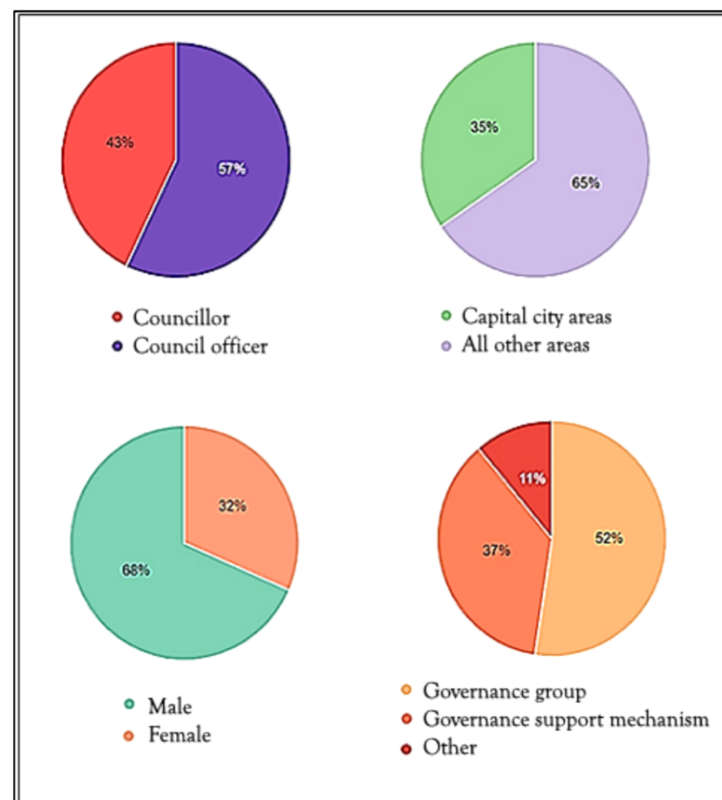


Figure 5. The demographic mix of the questionnaire's respondents.

5. Results and Discussion

5.1. Institutions and Engagement Practices to Support Regional Cooperation in Waste Management

The census survey produced new data about Australia's IMC-WM partnerships' institutional characteristics and their engagement practices.

5.1.1. Partnership Types

By synthesising the data from the IMC-WM partnerships census, a taxonomy of five IMC-WM partnership types could be distilled.

This paper finds that the partnerships can be classed into the following five types: (1) Urban waste authorities, (2) Waste sub-groups within regional associations, (3) Autonomous regional waste groups and Investment-oriented alliances, (4) State-led waste and resource recovery groups and (5) Macro-regional advisory mechanisms.

An explanation of each type and its prevalence is provided in Table 6. To visually understand the regional designations, such as ‘Inner Regional’ and ‘Remote’, refer to the map legend in Figure 3.

Table 6. A taxonomy of Australian mechanisms for inter-municipal cooperation in waste management. Abbreviations for Australia’s states and territories are used in this table; refer to Appendix A (Q1) as guide if needed.

Integration Mechanism	Prevalence and Description
Urban waste authorities	<p>This integration mechanism refers to a statutory approach whereby a regional subsidiary is established under the Local Government Act of the relevant state to deliver waste management services for a group of member councils who have chosen to co-produce services via the new statutory entity. Typically, governance and oversight are performed by a Board comprised either primarily or entirely of councillors from each member council. Executives and council officers from the member councils work together in various capacities including performing as a governance support mechanism to the board, or through networks of professionals collaborating on particular program areas.</p> <p>The Urban waste authority approach to IMC-WM is currently only active in WA (contexts: Metropolitan, some Inner Regional) and SA (contexts: Metropolitan, some Inner Regional). In WA, they are known as ‘Regional Councils’ and, less often, ‘Regional Local Governments’, and they are established under Part 3, Division 4 of the <i>Local Government Act 1995 (WA)</i>. While Regional Councils can be developed for any specified purpose, waste management is by far the most common reason they are established. In SA, the Urban waste authority approach to IMC-WM is known as a ‘Waste Management Authority’ and is established under Section 4.3 of the <i>Local Government Act 1999 (SA)</i>. In both SA and WA, establishing this type of IMC-WM partnership requires approval by the relevant minister.</p> <p>While the Urban waste authority mechanism type primarily exists in metropolitan contexts, they are also found in some Inner Regional (see Figure 3) designations such as WA’s Bunbury-Harvey region and SA’s Fleurieu and Adelaide Hills regions.</p>
Waste sub-groups within regional associations	<p>This integration mechanism refers to an IMC-WM partnership that emerges within and continues to be hosted by a broader regional association. These host organisations are most commonly known as ‘Regional Organisations of Councils’ (ROCs). Other terms used are ‘Council of Mayors’ in Queensland, ‘Joint Authorities’ in NSW and ‘Local Governments Associations’ or simply ‘groups’ in SA.</p> <p>This type is identified as most active in NSW (contexts: mainly Metropolitan, Inner Regional and Outer Regional), SA (contexts: mainly Outer Regional, some Remote, some Inner Regional), regional WA (contexts: mainly Inner Regional and Remote) and regional QLD (all regional contexts).</p> <p>While identified as active in the above areas, any area with a regional association has the capacity to quickly form a waste sub-group of the member councils involved in the association as a means to address emergent issues or exploit new opportunities for the already defined region.</p> <p>In some cases, waste sub-groups transition into becoming their own autonomous organisations that are associated with, but no longer embedded within, their inaugurating regional association.</p>
Autonomous regional waste groups and Investment oriented alliances	<p>This type is known by various names such as ‘regional waste group’, ‘waste alliance’ and ‘waste management working group’.</p> <p>As a mechanism which can be established ad hoc, any group of councils can opt to begin collaborating autonomously and without statutory decree. Governance arrangements are derived from a Memorandum of Understanding, Terms of Reference or some other agreement.</p> <p>Councils open to investing in new shared infrastructure together are also seen to engage via similar voluntary alliances oriented around undertaking EOI (Expression of Interest) and tendering processes together.</p> <p>Identified as active in regional NSW (contexts: mainly Inner Regional, Outer Regional and some Remote); regional NT (contexts: mainly Very Remote); regional WA (contexts: Inner Regional and Outer Regional); south-east QLD (contexts: Metropolitan and Inner Regional) and Tasmania (contexts: mainly Outer Regional).</p>
State-led waste and resource recovery groups	<p>Known as waste and resource recovery groups (WRRGs), this type is only present in Victoria (as of 2021). While Victoria’s WRRGs are ‘portfolio agencies’ of the state government, these institutions operate under a social license that is fortified through the significant levels of inter-municipal cooperation they facilitate between the constituent councils. For example, the constituent councils are typically allocated a set allocation of board members, and member councils’ delegates engage through ‘Local Government Forums’, technical advisory groups and other specialist networks within the WRRG. This type of IMC-WM is the only integration mechanism in Australia that falls within Feiock’s concept of ‘Imposed Authority’ [39].</p>

Table 6. Cont.

Integration Mechanism	Prevalence and Description
Macro-regional advisory mechanisms	<p>This mechanism refers to networks of councils working together voluntarily on MSW policy on a larger, macro-regional scale.</p> <p>These arrangements can act as ‘networks of networks’ in that they can comprise members which are themselves IMC-WM partnerships or include associate memberships from industry groups.</p> <p>Macro-regional advisory mechanisms should be considered distinct from the other integration mechanisms featured in this taxonomy in that they are less oriented around joint delivery of programs, and usually more focused on networking and creating an institution for advisory engagement that can deliver a pluralist voice on MSW policy matters, especially to higher tiers of government.</p> <p>Examples include the Local Authority Waste Management Advisory Council (LAWMAC) in North Queensland, the Municipal Waste Advisory Council in Perth (WA) and the statewide Renew NSW network throughout NSW.</p> <p>This type of cooperation is often facilitated by the local government association of the state, by a state government subsidiary body or through a regional alliance.</p> <p><i>The presence of ‘Macro-level advisory mechanisms’ was identified through responses from the IMC-WM partnerships who participate in them, rather than their direct participation in the IMC-WM Census. As this particular type of IMC-WM mechanism operates in such a distinct manner to the other types, it is included in the taxonomy but not included in any of the other analyses throughout this paper.</i></p>

5.1.2. Membership and Years Together

The census survey data revealed the number of council members within partnerships varies between 3 to 31 member councils, with the average number of member councils being 8.48 to a partnership. The most common number of member councils in a partnership is six.

Concerning the number of years that the member councils in IMC-WM partnerships have been working together, a diverse spread of durations was identified (see Figure 6). Ten partnerships reported that they had been active for more than 20 years, with four of the partnerships active more than 30 years.

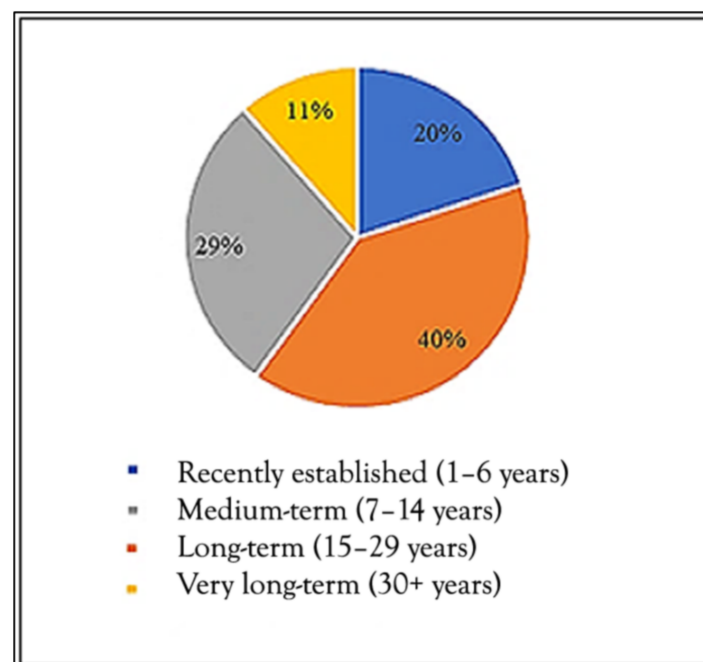


Figure 6. Tenure of Australia’s IMC-WM partnerships.

However, in seeking to understand duration, it is important to note that several IMC-WM partnerships reported they have been “reincarnated” throughout their lifespan from earlier arrangements.

For example, some groups in New South Wales evolved from the state’s former ‘Regional Waste Boards’ and one Tasmanian group reported having traversed three different reincarnations of itself since 1990, with Tasmania’s recently legislated waste levy likely to change things once again. In the case of Victoria, the current seven WRRGs have been in place since state government reforms came into effect in August 2014. Three of the WRRGs that participated in the IMC-WM Census indicated their current arrangements were amalgamations of earlier sub-regional waste management groups, some having been established since the early 1990s.

5.1.3. Governance Arrangements

The IMC-WM Census findings reveal that the majority (71%, N = 35) of partnerships currently apply an egalitarian approach to decision-making in which each member council has equal voting power. One council in WA indicated that voting power was not equal and was instead allocated based on their equity share in the organisation. This was the only partnership out of the 35 that indicated governance power in the group was explicitly related to financial contribution.

For the nine partnerships which indicated “Other governance system”, we see a range of experiences. Some partnerships have a separate steering committee comprising a membership that is not necessarily reflective of the member councils.

One respondent indicated that, concerning governance in her group, she had such a difficult time getting the member councils to make any decision in which money was involved that she “*would often use an ‘If I don’t hear back from you, I assume you approve’ approach*” to avoid stagnation.

The two partnerships that could be categorised as Investment Oriented Alliances each indicated that they had no formalised or enforceable governance arrangement. One such respondent explained that “*At each decision point, the councils decide if they wish to continue, with the knowledge that their withdrawal could negatively affect the others*”.

5.1.4. Regional Exchange of MSW Policy Updates and Other Information

The IMC-WM Census results indicate that the partnerships are performing an instrumental role as channels of MSW policy information exchange across municipal boundaries.

Respondents advised that regional exchanges of information most commonly take place in email groups, through online platforms such as Microsoft Teams and in meetings.

As can be seen in Figure 7, the most frequently exchanged types of information are waste policy updates, waste sector updates and grants for waste projects. Technological innovations and new waste research are shared less frequently but still regularly.

Two respondents proactively mentioned that they compile a waste news bulletin for their member councils (one does it weekly, another does it fortnightly). As this practice was not directly asked about in the survey, it may be a more common occurrence in IMC-WM partnerships.

5.1.5. Cross-Boundary Engagement Meetings

The most common meetings are the governance meetings and forums to make decisions together for the future of the region. A rate of 97% (N = 35) of the partnerships indicated that such meetings occur regularly throughout the year (Table 7). Across the different partnership types, governance meetings take different forms. For groups with statutory status, these governance groups are more likely to involve elected officials (mayors and councillors), whereas decision-making in non-statutory groups is more likely to involve municipal managerial staff and sometimes technical officers.

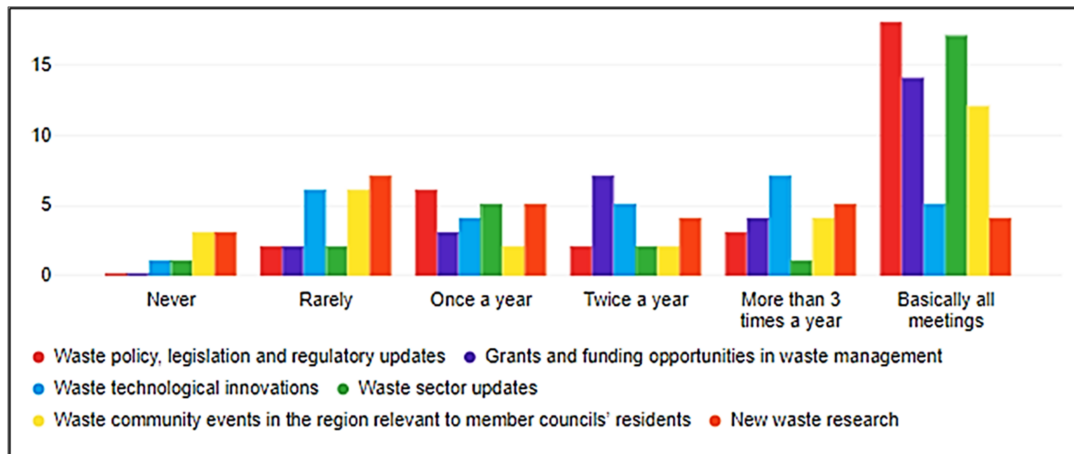


Figure 7. Frequency of information dissemination in meetings.

Table 7. Prevalence of cross-boundary engagement.

Type of Engagement	Number of Partnerships Engaged	Overall % of Responding Partnerships
Cross-boundary Governance Meeting/Forum	34	97%
Cross-boundary Waste Education Group	12	34%
Cross-boundary Technical Advisory Group	11	31%
Cross-boundary—Other reported meetings	15	42%

For many of the IMC-WM partnerships embedded within regional associations, the governance meetings that take place in the waste sub-group are technically a governance advisory mechanism. In these sub-groups, the various member councils’ bureaucratic delegates collaborate on the region’s future, develop recommendations together, and then pass these on to the board of the regional association, which is typically comprised of mayors and councillors.

The second most common type of meeting facilitated by IMC-WM partnerships is meetings between the region’s waste educators. A rate of 34 percent of the partnerships indicated that such meetings take place. As joint behaviour change campaigns were found to be among the most common joint waste management activities (refer to Section 5.2.1), these meetings create an opportunity to engage in collaborative planning, share tips and discuss any of the administrative aspects of delivering education and communication initiatives. Depending on the partnership, some have waste educators who support the whole region at large, whereas others are oriented around convening the waste educator personnel embedded and serving their individual member councils.

The third most common type of cross-boundary meeting which IMC-WM partnerships were found to be hosting are meetings between technical professionals. A rate of 31 percent of partnerships reported such meetings took place.

Lastly, 42 percent of the partnerships said that they facilitate other regular cross-boundary meetings for ‘niche’ issues related to MSW policy or for bringing together a particular stakeholder group from across the region. Examples of niche issue meetings taking place include illegal dumping and litter prevention working groups; material recovery and recycling working groups and organics management working groups. Examples of facilitated meetings include scheduled meetings between member councils’ CEOs or ‘Community Reference Groups’ meetings, which comprise a selection of the region’s residents who provide civilian feedback on the MSW policy direction being taken by the regional partnership.

5.2. The Institutional Outputs (Joint Actions) Arising from Regional Cooperation

As per the Conceptual Framework of this research project (refer to Section 3), the ‘institutional outputs’ of IMC-WM partnerships are defined as the joint waste management activities which member councils agree to work on as a region, rather than individually.

The results of the IMC-WM Census revealed the frequency of sharing among the 56 waste management activities which were identified for inclusion in the census, as well as the areas of the *National Waste Policy 2018* which are currently being supported through regional cooperation.

5.2.1. Frequency of Sharing among Waste Program Activities

To support the analysis, the 56 activities identified as conducive to regional cooperation are divided into nine general groupings and presented in the pivot tables featured throughout this section (Figures 8–16). Along the horizontal axis, each letter represents a ‘partnership code’ for each responding IMC-WM partnership.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%				
Recycling and contamination campaigns																																							24	69%	
Food waste behaviour campaigns																																								18	51%
Littering campaigns																																								17	49%
Reuse / upcycling / repair campaigns																																								18	51%
Business recycling campaigns																																								10	29%
Multi-unit dwelling behaviours campaigns																																								6	17%
Engagement w/ cultural and linguistically diverse groups																																								9	26%
Engagement with Indigenous communities																																								11	31%

Figure 8. MSWM Activity Group 1: Joint communication and behaviour change campaigns.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%				
Recycling bin service																																								4	11%
Rubbish bin service																																								4	11%
Greenwaste bin service																																								2	6%
FOGO bin service																																								4	11%
Kerbside / hard rubbish service																																								6	17%

Figure 9. MSWM Activity Group 2: Joint collection services.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%				
A transfer station																																								7	20%
A landfill																																								7	20%
A sorting and separation facility																																								6	17%
A thermal and biological treatment facility																																								3	9%
A remanufacturing / recycling facility																																								1	3%
An upcycling or beneficial reuse facility																																								2	6%

Figure 10. MSWM Activity Group 3: Shared use of waste management facilities (Can either be jointly owned/managed OR one member council sharing its facility with its neighbouring councils).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%				
New sorting and separation opportunities (e.g. a MRF)																																								9	26%
New thermal and biological treatment opportunities																																								6	17%
New transfer stations																																								5	14%
New upcycling and beneficial reuse facility opportunities																																								5	14%
New remanufacturing / recycling facilities																																								4	11%
New landfills																																								2	6%

Figure 11. MSWM Activity Group 4: Exploring joint investment in MSWM infrastructure.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%		
Illegal dumping regulation / enforcement																																						7	20%
Community clean-up events																																						9	26%
Promotion of the State or Territory's Container Deposit Scheme																																						0	0%
Removal of car bodies																																						6	17%
Remediating illegal dumping sites																																						6	17%
Applying for Tidy Towns Awards or other similar recognition initiatives																																						3	9%

Figure 12. MSWM activity group 5: Joint action on illegal dumping and litter mitigation.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%			
Proactive lobbying as a region to State and Federal Govts on waste policy																																							22	63%
Reactive engagement (e.g. submissions) to State Govts on waste policy																																							27	77%
Reactive engagement (e.g. submissions) to Federal Govt on waste policy																																							17	49%
Participation in global municipal waste networks (e.g. ACR+, C40 Summit, Fab City Network, etc.)																																						2	6%	
Our governance group includes State Government appointees or representatives (e.g. Victoria's WRRGs)																																						11	31%	

Figure 13. MSWM activity group 6: Vertical engagement and joint lobbying.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%			
Landfill management related training																																							10	29%
Transfer station related training																																							8	23%
Community engagement skills training																																							8	23%
A cross-council mentoring program																																							5	14%
Networking events between waste professionals																																							14	40%
Managing a 'Best Practice Library'																																							3	9%
Fire training specific to resource recovery facilities																																							2	6%

Figure 14. MSWM activity group 7: Professional development for member councils' waste management staff.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	GG	FF	HH	II	Total	%			
Social media engagement about your region's waste initiatives																																							22	63%
Production of collateral (e.g. recycling																																								
Disaster readiness																																							4	11%
Hosting regional waste conferences or community / industry forums																																							14	40%
Publishing a regional waste strategy																																							20	57%
Facilitating improved asbestos management in the region																																							10	29%
Environmental monitoring (e.g. contaminated land management)																																						7	20%	
Public tours of landfill or recycling facilities																																						9	26%	
Operating a waste education centre																																						3	9%	
Delivering a school education program																																						13	37%	
Operating a tip shop																																						3	9%	

Figure 16. MSWM activity group 9: Miscellaneous general activities.

From perusing the data, we can see that cooperation most frequently occurs for joint communication and behaviour change campaigns, as well as vertical engagement and lobbying together as a region. Outside of these, we observe much more scattered levels of municipal solid waste management (MSWM) activity sharing.

As is evident in Appendix C as well as the response rate map (Section 4.2), there is significant variation in the regional contexts between partnerships. Accordingly, each context brings with it significant differences in the types of waste generators affecting an area, such as variations in local industries, commercial activity and community demographics [63]. Access to different types of infrastructure and resource recovery opportunities also shapes what is viable for IMC-WM partnerships to achieve.

Considering these factors explains why joint communication campaigns and joint lobbying activities emerge as the most common areas of collaboration. Regardless of their context, these activities have a ubiquity in their appeal for IMC-WM partnerships, regardless of regional context and local waste generators.

In looking at Activity Group 2, it becomes evident Australia has quite low levels of cooperation in the delivery of household waste collection services—despite these services being so common. According to the National Waste Report 2020 [64], around 97 percent of Australian households have a rubbish collection service, 93 percent have a recycling service and 14 percent have access to a FOGO service. The National Waste Report also mentions that “Increasingly, local governments are joining together to purchase waste services” [64]. The results from the IMC-WM Census reveal that, at this stage, working together on collection services is not an area where widespread regional cooperation is taking place. Where regional cooperation in collection services is taking place, it appears to almost exclusively occur through the integration mechanism identified in Section 5.1.1 as ‘Urban waste authorities’.

To distil the most common activities being co-produced through IMC-WM partnerships, Table 8 presents the 15 activities identified that are experiencing the highest rates of regional cooperation.

Table 8. The activities most commonly actioned through IMC-WM regional cooperation.

Shared Waste Program Activity	Total	%
1. Reactive engagement (e.g., submissions) to state govt on waste policy	27	77%
2. Recycling and contamination campaigns	24	69%
3. Social media engagement about the region’s waste initiatives	22	63%
4. Proactive lobbying as a region to state and federal govts on waste policy	22	63%
5. Publishing a regional waste strategy	20	57%
6. Food waste behaviour campaigns	18	51%
7. Reuse/upcycling/repair campaigns	18	51%
8. Littering campaigns	17	49%
9. Production of collateral (e.g., recycling fridge magnets)	17	49%
10. Reactive engagement (e.g., submissions) to federal govt on waste policy	17	49%
11. Networking events between waste professionals	14	40%
12. Hosting regional waste conferences or community/industry forums	14	40%
13. Delivering a school education program	13	37%
14. Engagement with Indigenous communities	11	31%
15. Business recycling campaigns	10	29%

Outside of the activities related to communications, education and lobbying (12 out of the top 15 activities), we see that ‘Publishing a regional waste strategy’ and ‘Hosting regional waste conferences or community/industry forums’ feature among the most common activities councils are co-producing as regions.

This is notable because it indicates that even in some IMC-WM partnerships where there is no joint delivery of services and programs, there is still engagement in joint *planning*, which might then be serving as a catalyst for activity coordination across councils.

5.2.2. Contributions to the National Waste Policy 2018 Action Goals

As part of the census survey, IMC-WM partnerships were asked to indicate which of the National Waste Policy 2018 (NWP 2018) action goals they were working toward through regional cooperation.

As per Figure 17 (see Section 2.2 for action goal descriptions), we can see that 19 of the responding partnerships are working together in some way to contribute to Target 2.15, 16 of them are doing so for Target 3.16, and 15 of them are doing so for Targets 1.7, 6.7 and 7.2. A total of 8 partnerships out of 35 can be seen to show a very high level of collaboration (10 or more out of 15 targets/sub-targets) toward the NWP 2018 action goals.

Code	Target 1		Target 2				Target 3		Target 4			Targets 5, 6 and 7				Total
	1.7	1.3	2.5	2.7	2.12	2.15	3.16	3.17	4.1	4.3	4.7	5.9	6.3	6.4	7.2	
A			■				■	■				■	■	■		6
B		■			■		■							■		4
C							■	■								2
D		■	■	■	■	■	■	■	■	■	■	■	■	■	■	14
E	■		■			■	■		■	■		■				7
F	■		■			■			■	■			■	■		7
G	■	■	■	■	■	■	■		■	■	■		■		■	12
H	■		■	■	■	■	■	■				■	■	■		8
I	■	■		■	■	■		■				■	■	■	■	8
J	■		■	■	■	■	■		■	■			■	■	■	11
K	■	■	■	■	■	■				■		■	■	■	■	11
L		■				■										2
M				■			■	■			■	■			■	6
N							■	■								1
O	■	■	■	■	■	■	■	■		■		■		■		11
P			■	■	■	■						■	■	■		5
Q		■	■		■	■	■	■					■		■	8
R			■			■										2
S				■						■		■	■	■		4
T		■		■	■	■	■					■	■	■	■	7
U									■							2
V	■			■	■	■	■	■				■			■	7
W																0
X	■															1
Y									■						■	2
Z							■									1
AA	■															1
BB	■	■												■		3
CC	■		■		■	■			■		■	■	■	■	■	10
DD																0
EE																0
FF				■		■						■	■			4
GG	■	■	■	■	■	■	■		■	■	■					10
HH							■		■	■				■	■	2
II	■	■	■	■		■	■		■	■			■	■		10
Total	15	14	13	12	13	19	16	10	10	6	8	11	12	15	15	

Figure 17. Correlation of IMC-WM joint program activity with National Waste Policy 2018 action goals.

In reviewing the frequency to which the action goals are being supported through regional cooperation, one of the most interesting observations is that, of the 10 most high-performing partnerships, about half are voluntary groupings of councils and half are statutory organisations (refer to Table 9).

These findings are notable in that they demonstrate actions to support the national agenda are coming from a variety of regional contexts, and voluntary institutions are well-represented as impressive performers.

While these quantitative findings provide some raw insights, a more nuanced understanding of the complex relationship between IMC-WM partnerships and the NWP 2018 policy can be derived from the comments left by participants.

Table 9. Diversity in regional contexts and legislative mechanism among IMC-WM in relation to National Waste Policy 2018 activity.

Partnership Code	State	Legislative Mechanism	Regional Context
D	NSW	Voluntary grouping	100% Inner Regional
G	VIC	Statutory organisation	50% Inner Regional, 50% Outer Regional
H	NSW	Voluntary grouping	10% Inner Regional, 40% Outer Regional, 40% Remote, 10% Very Remote
I	QLD	Voluntary grouping	40% Outer Regional, 30% Remote, 30% Very Remote
J	NSW	Statutory organisation	100% Major city
K	TAS	Statutory organisation	50% Inner Regional, 50% Outer Regional
O	VIC	Statutory organisation	100% Outer Regional
Q	VIC	Statutory organisation	40% Inner Regional, 60% Outer Regional
CC	WA	Statutory organisation	100% Major city
GG	NSW	Voluntary grouping	10% Major city, 60% Inner Regional, 30% Outer Regional
II	VIC	Statutory organisation	100% Major city

The comments reveal that, rather than playing a direct role, regional partnerships are more likely to play a peripheral or support role in helping their member councils to individually fulfil the goals of the NWP 2018:

“Five out of our 6 councils have FOGO (Food Organics/Garden Organics collection). We actively support promotion of this where possible and are currently running a major awareness raising campaign in three of our LGAs (grant funded). We regularly review data collection and aim to harmonise within the region (more than externally, but we do provide input to state government data review and requests).”

—Regional Coordinator (NSW, Inner Regional context)

“We support the introduction of more services at Waste Transfer Stations, such as batteries, e-waste, globes, and tyres, by providing concessions for these services.”

—Project Manager (TAS, Outer Regional, Inner Regional context)

“While we are not delivering a FOGO service directly, we are in the midst of a regional FOGO/FO feasibility study, which will assist councils to make decisions around services. We are planning to conduct a business case for an organics transfer station for multi-council benefit. We will soon deliver recommendations from a waste data and infrastructure planning project, which examines regional material flows, current infrastructure capacity, and projected flows over the next 20 years to identify, which includes recommendations for a standardised waste data protocol for MSW, including illegal dumping, and options for adoption of smart technology to streamline data and improve quality.”

—Regional Coordinator (NSW, Metropolitan context)

As is evident from the above statements, the true contribution to the NWP 2018 by regional partnerships is not easy to capture. The data collection method approach applied in this project is thus shown to have had limitations in this regard.

5.3. Internal Relations among the Participants Engaged in Regional Cooperation

As per North’s theory of institutions, all outputs should be recognised as products of the ongoing implicit and explicit forms of consent by the participating partners [35,36]. Accordingly, to fully understand Australia’s experience with regional cooperation, we must also examine the internal relations within IMC-WM arrangements.

According to Dickinson [43], while institutions are often set up to facilitate a particular form of collaborative governance, the engagement structures are often less influential than the micro-institutional factors in play. Rhodes [40] explains this phenomenon in saying that the “patterns of governance” emerge within partnerships as “the contingent products of drivers, actions and political struggles informed by the beliefs of agents”.

This section of the paper seeks to provide insight into the internal relations among participants by examining two scopes of micro-institutional influence on their outputs:

- the personal attitudes held by the municipal policy actors (the councillors, executives and council officers engaged in regional cooperation) toward the complexity of waste policy and the need for a regional approach;
- the engagement dynamic taking place within IMC-WM partnerships, and whether a culture of competitiveness or of collaborativeness exists between member councils.

5.3.1. Participants’ Attitudes toward Complexity and Regional Cooperation

The complexity of achieving sustainability in waste management is well established in the literature [2,65]. It requires the integration of a system’s environmental aspects, political/legal aspects, institutional aspects, socio-cultural aspects, financial-economic aspects, and technical aspects [65]. Modernity has brought along the challenges of a more composite and hazardous waste output, as well as a growing social awareness and demand from the community for stronger environmental sustainability [2]. In addition, councils must navigate more stringent regulations, diminishing landfill capacities and growing quantities of waste as the population grows. Addressing these many levels of complexity can lead councils toward regional cooperation.

In seeking to better understand the attitudes of those who participate in IMC-WM partnerships, several statements were presented to the municipal policy actors in the form of a Likert questionnaire (refer to Appendix A).

The first clear finding in the data presented in Figure 18 is that municipal policy actors’ attitudes to the statements show a high degree of consistency with each other. Indeed, the standard deviation among each of the statements varies between just 0.62 and 1.05.

Statement	Min	Max	Mean	SD
Achieving sustainability in waste management requires councils to work beyond their boundaries.	1.00	4.00	1.40	0.67
My council’s involvement in a partnership has made me think more contextually about our region and the opportunities therein.	1.00	3.00	1.54	0.62
Councils who do not take a regional approach to waste management risk creating inefficiencies and poorer environmental outcomes.	1.00	4.00	1.61	0.87
Councils are better placed to deal with China’s recycling ban by being in a partnership.	1.00	5.00	1.73	0.84
It is hard to design effective and cost-efficient waste solutions, so “more minds at the table” supports our success.	1.00	4.00	1.82	0.85
I perceive waste management as a policy area where it is particularly important to follow the advice of technical experts.	1.00	4.00	1.84	0.81
Issues like “where to site an undesirable waste facility” are too difficult to negotiate between councils and are best left to the State.	1.00	5.00	2.96	1.05

Legend: 1–Strongly agree; 2–Agree; 3–Neither agree nor disagree; 4–Disagree; 5–Strongly disagree.

Figure 18. Statistics data on responses to attitudinal statements.

It is possible to derive two overall findings from the results. Firstly, when it comes to MSW policy, the participants overwhelmingly recognise the high degree of complexity embedded in this particular area of municipal policy. Secondly, in virtually every instance, the

participants perceive regional cooperation as instrumental in supporting better outcomes in waste management.

Presented in Figure 19 is a breakdown on each individual statement. Note that in almost all instances (six out of seven), the prevalence of *Strongly Agree* (red) and *Agree* (purple) in the municipal policy actors' views.

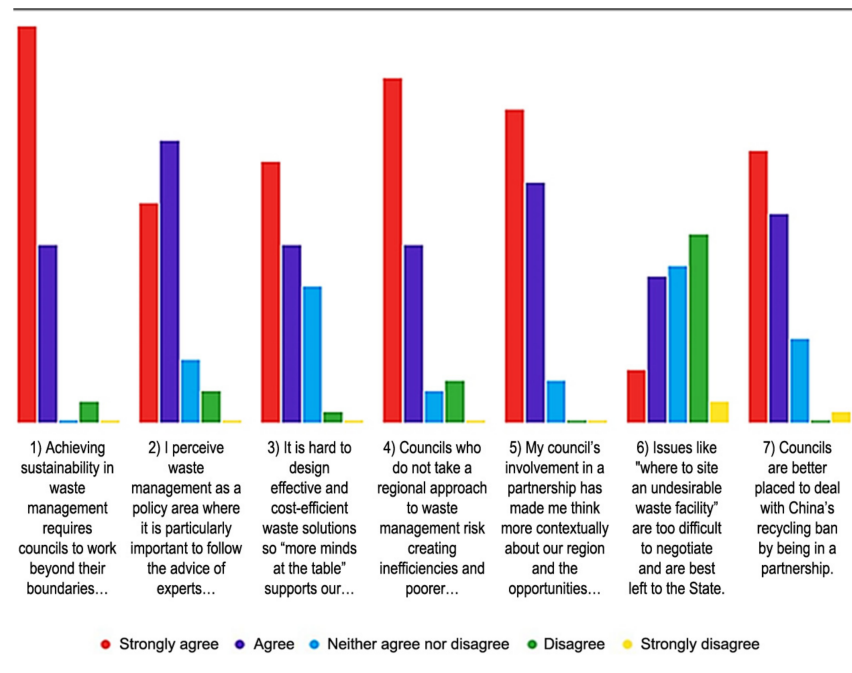


Figure 19. Visualisations of attitudinal responses.

Of all the statements presented in Figure 19, the one to receive the highest level of agreement was Statement 1 ("Achieving sustainability in waste management requires councils to work beyond their boundaries"). The strong response to this statement indicates that municipal policy actors overwhelmingly recognise that their councils do not operate in silos and that regional cooperation is a logical response to their systemic context.

This attitude is reinforced in the types of comments that were left throughout the IMC-WM census survey, which also provide further insight into the perceived virtues of regional cooperation.

"Working together and advocating for regions is critical in continuous improvement. Regions are more adaptable, professional and deliver better outcomes (than State Governments)."

—Regional Coordinator, Victoria

"Working together regionally provides broad consistency in waste management initiatives and develops economy of scale which can aid with cost savings."

—Regional Coordinator, Tasmania

In the Perth region, which hosts many of Australia's smallest councils by area [66], one regional coordinator explained:

"For small municipalities like ours, it is important to build and maintain trust between the players to access economies of scale, allow decisions to be made from a basis of a clear understanding of issues and maintain consistency in communications and service delivery."

—Regional Coordinator, Western Australia

In turning to Statement 5 ("My council's involvement in a regional partnership has helped me think more contextually about our region and our opportunities therein"), the response to this statement can be seen to shed light on municipal policy actors' reflexivity.

As explored in the literature, systems thinking is an analytical mindset that integrates the idea that shifting to a more encompassing perspective allows one to see that the “whole is more than the sum of its parts” [12].

The response to Statement 5 received the second highest level of agreement. This result is notable because it provides some early and foundational evidence for the view that a broader psychological change is experienced in municipal policy actors when they are given the opportunity to participate in regional cooperation. Such changes in municipal policy actors are anticipated as per Evolutionary Governance Theory [67], an emerging lens on governance which theorises the significance in these co-evolutionary phenotypes (refer to this paper’s Conclusion and Reflections section for further discussion on this theoretical outlook).

In summary, the data gained here indicate that the respondents, across all demographics, appear to hold a deep recognition that waste management is a policy area that is laden with complexity and better navigated by embracing regional cooperation, having access to technical expertise and having more ‘minds at the table’.

5.3.2. Competitive or Collaborative? Indications on the Engagement Dynamic Inside the Partnerships

The literature review explored the latest two cultural paradigms shaping the public sector—the neoliberalist New Public Management (NPM) paradigm and the collaborative New Public Governance (NPG) paradigm. Each paradigm was shown to cultivate a different type of inter-organisational relationship.

The second part of the questionnaire to municipal policy actors sought to measure whether a more competitive or collaborative dynamic can be observed within IMC-WM partnerships.

As can be seen in the statistical data presented in Figure 20, there is once again an unambiguous level of agreement in the views of the respondents. Indeed, in all but one of the statements, the median response is *Agree*. Following statistical analysis, no instances of statistically significant differences between demographic variables could be found. While there is strong consistency in the responses across all the groups, the strength of the agreement is less in this set of statements than in the attitudinal statements previously examined. The responses are presented in Figure 21.

Statement	Min	Max	Mean	SD
The more consequential the decision, the less councils are willing to negotiate away from their pre-determined position.	1.00	5.00	2.62	0.98
When partnerships benefit councils differently, it bothers those who end up benefiting less.	1.00	5.00	2.58	1.06
Member councils view themselves as serving their individual council's stakeholders, rather than those of the partnership's region.	1.00	5.00	2.51	1.11
For most decisions, the councils stay firm on the pre-determined positions of their council administrations.	1.00	5.00	2.40	0.86
Cost savings are the biggest motivator for working together.	1.00	5.00	2.40	1.02
I believe most member councils openly share information to the partnership, even when it doesn't support their own agenda.	1.00	5.00	2.28	0.93
Member councils regularly have incongruent goals which makes collaboration difficult.	1.00	5.00	3.09	1.27
Some councils in the partnership have more challenging waste management issues, which the other councils are happy to help resolve as a team.	1.00	5.00	2.28	0.89
Our partnership would disintegrate if the council representatives didn't trust each other, even if it led to higher costs for all.	1.00	5.00	2.25	0.96
Our partnership has furthered a sense of a 'regional identity' among our councils.	1.00	5.00	2.21	0.95

Legend: 1–Strongly agree; 2–Agree; 3–Neither agree nor disagree; 4–Disagree; 5–Strongly disagree.

Figure 20. Statistics data on responses to engagement dynamics statements.

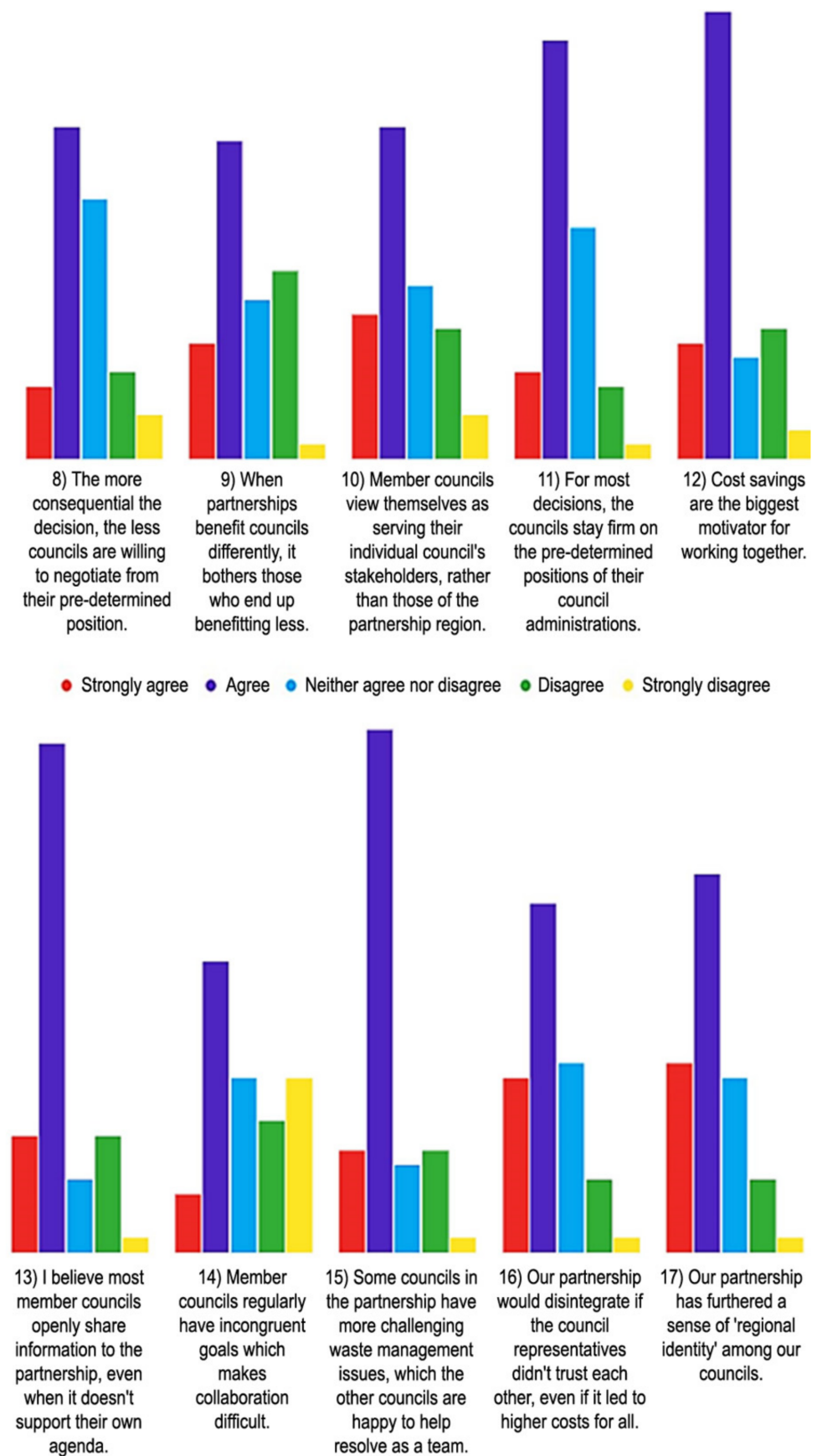


Figure 21. Visualisation of responses to engagement dynamic statements.

To help extrapolate insights on whether the competitive NPM or collaborative NPG engagement style is the more dominant, the theoretical qualities of each paradigm (in the context of this research) are applied as indicators to each statement (see Figure 22).

Internal dynamics between member councils	Response (Mean value)	NPG indicators			NPM indicators			
		1	2	3	4	5	6	
8) The more consequential the decision, the less councils are willing to negotiate away from their pre-determined position.	2.62				■	■	■	NPM
9) When partnerships benefit councils differently, it bothers those who end up benefiting less.	2.58				■			NPM
10) Member councils view themselves as serving their individual council's stakeholders, rather than those of the partnership's region.	2.51				■	■	■	NPM
11) For most decisions, the councils stay firm on the pre-determined positions of their council administrations.	2.40				■	■	■	NPM
12) Cost savings are the biggest motivator for working together.	2.40				■			NPM
13) I believe most member councils openly share information to the partnership, even when it doesn't support their own agenda.	2.28	■	■	■				NPG
14) Member councils regularly have incongruent goals which makes collaboration difficult.	3.09	Inconclusive						
15) Some councils in the partnership have more challenging waste management issues, which the other councils are happy to help resolve as a team.	2.28	■	■	■				NPG
16) Our partnership would disintegrate if the council representatives didn't trust each other, even if it led to higher costs for all.	2.25	■						NPG
17) Our partnership has furthered a sense of a 'regional identity' among our councils.	2.20	■	■					NPG

Figure 22. Dominance of NPM vs. NPG qualities in IMC-WM engagement dynamic. Legend of theoretical qualities: 1—Network governance theory; 2—Regional identity; 3—Pluralism/Systems thinking, 4—Public choice theory, 5—Localism/NIMBYism, 6—Gerd Lintz' Framework.

In reviewing Figure 22, it becomes clear there is a seemingly contradictory mix of both paradigms in play. Five of the statements' results indicate the competitive qualities of NPM, four statements' results indicate the collaborative qualities of NPG and one statement's results were too moderate to imply either.

Statement 17 ("Our partnership has furthered a sense of 'regional identity' among our councils") generated the strongest level of agreement from the respondents across all 10 statements. As per the literature, the development of a regional identity [68] is a sign that individual actors in the policy process have changed their perspective of themselves and their sense of place. In turn, this is thought to shape their choices in collaborative governance settings [69]. The regionalist quality expressed here appears to be confirmed by the positive response to Statement 5 ("My council's involvement in a partnership has made me think more contextually about our region and the opportunities therein").

However, these psychological qualities of regional identity and thinking contextually appear to have minimal impact on *practical* behaviours. This is seen, for example, in the findings of Statement 8 ("The more consequential the decision, the less councils are willing to negotiate away from their pre-determined position"), Statement 10 ("Member councils view themselves as serving their individual council's stakeholders, rather than those of partnership region") and Statement 11 ("For most decisions, councils stay firm on the pre-determined positions of their member councils"). As shown in Figure 21, high levels of agreement were received for each of these statements.

Contrasting these data points indicates that the qualities implied in the findings for Statements 17 and 5 should primarily be seen as *abstract* qualities in the participants, rather than any kind of compass for their actual decision-making processes. It should be noted that there is no claim of hypocrisy in this whatsoever. Member councils, it is understood, are often operating under an electoral mandate to 'deliver local outcomes'. Accordingly, engaging across council boundaries is likely to be approached in precisely this way—through the limitations of their perceived social license. Nonetheless, there are still powerful insights to be made in contrasting councils' consistent focus on self-serving outcomes.

Councils appear to show a general reluctance to respond to new information from their fellow councils and, from examining the findings for Statement 8, we observe that participants may become even more inflexible in the case of the ‘big ticket’ decisions which would present the greatest opportunities to shape a region’s waste policies together.

The behaviours identified here are predicted in corners of the literature. As per Lintz’ theoretical framework [70], it is naïve to assume that decisions are ever being fully deliberated through the network arrangement. Rather, decisions should instead be seen to first traverse and be deliberated through an intra-council discourse before traversing in an inter-council discourse. Through intra-council discourse or “sectoral coordination”, a council’s stakeholders are seen to reach determinations amongst themselves beforehand.

The problem with this engagement approach is that when municipal policy actors engage in a manner which strictly adheres to what they have decided beforehand, then engaging together as a region becomes a mere process of bargaining that is more prone to failure and sub-optimal outcomes [70].

In contrast, if the municipal policy actors engaged in regional cooperation have more freedom to negotiate on behalf of their member councils, the engagement dynamic becomes less competitive and facilitates a dynamic far more astute to problem-solving. Such interactions support the co-creation of knowledge among peers and the development of a shared set of values as a regional cooperative [70].

In looking at the comments left in the survey instruments, there are other signs that a dynamic of competitiveness is pervasive inside Australia’s IMC-WM partnerships:

“Share information and have an open mind—but beware of hidden agendas that might shape the actions of some Councils, Councillor representatives or officers.”

—Council officer, Western Australia

“There is a lot of arrogance with the councils and a lot of fear—not wanting to collaborate on a project as they believe they will miss out and some other Council will get more benefit from the project than they do.”

—Regional Coordinator, (State context withheld)

“Individual Council ambitions can be a barrier to commitment to regional infrastructure.”

—Regional Coordinator, (State context withheld)

Further nuanced insights on IMC-WM partnerships’ internal relations can be found in other data points, where it can be observed that they cultivate admirable levels of social capital and goodwill among the peer councils.

A lack of goodwill and social capital can manifest itself in a variety of ways. As explored by Voorn, van Genugten and van Thiel [55] and Sørensen [56], institutions oriented around regional cooperation in waste management can face problems caused by a deficit in social capital such as acts of covert lobbying or withholding of information from the collaboration in situations where it does not support one’s agenda or aspirations.

The issues identified by Sørensen [56] and Voorn, van Genugten and van Thiel [55] do not appear to be prevalent in the Australian context.

Data points highlighting this include the strong agreement to Statement 13 (“I believe councils openly share information to the partnership, even when it doesn’t support their own agenda”) and Statement 16 (“Our partnership would disintegrate if the member councils didn’t trust each other, even if it led to higher costs for all”).

Dollery, Grant, and Crase [57] assert that social capital is among the most crucial (but frequently overlooked) ingredients needed to sustain Australian mechanisms for regional cooperation. Accordingly, Australia’s IMC-WM partnerships should take comfort in knowing that many of the most prized social capital qualities appear prevalent in their partnerships—*reciprocity* (Statement 15), *transparency* (Statement 13), *trust* (Statement 16), and a *shared sense of identity* (Statement 17).

6. Conclusions and Reflections

This research has sought to build a picture on the state of regional cooperation for waste management by examining the macro-level structures which have emerged to facilitate regional cooperation, their trends in institutional output and the micro-institutional factors that shape the internal relations between peer councils' delegates.

The data generated in this study indicate that although Australia's macro-level structures (IMC-WM partnerships) and their institutional outputs (joint actions in waste management) are broadly heterogenous, the internal relations taking place within them is characterised by a curious set of two homogeneously experienced, albeit paradoxical, qualities:

1. participants commonly display attitudes which recognise the virtues and capabilities of regional cooperation in achieving sustainability in waste management; and
2. participants commonly engage in a relational dynamic rooted in competitiveness that is antithetical to these virtues and capabilities.

In distilling the attitudes identified in this paper, those engaged in regional cooperation overwhelmingly agree that cooperative approaches are necessary to achieve sustainability in waste management; having "more minds at the table" supports success; shunning regional cooperation risks inefficiencies and poorer environmental outcomes; decisions should be guided by technical expertise; systems thinking is a learnable virtue; regional cooperation can usually navigate difficult topics, and global challenges with recycling markets are better faced as a region.

Conversely, in the realm of how those engaged in regional cooperation actually work together in practice, participants appear to operate with a stubborn reluctance to negotiate away from their pre-determined positions and this reluctance becomes further entrenched for any consequential decisions. The data indicate that a localist, rather than a needs-based, lens is applied to determine how benefits are to be distributed.

In seeking to further explore this identified dissonance, it is helpful to refer back to the Conceptual Framework developed for this work and add in North's idea of the *institutional environment* [36] as a further encompassing factor.

To support this, a modified version of the Conceptual Framework is presented in Figure 23 which characterises neoliberalism/NPM as the encompassing and permeating sphere of influence. This extra component, previously overlooked, can help to explain the competitive engagement dynamic that appears to have emerged as the 'natural order' of IMC-WM participants' internal relations, despite their personal attitudes.

To grasp the capacity of neoliberalism/NPM to permeate cooperative institutions in this way, it is helpful to revisit how ubiquitous this cultural-cognitive and regulatory sphere has become since its rise in the 1980s.

Beginning as a loose economic theory spearheaded from 1947 by the Mont Pelerin Society, an organisation largely funded by wealthy aristocrats and business leaders [71], neoliberalism's rise accelerated into a cultural hegemony in the 1980s following the policy reforms of Margaret Thatcher and Ronald Reagan [72].

The uptake in the ideology—a reaction to the end of the Cold War, corporate lobbying and the economic challenges faced in the 1970s—became so normalised that it has ended up being embraced by both sides of politics in Australia [73], largely leaving Australian civilians no other mainstream lens in which to understand the world.

Today, scholars describe the profound effects of the neoliberalist paradigm—including its effect on the subconscious thought processes of individuals—as a "ubiquitous, totalising, and epoch-defining phenomenon" [72]. Frequently described as the "invisible hand" [73], neoliberalism defines our society as a world of "universal competition" where everyone (organisations and individuals) should see themselves as competitors, and organised forms of cooperation are viewed as antithetical to 'liberty'.

Interestingly, this paper's findings on the complicated nature of Australian IMC-WM partnerships align with earlier observations made by scholars.

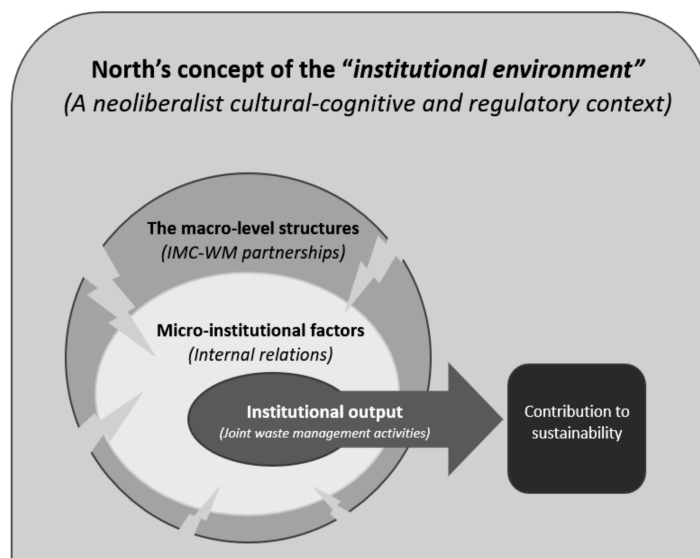


Figure 23. Amendment to Conceptual Framework to illustrate the pervasive effect of the neoliberalist societal paradigm on the internal relations of inter-municipal cooperative partnerships for waste management.

One example of this is Martin's 2010 study [52] on the United Kingdom's Local Strategic Partnerships, Sustainable Community Strategies and Local Area Agreements (all forms of cooperative governance institutions in Britain). Martin found that despite those partnerships' stated goals of facilitating a pluralist and collaborative environment, the actual practices observed were a blend of old qualities of traditional bureaucracy and neoliberalist thinking that reflected Thatcher's policy reforms [52].

Another example in the literature is Dickinson's observation on the Australia context, in which she observed that while NPG-style governance networks are increasingly emerging and operating under a collaboration ethos, the reality is that "hybrid forms of governance prevail" which still reflect NPM and its neoliberalist values [43].

The ability for neoliberalism to remain "alive and kicking" throughout our government institutions—even when those institutions are designed *for* cooperation—is succinctly captured in Pollitt's observations:

"The NPM is not dead, or even comatose... Elements of NPM have been absorbed as the normal way of thinking by a generation of public officials. Many NPM-ish organisational structures remain firmly standing. By the standards of previous administrative fashions—even by comparison with the spread of Weberian bureaucracy itself—NPM must be accounted a winning species in terms of its international propagation and spread."

—Pollitt, 2007 [74]

The virility of NPM and neoliberalist behavioural trends observed in this paper may be demoralising to those hoping that cooperative institutions could be catalysts for a systemic shift toward sustainability.

Such a pessimistic outlook, however, fails to also synthesise the other findings in this paper that highlight the natural benevolence and positivity present in the attitudinal characteristics of IMC-WM participants.

Across all geographic and politico-administrative roles, participants commonly reported their fellow municipal policy actors usually engage with integrity and transparency, show a willingness to help fellow councils who are facing challenges in waste management, that trust is valued more than cost savings and that a sense of regional identity is being cultivated through working together.

Such characteristics align with behavioural research into humans' natural inclinations toward working together. As per research grounded in the *homo reciprocans* economic

theory, humans have a natural inclination to cooperate in a way that is meaningful and altruistic, even when they have opportunities to ‘shirk’ each other [75,76].

In considering the next step that IMC-WM partnerships could take to recalibrate toward a less competitive engagement dynamic, a pragmatic approach oriented around boosting reflexivity is suggested.

Facilitating more reflexivity in participants on the pervasive effects of NPM/neoliberalism could help catalyse pluralist, multi-actor settings away from unhelpful competitive tendencies. By recognising their broader cultural-cognitive sphere, participants could become more conscious of any behaviours they engage in unconsciously.

Monbiot [77] posed the question “Imagine if those in the Soviet Union had never heard of communism?” as a rhetorical exercise to highlight how difficult it is to recognise how an ideology is shaping us when we have yet to articulate it. For municipal policy actors, being blind to their broader cultural-cognitive context puts them at risk of acting competitively in moments where there is simply no need to. This is not to say that simply having a greater awareness of the neoliberalist paradigm is a panacea for the complexity of the politico-administrative environments they operate within. It is not. Rather, building a greater reflexivity on subconscious impulses may simply be helpful for participants in IMC-WM arrangements to identify windows of opportunity for a collaborative and “sustaincentric” [78] approach at the region-level when such moments do present themselves.

In considering how IMC-WM partnerships could most effectively facilitate reflexivity in participants, it is recommended partnerships lean into Evolutionary Governance Theory (EGT) [67,79] as an overarching framework to engage in self-observation and self-analysis. While this paper embraces the principles of systems theory, our later reflections call attention to the narrowness of governance elements we could accommodate through our research design, as well as the dynamism in play between these governance elements.

To elaborate, applying an EGT approach in future research would serve to illuminate the co-evolutions within the regional partnerships we studied, as well as the broader governance systems they are embedded in. A far richer tapestry of complexity is possible through the application of a more expansively systemic epistemology. Indeed, EGT anticipates a co-evolutionary dynamic to exist between actors and institutions, power and knowledge, formal and informal institutions, levels of governance, and IMC-WM partnerships and the regions they are embedded in (which themselves are comprised of municipal sub-systems) [79,80].

As described earlier in this paper, it is not uncommon to see local governments and regional organisations declare their aspirations for a ‘circular economy’ future for their communities. To realise these aspirations, greater reflexivity and engagement is needed within the vast networks of stakeholders who will be integral in catalysing any such evolution in their economic landscape. These constellations of stakeholders (e.g., local industries, consumers, waste generators, new players in the changing economy, etc.) should all be seen as governance actors in some capacity, and an EGT approach posits that steps need to be taken to “bind actors to a collective future and make them invest in it” [47].

Furthermore, in engaging these stakeholders in processes to stimulate reflexivity and visioning, opportunities also become available to convey how our circular economy aspirations are fundamentally linked to each region’s path dependencies, such as the infrastructure they choose to invest in the short-term.

To conclude, the key implications of this study are the data and insights it presents to different stakeholders in the context of good governance in waste management. Federal and state governments are able to use the findings to gauge where there are gaps in waste policy activity, and where their resources should be directed. Regional cooperation partnerships can utilise the findings to understand their pitfalls better, and municipal policy actors may find valuable starting points for self-reflection. Future researchers into this topic are encouraged to look closer at individual IMC-WM partnerships as case studies on further reinvention of their institutional structures and praxis. Future researchers are also encouraged to engage the various stakeholder groups featured in this work to

better understand the challenges they forecast, as shaped by current global, national and sub-national waste policy impacts.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Questionnaire to Municipal Policy Actors Participating in Regional Partnerships

1. Select your State/Territory

- Tasmania (TAS)
- Queensland (QLD)
- New South Wales (NSW)
- Northern Territory (NT)
- South Australia (SA)
- Western Australia (WA)
- Victoria (Vic)
- Australian Capital Territory (ACT)

2. Your geographic context

- Capital city area
- All other areas

3. Are you a Councillor or a Council Officer?

- Councillor
- Council Officer

4. Gender

- Male
- Female
- Other

5. How do you mainly participate in the partnership?

- Governance group (e.g., a Board, Steering Committee, Regional Waste Group, etc.)
- Governance support mechanism (e.g., a Forum, Technical Committee, etc.)
- Other

Comments/clarification: _____

6. To what degree do you agree with the following statements. Scale: Strongly agree—Agree—Neither agree nor disagree—Disagree—Strongly disagree Statement group 1

- ❖ Our partnership has furthered a sense of a ‘regional identity’ among our councils.
- ❖ Member councils regularly have incongruent goals which makes collaboration difficult.
- ❖ For most decisions, the councils stay firm on the pre-determined positions of their council administrations.
- ❖ Our partnership would disintegrate if the council representatives didn’t trust each other, even if it led to higher costs for all.
- ❖ Cost savings are the biggest motivator for working together.
- ❖ The more consequential the decision, the less councils are willing to negotiate away from their pre-determined position.
- ❖ I believe most member councils openly share information to the partnership, even when it doesn’t support their own agenda.
- ❖ When partnerships benefit councils differently, it bothers those who end up benefiting less.
- ❖ Member councils view themselves as serving their individual council’s stakeholders, rather than those of the partnership’s region.
- ❖ Some councils in the partnership have more challenging waste management issues which the other councils are happy to help resolve as a team.

Statement group 2

- ❖ Achieving sustainability in waste management requires councils to work beyond their boundaries.
 - ❖ My council’s involvement in a partnership has made me think more contextually about our region and the opportunities therein.
 - ❖ Councils who do not take a regional approach to waste management risk creating inefficiencies and poorer environmental outcomes.
 - ❖ Councils are better placed to deal with China’s recycling ban by being in a regional partnership.
 - ❖ It is hard to design effective and cost-efficient waste solutions so “more minds at the table” supports our success.
 - ❖ I believe waste management is a policy area where it is particularly important to follow the advice of technical experts.
 - ❖ Issues like “where to site an undesirable waste management facility” are too difficult to negotiate between councils and are best left to the State Government.
7. **From your experience, what advice would you give councils considering regional cooperation to address their waste issues?**
 8. **Final thoughts. Please share any other thoughts you have on this topic.**

Appendix B. Nationwide Census Survey to Regional Partnerships for Waste Management

Section 1: Organisational Characteristics

Select your State/Territory

- TAS
- QLD
- NSW
- NT
- SA
- WA
- VIC
- ACT

How many member councils (aka ‘constituent councils’) are there in your partnership?

If you have a voting system to make decisions between member councils, what is each council’s voting power?

- Equal voting power per member council
- Variation in voting power, dependent on the population of each council
- Variation in voting power, depending on financial contribution to the partnership
- Other governance system:
- Non-applicable

Comments/clarification (optional):

Approximately how many years has the partnership been operating?

For waste groups within regional associations of councils, please answer on how long the waste group itself has been operating.

- 1–3 years
- 4–6 years
- 7–9 years
- 10–14 years
- 15–19 years
- 20–29 years
- 30+ years

Comments/clarification (optional):

Using the map below, estimate the ‘remoteness’ mix of your partnership’s area.



Example: “About 40% Inner Regional and 60% Outer Regional”

Your estimate:

Section 2: Jointly actioned waste management activities

Does the partnership deliver communication campaigns for its member councils?

Please tick all that apply

- Recycling and contamination campaigns
- Food waste behaviour campaigns
- Littering campaigns
- Reuse/upcycling/repair campaigns
- Business recycling campaigns
- Multi-unit dwelling behaviours campaigns
- Engagement with cultural and linguistically diverse groups
- Engagement with Indigenous communities
- Other/s: _____

Comments/clarification (optional):

Does the partnership undertake any other joint communication?

Please tick all that apply

- Social media engagement about your region's waste initiatives
- Production of collateral
- Regional implementation of 'Garage Sale Trail'
- Regional promotion of 'Plastic Free July'
- Food localisation campaigns (e.g., 100 Mile Food)
- Other/s: _____

Comments/clarification (optional):

Does the partnership engage with higher levels of government?

Please tick all that apply

- We proactively lobby as a region to State and Federal Governments about waste policy
- Reactive engagement (e.g., submissions) to State Governments on waste policy
- Reactive engagement (e.g., submissions) to Federal Governments on waste policy
- Participation in global municipal waste networks (e.g., ACR+, C40 Summit, etc.)
- Our governance group includes State Government appointees or representatives
- Other/s: _____

Comments/clarification (optional):

Does the partnership manage any collection services?

Please tick all that apply

- Recycling bin service
- Rubbish bin service
- Green waste bin service
- FOGO bin service
- Kerbside/hard rubbish service
- Other/s: _____

Comments/clarification (optional):

Does the partnership facilitate the shared use of any waste facilities?

This could be the partnership managing the facility OR one member council allowing access of its facility to the others.

Please tick all that apply

- A transfer station
- A landfill
- A sorting and separation facility (e.g., material recovery facility)
- A thermal and biological treatment facility
- A remanufacturing/recycling facility
- An upcycling or beneficial reuse facility
- Other/s: _____

Comments/clarification (optional):

Is the partnership working together on any joint Expression of Interest (EOI) activities or market sounding?

Please tick all that apply

- New sorting and separation opportunities (e.g., a new material recovery facility)
- New thermal and biological treatment opportunities
- New transfer stations
- New upcycling and beneficial reuse facility opportunities
- New remanufacturing/recycling facilities
- New landfills
- Other/s: _____

Comments/clarification (optional):

Does the partnership work together to address littering and/or illegal dumping?

Please tick all that apply

- Illegal dumping regulation/enforcement
- Community clean-up events
- Promotion of your State or Territory's Container Deposit Scheme
- Removal of car bodies
- Remediating illegal dumping sites
- Applying for Tidy Towns Awards or other similar recognition initiatives
- Other/s: _____

Comments/clarification (optional):

Does the partnership organise training or professional development for member councils' staff?

Please tick all that apply

- Landfill management related training
- Transfer station related training
- Community engagement skills training
- A cross-council mentoring program
- Networking events between waste professionals
- Managing a 'Best Practice Library'
- Fire training specific to resource recovery facilities
- Other/s: _____

Comments/clarification (optional):

Does the partnership facilitate any of these activities?

Please tick all that apply

- Disaster readiness
- Hosting regional waste conferences or community/industry forums
- Publishing a regional waste strategy
- Facilitating improved asbestos management in the region
- Environmental monitoring (e.g., contaminated land management)
- Public tours of landfill or recycling facilities
- Operating a waste education centre
- Delivering a school education program
- Operating a tip shop
- Other/s: _____

Comments/clarification (optional):

Section 3: Optional upload of documents

To help us understand your partnership better, you have the option here to upload any corporate documents you wish to share, such as your Memorandum of Understanding or regional strategy.

Upload function:

Comments/clarification (optional):

Section 4: The National Waste Policy 2018

Since 2018, has your regional partnership been active in any of the following areas?

Target 1

- Supporting the development of new markets for recycled products and materials in the region
- Procurement initiatives to support more recycled content in the procurement decisions of the member councils or the partnership
- New regulations in the region to prevent the landfilling of recyclable plastic, paper, glass or tyres

Comments/clarification (optional):

Target 2

- Programs to help businesses in your region to identify opportunities to reduce their waste
- Providing support to community-based reuse and repair centres in your region
- Supporting circular economy principles in your region's urban planning, infrastructure and development projects
- Undertaking research to better understand the contributing factors to contamination in kerbside recycling bins

Comments/clarification (optional):

Target 3

- Leveraging existing regional development programs to support better waste and resource recovery outcomes
- Increasing access to waste and resource recovery infrastructure for regional, remote and Indigenous communities

Comments/clarification (optional):

Target 4

- Growing the amount of recycled content used in road construction in the region
- Increasing the uptake of recycled content in other government infrastructure projects
- Supporting or promoting businesses who are applying circular economy practices, such as by running a recognition scheme or awards program

Comments/clarification (optional):

Targets 5, 6 and 7

- Initiatives to improve the end-of-life disposal of products and articles containing hazardous substances
- Delivering a FOGO service to your region or parts of it
- Supporting infrastructure changes to facilitate future FOGO processing
- Efforts to adjust your region's waste data and reporting practices to support harmonisation with other jurisdictions

Comments/clarification (optional):

Section 5: Meetings, Knowledge Sharing, Viability**What types of regular meetings does the partnership host?**

Common group/committee names are: General governance group, Technical Advisory Group, Professional Waste Officer Group, Waste Educators Group, etc.

Example answer:

General regional waste group—6 times a year

Waste educators group—4 times a year

In meetings, how often are these types of information shared with member councils?

- Waste policy, legislation and regulatory updates
- Grants and funding opportunities in waste management
- Waste technological innovations
- Waste sector updates
- Waste community events in the region relevant to member councils' residents
- New waste research
- Other:

Answer options:

- Never
- Rarely
- Once a year
- Twice a year
- More than 3 times a year
- Basically all meetings

Comments/clarification (optional):

Section 6: Opportunities and challenges

What are the current barriers to your partnership enhancing sustainable waste management outcomes in your region?

Do you have any advice for regions considering forming an inter-municipal partnership to address their region's waste issues?

Final thoughts. Please share any other thoughts you have from your experience with inter-municipal cooperation in waste management.

Appendix C. Census Survey Results Summary of Institutional Characteristics

Table A1. Results summary of Australian regional waste partnerships' characteristics.

Code	State	Legislative Mechanism	Institutional Context	Regional Context (Estimation)	Number of Member Councils	Governance Mechanism	Years Together
A	NSW	Voluntary grouping	Embedded in a regional organisation, Part of a statewide network of waste groups.	40% Inner Regional, 60% Outer Regional	6	Equal voting power per member council	15–19 years
B	WA	Statutory organisation	Regional local government, Part of a statewide network of waste groups.	100% Inner Regional	6	Equal voting power per member council	30+ years

Table A1. Cont.

Code	State	Legislative Mechanism	Institutional Context	Regional Context (Estimation)	Number of Member Councils	Governance Mechanism	Years Together
C	NT	Voluntary grouping	Autonomous self-organised group.	90% Very Remote, 10% Remote	5	Equal voting power per member council	4–6 years (currently inactive)
D	NSW	Voluntary grouping	Autonomous self-organised group, Part of a statewide network of waste groups.	100% Inner Regional	7	Equal voting power per member council	20–29 years
E	TAS	Voluntary grouping	Autonomous self-organised group, Part of a statewide network of waste groups.	60% Remote, 40% Inner Regional	7	Other governance process	10–14 years
F	SA	Statutory organisation	Waste management authority.	85% Inner Regional, 15% Remote	4	Equal voting power per member council	10–14 years
G	VIC	Statutory organisation	State Govt agency, Part of a statewide network of waste groups.	50% Inner Regional, 50% Outer Regional	9	Equal voting power per member council	4–6 years
H	NSW	Voluntary grouping	Autonomous self-organised group, Part of a statewide network of waste groups.	10% Inner Regional, 40% Outer Regional, 40% Remote, 10% Very Remote	26	Other governance process	20–29 years
I	QLD	Voluntary grouping	Embedded in a regional organisation.	40% Outer Regional, 30% Remote, 30% Very Remote	13	Equal voting power per member council	15–19 years
J	NSW	Voluntary grouping	Embedded in a regional organisation, Part of a statewide network of waste groups	100% Major city	11	Other governance process	30+ years
K	TAS	Statutory organisation	Waste management authority, Part of a statewide network of waste groups.	50% Inner Regional, 50% Outer Regional	7	Equal voting power per member council	10–14 years
L	WA	Voluntary grouping	Investment-oriented network of councils, Autonomous self-organised group.	50% Inner Regional, 50% Outer Regional.	13	Other governance process	10–14 years
M	NT	Voluntary grouping	Autonomous self-organised group.	95% Very Remote, 5% Remote	3	Other governance process	4–6 years (currently inactive)

Table A1. Cont.

Code	State	Legislative Mechanism	Institutional Context	Regional Context (Estimation)	Number of Member Councils	Governance Mechanism	Years Together
N	WA	Voluntary grouping	Embedded in a regional organisation	100% Remote	4	Equal voting power per member council	10–14 years
O	VIC	Statutory organisation	State Govt agency, Part of a statewide network of waste groups	90–100% Outer Regional	6	Equal voting power per member council	7–9 years
P	WA	Statutory organisation	Regional local government, Part of a statewide network of waste groups	100% Major city	5	Equal voting power per member council	15–19 years
Q	VIC	Statutory organisation	State Govt agency, Part of a statewide network of waste groups	40% Inner Regional, 60% Outer Regional	12	Other governance process	7–9 years
R	TAS	Voluntary grouping	Autonomous self-organised group, Part of a statewide network of waste groups	50% Inner Regional, 50% Outer Regional	12	Equal voting power per member council	1–3 years
S	NSW	Voluntary grouping	Embedded in a regional organisation, Part of a statewide network of waste groups	100% Major city	8	Equal voting power per member council	20–29 years
T	WA	Statutory organisation	Part of a statewide network of waste groups	100% Major city	3	Equal voting power per member council	20–29 years
U	SA	Voluntary grouping	Embedded in a regional organisation	100% Outer Regional	7	Equal voting power per member council	7–9 years
V	NSW	Voluntary grouping	Autonomous self-organised group, Part of a statewide network of waste groups	90% Outer Regional, 5% Inner Regional, 5% Remote	12	Equal voting power per member council	20–29 years
W	QLD	Voluntary grouping	Embedded in a regional organisation	50% Inner Regional, 50% Outer Regional	6	Equal voting power per member council	7–9 years
X	QLD	Voluntary grouping	Investment-oriented network of councils, Autonomous self-organised group.	80% Inner City, 20% Inner regional.	5	Other governance process	1–3 years
Y	WA	Statutory organisation	Part of a statewide network of waste groups	20% Major city, 80% Inner Regional	6	Equal voting power per member council	10–14 years

Table A1. Cont.

Code	State	Legislative Mechanism	Institutional Context	Regional Context (Estimation)	Number of Member Councils	Governance Mechanism	Years Together
Z	SA	Voluntary grouping	Embedded in a regional organisation,	30% Inner Regional, 60% Outer Regional, 10% Remote	15	Equal voting power per member council	20–29 years
AA	WA	Voluntary grouping	Embedded in a regional organisation.	100% Inner Regional	5	Equal voting power per member council	7–9 years
BB	SA	Statutory organisation	Waste management authority.	100% Inner Regional	4	Equal voting power per member council	10–14 years
CC	WA	Statutory organisation	Part of a statewide network of waste groups	100% Major city	6	Equal voting power per member council	30+ years
DD	NSW	Voluntary grouping	Part of a statewide network of waste groups	80% Inner Regional, 20% Outer Regional	3	Other governance process	1–3 years
EE	SA	Voluntary grouping	Embedded in a regional organisation	90% Outer Regional, 10% Inner Regional.	8	Equal voting power per member council	1–3 years
FF	WA	Statutory organisation	Part of a statewide network of waste groups	100% Major city	7	Variation in voting power, depending on financial contribution to the partnership	30+ years
GG	NSW	Voluntary grouping	Embedded in a regional organisation, Part of a statewide network of waste groups.	10% Major city, 60% Inner Regional, 30% Outer Regional	10	Other governance process	10–14 years
HH	QLD	Voluntary grouping	Embedded in a regional organisation	100% Major city	5	Equal voting power per member council	7–9 years
II	VIC	Statutory organisation	State Govt agency, Part of a statewide network of waste groups	100% Major city	31	Equal voting power per member council	15–19 years

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