What's in a Name? Is it a Waste or a Resource?

Mapping and Characterising the Waste Trade Regime

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Introduction

The concept of waste is intensely familiar to us; it is something we meet every day. Although to define exactly what makes something 'waste' is far from obvious. The transboundary trading of waste has been governed at the global level for three decades – with governance scope increasing by the year. From the outset in the 1980s, the impetus for global waste trade governance has been to significantly restrict and control the export of 'hazardous' waste streams, primarily to developing countries. Yet, this mandate is no longer clear because the normative interpretation of various wastes as 'good' or 'bad' – for us, for the environment – appears to be inconsistent across contemporary transnational governing entities. This is despite these entities all mutually governing under the logics of circular economy and sustainable development. Whether waste is a risk, resource or livelihood is simply not apparent. Thus, whether waste trade is dangerous or advantageous is not apparent either (Barsalou & Picard, 2018; Lepawsky, 2017). Such confusion has escalated at a time when the waste trade regime – as with the climate change, forestry and other environmental regimes – has mushroomed in terms of quantity and diversity of governing actors and instruments at the global institutional level (Kleinschmit et al., 2009). Meanwhile, evidence suggests cross-border waste flows (particularly illegal waste flows) that cause danger to humans and the environment have never been so 'prosperous' (Kellenberg & Levinson, 2014:139; Kellenberg, 2015:111; O'Neill, 2019; Wheeler, 2019). A study understanding the contemporary waste trade regime at the global level thus seems urgent if we are to understand how such activity is continuing in spite of extensive transnational governance. However, although much

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academic energy has been poured into systemically understanding other environmental regimes and their recently accelerated complexity, the waste trade regime has been neglected. This is both puzzling and troubling. As part of this book's attempt to rectify the literature's deficiency, this chapter lays the requisite groundwork for a thorough insight into the contemporary waste trade regime and future research into the 'efficiency' of transnational waste trade governance (De Vos et al., 2013). Following Biermann et al.'s (2009) notable contribution to environmental regime literature, I undertake two research endeavours to understand which public and private treaties, agreements, regulatory standards, operational/financing activities and data collection/sharing bodies constitute the waste trade regime and what kind of relationship these institutional elements have with one another.

Specifically, I ask:

Research Q1 How 'fragmented' is the waste regime structure? In other words, what is the diversity, quantity and intra-regime coordination of a regime's constituting governance bodies?

Research Q2 Is the waste trade regime more synergistic or conflicting in its overall approach to governance?

Respectively, a mapping exercise and a characterisation process are used to answer these questions. Greater regime fragmentation does not necessarily cause greater intra-regime conflict (Young, 2011:19856). Hence, there is a need to follow the first research activity with the latter. Both research activities have been applied to the climate change (Biermann et al., 2009; Abbott, 2012a) and forestry regimes (Fernández-Blanco et al., 2019). I posit these frameworks are sufficiently adaptable to carry out an assessment on a different environmental regime, which has nonetheless been party to the same paradigmatic shift of governance structures at the global level (Abbott, 2012b). The desire to identify and exploit potential gains from better management of decentralised governance entities is an important rationale for mapping and characterising a contemporary environmental regime. To go a step further, I pursue such a study to also shed light on the oft-overlooked yet distinctly political and fractious nature of common-place 'environmentalisms' – such as circular economy and sustainable development (Hajer & Versteeg, 2005:176). By surfacing governing actors' interests and ideas, I show that a lot of normative fragmentation between governance entities lies behind these ostensible 'consensus concepts' (Mert, 2009).

I make the following hypotheses:

1. Contemporary global waste trade governance cannot be fully understood as it stands without a comprehensive account of the regime's structure and an analysis of the interplay of regime elements' ideas and interests.
2. There are sufficient similarities between environmental regimes to deem Abbott's (2012a) transnational regime complex and Fernández-Blanco et al.'s (2019) intra-regime characterisation frameworks suitable for my research on the waste trade regime.

3. Global waste trade governance can be defined as a transnational regime complex with some level of conflict between the many regime elements, giving way to inconsistent waste definitions and waste trade control. Conflict may be hidden by different elements using the same broad environmental narratives.

This research explores each hypothesis in turn, with a conclusion giving reflections on their holding power. The next section gives a short history of the global waste trade, followed by a briefing on the literature this research is building from and adding to, before engaging with my research endeavours.

Waste Trade Motivations and Its Governance: Then and Now

> I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that…I've always thought that countries in Africa are vastly under polluted; their air quality is probably vastly inefficiently low compared to Los Angeles… Just between you and me, shouldn't the World Bank be encouraging more migration of the dirty industries to the Least Developed Countries?
>
> Lawrence Summers, confidential World Bank memo, 12/12/1991 (Nixon, 2011:1)

Wastes, born locally, can be separated from their locale of consumption and production and shipped globally. Hence, a local environmental phenomenon becomes a global one; a local pollutant becomes a global pollutant.

Waste flows across borders are relentless and increasing, as developed countries continue their heated scramble for waste management solutions – a pattern beginning in the 1970s (Hurley, 2016). Wealthy nations, in building stricter environmental standards, started inadvertently incentivising waste exports at a time when the cost of and barriers to international transport, communication and trade were declining (O'Neill, 2000:34–36). Wastes that were causing national trouble via profit-friendly management methods (e.g. burying of industrial wastes in the case of Love Canal, New York, 1984: Dorsner, 2018) could now disappear from national borders entirely. Some of these exports, of extremely hazardous nature, travelled to poorer nations' shores, causing a string of much-publicized events. The most famous is the 1986 Khian Sea Incident where the US exported 14,000 tons of ash from waste incinerators initially to the Bahamas. The ash waste ended up dumped in Haiti – labelled as 'fertiliser' – as well as the Atlantic and Indian Ocean, after continued foreign import rejections (Howard, 1990:224).

It was the uproar of civil society organisations (CSOs) in response to Khian Sea and other waste disasters which pressured states and international bodies to form the first and still the most comprehensive international platform for governing the global waste trade: The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel) under UNEP. Basel entered into legal force in 1992 – coinciding with UN's historical Rio Earth Summit. Geared with the principal aim of safeguarding developing countries from hazardous waste imports, North-South dichotomies were firmly entrenched in Basel's DNA. Nonetheless, today the developed world generates over 10 times more waste

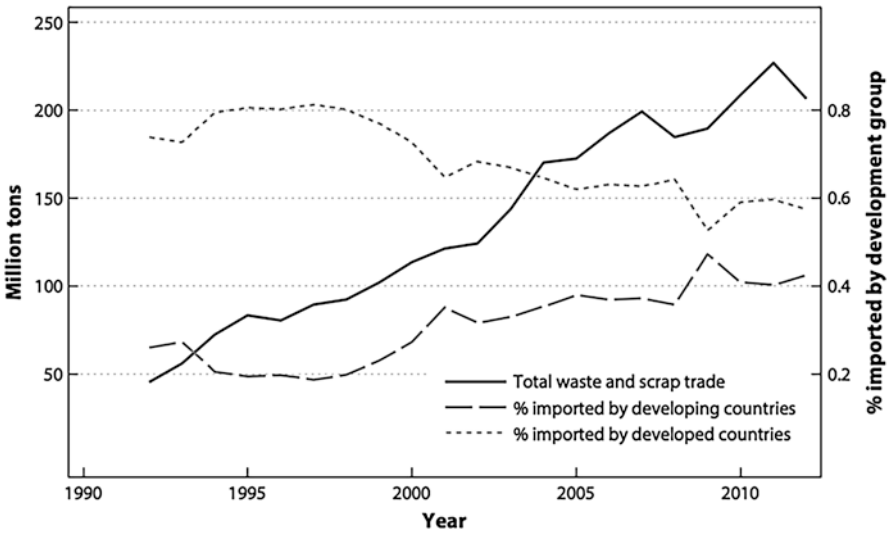


Fig. 1 Annual tons of global waste (for disposal, recycling and reuse) traded internationally (1992–2012) (Kellenberg, 2015:111)

per capita than the developing world (SBC, 2018:7) with much of it still ending up in the global South (Kellenberg & Levinson, 2014:139; Kellenberg, 2015:111; O'Neill, 2019; Wheeler, 2019). Figure 1 below illustrates such.

Interestingly, within multilateral policymaking, hazardous waste is one of the isolated materials that has seen strong emphasis to reduce trade rather than encourage it (Baggs, 2009:1). Yet, more recently, this call for reduced trade has been diluted by many competing interests.

Waste trade and its governance has changed dramatically over the recent years, not least a factor of contemporary patterns of globalisation and urbanisation. The waste trade regime, similar to other environmental regimes, now appears to be a diverse and 'fragmented' nexus of corporate social responsibility initiatives, industry-CSO partnerships and public-private market solutions (O'Neill, 2019). However, a substantial commonality across this nexus appears in the ubiquitous touting of sustainable development (meeting human development goals, sustaining natural systems and growing the economy) and circular economy (CE) logic (designing out waste and pollution by keeping products and materials in use) (Linnér, 2006; Gregson et al., 2015).

At the same time, there is evidence to suggest that a much greater diversity and volume of (legal and illegal) waste trade has been occurring in keeping with higher rates of waste generation. Indeed, a 'new global waste economy' has surfaced (O'Neill, 2019:5). From big multinational companies to small-scale trash pickers, hordes of actors now have direct economic interests in further extending and deepening waste supply chains. Waste Management Inc., one of the largest global companies engaged purely in waste management, generated US$14.8 billion in 2017, ranking 549 in Forbes' Global 2000 list of top public companies in the world

(ibid:58). Used plastics and electronics are no longer seen as destined only for disposal but to secure multiple 'afterlives' in 'circular' productive use – an industry input perhaps, or converted into energy.

Whilst the primary reason for shipping waste abroad has been traditionally rooted in cost efficiency, two other motivations for waste trade are widely cited today: environment-efficient management and resource-efficient management and growth (Sembiring, 2019).

Cost-Efficient Management A large percentage of contemporary waste trade is constituted by mixed (not a single type, e.g. PVC and PE plastics), contaminated (not fully cleaned) and difficult-to-recover waste loads, driven by comparative advantage-led reasoning (Jain, 2020). Such logic is made clear in Summers' 1991 'confidential memo': exporting to foreign nations with lower disposal costs allows parties to profit from regulatory, technical and wage differentials. Yet, under Basel law, such trade is illegal, compounded by a low social legitimacy of such logic (BFFP, 2019). Hence, much of this waste is exported under the guise of 'recyclables' (illegally) to ostensibly maximise environment-efficient management (Jain, 2020).

Environment-Efficient Management As environmentalism has become a well-embedded international norm (Falkner, 2012), a common reason cited for waste trade has been to secure the most 'environmentally sound management' (ESM) solution across regions (BRS, 2011). For example, superior waste management technology may exist in a different region (e.g. Sweden), or countries may band together to create joint management facilities to manage waste streams not large enough to justify independent facilities. However, to find such worked examples of this happening on the ground is rare. It is uncommon to see trade waste occurring driven by environment efficiency over cost efficiency (Puckett, 2020).

Resource-Efficient Management and Growth Developed nations, the core waste exporters (SBC, 2018:7), seek to engage in secondary materials markets (some remarkably prosperous), using waste as an industry to grow one's own economy. To give an indication of the value of waste exports, all raw materials present in the electronic waste (e-waste) stream was circa $55 billion in 2016 (O'Neill, 2019:5). Simultaneously, waste imports are used to grow economies of developing, industrialising nations in providing a source of cheaper scarce raw materials and 'green business' (e.g. recycling, waste-sorting) opportunities. The latter element of this – promoting 'inclusive and sustainable' industrialization whilst reducing international inequality (SDGs 8, 9 & 10) – is often discussed as if it were the primary reason actors engage in waste exports (SBC, 2011; Oswald & Reller, 2011; Lepawsky, 2015).

What is now obvious is that waste does not have a ubiquitous character through space and time (Lepawsky, 2017). Exporting wastes can cause risk for human and environmental health over great distances, offer an additional source of raw materials for industry and provide a livelihood to millions through the collecting, sorting, recycling and selling of valuable waste components.

Scholars and practitioners commonly understand that existing transboundary waste flow governance is (at the very least) 'inadequate', for one reason or another. The evidence cited for this varies, from illustrating resources and market inefficiencies to degraded ecosystems (IPEN, n.d.) and even behaviours understood as Western colonialism (BAN, 2019a). However, there does seem to be a common tacit yet unexplored theory across many of these individuals and groups: waste trade governance is inadequate because the governance structure is fragmented and conflicting, giving way to conflicting classification and control systems for waste (Kummer, 1994; Bontoux & Leone, 1997; O'Neill, 2019). Countering this though, simple intuition – as well as some scholars (Arts & Babili, 2013) – would suggest that with sustainable development and CE now promoted across waste governing bodies, this commonality should reduce intra-regime conflict and promote synergism.

Isolated studies implicitly map the fragmentation of different various waste regimes, employing undeveloped methodology (Dauvergne, 2018: marine plastic waste; Ilankoon et al., 2018 and Lepawsky, 2015: e-waste; O'Neill, 2019: plastic, food and e-waste; Mulinaris, 2020: end-of-life ships). Nonetheless, no comprehensive assessment qualifying the degree of fragmentation nor nature of this fragmentation in the transnational waste regime exists to make a judgment on the above either way.

International and Transnational Regime Literature

When international regimes became a focus in IR in the 1980s, it was Krasner's institutionalist liberal understanding of them that marked the mainstream approach: an international regime is where rational (state) actors' interests converge, understandings are shared, objectives are mutually met and coordination issues are overcome (Krasner, 1983:2) Undermining the realist theoretical premise of a Hobbesian 'state of nature' by which to understand relationships in international fora, a regime was commonly depicted as a voluntary, cooperative arena owning community-esque characteristics.

Much contemporary regime research is still significantly influenced by realist/neorealist premises (Brown, 2001). Yet, literature has since significantly developed responding to the radical transformations which have occurred in global governance structures. Delineating 'government' the institution from 'governance' the process, James Rosenau (mid-1990s, rather precociously) defined the emergence of a new network of authority: 'transnational governance'. This concept is used to depict global-level fora where industry, civil society organisations (CSOs), social movements and epistemic communities govern alongside state entities, where a mixture of legal and non-legal instruments steer behaviour 'in the crazy-quilt nature of modern interdependence' (Rosenau, 1995:15).

IR has since invested much energy in developing a more granulated understanding of the character and consequences of transnational governance regimes, now

readily construed as a collection of social institutions that guide individuals' behaviour affecting a given issue-area (Young & Osherenko, 1993:3). Given how many previously national affairs now constitute the concern of globally operating bodies, much regime literature now tends to focus on which issues are being dealt with in various regimes, delineating a regime's boundaries by topic arena (Levy et al., 1995; Abbott, 2012a). Furthermore, many have dropped assumptions of cooperation, although without starting from neorealist premises that regimes are pure embodiments of interstate power relations (Auld & Green, 2012). Instead, much literature has engaged with exploring the decentralised, non-state-directed construction of regimes as well as the notion that regimes can be sites of conflict.

Hence, analysis of institutional diversity in global governance now dwells upon patterns and symptoms of complexity. A plethora of conceptualisations have arisen in the literature to patch together an understanding of decentralised governance structures.

For example, 'regime clustering' refers to proactive institutional merging (Oberthür, 2002); 'treaty congestion' depicts harm arising from multiple and overlapping agreements (Lukitsch-Hicks, 1999); and 'polycentricity' is used to advocate decision-making and organisation at local scales (Ostrom, 2010). Most relevant to my research are the terms 'fragmentation' – decentralised and diverse institutional structures (ILC, 2006) – and 'regime complex', loosely coupled institutional structures (Raustalia & Victor, 2004).

Environmental Regime Complex Literature

The regime complex framework is well recognised in IPE literature for depicting a regime's level of fragmentation. It supports analysis into how growing interdependence between issues and institutions reshapes the structure and coherence of regimes, particularly environmental regimes (Kleinschmit et al., 2009:309; Keohane & Victor, 2011; Abbott, 2012a).

Raustalia and Victor (2004) introduced the 'regime complex' (RC) concept to describe a regime with significant fragmentation. They saw that rules made by institutions in one regime (e.g. intellectual property rights) were not 'self-contained' and are likely to 'functionally overlap' with rules made by institutions born in another regime (e.g. plant genetic resources). Yet, due to the uncoordinated nature of regimes' inceptions, 'agreements reached in one forum do not automatically extend to, or clearly trump, and agreements developed in other forums' and hierarchical conflict resolution may not exist (ibid:279–280).

Keohane and Victor (2011) embedded the RC framework in mainstream IPE environmental scholarship via its application to the climate change regime. They helpfully elucidate a contemporary environmental regime's diversity of governance scope (e.g. multilateral, bilateral, regional), governance instruments (e.g. scientific assessment, financial/capacity assistance, law, regulatory guidance), issue angles (e.g. technological, financial, social) and diversity of 'overlap' with other regimes

forming the international response to a particular issue (e.g. nuclear, trade, development).

Abbott (2012a) further builds upon these two studies to appropriately emphasise the weighty contribution of non-state actors in regimes. Mirroring Rosenau's (1995) use of the term, Abbott's (2012a) RC framework is prefixed with 'transnational' to highlight the 'messy' nexus of state and non-state governance at the global level. This is a significant given regime literature that 'typically casts nonstate actors as influences on authority rather than as potential or actual authoritative agents' (Conca, 2005:190), e.g. Betsill and Corell (2008).

Along with others (Giessen, 2013; Rayner et al., 2010), Fernández-Blanco et al. (2019) use the RC framework to map forest governance and extend Biermann et al.'s (2009) means of assessing the synergistic vs conflicting nature of an RC. The anticipation of synergies and conflicts arising from environmental regime fragmentation – and their knock-on effects in governance – has led many academics and practitioners in the last 20 years to invest a lot in understanding how to promote the former and eliminate the latter (Medvedieva et al., 2018). References to 'win-win-win' synergism is commonplace in mainstream international institutions (e.g. WTO, UN) in the context of environmental policy (Linnér, 2006:279). Synergies can be understood in a limited, technocratic manner (e.g. cross-organisational savings from sharing administrative and organisational burdens). Much scholarship though – such as Fernández-Blanco et al. (2019) – tends to understand synergies more holistically as complementarities between governance approaches.

Fernández-Blanco et al. (2019) successfully depart from scholarship's tendency to (rather bluntly) assess the overall character of an RC (Biermann et al., 2009) and instead comprehensively characterise each inter-regime relationship within the complex. This micro-lens approach promotes the accuracy and theoretical nuance of synergistic vs conflicting regime evaluations and is novel in the literature (Fernández-Blanco et al., 2019:187). Furthermore, this paper briefly but crucially touches upon how mainstream environmental narratives can shroud true conflict within a regime. However, this study is insufficiently developed to explore the implications of discourse on inter-regime relationships.

Discourses in Environmental Governance Literature

Political ecology, alongside a smattering of constructivist-leaning IPE scholars, does well bringing discourse to the analysis of intra-regime relationships, where discourse is widely understood as the 'ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena' (Hajer & Versteeg, 2005:175). In Foucauldian style, it is recognised that environmental policy is a site ripe for discourse analysis, given such regimes are 'sites of linguistic contestation', suasion, exclusion and societal 'education' on why an environmental phenomenon is of concern (Gellers, 2015:484–488). Contestation exists around winning the dominant 'framing' of a particular issue, documented extensively in

environmental negotiation literature (Woolcock & Bayne, 2016), because discourse is a powerful precursor to policy prescriptions (Litfin, 1994:37; Hajer & Versteeg, 2005).

Some studies paint an optimistic picture of proliferating 'greening' discourses such as sustainable development, proposing that the widespread institutional adoption of these narratives induces institutional cohesion and synergism (Giessen, 2013:65). Arts and Babili's (2013) assessment of the forest RC adopts this reasoning.

In contrast, Backstrand and Lovbrand (2006) take a more nuanced approach and look beyond 'central narratives'. They illustrate how there are significant 'lines of conflict between discursive framings' amongst transnational institutions governing climate change (ibid:67). They propose that institutions' core interests and ideas are reflected in the specific discursive framings they adopt to problematize a phenomenon. For example, the institutionalised 'Ecological Modernisation' discourse represents interests and ideas focused on 'flexible markets' and cost-effective environmental problem-solving. This characterisation can conflict with 'Civic Environmentalism', which focuses on building participatory and equitable environmental governance structures (ibid:52–57). These authors posit that tracing institutionalised framings that are 'overlapping' (synergistic) and 'competing' (conflicting) gives us a solid illustration of how climate change governing organisations support or undermine one another's approaches (ibid:50).

Theoretical Framework: A Transnational Waste Trade Regime Complex Plus Discourse

Mapping the Waste Trade Regime

Environmental RC complex literature and constructivist insights form the bedrock of my theoretical framework.

For the first part of my research, I use Abbott's (2012a) extended RC framework to map the degree of fragmentation in the waste trade regime.

Abbott's (2012a) classification of a transnational RC is useful in specifying the 'complexity' of a regime's structure by looking at the regime's institutional elements (i.e. the regime's 'building blocks').

Specifically:

- Are governance operations diverse and shared amongst multiple-state and non-state organizations?
- Do a significant number of institutional elements hold their origin in different issue-areas outside that of the regime's?
- Is governance decentralized with little, if any, central coordination?
- These three criteria analytically identifying a transnational RC are broadly recognised in the literature.

Scholars researching whether decentralised environmental regimes are 'efficient' (i.e. impactful) often use RC framework to proxy fragmentation (Hulme, 2010; Cole, 2011; Orts, 2011; Young, 2011). Some advocate that given existing world politics, an environmental issue will be managed most optimally at the global level by a regime exhibiting many (Falkner et al., 2010) if not all (Keohane & Victor, 2011) RC characteristics.

Yet, before drawing inferences about a transnational regime complex and the efficiency of its governance, it is vital to understand the relationships that characterise the regime (Biermann et al., 2009). Fragmentation does not necessarily beget inconsistent and patchy governance (Young, 2011:19856), hence the necessity of the second part of my research.

Characterising the Waste Trade's Intra-regime Relationships

For the second part of my research, I employ aspects of Fernández-Blanco et al.'s (2019) theoretical approach to assessing the regime's character at the micro-level, configuring a measure of synergism vs conflict for each institutional element's relationship to one another. Two limitations of the paper need addressing though.

Firstly, although there is an attempt by the authors to reach beyond the traditional assumption in regime literature that institutions constituting the regime are internally synergistic in terms of their goals, they do not set any social context when identifying institutional elements that internally conflict (ibid:197). This is because the authors do not come from the ontological premise that institutions themselves are multi-actor social settings pregnant with different interests and ideas, causing goals to be continually redefined. Yet, this has been widely shown to be evident and significant (Betsill & Corell, 2008; Mert, 2009:329). Regimes and IEs have a multitude of competing 'script-writers' (Mert, 2009). This may cause elements to become internally self-contradictory in their governance approach, or at least reflect a more ambiguous approach. The determination of an element's relationship to other elements is therefore much less straightforward than is put by Fernández-Blanco et al. (2019).

Secondly, this paper briefly explores how environmental narratives can shroud true conflict within a regime (ibid:199–200). Yet the authors leave such important analysis undeveloped, turning a blind eye to the wealth of discourse analysis in environmental policy research. 'Various studies have shown how distinct actors exercise power through trying to impose a particular frame or discourse… in environmental policy-making' (Hajer & Versteeg, 2005:177). Hence, it is imperative that my research is rooted in the understanding that knowledge is not a way to objectively make our real world comprehensible, as positivists would have it. An actor's framing of waste and the waste trade – whether or how it's an issue – reflects principled and casual beliefs and interests (Goldstein & Keohane, 1993). A frame can be deployed strategically, to garner legitimacy by aligning with contemporary

norms. It also delimits policy options that may go against actors' political and material interests (Humphreys, 2009:319).

For example, defining different waste streams as 'hazardous' or 'non-hazardous' has enormous implications for the value and/or viability of industrial production and (potentially very profitable) international trade flows – as well as the well-being of the millions across the world working in waste management (O'Neill, 2019:2; Puckett, 2020). Thus, waste's institutionalised definition has far-reaching repercussions for broader international equity, economy and environment concerns – the classical IR tension (Young, 2016; Linner). Recognising this, we can see how and why environmental governance 'is not just an issue concerning the relationship between humans and nature but also an issue where people exercise power over other people' (Slaughter, 2005:217).

In sum of the insights above, we can see that by critically observing an IE's governing discourse and how it problematizes waste and the waste trade, we may get a better sense of an IE's broader interests and ideas. It is these broader interests and ideas which form an IEs' governing approach. Hence, following Backstrand and Lovbrand (2006), I posit that by locating an IE's broader interests and ideas, one can locate an IE's governing character and can from there assess how synergistic or conflicting it is with others.

Methodology

Mapping the Waste Trade Regime

To begin mapping the waste trade regime, I seek to identify each institutional element constituting the regime. This is to gauge the regime's fragmentation using Abbott's (2012a) RC framework.

For this identification process, I use a three-step method, to supply rigour and lessen any potential selection bias. The waste trade regime's 'institutional elements' (IEs), which I use as my basic unit of analysis following Fernández-Blanco et al. (2019), I specifically define public and/or private treaties, agreements, regulatory standards, operational activities, and data collection and sharing bodies, which significantly contribute to waste trade governance, operating at multilateral or regional levels. Governance is understood along constructivist lines, where norms and discourse play significant 'steering' roles on 'the governed' – alongside formal law (Appelstrand et al., 2012).

Following Fernández-Blanco et al.'s (2019) attempt to capture the forestry regime in time, July 2020 was established to represent the most contemporary snapshot frame of the waste trade regime. This is to include the regime's developments over 2019 and 2020 such as Basel's amendments (Norwegian Amendment from 4/5/2019, Basel Ban Amendment from 5/12/2019) and actors' responses to such (e.g. EU's 'Delegated Regulation' outlining EU's intention not to fully implement

Norwegian Amendment's new trade controls on difficult-to-recycle plastics within the EU: GAIA, 2020). Such developments are emblematic of contemporary waste trade governance.

To begin with, I review core academic, institutional and media articles discussing waste trade governance entities (e.g. O'Neill, 2019; Kaza et al., 2018; Dauvergne, 2018; Kellenberg & Levinson, 2014; www.ban.org).

Secondly, in order to critically assess secondary-source materials and bring perspectives beyond websites, I then triangulate my findings with semi-structured video interviews through July 2020 with core academic, institutional and media representatives in waste trade governance: Rolph Payet (Seychellois UN Executive Secretary for the Basel, Rotterdam and Stockholm Convention); Jim Puckett (Canadian Founder & Director of BAN); Kate O'Neill (American IR academic; expertise in waste governance); Sedat Gündoğdu (Turkish IR academic; expertise in marine pollution); Angus Crawford (British BBC reporter; investigated UK exports of plastic waste in 2020); Nicola Mulinaris (Italian Communication and Policy Officer; NGO Shipbreaking Platform).

Thirdly, I use Fernández-Blanco et al.'s (2019) method of focusing on the most comprehensive regime element – in the case of waste trade, Basel – and apply a qualitative content analysis of its structural organisation, reports and news, identifying any additionally referenced entities fitting my definition of an IE. This simultaneously allows me to develop an understanding of Basel's relationships and the extent of hierarchy present in the regime.

Importantly, I ensure an openness to institutions which fall outside of how the waste trade regime is typically bounded (O'Neill, 2019) but which still maintain a significant direct or indirect effect on waste trade governance.

Characterising the Waste Trade Institutional Elements

The second half of the research aims to systematically characterise the relationship between each IE of the transnational waste trade regime to understand the extent to which the regime displays synergism or conflict overall. My sources remain the same as in the Mapping the Waste Trade Regime section.

Adopting mainstream scholarship's definitions, I define synergy as the presence of co-supportive normative 'complementarities' between IEs' governance approaches (UNDP, 1997:3). Conflict is the undermining of such (Linnér, 2006:280). To most fully capture IEs' approaches, following Backstrand and Lovbrand (2006), I posit IEs' approaches are most accurately defined by their ideas and interests with respect to global balances of equity, economy and environment. This is in light of the far-reaching implications of transnational waste governance into global society's well-being.

Hence, a thorough understanding of IEs themselves needs to be established before any judgment of their inter-relations can be made. As it stands, the most comprehensive study assessing relationships between governance entities in an

environmental regime, Fernández-Blanco et al. (2019), is inadequate in laying down robust methodology to capture the essence of an IE. These authors only use only an element's self-proclaimed 'goals' to define its governance approach (ibid:192).

Finding this aspect of their methodology vague and insufficient, I identify the following four core areas of an IE to assess:

- Mission statement and strategy
- Governance structure
- Reported activity and governance instruments
- Funding and other partnerships

These areas indicate how and why an element conjures and conducts authority much more fully than 'goals'. Amongst other things, this extended scope will allow the 'where, what and how' of actor interests to be explored more accurately.

Moreover, Table 1 below serves to systematically assess the overall normative character of each IE according to four qualitative indicators with accompanying descriptions made relevant in preliminary analysis. These indicators are an attempt to proxy each elements' general position on 'the classical tension'. I also pay attention to the kind of subjectivities being given to various actors in elements' governance activities to understand where action, responsibility and vulnerability is being dealt.

Crucially, I recognise how familiar and broad environmental frames can serve variegated governance approaches (Gellers, 2015:484–488), between and within IEs. Departing from mainstream regime literature, I recognise there are highly likely to be variations of interests and ideas within IEs; hence, I account for these variations and record the overall 'net' character of elements.

Table 1 An IE characterisation framework

Indicator	Broad clusters of IE's interests and ideas
Primary broad interests leading institution	Maximise economic and political utility Maximise human and environmental health
Belief in the existence of a complementary symbiosis between trade, economic growth, environment, development and human well-being	Free-trade complements environmental and human well-being; CE is a feasible and morally correct way to alleviate current environment and human ills whilst generally maintaining status-quo profit maximisation Lower international trade barriers can undermine environmental and human well-being; CE is not being actioned fast or extensively enough and may distract real ways to alleviate current environment and human ills; business operations need changing
Understanding of the state's primary role in human-environment issues	Provide financial incentives and risk-reduction support for green business Provide participatory multilateral regulation and strong global legal protections for most vulnerable
Understanding of the primary purpose of human-environment governance	Matter of addressing the lack of resource and market efficiency Matter of addressing lack of environmental and social justice

These steps to thoroughly characterise IEs will require undertaking discourse analysis when interpreting my sources. I undertake a Foucauldian approach to such, informed by Hajer and Versteeg (2005), and observe the sources listed in the Mapping the Waste Trade Regime section for textual regularities, techno-scientific language, emotive/exaggerated language, contradictory language and moralising language.

Characterising the Waste Trade's Intra-regime Relationships

Having rigorously assessed the nature of the constitutive elements of the waste trade regime, I can then use these holistic architectures of IEs to accurately translate how compatible their specific governing rules, prescriptions and conduct are with one another. Hence, the data I collected from the Characterising the Waste Trade Institutional Elements section is directly used to make this part's assessment.

Thus, I am measuring both potential and active relationships between elements based on the knowledge and narratives they choose to steer with, almost regardless of which waste domain their governance has an influence on. How a set of wastes is controlled by an institution is one facet of a much greater 'storyline' replete with principled and causal beliefs that set strong normative visions of how the world should work. The Characterising the Waste Trade Institutional Elements section is an attempt to unveil which storyline of 'reality' the IE adheres to.

Loosely following Biermann et al. (2009), Fernández-Blanco et al. (2019) and Abbott's (2012a) methods, I classify an element-element relationship using the terms 'synergistic' and 'conflictive'. The relationships are symmetrically interpreted, meaning A's relationship with B will be the same as B's relationship with A. Departing from previous studies however, I reject binary characterizations of IEs and international regimes – as strictly synergistic or conflictive – and instead use a scale of 1–5 to depict such.

This gives a more nuanced, fine-grained understanding of IE interactions as well as allowing for the 'push and pull' flows between heterogeneous interests and ideas within IEs. IEs do not simply represent one coherent set of interests and ideas; hence, their engagement with other IEs do not represent a black or white, synergistic' or 'conflictive', relationship (Table 2).

Table 2 Interpreting the intra-regime relationship scores

Relationship score	Interpretation of score
1	No areas of synergism; mutually undermining
2	Minimal synergism; mutually undermining
3	Neither synergistic nor undermining
4	Mutual synergism; minimal undermining
5	Very strong mutual synergism; no undermining

Results

Mapping the Transnational Waste Trade Regime Complex

Above, I engage in mapping and characterising the waste trade regime, estimating first the level of fragmentation and secondly the degree of synergism vs conflict present. Here, I lay the results in turn.

My mapping results show that the waste trade regime is constituted from 32 IEs and exhibits a number of structural qualities, which qualify it to be understood as a transnational RC. These results are displayed in Figs. 2 and 3 and Table 3 in Appendix 1.

Figures 2 and 3 represent my identification of all public and private treaties, agreements, regulatory standards, operational activities, and data collection and sharing bodies, which significantly contribute to waste trade governance, operating at multilateral or regional levels. Where a governance entity has more than one relevant specific agreement, guideline or activity governing the waste trade (see column C, Table 3), they are understood as one IE for my analysis. This pragmatic representation follows Fernández-Blanco et al. (2019). For example, the EU has multiple agreements, guidelines and activities, which seek to influence actors' behaviours in waste management, such as the 2006 Waste Shipment Regulation, 2018 EU plastic strategy, 2019 Single Use Plastics Directive and the 2013 EU Ship Recycling Regulation. In aggregate, they sum to the EU's net governance approach to waste management and trade.

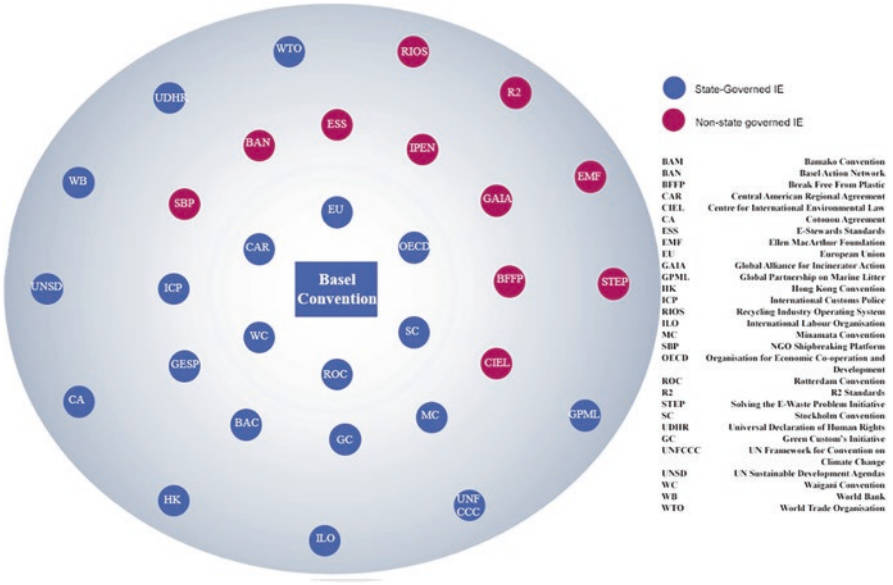


Fig. 2 Mapping the institutional elements in the waste trade regime

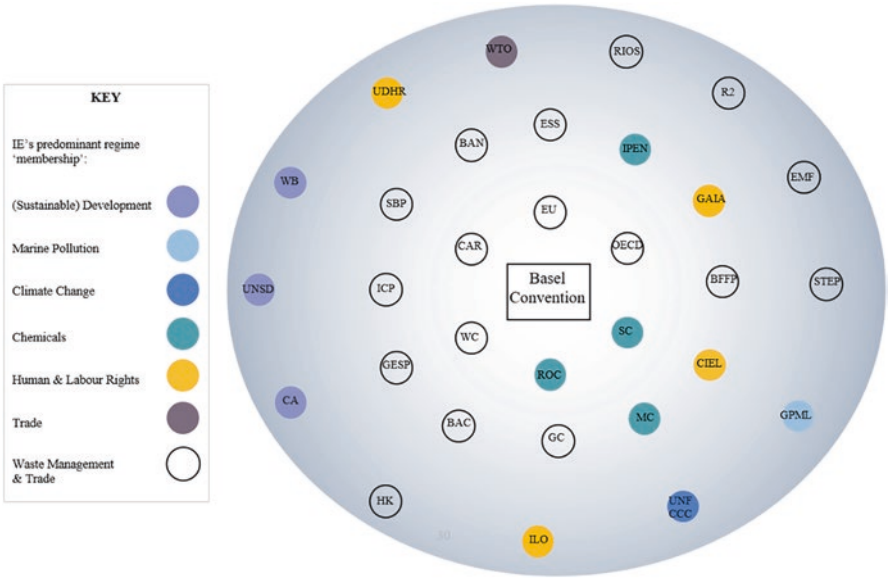


Fig. 3 Mapping the institutional elements in the waste trade regime

To add detail, over one-third of IEs are non-state governed (Fig. 2). Furthermore, 60% of today's governing institutions were created in the last 20 years and 84% in the last 30 years. WTO/GATT is the oldest IE, followed by UDHR at 70+ years. In contrast, EMF has only been operating relevant governing activities for 2 years.

In terms of transboundary waste governance activities, there appear to be a wide variety across the regime, with the exception of legally binding rule making by any non-state actor:

- Creating rules to limit waste trade
- Monitoring policy uptake
- Establishing reuse and recycling facilities of a standard consistent with ESM
- Adjudicating rule contravention (formally or via name-and-shame)
- Providing credible research and insight into waste trade and, more generally, waste management dangers and options (for public, scientists, policymakers)
- Monitoring and measuring global waste trade flows
- Supporting industrial design for CE

In fact, 72% of IEs govern without legal instruments.

In addition, most IEs' governance concerns wastes in general. When there is a particularistic focus, e-waste is subject to the most IE governance, followed by plastic and chemical and lastly end-of-life ships. This pattern mimics the degree of Western-public attention devoted to waste types – not their degree of potential risk. To answer the first criteria for transnational RC identification:

1. Are governance operations shared among multiple state and non-state organizations? **Yes**.

With regard to assessing the diversity of elements that are predominately dedicated to issue fields outside of waste management and waste trade, Fig. 3 clearly shows that 14/32 institutional elements have a more predominant membership in 'separate' regimes: human rights, climate change, marine pollution, trade in general and (sustainable) development. To thus answer the second framework criteria,

2. Do a significant number of institutional elements hold their origin in a variety of different issue-area outside that of the regime? **Yes**.

These governance entities may appear at a distance from waste trade issues. Yet, each has a significant and important bearing on waste management and trade. Looking first at those which originate in the human and labour rights regime – the 1948. UN Universal Declaration on Human Rights (UDHR), the International Labour Organisation (ILO), Global Alliance for Incinerator Alternatives (GAIA) and the Centre for International Environmental Law (CIEL) – these elements are pertinent to the stream of human and labour rights abuses endemic to illegal waste flows and 'dumping' in less-developed countries. UDHR's Article 23 declares the right to 'just and favourable conditions of work…worthy of human dignity', whilst Article 7 declares the right of freedom from discrimination. Both apply strongly to the issue of life-threatening working environments for millions disproportionately located in less-developed countries involved in unregulated waste collection, scrap extraction and recycling industries. Alternatively, the ILO has dedicated specific resources in the last decade to undertaking waste-worker research and creating novel regulation guidelines (e.g. 2012 paper, 'The global impact of e-waste: addressing the challenge') as well as hosting global forums (The Global Dialogue Forum on Decent Work in the Management of Electrical and Electronic Waste, 2019). Additionally, as an anti-incinerator alliance of over 800 grassroots groups from all over the world, GAIA specifically supports recycling workers and waste-picker rights through bottom-up knowledge regulatory guidance dissemination.

Next, the World Bank (WB) and WTO are immensely influential in defining international development and trade objectives, respectively. They directly fuel the debate as to whether reuse and recycling centres in developing countries positively and sizeably (or have the potential to) contribute to local GDP – or stunt a country's human development. The WB nor WTO has engaged significantly in governance specifically tailored to waste trade or waste management, yet their enormous presence and extended genealogy in international policy means that their mere existence has conspicuous repercussions on the global political imagination (Conca, 2000:488). WTO's predecessor, GATT, enshrines the right to erect trade barriers for environmental reasons (Article 20), whilst both overwhelmingly operate to the logic of comparative advantage – where is the cheapest to manage waste? – and the liberal norm of non-interference in market activity. Hence, almost all waste trade is actively condoned and facilitated rather than barred (Slaughter, 2005:210).

Such free-market logic is embedded in the ever-renewing UN agenda on sustainable development (UNSD) similarly prolific in the global policy field. Agenda 21, established at the 1992 UN Conference on Environment and Development, set an overall target in Chapter 20 of 'preventing or minimizing the generation of hazardous wastes as part of an overall integrated cleaner production approach'. This theme is carried through to today's UN SDGs, a number of which seek to meet waste management issues. SDG 12, 'ensure sustainable consumption and production patterns' does not set any target for reducing global waste production though; only a target for increased national recycling rates by 2030 is set (UN, n.d.-a).

The Cotonou Agreement (CA) between EU and African, Caribbean and Pacific Group of States also originates in the (sustainable) development regime. The CA, active since 2003, is 'the most comprehensive partnership agreement between developing countries and the EU' based on development, economic and trade cooperation (EUR-Lex, n.d.-a). Only vaguely nodding to waste management, CA in Article 32 proclaims loyalty to the 'protection and sustainable utilisation and management of natural resources … taking into account issues relating to the transport and disposal of hazardous wastes' (ibid). CA is necessarily of great significance to waste trade patterns, if not directly, given the CA (along with EU policy represented here) institutionalises the way the EU balances equity, economy and environment in their relationship with developing nations. Waste trade data, whilst very hard to collect accurately, suggests a significant proportion of EU waste (e.g. electronic, plastic, ships) flows to ACP and Asian nations (Nordbrand, 2009:7; Lewis, 2010; SBP, n.d.-a; Pratt, 2011; UNU, 2015). The CA has not outlawed such though, whilst the EU's Waste Shipment Regulation has.

Many IEs illustrated here govern with a stated objective to reduce marine pollution (given current media focus on the issue) although the only IE predominantly dedicated to such is UNEP's 2013 Global Partnership on Marine Litter (GPLM). This partnership's governance scope significantly extends to the waste trade and waste management arena by seeking to maximise resource-from-waste efficiency and further spread CE 'knowledge'.

Contrastingly, IEs barely govern with a stated objective to reduce greenhouse gas emissions as part of waste management governance, despite many proclaiming the need for a 'life cycle' governance approach. Waste (e.g. electronic, plastic, ships, chemical) contains high levels of embodied carbon due to the objects' associated resource extraction, production and transportation processes (Cole et al., 2019:417; Lepawsky, 2017). Even the central pillar of transnational climate change governance, the United Nations Framework Convention on Climate Change (UNFCCC), seems to make no apparent connection between greenhouse gas emissions and waste management and trade activities. This lack of governance matters considerably as the UNFCCC is highly influential in framing what is and is not a climate change issue (Abbott, 2012a:581).

Lastly, there are waste trade regime elements originating in chemical governance: the International Pollutants Elimination Network (IPEN) and the trio of UN

chemical conventions which IPEN works to improve – Stockholm (SC), Rotterdam (ROC) and Minamata (MC). Each of the four elements work to improve and control the production, use, disposal and trading of various chemicals – Stockholm dealing specifically with persistent organic pollutants and Minamata with Mercury.

I aim to highlight in both Figs. 2 and 3 that I found the waste trade regime to be very loosely and sporadically structured around Basel as the 'coordinator'. In these figures, the proximity of an element to Basel is roughly mapping the strength of their institutionalised ties to Basel, relative to other elements.

In theory, just as the WTO is seen as hierarchically superior to regional trade agreements, so too could Basel – 'the most comprehensive multilateral environmental agreement on hazardous and other wastes' (SBC, n.d.) – be seen as hierarchically superior to regional implementations of Basel (Abbott, 2012a:581). The core regional implementations are CAC, EU, OECD, WC and BAC. They lift much of Basel's language and principles (e.g. Prior Informed Consent (PIC), ESM) and (on paper) pursue the same broad goals as Basel: reduced waste production and controlled hazardous waste trade. Basel also encourages the creation of alternative multilateral, regional or bilateral governing bodies for the waste trade under the premise that they are at least as ambitious as Basel's rules.

Furthermore, since 2012 Basel, Stockholm and Rotterdam have deliberately 'clustered' (Levy et al., 1995). The Ad Hoc Joint Working Group on enhancing cooperation and coordination between these conventions recognized that the coordinated hosting of Conference of the Parties could help promote a life-cycle approach to the management of chemicals and wastes and strengthen their capacity building efforts.

Yet overall, coordination – especially of the hierarchical nature – remains weak. Most transnational schemes have weak or very weak ties with Basel. Additionally, the regional implementations have substantial flexibility for national/regional interpretations of waste, hazardousness and ESM facilities (Puckett, 2020).

Hence, as is found in the climate change and forestry regimes, 'there is no strong mechanism for ordering the fragmented array of transnational schemes' nor 'resolving any rule inconsistencies' in the waste trade regime (Abbott, 2012a:581; Fernández-Blanco et al., 2019).

Although interestingly, when the flouting of Basel rules has precipitated interstate tensions, free-trade governance entities with international tribunals – something that Basel is sorely lacking – have sometimes handled rule interpretation. For example, it was the WTO that adjudicated the European Commission's contention with Brazil's ban of waste tire imports, with the Commission complaining this was a case of disguised protectionism contravening the founding disciplines of GATT/WTO (CIEL, 2008). Similarly, in 2000, the North American Free Trade Agreement (NAFTA) tribunal was the site to handle a complaint from an Ohio-based toxic waste disposal company against the Canadian government for denying to import hazardous polychlorinated biphenyls. NAFTA ruled in favour of the US company, ordering Canada to pay US$50 million (IATP, 2000).

To see to the third RC criteria:

3. Is governance decentralized with little if any central coordination? **Yes**.

Characterising the Waste Trade Institutional Elements

Here I attempt to capture the overall character of each of the 32 IEs as a prerequisite to analysing the relationships between the regimes' IEs (data displayed in Tables 4, 5 and 6, Appendix 1.)

The chief result is that two broad classifications of IEs arise, according to the patterns of represented ideas and interests identified. Meanwhile, as expected, there is an adherence to the same foundational narratives of CE and sustainable development across all IEs.

The two classifications identified show strong comparability to the type of environmental actors Backstrand and Lovbrand (2006) have identified in environmental policy circles.

Hence, following their typology, one character classification present amidst waste trade IEs could be referred to as 'The Ecological Modernizer'.

This character is motivated to govern by the notion that the common collective good is optimally realised through market competition and protection of individual liberties to pursue self-interest (Humphreys, 2009:320). Capitalist growth can go hand in hand with, and can even promote, environmental safeguarding. Equity and poverty issues are a-politicized.

About 18 IEs appear to belong to this camp (see Table 5).

Their key narratives include the following:

- Maximising synergies
- Resource efficiency
- Redefined growth

The other character, 'The Civic Environmentalist', is motivated to strengthen state regulation for social and environmental justice at local levels. There is a common belief that at least some reduction of industrial production is needed. This camp houses both reform-oriented and revolution-oriented IEs. Respectively, these are IEs focusing on encouraging cross-sectoral cooperation between the market, state and civil society for democratic and equitable governance, and IEs disillusioned with such and challenge contemporary capitalist practice and power structures to stop environmental crises.

About 14 IEs appear to belong to this camp.

Their key narratives include the following:

- North-South equity
- Environmental and social justice
- Toxic colonialism

Characterising the Institutional Elements' Relationships

Accounting for each relationship between the 32 institutional elements which constitute the transnational global waste trade regime, it appears the overall nature of the regime is marginally more synergistic than conflicting. I undertake symmetric relationships assessments of each IE to every other IE and its self, resulting in 1024 assessments overall using a 1–5 measure (1 = strongly conflicting; 5 = strongly synergistic). The result is that the total mean relationship score for the regime is 3.37 (see Tables 7 and 8, Appendix 1), which lies above the synergism threshold of 3. Furthermore, the most common score by far was 4 constituting over 33% of total regime relationships (342/1024).

Fernández-Blanco et al. (2019) produce a similar volume of symmetric intra-regime relationship assessments for the forestry regime, but only a binary 'synergistic' vs 'conflicting' label is given to relationships (as discussed in Part 5 (iii)).

The most conflictive element is the Hong Kong Convention (HK) governing end-of-life ships, with a mean relationship score of 2.53 – more than 2 standard deviations under overall mean – and a mode of 1. Fourteen relationships were deemed as strongly conflicting, including that with itself, given how at odds HK's mission statement of governing to eliminate 'any unnecessary risk to human health and safety and to the environment' is with its ruling stipulations.

Although not (yet) enforced at the interstate level, HK currently operates as a voluntary private governance instrument for businesses to 'prove' their environmental credentials (SBP, n.d.-c).

HK is governed de facto by the shipping industry and appears to be one of the most internationally discredited waste governing entities – by legal experts, developing nations, ILO, SPB, and more (Mulinaris, 2020). It strongly undermined Basel's rulings on recycling end-of-life ships, given the thrust of HK is to continue the cost-efficient movement toxic ships to India, Bangladesh and Pakistan where over 80% of all ships are currently dismantled, by hand (Mulinaris, 2020; TME, 2012). Hence, it is somewhat surprising that even 10 IEs had synergistic relations – where complementarity is found in similar steadfast devotions to the logic of cost-efficient resource movements, e.g. WTO.

The UNFCCC is almost as conflicting, with a score of 2.6. This is because of the UNFCCC has a highly influential role in framing what is and is not a climate change issue (Abbott, 2012a:581) and waste (producing high levels of GHGs at every stage of its life cycle: Lepawsky, 2017) is apparently not included. Furthermore, unfavourable to many 'Civic Environmentalists' (e.g. GAIA), UNFCCC advocates waste-to-energy processing, and, more broadly, voluntary responsibility for environmental action without sufficient protections for the most vulnerable.

Two institutions stand out for scoring particularly highly: UNEP's Green Custom's Initiative (GCI) at a mean of 4.290 and International Customs Police (ICP) at 4.161 – both over 2 standard deviations above overall mean. Often displaying 'functional synergism' with each other, both specifically invest in strengthening nations' customs sectors to block illegal waste trade. This enforcement of

incumbent regulation in turn stymies revenue state revenue loss and waste flows laden with human-environment risk, as well as bolsters the credibility of property rights and legally binding waste bans. It is of little surprise that IEs show synergism with these, except where core IE actors may profit from illegal flows (e.g. shipping industry in HK) and or/undermine the legitimacy of legally binding waste law (e.g. UNFCCC).

Discussion

This section draws out core analytical musings upon this research, prefaced with a discussion on the study's merits and limitations.

In attempt to draw scholarship's attention to the undeniable relevance of waste trade to IPE, this research is seemingly the first attempt to comprehensively map and characterise the contemporary waste trade regime. This study builds from frameworks used frequently to assess climate change and forestry regimes, introducing requisite ontological adaptations (e.g. regime IEs are not necessarily harmonious) and methodological novelty and rigour (e.g. semi-structured interviews which include non-Western actors; expansive IE character assessment; graduated IE relationship assessment).

Such research lays the requisite groundwork for future research into the impact – 'efficiency' – of transnational waste trade governance. Additionally, this study makes no commitment to addressing the causes of waste trade regime fragmentation or synergism/conflict but will hopefully inspire such research endeavours by others to continue the exploration into a strong IPE arena. Additionally, by adopting frameworks well accepted in environmental IPE, comparisons between the waste trade and other environmental regimes can be readily made using my research. Furthermore, given the paucity of environmental regime assessments which locate language as an indicator of actors' governance approaches, this research is valuable in underlining the potential importance of integrating discourse analysis and social context into future study.

It is vital, however, for future research to account for my research limitations, the main ones being:

- Firstly, as interpretivist research, there is a degree of subjectivity in the assessment of my primary and secondary resources. Strict objectivity is impossible, but I remained keenly reflective of the effect of my own interpretation, belief system and experiential biases on the research outcome. To avoid IE selection bias, I create a three-tiered identification methodology and precise IE definition. Furthermore, I remained aware of the danger of exaggerating IE-IE conflict whereby I normatively support the governance approach of one and not another.
- Secondly, and related, an IE's overall interests and ideas cannot be verified, even if I were an 'insider' of each and every IE. My research is highly dependent on the accessibility of necessary material, which in some areas is lacking. Specifically, whilst there is a lot of critical analysis on Basel, RC, SC, HK, R2

and RIOS due to these institutions being the target of CSO attention, there is far less on lower profile or younger IEs (e.g. MC, GESP, GPML). Semi-structured interviews with a diversity of different regime actors (in terms of institutional affiliation, interests, nationality, regime experience, etc.) somewhat balance this skew.

Discrete Conflict

This research importantly draws on insights from other arenas of environmental IPE to regime analysis to highlight that heterogeneity of interests and ideas exists between and within a regime's IEs. This heterogeneity can cause conflict. My research suggests that heterogeneity nor conflict in the waste trade regime may be obvious at first glance.

Let us first observe cases of intra-IE tussles, taking particular recent conflict instances within Basel and Rotterdam respectively. Figure 4 below illustrates such. At Basel's 2019 CO14, no approval was granted for passing the 'Technical Guidelines' on e-waste trade; legislation which would stop companies and states profiting from current 'repairable loopholes' (i.e. control exemptions for e-wastes labelled for repair) in Basel's e-waste rules. This is due to a number of actors influential to Basel's governing decisions (including other waste trade IEs), having differing interests and ideas on how to achieve 'an ethical circular economy' and thus 'acceptable' balances between equity, economy and environment (BAN, 2019b).

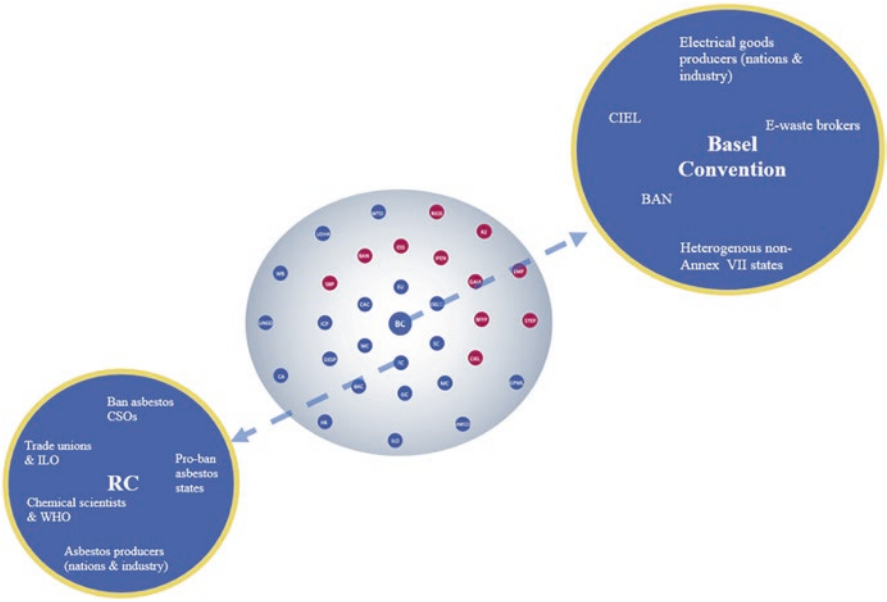


Fig. 4 Mapping intra-element 'tussles' in the waste regime

Similarly, at Rotterdam's 2019 COP9, influential actors diverged in their opinion as to whether chrysotile asbestos (a chemical compound found in end-of-life ships, causing 100,000+ occupational exposure deaths/year: WHO, 2014) should be included from Annex III hazardous chemical list (George & Kazan-Allen, 2019). Rules stipulate listed chemicals require 'PIC' – a mechanism similarly used in Basel which demand parties only export a listed (hazardous) item to another if the importing nation has been fully informed and consents to this trade. Asbestos remains a 'non-hazardous chemical' as voted for by six member states (vs 120 understanding asbestos as hazardous).

Given these internal tussles, Basel and Rotterdam's overall interests, ideas and governing approaches internally pull in different directions and are far from straightforward to determine. However, it can be said that the realisation of progressive impetus is necessarily stunted in both given their 'decision-making by consensus' institutional structure.

Alternatively, conflict between IEs may not be conspicuous given common public declarations to environmentalisms such as CE. Let us observe a few CE 'varieties' between IEs.

Under EMF's governance (where CE reasoning is EMF's raison d'etre), Coca-Cola is a compliant party. Supporting a 'vision' of CE for Coca-Cola equates to integrating recycled plastic into supply chains comprising less than 10% of their total plastic usage (Sauven, 2017 from Dauvergne, 2018:28). BFFP condones such an understanding of CE, instead imbuing the concept with an imperative to reduce waste and engage democratically with waste-workers and communities. Corporate action compliant under BFFP could be a shift to fully biodegradable materials, or rental (not selling) of goods (ZWE, 2016).

R2, as one of the two global voluntary e-waste recycling certificates (alongside ESS) similarly governs via non-legal standard-setting but defines recycling and repair of wastes under CE logic very loosely (SERI, 2016). Open-ended waste definitions reduce bureaucratic friction between transboundary movements which R2 profits from. ESS, BAN and Basel contest this kind of CE definition (BAN, 2016).

For the EU though, CE governance includes legal and non-legal instruments and is overall understood as keeping materials within the EU to reuse and recycle. Waste exports leaving the region is seen as draining the EU market for secondary raw materials and depletes opportunities for green jobs and growth – all the whilst eroding their self-perceived international identity as a global pioneer in environmental action (EC, 2019).

Overall Marginal Synergism

Overall though, there appears to be marginal synergism between waste trade IEs, as shown in the result section (section Characterising the Institutional Elements' Relationships).

The section Characterising the Institutional Elements' Relationships makes sense of this. It shows the waste trade regime to be roughly constituted from two groups of IEs which, within these groups, share a lot a number of similar interests and ideas on societies' equity, economy and environment balances: The Ecological Modernizers ($n = 18$) and The Civic Environmentalists ($n = 14$). Within each group, IE-IE synergism is likely, but IE-IE relationships between groups are likely to be conflictual. Hence, with just over half of all total relationships assessed being within their own groups, overall marginal synergism makes sense.

Conclusion

Addressing my hypotheses of introduction,

1. I show the governance of global waste trade is currently underdeveloped by scholarship, leading to untested assumptions about what is causing continued and severe harm to humans and environment from (legal and illegal) waste exports. As has been shown in much research observing other environmental regimes, drawing a relationship between global governance and human-environment outcomes cannot be made without a comprehensive account of the regime's structure and the cohesion of this structure (i.e. whether it works synergistically or conflictingly).
2. I show that the RC framework, prolific through environmental IPE research, is well suited to mapping the waste trade regime's structure given the waste trade regime has similarly undergone a 'Cambrian explosion' of governing actors and instruments – akin to other environmental regimes (Keohane & Victor, 2011:9). Abbott's (2012a) transnational RC framework is particularly suitable given its rightful emphasis on non-state actors and non-legal instruments. Subsequently, I show that adapting and extending Fernández-Blanco et al.'s (2019) characterisation of institutional elements' relationships grants a thorough and politicised calculation of synergism and conflict in a regime. This is supported by the work of Backstrand and Lovbrand (2006) linking climate change discourses to actors' interests and ideas.
3. I show that global waste trade governance can be defined as a transnational RC, allowing the waste trade regime to be readily comparable to other environmental regimes which the literature has invested energy in exploring (e.g. climate change, forests). Subsequently, I show the regime to be roughly constituted from two approximate sets of interests and ideas by which IEs can be grouped under: 'Ecological Modernizers' and 'Civic Environmentalists'. Whilst much conflict between and within IEs exists, I show the regime to be overall marginally synergistic.

Appendix 1Interviewees

Table 3 The structure of the waste trade regime: Illustrating a transnational regime cdomplex

	Initials	Relevant governance initiatives under umbrella organisation/ agreement	Non-state governed?	Regime of origin	Primary wastes of concern	Legally-binding governance?	Age	Geographical scope
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	BC	-	No	Waste management	All (except nuclear)	Yes	28	Global membership except Haiti and US
Solving the E-waste Problem Initiative	STEP	-	Yes	Waste management	Electronic	No	16	Global
Institute of Scrap Recycling Industries's Recycling Industry Operating System	RIOS	-	Yes	Waste management	All mainstream recyclables	No	15	Global
Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa	BAC	-	No	Waste management	All (except nuclear)	Yes	22	25 nations in Africa
World Trade Organisation/ General Agreement on Tariffs and Trade	WTO	Many	No	Trade	All	No	74	Almost global membership
Central American Regional Agreement on the Transboundary Movement of Hazardous Wastes	CAR	-	No	Waste management	All (except nuclear)	Yes	25	Costa Rica, El Salvador, Guatemala, Nicaragua, Panama
Organisation for Economic Co-operation and Development Council Decision on the Control of Transfrontier Movements of Wastes Destined for Recovery Operations	OECD	-	No	Waste management	All (except nuclear)	Yes	28	OECD
Basel Action Network	BAN	Green Ship Recycling Program; Plastic Waste Investigation; Basel Law Advocacy Initiative	Yes	Waste management	All	No	23	Global
Break Free From Plastic Pledge	BFFP	-	Yes	Waste management	Plastic	No	4	Global
NGO Shipbreaking Platform's Green Shipping Standard	SBP	-	Yes	Waste management	End-of-Life Ships	No	15	Global
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	RC	-	No	Chemicals	Chemicals	Yes	16	Almost global membership
Stockholm Convention on Persistent Organic Pollutants	SC	-	No	Chemicals	Chemicals	Yes	16	Almost global membership
Ellen MacArthur Foundation	EMF	Global Committment, Global Plastics Pact	Yes	Waste management	Plastic	No	2	Global
e-Stewards Standards	ESS	-	Yes	Waste management	Electronic	No	11	Global
R2 Standard	R2	-	Yes	Waste management	Electronic	No	7	Global
United Nations Sustainable Development Agendas	UNSD	Agenda 21; Rio+5; Rio+10; Rio+20; Millenium Development Goals; Sustainable Development Goals	No	(Sustainable) Development	All	No	48	Global
Center for International Environmental Law	CIEL	Climate & Energy Program; Environmental Health Program; People, Land, & Resources Program	Yes	Human and Labour Rights	All	No	31	Global
Cotonou Agreement	CA	-	No	(Sustainable) Development	All	No	20	EU and the Group of African, Caribbean and Pacific States
Waigani Convention	WC	-	No	Waste management	All (except nuclear)	Yes	19	24 nations in South Pacific Region
World Bank	WB	Many	No	(Sustainable) Development	All	No	20	Developing nations
Global E-waste Statistics Partnership	GESP	-	Yes	Waste management	Electronic	No	3	Global
International Labour Organisation's Waste Sector Worker Initiatives	ILO	-	No	Human and Labour Rights	All	No	11	Global
EU waste management law, strategies and regulatory guidance	EU	Many including 2006 Waste Shipment Regulation, 2018 EU plastic strategy, 2019 Single Use Plastics Directive, 2013 EU Ship Recycling Regulation	No	Waste management	All	Yes	50	EU
International Customs Police: World Customs Organisation, INTERPOL & EUROPOL	ICP	WCO Environment Programme; INTERPOL Environmental Crime Programme; EUROPOL Environmental Crime Programme	No	Waste management	All	No	11	Global
Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships	HK	-	No	Waste management	End-of-Life Ships	No	11	Global
United Nation Environmental Programme Green Custom's Initiative	GC	-	No	Waste management	All	No	30	Global
International Pollutants Elimination Network	IPEN	Many	Yes	Chemicals	All	No	22	Global
The Minamata Convention on Mercury	MC	-	No	Chemicals	Chemicals	Yes	3	Almost global membership
Universal Declaration of Human Rights	UDHR	-	No	Human and Labour Rights	All	No	72	Global
United Nations Framework Convention on Climate Change and The Paris Agreement	UNFCCC	Many	No	Climate Change	All	No	28	Almost global membership
Global Alliance for Incinerator Alternatives Action	GAIA	Zero-Waste Initiative; Waste-To-Energy Incineration Block; Waste Worker Rights	Yes	Human and Labour Rights	All	No	20	Global
Global Partnership on Marine Litter	GPML	-	No	Marine Pollution	Plastic	No	8	Global

Table 4 Characterising an institutional element (IE): An illustration of interests and ideas 'net leading' an IE's

Indicator	Score: −2 to −1	Score: 0	Score: 1 to 2
A. Primary broad interests leading institution	Maximise economic and political utility	Differing interests are cancelled out to ambiguous/null effect	Maximise human and environmental health
B. Belief in the existence of a complementary symbiosis between trade, economic growth, environment, development and human well-being	Free-trade complements environmental and human well-being; The CE is a feasible and morally correct way to alleviate current environment and human ills whilst generally maintaining status quo profit maximisation	Differing ideas are cancelled out to ambiguous/null effect	Lower international trade barriers can undermine environmental and human well-being; The CE is not being actioned fast or extensively enough and could be distracting the real ways to alleviate current environment and human ills; Business operations need changing
C. Understanding of the state's primary role in human-environment issues	Provide financial incentives and risk-reduction support for green business	Differing ideas are cancelled out to ambiguous/null effect	Provide participatory multilateral regulation and strong global legal protections for the most vulnerable
D. Understanding of the primary purpose of human-environment governance	A matter of addressing a lack of resource and market efficiency	Differing ideas are cancelled out to ambiguous/null effect	A matter of addressing a lack of environmental and social justice

Table 5 Characterising an institutional element (IE): The ecological moderniser (TEM) and the civic environmentalist (TCE)

	A Primary interests leading institution	B Belief in the existence of a complementary symbiosis between trade, economic growth, environment, development and human well being	C Understanding of the state's primary role in human-environment issues	D Understanding of the primary purpose of human-environment governance	
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	0	1	0	1	TEM
Solving the E-waste Problem Initiative	1	1	1	1	TEM
Institute of Scrap Recycling Industries's Recycling Industry Operating System	2	2	2	2	TEM
Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa	-2	-2	-2	-2	TCE
World Trade Organisation/ General Agreement on Tariffs and Trade	2	2	2	2	TEM
Central American Regional Agreement on the Transboundary Movement of Hazardous Wastes	-1	1	-1	-1	TCE
Organisation for Economic Co-operation and Development Council Decision on the Control of Transfrontier Movements of Wastes Destined for Recovery Operations	2	2	2	2	TEM
Basel Action Network	-2	-2	-2	-2	TCE
Break Free From Plastic Pledge	-2	-2	-1	-2	TCE
NGO Shipbreaking Platform's Green Shipping Standard	-2	-1	-2	-2	TCE
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	0	1	0	0	TEM
Stockholm Convention on Persistent Organic Pollutants	0	1	0	0	TEM
Ellen MacArthur Foundation	2	2	2	2	TEM
e-Stewards Standards	-2	0	0	0	TCE
R2 Standard	2	2	2	2	TEM
United Nations Sustainable Development Agendas	2	2	1	1	TEM
Center for International Environmental Law	-2	-2	-2	-2	TCE
Cotonou Agreement	2	2	2	2	TEM
Waigani Convention	-2	1	-1	-1	TCE
World Bank	2	2	2	2	TEM
Global E-waste Statistics Partnership	2	2	1	2	TEM
International Labour Organisation's Waste Sector Worker Initiatives	2	2	1	2	TEM
EU waste management law, strategies and regulatory guidance	2	2	1	1	TEM
International Customs Police: World Customs Organisation, INTERPOL & EUROPOL	-2	-1	-2	1	TCE
Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships	2	2	2	1	TEM
United Nation Environmental Programme Green Custom's Initiative	-2	-1	-2	1	TCE
International Pollutants Elimination Network	-2	-2	-2	-2	TCE
The Minamata Convention on Mercury	-1	-2	-2	-2	TCE
Universal Declaration of Human Rights	-2	0	-2	-2	TCE
United Nations Framework Convention on Climate Change and The Paris Agreement	2	2	2	1	TEM
Global Alliance for Incinerator Alternatives Action	-2	-2	-2	-2	TCE
Global Partnership on Marine Litter	1	1	1	1	TEM

2 Score %	40.63%	40.63%	28.13%	28.13%
2 and 1 Scores %	46.88%	62.50%	46.88%	56.25%
0 Score %	9.38%	6.25%	12.50%	9.38%
-1 and -2 Score	43.75%	31.25%	40.63%	34.38%
-2 Score	37.50%	21.88%	31.25%	28.13%

Table 6 Correlation between an institutional element's ideas and interests

CORREL (A,B)	0.8916520183
CORREL (A,C)	0.9480882828
CORREL (A,D)	0.8509358703
CORREL (B,C)	0.9073084545
CORREL (B,D)	0.84973813
CORREL (C,D)	0.8575985571

Angus Crawford

- British BBC reporter
- Investigated UK exports of plastic waste in 2020

Jim Puckett

- Canadian Founder; Director of Basel Action Network (BAN)

Kate O'Neill

- American IR academic
- Department of Environmental Science, Policy and Management at UC Berkeley
- Expertise in waste governance

Nicola Mulinaris

- Italian Communication and Policy Officer
- NGO Shipbreaking Platform

Rolph Payet

- Seychellois UN Executive Secretary for the Basel, Rotterdam and Stockholm Convention

Sedat Gündoğdu

- Turkish IR academic

Expertise in marine pollution

Table 7 Characterising IE-IE relationships in the waste trade regime: An illustration of degrees of synergism and conflict between and within IEs

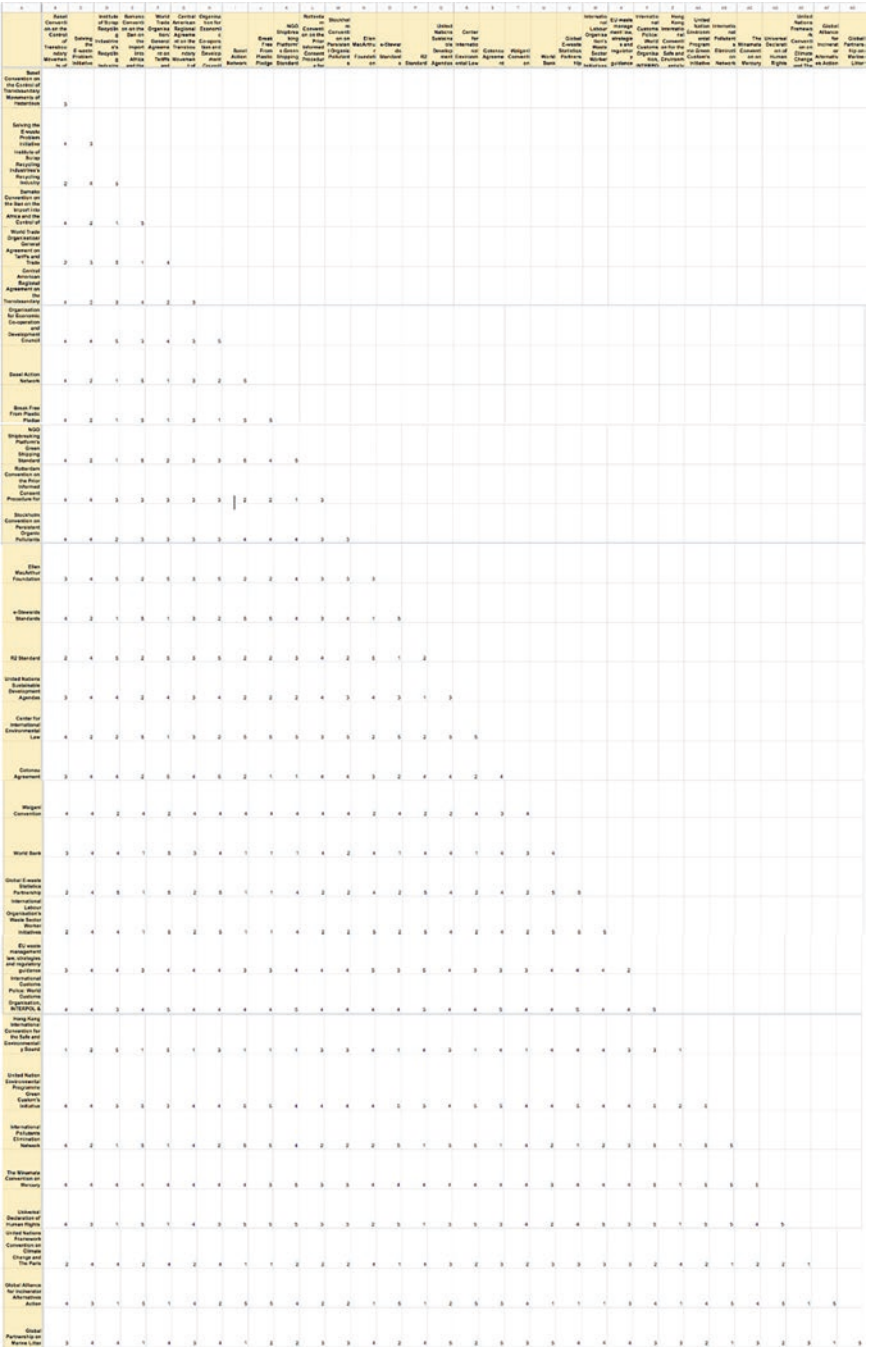
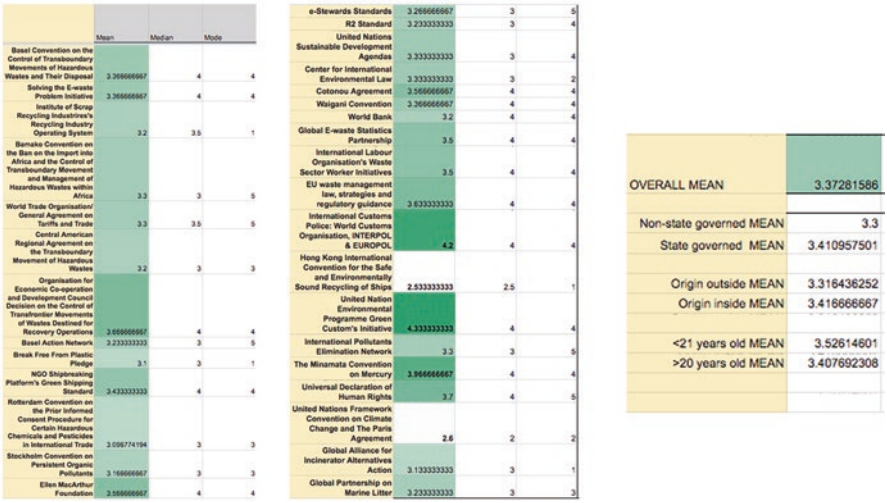


Table 8 Characterising IE-IE relationships in the waste trade regime: Relationship score averages



	Mean	Median	Mode
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	3.366666667	4	4
Solving the E-waste Problem Initiative	3.366666667	4	4
Institute of Scrap Recycling Industries's Recycling Industry Operating System	3.2	3.5	1
Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa	3.3	3	5
World Trade Organisation/ General Agreement on Tariffs and Trade	3.3	3.5	5
Central American Regional Agreement on the Transboundary Movement of Hazardous Wastes	3.2	3	3
Organisation for Economic Co-operation and Development Council Decision on the Control of Transfrontier Movements of Wastes Destined for Recovery Operations	3.666666667	4	4
Basel Action Network	3.233333333	3	5
Break Free From Plastic Pledge	3.1	3	1
NGO Shipbreaking Platform's Green Shipping Standard	3.433333333	4	4
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	3.096774194	3	3
Stockholm Convention on Persistent Organic Pollutants	3.166666667	3	3
Ellen MacArthur Foundation	3.566666667	4	4
e-Stewards Standards	3.266666667	3	5
R2 Standard	3.233333333	3	4
United Nations Sustainable Development Agendas	3.333333333	3	4
Center for International Environmental Law	3.333333333	3	2
Cotonou Agreement	3.566666667	4	4
Waigani Convention	3.366666667	4	4
World Bank	3.2	4	4
Global E-waste Statistics Partnership	3.5	4	4
International Labour Organisation's Waste Sector Worker Initiatives	3.5	4	4
EU waste management law, strategies and regulatory guidance	3.633333333	4	4
International Customs Police: World Customs Organisation, INTERPOL & EUROPOL	4.2	4	4
Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships	2.533333333	2.5	1
United Nation Environmental Programme Green Custom's Initiative	4.333333333	4	4
International Pollutants Elimination Network	3.3	3	5
The Minamata Convention on Mercury	3.966666667	4	4
Universal Declaration of Human Rights	3.7	4	5
United Nations Framework Convention on Climate Change and The Paris Agreement	2.6	2	2
Global Alliance for Incinerator Alternatives	3.133333333	3	1
Global Partnership on Marine Litter	3.233333333	3	3

OVERALL MEAN	3.37281586
Non-state governed MEAN	3.3
State governed MEAN	3.410957501
Origin outside MEAN	3.316436252
Origin inside MEAN	3.416666667
<21 years old MEAN	3.52614601
>20 years old MEAN	3.407692308

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