The 'Allocation Problem' and Conceptualising Linkages in Earth System Governance

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It has become almost a truism to say that we are witnessing environmental change at a rate higher than at any time in human history. This change is a result not of some cataclysmic event but is predominantly the unintended and cumulative result of our own economic activity. Despite decades of international effort to reform economic activity, there is mounting realisation that it has been largely ineffective. Most induced environmental changes are occurring faster than efforts are mobilising to prevent them. This situation underscores mounting demands for effective global environmental governance.

Complicating the need to meet this demand are differences in views on the reasons for the ineffectiveness of international efforts and on proposed remedies. Some view global environmental change (GEC) as, for example, 'market failure', for which the solution is to create and correct markets. Others see GEC in terms problems of (in)justice, and argue that GEC will not be resolved unless and until inequalities in causation, consequence and adaptive capacity are first addressed. Others argue that, in the final analysis, much GEC arises from the largely undesirable and/or unaccountable nature of natural resource decision-making by states ('state failure'). They prescribe correspondingly measures to widen participation in, and to improve the transparency and accountability of, natural resource decision-making. The importance of resolving differences such as these is evident. If arresting global environmental change turns on subjecting current international effort to adequate reform then resolving differences in views concerning the reasons for its ineffectiveness and proposals for its reform is critical.

The aim of this talk is twofold. The first is to find common ground between some of the different views. I'll try to outline some key characteristics of the problem (GEC) and of approaches to that problem (GEC). This *analysis* should help clarify some linkages between normative perspectives on earth systems governance.

The second aim is then to *evaluate* proposals in terms of criteria identified in the preceding analytic section. This is obviously a big task so I'll limit myself to pinpointing some generic

limitations in proposals advocated by neoclassical economic, distributive justice and deliberative democratic theories.

The utility of identifying limitations lies in the influence of these theories. Theories of distributive justice (allocation) find reflection, for example, in international legal principles such as equity and common but differentiated responsibilities. Theories of deliberative democracy (accountability) find reflection in the Aarhus Convention and related decision-making procedures. Neoclassical economics (hereinafter, 'economics') is particularly prevalent. Assuming that environmental objectives can be accommodated within the existing framework of the global market economy, in part by reframing environmental protection in terms of economic development (Holland 2000: 7-80), economics represents a "dominant… form of social theory and practice" in liberal capitalist societies (Barry 1999: 129, 139).[1] Economics has become the prevailing framework within which to think about environmental problems, from climate change to biodiversity loss, in many domestic and international law and policy arenas (Ong 2010b: 534; Schwartz 2010: 251; Richardson 2004: 1; Bernstein 2002: 1), and provides, for example, the dominant interpretation of the principle of sustainable development SD – so important to 'green economy' rhetoric at the 2012 UN Conference on Sustainable Development (Rio +20) (Galizzi and Herklotz 2010: 77-87; Lee 2005: 38).

[1] Economics represents what O'Neill refers to as the "constituency of environmental policy" (1993: 1, 44) (see also Richardson 2002: 427-30; Barry 1999: 128-45; Pearce 1998: 87-93; Hajer 1995: 14, 26, 101; Jacobs 1994: 67-8; Sagoff 1988: 2-7). Arising in part from a disillusionment since the 1980s with orthodox forms of state regulation (Jasanoff 2001: 340), Dryzek notes that "in the last three decades, the most prominent perspective on policy in general has been an economic one", going, as it does, "by different names in different places: market liberalism, classical liberalism, neoliberalism and free-market conservatism" (2005: 121). Although notable rival forms for thinking about environmental problems exist (see below), economic diagnoses and prescriptions remain dominant. From early observations such as that of the Report of the Expert Group Meeting on Identification of Principles of International Law for Sustainable Development of "a growing reliance on market principles" (1995: para. 104) to later developments such as that of the Convention on Biological Diversity decision VIII/17 in 2006 to escalate the involvement of the private sector in the activities of the Convention including in the compliance and implementation of objectives of conservation, the sustainable use of biodiversity and the sharing of benefits from their commercial use (Bled 2009: 153-67), the dominance of economic theory in the constitution of much domestic environmental law policy may be taken as part of the continued domination by "market forces" in law- and "policy-forming arenas at all levels of social organisation" (Falk 2005: 106). This dominance lies in no small part in economic perspectives "having been embraced by the leaders of the most powerful states and adopted by the most influential global actors" (Falk 2005: 106) and having been influential in encouraging a realignment of elite thinking to the requirements of the global market (Smith 2009; Murphy 2005: 91-3; Harvey 2005: 39-45).

1. Analysis – Common Themes

It seems clear that any coherent attempt to achieve a sustainable human economy in light of its role in GEC turns on successfully meeting three immediate tasks.[2] The first is to identify *what* it is in economic practices that must change if sustainable outcomes are to emerge. The second is to *effect* that change sufficiently quickly. The third is to *justify*, and to elicit sufficient motivation for, the first two tasks. These tasks may be called respectively the 'what', 'how' and 'why' of sustainability.

In respect of the 'what' – what must change in economic practices if sustainable outcomes are to emerge – four fairly uncontroversial analytic points may be made.[3]

1.1 *Conflict of rates.* Resolving GEC will involve reforming economic practice in such a way as to win what Meyer refers to as the 'conflict of rates' (2007: 38). This is because significant among ways in which induced global environmental changes may be understood is that they are characterised by a 'conflict of rates'. They involve the collective use of natural resources as a source of, and a sink for, economic activity at a rate greater than that at which resources themselves can be replenished (Meyer 2007: 38; Hornborg 2003: 205). Remedial measures must 'win' this conflict. Accordingly, they must contract the rate of collective resource use to a rate within which resources may be replenished.

1.2 *Coordinated contraction.* Since much GEC arises from as the cumulative result of uncoordinated individual gain-seeking, it follows that arresting GEC requires the coordination, like any other collective action problem, of the activities of all involved (e.g., Gardiner 2001: 387-401, 406; Ostrom 1990: ch. 1). At the heart of existing forms of global coordination to mitigate GEC is international environmental law (IEL) (e.g., Murphy 2005: 93). For the sake of simplicity, IEL may be taken to refer to the international regulation of classes of domestic

[2] GEC may be understood as a term of art used to describe avoidable environmental problems which affect the international community by affecting shared resources or are otherwise so widespread or serious as to qualify as problems of common concern. For elaboration of the term 'global environmental change', see, for example, Birnie *et al.* (2009: 8-9); French (2001: 380); and Elliot (2002: 58, 66-9). On the concept of international community, see, for example, Abi-Saab (1998: 248) and Simma and Paulus (1998: 266).

[3] Elaboration of these points can be found, for example, in Anderson (forthcoming: ch. 1-2).

economic activities by means of problem-specific objectives or aims and principles, rules and instruments to give domestic effect to states' commitments to objectives and aims.[4]

1.3 *Conditions for effective coordination for contraction.* Differences in views on reasons for the failure of existing international coordination, specifically, of IEL and on proposals for its reform, may be distinguished according to whether they focus on conditions exogenous or endogenous to IEL:

- Views which focus on 'exogenous' conditions, see IEL essentially as a "function of conflicts between the political, economic and environmental interests of relevant countries" (Young 2003: 439; Young 2002: 75). Views include well-known neorealist, liberal institutionalist and critical political economy schools of international relations theory. Conditions include respectively the active participation of hegemonic states; better management of interdependence such as by reducing transaction costs and/or by increasing transparency, for instance, by increasing participation; and the removal of constraints imposed by private power on states and thus on the scope for the reform of international law.[5]
- Views which focus on conditions 'endogenous' to IEL may be distinguished according to whether the conditions addressed are (i) *substantive*, that is, agreed upon aims and objectives, and rules, principles and instruments by which states give effect to commitment to aims and objectives, or (ii) *formal*, such as means of implementation, monitoring, compliance and enforcement of that substantive law;
    - In turn, views which focus on substantive law may be distinguished according to whether they address the *focus* or the *terms* of coordination:

[4] International regulation concerns classes of domestic activities that "may be conducted or permitted because of their actual or potential impact upon the environment" and human health, irrespective of whether that impact is "entirely within national borders, across territorial boundaries or in areas beyond national jurisdictions" (Sands and Peel 2005: 44). See also, for example, Birnie *et al.* (2009: 2-3, 129); Held and McGrew 2002: 7; French (2001: 394). On ambiguities in the term 'international environmental law', see, for example, Birnie *et al.* (2009: 2-4).

[5] As Cutler observes, domestic and global decision-making are constrained by virtue of being "linked to and disciplined" through new constitutionalism "by the logic of capital" (2005: 528; see also Newell 2008; Gill 2005). In a similar vein, Dewey regards politics within late capitalism as the shadow cast on society by big business, and that as long as this remains so, attenuation of the shadow will not change its substance, that is, the source of the shadow requires removal (in Westbrook 1991: 176 ff, 249, 440 ff, 453).

- By focus of coordination is meant the extent to which substantive law reflects the causal nature of GEC.[6] Differences in views over the better focus typically turn on differences in views over direct and structural causation of the problem in question and on the better method(s) by which to identify and weight causal variables.

- Terms of coordination refer to normative concerns. Because resource use contraction requires voluntary cooperation – and does so, critically, in situations of unequal causation, harmful consequence and adaptive capacity – the possibility of consensus over the proper focus of coordination cannot be divorced from the possibility of consensus over its terms. Significant among differences in views on the proper terms of coordination is, first, the level of contraction (extent to which GEC ought to be mitigated and, second, the distribution of the Earth's remaining natural resources, including global carbon 'sinks', freshwater, flora and fauna and fossil energy, within that collective contraction.

1.4 *The Allocation Problem.* Critical to effective focus and terms of coordination is reform of prevailing ways of addressing the 'allocation problem'. By the allocation problem is meant a problem common to most societies at most times, of how and according to which criteria to allocate scarce resources in space and over time (Waldron 1988: 32, 34, 39).[7] This problem involves two clear dimensions. The first is domestic. Allocation invariably involves the definition and enforcement (by a community or by its specialised agent, the state) of property relations.[8] The second dimension is international. Domestic allocation implies agreement

[6] This also includes concerns typically about the effect of 'interplay' between substantive measures, that is, of achieving stated aims and objectives on those of other environmental protection regimes, as well as the scale of measures implemented (e.g., Young *et al.* 2005; Young 2003).

[7] The problem of deciding who may legitimately hold which class of resources in what way (e.g., rights characterised by limited/unlimited acquisition and transfer, or exclusive/inclusive use conditional/unconditional upon the performance of a public function), appears one common to all societies in which conditions of moderate scarcity apply and in which the exercise of public power requires justification (see below). Jakobs refers to it as one of determining the state (*Zustand*) of allocation of objects to subjects (1965: 26-8). Wissenburg refers to it as "who should get what" (1998: 160), whilst, for Poggi, it constitutes the problem simply of "who gets what" (2001: 8, 17-19). For Macpherson, justification is understood in the first instance by reference to meeting "some supposed essentially human needs … or … wants of classes which from time to time have set up the institution [of property] or have reshaped it" (1978: 1).

[8] On informed views, property refers not to an object but to a social relation between legal subjects in respect of objects (Macpherson 1978: 3-4; Becker 1977: 18). It refers specifically to rules of resource use

between communities on the terms according to which domestic allocation can be legitimately made (essentially the allocation of authority) without which domestic allocation could not be sustainably made.

Two main reasons suggest why reform of prevailing ways of addressing the domestic and international dimensions of the allocation problem are relevant to the possibility of effective focus and terms of coordination:

- in terms of *causation*, since the allocation of property rights is a precondition of economic practice, reforming economic practice will require changing domestic allocation. To put it another way, domestic allocation has been made in a way that enables the collective rate of resource use to be made according to the rate of capital accumulation rather than according to the rate of natural resource replenishment. Such domestic allocation is reinforced by the fact that agreement between national communities finds expression in a form of negative liberty, in the allocation of authority to enjoy territory free from interference by others (Carlson 2009: 59).[9]
- In terms of *remedy*, since the primary task of arresting environmental degradation is to control resource use, because control implies the assignment or reform of rights and duties with regard to the resources in question (Cole 2002: ix) it invariably involves domestic property reform. Similarly, international agreements to control domestic resource use invariably qualify (even if only formally) states' negative liberty.

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created and enforced by the state or a community. Rules comprise 'bundles' of rights, duties and liabilities which regulate use by prescribing permissible behaviour between subjects in relation to objects, and do so in accordance with the content of a bundle including, for example, rights of exclusion and inclusion. Despite the diversity of rules, and of objects and subjects to which rules apply, property represents the mechanism by which rights in scarce resources are allocated across communities in space and over time. Property therefore constitutes therefore a primary institution in the regulation of human-environment relations (Kotchen and Young 2007: 150).

[9] Like any other form of negative liberty, this right implies a corresponding duty to refrain from interference in others' territory. As Shaw notes in relation to domestic and international law, if

> it is the function of the law to apportion … rights and duties to … entities as it sees fit [then] legal personality is crucial... It is the law which will determine the scope and nature of personality… This is especially true in international law (2003: 175-6).

On this view, international law may be construed, Macklem notes, as a

> legal domain that structures global politics by treating sovereignty as a legal entitlement that it distributes among the multitude of legal actors that it recognises as states (2008: 370).

It entitles states claiming exclusive authority and a monopoly of legitimate violence within their claimed jurisdiction (Strange 1999: 345) *inter alia* to "exclude foreigners from the use or benefit of its wealth and resources except on terms it voluntarily accepts" (Beitz 1991: 243).

International agreements impose *obligations* on states to other states with respect to domestic activities which affect others and the 'global environment'. Conversely, agreements extends the legitimate scope of *interest* of other states in a state's domestic affairs (Birnie *et al.* 2009: 41; Sand 2004: 48; and French 2001: 391-8).

Having touched upon some common themes of the problem ('conflict of rates' coordinated contraction) and of approaches (exogenous/endogenous conditions; endogenous: substantive/formal; substantive: focus and terms of coordination: focus/terms: reforming the allocation problem), I now want to look at some generic limitations of three positions on substantive law reform.

2. Assessment – neoclassical economics

2. Market Failure

(Micro)economics is rare among influential views on the causes of, and remedies for, GEC. Beneath a multitude of direct causes, it locates the single structural cause of market failure. According to economics, environmental problems are economic problems. They are a form of market failure that occurs due to inefficient resource use allocation.[10] Inefficient allocation occurs when prices for resources inadequately reflect peoples' preferences for them, or when there are no markets for resources at all (Helm and Pearce 1990: 6; Arrow 1984: 155). As a result, the costs of resource use are 'externalised'.

Economics posits, as sole remedy for GEC, the correction of market failure. If environmental problems arise from missing markets then the solution is to *create* markets for natural resources so that peoples' preferences may be registered (or to put it another way, to 'internalise'

[10] The meaning economists give to the term 'efficiency' differs from its conventional technical meaning in everyday use. Efficient refers to allocation in which it is not possible to make one person better off without making another worse off (Pareto-optimality) or, as is commonly practised (Padilla 2004: 529), one in which the aggregate gain exceeds aggregate losses such that the gainers could potentially compensate the losers and still be better off (Kaldor-Hicks optimality; see, for example, O'Neill 1993: 45-6 and Sagoff 1988: 32). In this state of efficient or 'optimal' allocation, the total marginal or incremental cost is said to equal the total marginal benefits (Jacobs 1994: 70).

externalised costs). Creating markets requires that resources are privatised. Where markets do exist, inefficient allocations require them to be *corrected.* Correcting markets in the form, for example, resource use taxes, charges or emissions credits is based upon the shadow prices of resource use. Shadow prices are in turn constructed from what individuals would be willing to pay for resources were there a market for them.[11]

The argument is made that economics cannot provide an adequate basis for the possibility of effective substantive global coordination. The content of this argument proceeds along two paths. The first concerns its prescriptions for arresting environmental change. The second concerns its diagnoses of the causes of environmental change from which prescriptions arise.

2.1 Effectiveness of economic prescriptions

Criticism of the effectiveness of prescriptions fall into two categories depending upon whether it concerns the mandated level of environmental protection (level of resource use contraction) or means by which to attain that level.

2.1.1 *Contraction level*. Even if it is plausible to think that an efficient allocation of resources would 'internalise externalities', it does not necessarily follow that such allocation would be one without harm, that is, would be sustainable. This is because economic instruments (ideally) internalise into the costs of resource use, not harm itself, but the social costs of harm. More to the point, social costs are not eliminated but reduced (ideally) to an efficient level. Critically, an efficient level – the point at which the marginal social cost of harm-causing economic practices equals their marginal benefits – is inseparable from three sets of bias that mandate a lower level

[11] According to this micro-economic view, effective international environmental law would be one that is economically efficient. Environmental *aims* and *objectives* would ideally reflect an equilibrium between the marginal cost of mitigation and social cost of causing environmental change (as determined by shadow pricing as aggregated from the strength of individual preference satisfaction measured by willingness to pay) or would simply arise as an outcome of market transactions following resource privatisation. Priority would be given to *principles* generative of economic growth (Posner and Sunstein 2008: 1565-70), and a "presumption in favour of the polluter pays principle" over other principles (Helm and Pearce 1990: 6), that is, of pricing environmental harm to ensure that the costs are borne by those responsible for environmental harm (Schwartz 2010: 250-1). *Rules* and *instruments* would give effect to "the proper functioning of markets" (Sagoff 1988: 34). Reformed international environmental law would thus mandate the expansion of markets and corresponding growth of private sector involvement in global and sub-global environmental governance, hitherto dominated by governments. It would do so by means of the direct privatisation (and variations including, say, public-private partnerships and voluntary self-regulation) of all affected resources including potable water, carbon 'sinks', clean air, biodiversity, genetic material, natural habitats, pollution and 'traditional' knowledge and/or by the expansion of market norms in environmental governance through the creation of markets for such resources by assigning them shadow prices (Schwartz, 2010*:* 249-51; O'Neill 2001b: 1865).

of environmental protection than would apply were bias removed. *First*, since only those willing and able to register preferences articulated through acts of buying and selling (whether actually or in shadow markets) are considered to have standing, those unable to buy and sell (future generations and nonhuman beings) are rendered inarticulate and thereby divested of standing (E.g., Barkin 2006: 56; Jacobs 1995: 62; O'Neill 1993: ch. 4).

Second, since the preferences of those able to express them in market terms are ranked according to bearers' willingness to pay for their satisfaction (or to accept 'compensation' for their non-satisfaction), preferences incapable of being assigned a price are by definition excluded from the outset.

Third, preferences capable of being assigned a price are made proportionate to the wealth of those with standing. Since willingness to pay is constrained by ability to pay and the latter in turn depends on the initial distribution of property rights in income-generating resources (Boyce 1994: 174), preferences for environmental goods are made proportionate to income. What the poor care about is thus made to matter less than those who "can afford to express their care in additional monetary payments for environmental goods" (O'Neill 2001b: 1868). As Boyce explains, an 'efficient' level of, say,

> air pollution is higher where those who breathe the dirty air are poorer than when they are rich for the simple reason that the poor's ability and willingness to pay to avoid it is lower (1994: 174; see also Ackerman and Stanton 2008: 8).

The combined effect of these sets of bias is to mandate a level of resource use contraction which is lower than that that would apply were biases removed (Michaelson 1996: 1892). Cost 'internalisation' means that perpetrators are merely made to pay the market rate for harm rather than hitherto harm for free. Furthermore, the likelihood that an efficient outcome might be commensurate with environmental sustainability is entirely contingent upon the possibility that causing environmental change becomes insufficiently profitable to perpetrators and/or that victims might be able to register sufficiently high social costs – the latter of which is all but eclipsed by excluding and distorting their preferences.

2.1.2 *Contraction/re-allocation means.* Even if an efficient level of resource use contraction might be environmentally sustainability, doubts remain about whether market-based means would in fact achieve that level. *First*, it must be assumed that considerable operational difficulties can be overcome. Difficulties include identifying perpetrators and victims, creating divisions by defining exclusive property rights in indivisible biophysical processes, and establishing costs and

benefits in order to simulate market transactions.[12] Assuming operational difficulties can be overcome, a *second* problem arises in the sense that since economic prescriptions depend on the existence of competitive markets, they are *prima facie* inapplicable to oligopolistic markets (Ayers 2008: 284; Beder 1996: 57; Helm and Pearce 1990: 5; Hahn 1989: 96, 98). The problem is significant. Many resources subject to 'global change' – from fossil energy, potable water and metals to food sources, forests and land – are characterised by *de jure* and *de facto* oligopolistic markets (Cahill 2006; Ridgeway 2004; Klare 2001: ch. 2).

Third, where economic prescriptions may be applied to resources unaffected by oligopolistic control (i.e., to relatively competitive markets), prescriptions may introduce or extend vulnerability to collective resource overuse in three ways. First, the extension of the market to all that for which individuals have preferences removes social safeguards to collective overuse (such as commons which withhold from the play of the market resources held in common (Ostrom 1990; Macpherson 1973: 133)) and restricts possible means of social coordination in the use of productive resources to the price mechanism. Individual gain-seeking coordinated only by price signals has the potential to create collective action problems – disastrous outcomes from uncoordinated individual gain-seeking (Hardin 1976: 234-5).

Second, this potential to create collective action problems appears actualised when competition is introduced into resource use. In competitive market conditions participants are incentivised to:

- use resources at a rate proportionate to the rate of return rather than the rate of resource replenishment,
- correspondingly de-value resources that are unproductive from the standpoint of the expansion of capital, and
- shift costs onto others, in particular, those who cannot affect the price system including future generations,

in so far as failure so to do would place participants at a comparative disadvantage to those who use resources to seek maximally higher returns (E.g., Schweickart 2009: 563-4; Goldblatt 1996: 45).

[12] The very possibility, for instance, of establishing costs and benefits in order to simulate market transactions, the very possibility of which is rendered less and less plausible the more likely it is that society "is bound to be radically transformed in ways which are … unpredictable to us now" by GEC (Broome 1992: 10; see also Schwartz 2010: 248-9; and Groves 2010).

Third, collective resource overuse from competition risks becoming self-fuelling when competition is supplemented with privately-created credit. Since the use of productive resources is determined largely by access to credit, this access is itself a function of expectations of future revenue. The result is that individuals are incentivised to use resources at a rate in excess of the rate of interest, in excess of rivals seeking the same. This dynamic presupposes, and in turn reinforces, generalisation of the view of environments merely as sets of opportunity costs and benefits which are evaluated in terms of different investment strategies (Groves 2010; Weber 1981: 278).

When taken together, creating and simulating markets may lead to the creation and intensification of collective action problems, and may do so the more resources are privatised.[13]

2.2 Appropriateness of economic prescriptions

Even if economic prescriptions could be effective, two among several reasons stand out to think that they may be inappropriate: causal explanation and incoherence.

2.2.1 *Causal explanation*. Economics regards environmental degradation, it is remembered, as an inadequate price relationship between persons and the environment. Of immediate concern is representation of core explanatory variables, namely, those of the environment, persons and what persons value.

(a) Because the *environment* is recognised within economic accounts only to the extent that individuals express monetised preferences for its goods and services, 'it' is treated merely as a function of individuals' monetised preferences or as mere factor of production (Bromley 1998: 233). Quite aside from the scientifically questionable assumption that this substitution of

[13] For elaboration of these criticisms, see Anderson (forthcoming: ch. 3). This general presumption against neoclassical economic prescriptions admits, of course, of exceptions. When combined with non-market measures, market mechanisms such as emissions trading may help. A key example is the global policy framework of 'Contraction and Convergence' which prioritises – in order – UNFCCC principles of precaution, equity and efficiency, and within which emissions trading may help accelerate the aggregate contraction of greenhouse gas emissions (Meyer 2007). However, because this proposal involves an initial allocation of emissions entitlements on a equal *per capita* basis (equity) and subjects them in the aggregate to sustained contraction over time (on precautionary grounds), the policy framework offers no support for the argument that economic growth, still less efficiency alone, may serve environmental ends (Wiener 2009). It should be noted that to suggest that market mechanisms, if implemented according to criteria other than efficiency and/or combined with non-market measures, may mitigate environmental harm is not necessarily the same as saying that they could be effective nor, should some prove to be, more effective than rival approaches.

economic for biophysical characteristics entails,[14] the assumption that the environment may be substituted for other factors of production effectively removes the rationale for natural resource conservation (Holland 1994: 171-2).

(b) Assumed to be rational self-maximisers, individuals are not treated as *persons* but as locations at which monetisable "affective states may be found" (Sagoff 1988: 46). Significant among criticisms of this assumption is the collapse of the various roles which individuals play into the single role of consumer. The role persons assume, for instance, as citizens or commoners in which they express concerns about the public good as judgements about "what is right and good or appropriate in the circumstances" is not captured by their willingness to pay (Sagoff, 1988: 7-8; see also Rawls 1971: 27 and 'deliberative democracy' below). Further, collapsing the roles of persons in this ways obstructs the expression of concern, since it is precisely as citizens or commoners that persons typically express concerns about such public good as environmental sustainability.

(c) Moreover, explaining GEC in terms of a price relationship between persons and environment, economics reduces people's *values* to mere exchange value. Two problems are immediately apparent. First, the reduction ensures that what people most care about is disregarded. Most social relations and evaluative commitments including those constitutive of identity and social loyalties have the property of what Raz calls 'constitutive incommensurability' (Raz 1986: ch. 13). To assume that these values are in principle commensurable under the common measure such as price – and that the operational problem is merely 'getting the price right' – is to misunderstand what it is that such values constitute. The value, for instance, of friendship is constituted in part by a refusal to treat it as a commodity; to do so would be to betray that commitment (O'Neill 1993: 120). The same commitment may be observed in numerous other goods that individuals value including nonhuman beings, special places and environments (O'Neill 1993: 118-22; Schumacher 1993: 31). In these instances, the "worth of things we love", Sagoff explains, "is better measured by our *unwillingness* to pay for them" (1988: 68). Core values offer a critical basis for the prevention of harm to that which people value. To exclude core values undermines the rationale for mitigation. To include them requires the exclusion of the market instruments and norms from areas that matter most to people.

[14] For example, assumptions that non-commensurate, dynamically interrelated ecological processes are adequately understood in terms of discrete, interchangeable monetised preferences (Nadeau 2008: 42; Daly and Farley 2004: 22).

Second, the problematic relationship between persons and the environment in fact appears, on economics' own terms, not one of price but of property relations. Efficient and inefficient allocations are a function of prices; in turn, prices are nominally a consequence of supply and demand (Smith 1965: 56-7). Supply and demand are, however, a function of the existing distribution of property rights in the resources in question:

- supply presupposes entitlement to sell in so far as one cannot lawfully sell or use what one does not own (Waldron 1988: 31-3);
- demand capable of being registered in market transactions depends on ability to pay which turns on the distribution of property rights, whether in income or in revenue-generating resources.

As a consequence, prices answer to prevailing property relations. Efficient and inefficient allocations, O'Neill explains, "are themselves the product of a given distribution of property rights" (O'Neill 2001a: 706; Freeman 2001: 279). Change the initial distribution of property rights and one changes possible supply and demand. As a result, an entirely different set of prices will emerge (O'Neill 2001a: 706). The point is that if the environmentally-problematic relationship between persons and the environment lies in dominant property relations, then to the extent that property relations reflect the prevailing nature of social justice in a society, it is social justice, not efficiency, that would provide the more appropriate context for contraction and re-allocation.

2.2.2 *Incoherence*. Finally, it should be noted that the economic approach to sustainability may not only be questionable, it may also be incoherent. This contention lies in the fact that it assumes a right to harm. Economics tacitly replaces liability rules in which people have an entitlement to bodily integrity (or to an undamaged environment) with a proxy *property* rule in which perpetrators are assumed to have a *de facto* right to harmful use (Michaelson 1996: 1892: see also Calabresi and Melamed 1972: 1089-92). Economics tacitly advocates this replacement because:

- it treats environmental harm as a cost externalised from production;
- it assumes contraction to be legitimate only when it is economically efficient;
- in the determination of an efficient level of contraction, it

- presumes victims' consent to harm and/or to the risk of harm;[15] and
- includes benefits that perpetrators gain from harming and their costs of harm mitigation; a practice that mandates the view that

- harm is to be mitigated, optimally, to a level at which causing it becomes insufficiently profitable for perpetrators and/or at which victims assign a sufficiently high monetary value, say, to their bodily integrity from or to the protection of a habitat or species about which they may care.

Quite aside from the legal coherence of such a practice,[16] an assumed right to harm renders the diagnostic and prescriptive operations of economics incoherent. The assumption has this result because it undermines, if not destroys, the meaning of property rights that efficiency-based approaches must nonetheless presuppose in order to be applicable.

Among various rights within any bundle of property, a right to harm others is not one of them. This is because property is, in any given circumstance, subject to a politico-legal background of constraints on the use of resources in ways contrary to the public good, many of which find expression in a jurisdiction's penal code and tort laws.[17] To divest property of such constraints, for instance, by assuming resource owners are "free to pollute", is to grant them the power of "eminent domain over any persons or property they wish to violate" (Sagoff 1992: 220). This assumption means that one person's entitlement is subject to another's perception of whether it would be profitable to divest him of that entitlement. It implicitly replaces law with force. But it does so at the expense of rendering the efficiency approach inapplicable. This is because, as explained above, allocation is ever only efficient or inefficient *given* an initial distribution of property rights. If presuming a right to harm destroys the meaning of those rights then it denies the possibility that economics can apply at all.

It follows from criticism of neoclassical economic theory in general and of IEL informed by this theory in particular, that environmental sustainability will not be served by introducing or

[15] Economics assumes that victims are indifferent between exposure plus compensation and no exposure and no compensation (Vanderheiden 2005: 53), a presumption underscored by denying victims the possibility of withdrawing this 'consent' such as by seeking prosecution or injunctive relief.

[16] The practice reverses basic rights generally held to be constitutive of democratic societies in which it is not within their legitimate power to assume a right to harm by, in the circumstances, compelling people to be harmed and exposed to non-negligible risks of harms "for no purpose other than the financial gain of others" (Michaelson 1996: 1920; Vanderheiden 2005: 53; Machan 1984: 98).

[17] Coyle and Morrow (2004: 164); and Nozick (1974: 171). Property thus appears a "right to carry out a circumscribed list of actions" (Coase 1960: 44; see also Cole 2002: 9).

extending market instruments and norms to various areas of society, but quite the reverse. It would be better served by expanding and supporting the public sphere – substantively and procedurally – so that the many-sided qualities of values, persons and environments may be recognised as such (Ong 2010b: 537-8), and so that people may be able to arrive at public judgements about what is of value (O'Neill 1993: 173; Schumacher 1993: 29) (including, for instance, common concern, common responsibility, prevention and precaution). This possibility requires removing market instruments and norms from areas for which they are not appropriate. It is to two alternative bases for environmental decision-making which endorse such reform that we now turn.

3. Assessment – Distributive Justice and Democracy

3.1. Distributive and Critical Justice

Central to proponents of distributive justice is the view that GEC is not primarily an economic problem but one of justice. It is a situation, they argue, characterised often by conflicting claims over desired distributions of wanted goods and necessary harms which call for adjudication in light of principles of justice. [18] Conflicting claims call for adjudication because just distribution appears a precondition for the possibility of securing voluntary global cooperation to contract resource use rates.

Although an advance over economic perspectives, significant among limitations of this perspective is a failure to address the distribution of power.[19] Distributive approaches typically

[18] Mitigation of global environmental changes involves "fundamental questions" in the allocation of the Earth's resources such as those concerning "for what purposes, subject to which limitations, … under whose control" and, it should be added, according to which legitimate criteria (Kuflik 1989: 250). For accounts on dimensions of distributive justice in various types of GEC, see, for example, Schroeder and Pogge 2009; Vanderheiden 2009; Pellow, Weinberg and Schnaiberg 2001.

[19] Another limitation is a tendency to assume, by virtue of focusing on existing and desired distributions of wanted good and necessary harms, that those who use resources constitutive of such goods and harms are in fact entitled to that use (Wenar 2008: 2; Pogge 2005: 737). Limitations also arise in the assumption that the harms which proponents seek to redistribute justly are unavoidable – avoidably harming those with standing is something that attracts liability, not something that in the first instance should be redistributed more justly. Although corrective measures may help catalyse comprehensive and proactive international

assume institutional structures as given and inquire insteadinto principles and practices of distribution within them (e.g., Nielsen 2003: 286-7; Forst 2001: 166; Hunold and Young 1998: 85; Young 1981: 278). They do so by focusing on principles relevant to subjects conceived of as recipients and objects conceived of as wanted goods and necessary harms and burdens. The result is that discussion is limited to the distribution of goods and harms whose origin is rarely accounted for (Young 1981: 279-80).

The consequence of ignoring distributions of power is serious. At the risk of over-generalising, if there is merit in the view that prevailing distributions of power, embodied in particular in institutions which organise society as a whole, define and in large part determine the existence, level and distribution of goods and harms (Forst 2001: 167), then to focus simply on distribution is unduly self-limiting.

Consequently, in terms used at this conference, concerns about inefficient and unjust distributions of goods and harms ('allocation') ought to be situated within wider concerns about the distribution of power ('accountability', 'agency'). The distribution of power ought to be the initial focus of distributive perspectives. It is to an approach that addresses some aspects of the distribution of power as represented by deliberative democratic theory that we now turn.

3.2 Deliberative Democracy

According to Hunold and Young, deliberative decision-making consists ideally of a "process where citizens discuss a problem together and attempt to persuade one another that the solutions they propose are best, in the sense of most just [and] most effective" (Hunold and Young 1998: 86-7, 92; Dryzek 1994: 304-6). Hallmarked by prominence of the idea of 'public reason', deliberative democracy extends the classic defence of democracy, namely, that those who bear the consequences of decisions are (when empowered so to do) incentivised to make the wiser decisions (e.g., Barry 1999: 163). Two elements of this defence are particularly relevant to prospects of securing sustainability:

- First, deliberative democratic decision-making helps to reverse the attenuation of social coordination in the use of productive resources to the cash nexus. It does so by instead facilitating recognition of varieties of individual and common good in terms of

coordination by nation-states to improve environmental protection, these measures still face widely-noted difficulties concerning standing, causation, fault and remedy. As a result, they appear reactive and largely piecemeal, and unlikely to substitute for comprehensive and proactive coordination.

expressions of care and the rationality of persons in their various roles including as citizens or commoners;

- Second, it encourages wiser resource use decisions due to the breadth and quality of participation that it facilitates. In terms of breadth, because participation includes ideally "all affected… perspectives… in the discussion" having "grasp[ed] the consequences and… considered alternatives" including "scientific and social-scientific techniques… necessary for assessing alternatives and envisioning consequences" of resource use options, it helps sensitise decision-making to, what Dryzek refers to as the inherent "complexity" of many environmental problems (Dryzek 1994: 192; Hunold and Young 1998: 87; O'Neill 2001b: 1867-8). In terms of *quality*, deliberative decision-making enables each to "contribute their situated knowledge of how various" resource use options and techniques "would affect the people whose lives they know best and the environment in which they live" (Hunold and Young 1998: 87; see also, for example, Barry, 1999: 163-4; Ostrom 1990: ch. 3).

As promising as this model of environmental governance appears, it is not without limitation. Two generic weaknesses stand out. Both arise from the divorce of questions of consensus from those of power. First, the divorce militates against *prospects* of meaningful consensus. In the absence of expressly addressing issues of power including resource control, it is not at all clear, as Sen explains, "how antagonistic interests, including class interests, would all get submerged in 'unanimous preferences' merely by 'a rational discussion'"(1986: 234; see also Goldblatt 1996: 198). In the circumstances, it is unclear how deliberation would necessarily result in a collective choice for sustainability, let alone "grant a more valued status to the non-human world than it has at present" (Dobson 1993: 98). For it is not inconceivable that decisions reached deliberatively could result in a preference for economic gain at the expense of environments (Getliffe 2002: 114-6; Wissenburg 1998: 223).

Second, the divorce of issues of consensus from those of power militates against the *coherence* of any consensus that might be reached. Even if deliberative decisions were unanimous in calling for sustainability, it is unclear how this call could be answered without substantive reform of the type and distribution of rights implicated in unsustainable economic practice. The problem is, as Goodin explains, that "to advocate democracy is to advocate procedures", yet "to advocate [sustainability] is to advocate substantive outcomes" (1992: 168). If prevailing forms of economic practice are structurally orientated toward generating a conflict of rates then it seems incoherent to think that enrichment of the public sphere by deliberative procedures would arrest,

let alone reverse, this conflict – at least, not in the absence of reforming the nature of key resource control that is endemic to economic practice. For it is precisely the prevailing nature of the resource control that enables those in possession to overuse them. It is also prevailing forms of legal standing, such as the private corporation, which augment that control and protect it from attempts to change the way in which those resources are used (e.g., Newell 2008: 515; Gill 2005; Bakan 2004; Poggi 2001: 143-7).

4. Conclusion

It has been argued, first, that resolution of GEC requires winning the conflict of rates by coordinated resource use contraction and implied resource use re-allocation; second, that it is highly questionable whether economics could be effective, let alone appropriate, to that end; third, that distributive justice approaches appear hampered by downplaying the distribution of power in general; and fourth, deliberative democratic approaches appear hampered by downplaying power embodied in key resource control and forms of legal standing in particular.

In order to clarify linkages between the three approaches considered with a view to suggest some ways forward, it is helpful to take stock of their generic limitations. This is usefully done with reference again to 'allocation problem' – the problem of how and according to which criteria to allocate scarce resources in space and over time. For *economics*, legitimate allocation is one made according to the price mechanism in 'ideal' market conditions. This approach to the allocation problem presupposes

- economic efficiency as the legitimate criteria,
- subjects as those willing and able to pay (or otherwise act as beneficiaries of those able and willing so to do) and
- objects of allocation as that for which it is possible for subjects to have monetised preferences.

According to this view, allocation of 'slices' of the economic 'pie' and of necessary environmentally-mediated harms from the production of that pie, are to be made in ways generative of the highest net social gain (i.e., economic efficiency).

For many *distributive justice* theories, addressing the allocation problem presupposes:

- objects as wanted goods and necessary burdens;
- subjects as recipients of goods and burdens (regardless of their ability to pay); and
- criteria not as willingness to pay but as principles of justice by which to legitimately distribute objects to subjects, and by which to identify unjust distributions.

Critically, subjects are not conceived of as participants. Nor are objects conceived of as the right to define and determine goods and burdens (Hunold and Young 1998: 85; Beck 1995: 167-8). I have tried to suggest that the focus of distributive justice theory in the furtherance of sustainability ought to be, in the first instance, on (i) subjects as participants in, as well as recipients of, justice; and on (ii) the distribution of power as an object of justice, specifically, as a right to define and to determine that distribution (Nielsen 2003: 286-7; Forst 2001; Hunold and Young 1998: 85-6; Young 1981: 1981).

Deliberative democratic theory helps make good this shortfall by presupposing:

- subjects as participants;
- widens the criteria of distributive theory to include that of 'public reasons' (deliberation); yet
- limits the objects of deliberation to procedures (i.e., it excludes substantive matters).

To re-employ an earlier metaphor, if the task of contracting global resource use implies questions over the legitimate distribution of the economic 'pie' and harms from its production, then the first task is to determine who decides what kind of pie shall be produced, from which ingredients and for what purposes. Addressing substantive matters is unavoidable. It follows that in order to be effective, deliberative democratic theory should supplement procedural improvement with substantive reform; specifically, it needs to address key substantive issues. Among them it should address (i) the nature of key resource control (type and distribution of rights, powers, immunities and liabilities) and (ii) forms of legal standing such as the private corporation which protect and augment that control.

To sum up, then, a more adequate deliberative democratic approach to addressing the allocation problem in the furtherance of securing collective coordination for global sustainability would be one that acknowledges:

- subjects as participants and recipients; it would recognise standing in a manner that empowers human agency and correspondingly curtails concentrations of power afforded

by such forms of legal standing as the private corporation (e.g., Higgins 2010; Goodhart, 2008);

- objects in the first instance as the distribution of power, in particular the nature of key resource control; and
- criteria for allocation as principles of justice; this criteria would be subject to the exercise of public reason in order to reduce the likelihood of allocating resource use in a manner that creates and amplifies collective action problems, such as appears common to resources subject to competitive market conditions.

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