

## Chapter 15: The Ecological Limits of the Sustainable Development Goals

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### Abstract

The policy vehicles required to achieve the UN SDGs in domains such as education, health, and welfare rely on fiscal transfers from a growing economy. SDGs also routinely replace less complex systems in the informal/livelihood sector with more complex systems in the domain of the formal economy, the state, and the market. Such systems are more expensive both financially and in terms of ecological footprint. From any ecological-economic perspective, this dependence of development on growth is problematic. Recent research indicates that there is currently no country that achieves a good life for its citizens at a level of resource use that could be extended to all people on the planet. This tension between growth and ecological integrity suggests a prima facie case for the establishment of new Ecological Economic Goals (EEGs). We argue that a sustainable modernity will necessitate the re-emergence of the domain of reciprocity and informal economy or livelihood; the re-emergence of some early-modern patterns of solidarity and mutualism in the Global North; and the retention and repurposing of pre-modern, agrarian principles of solidarity in the Global South. In place of SDGs, EEGs are advanced as policy vehicles for a sustainable mode of development within biophysical limits.

### Introduction

The updated Sustainable Development Goals (SDGs), which include ending poverty, promoting universal education, gender equality, health, environmental sustainability, and global partnerships, all depend to a significant degree upon a high and continuing throughput of energy and materials. In elaborating its SDGs, the UN begins the definition of the overall goal for the Anthropocene with “development”: “Development that meets the needs of the present while safeguarding Earth’s life-support system, on which the welfare of current and future generations depends” (Griggs et al. 2013). The policy vehicles required to meet such a goal necessarily rely on ongoing fiscal transfers generated by ongoing development and a growing economy. Consider for example: institutional education; the innovation, manufacture and delivery of vaccines; governance systems to advance the position of women; the delivery of multiple systems of cheap contraception; market and state pension systems that relieve aging citizens of dependence on uncertain family arrangements. In different ways all of these policy commitments involve the replacement of less complex systems that once existed in the informal sector, with more complex systems in the domain of the formal economy, the state, and the market. Moreover, one of the SDGs is explicitly to promote economic growth as measured by GDP, labour productivity, and access to financial services.

Ecological economics very clearly demonstrates the tension between biospheric limits and current trajectories in economic growth. The scale of material and energetic flows of the economy relative to those of ecological systems are firmly out of balance (Daly and Farley 2004). Thus, from any

serious ecological perspective, beginning sustainability goals with a dependence of development on growth is very problematic. In a recent paper, O’Neill et al. (2018) quantified the resource use associated with meeting basic human needs for over 150 countries. Comparing this to what is deemed to be globally sustainable, they found that there is currently no country that achieves a good life for its citizens at a level of resource use that could be extended to all people on the planet. This suggests a prima facie case for the proposition that the SDGs are intrinsically flawed and that they cannot in principle deliver “sustainable development”. In what follows we develop the case for Ecological-Economic Goals (EEGs) that have a better chance of reconciling development with the integrity of the ecological life support systems of the biosphere.

The failure of sustainable development is a function of the failure of “ecological modernization” strategies to deliver the long promised “dematerialization” and the “decoupling” of growth from resource use and waste – as alluded to in Blay-Palmer and Young’s chapter; there are many similarities between agroecology and ecological economics. In economic terms this reflects the persistent operation of the Jevons paradox, i.e. the tendency for efficiency gains to fund renewed investment, technical innovation, more rapid product cycles, and further expansion in the scale of production and consumption. In social and political terms, such failure relates to the systemic resilience of consumerism as a source of jobs, fiscal revenues, and individual and collective security; and, culturally, to the hegemonic and ubiquitous role of consumption as a source of meaning and ontological security (Dickinson 2009).

In the face of such paradigmatic failure, any feasible environmental politics must be rooted in:

- i. A non-negotiable recognition of biophysical limits and the priority that must be accorded to the scale of economy relative to ecology – from the ecological economic tradition associated with Herman Daly, Georgescu-Roegen, H. T. Odum, Charles Hall, Robert Constanza and others.
- ii. A historical sociological recognition of the historicity of psychology/personality, institutions and ideas – from the historical sociological and anthropological tradition associated with Norbert Elias and Karl Polanyi and;
- iii. A deep recognition that any paradigm shift regarding the metabolism of society will involve equally new, distinctive, and possibly uncomfortable (combinations of) ideas, institutions, perceptions, and even (in the long run) personality types.

In this chapter we briefly explore these three theoretical foundations, focusing on the discourse of biophysical limits and pervasive processes of modernity. We use this as a backdrop to argue for Ecological Economic Goals that move beyond the paradigm of growth, into post-growth goals for change.

### **Limits thinking and Enlightenment universalism**

Starting from the explicit premise that there are limits to growth, our argument uses Ecological Economics, the only framework that starts from an understanding of both the economy and society as embedded within and a function of ecological systems. For Daly this relationship could be summarised by the triptych subordination of efficiency/markets to social justice, which in turn was

conceived as subordinate to the ecological/metabolic scale. Ecological economists attempt to develop solutions that respect this hierarchical system, which has been largely ignored by mainstream economics, as well as national strategies, policy makers and politicians, and even environmentalists devoted to the idea of sustainable development or green growth.

Many social ailments explored by sociologists and social theorists, such as alienation, narcissism, ontological security, are a direct, and potentially unavoidable, cost of capitalist modernization and of the process of individualization, which is intertwined with the development paradigm (Durkheim 1893; Weber 1921; Giddens 1990; Ollman 1977; Twenge 2017). They cannot necessarily be “solved”. At best, society can make choices about a balance of “goods and bads”. The disembedding of traditional economy and society (Polanyi 1994; Quilley 2012) was traumatic and violent. In early Modern England, both “free-wage labour” and the modern citizenry alike were made possible by the enclosure of the commons and the expropriation of the peasants. But this very doubled-edged process of “emancipation” also engendered a process of individualization – without which it is hard to imagine positive phenomena such as extended empathy (Rifkin 2009), scientific reasoning, multiculturalism, increased rights for many (Pinker 2012), and the modern idea of the sovereign individuals necessary for democracy and rights-based politics (Elias 2010; Quilley 2012, 2013, 2017 ).

That the UN’s Sustainable Development Goals are unlikely to work should be no surprise. They are very explicitly premised on generalizing a pattern of life that emerged in this period of early modern England and became incarnated in the universalist vision of Kant, Rousseau, Condorcet and other Enlightenment philosophers. The original sin of liberal society is that “freedom” was in large part imposed. Its discomfiting secret is that this kind of freedom, though sacred and foundational for all other cherished dimensions of modern liberal society, comes with a high price tag.

With respect to the SDGs, the most significant aspect of this cost relates to what Odum (2007) refers to as the “transformity cost” of social complexity. In Polanyi’s terms, the emergence of disembedded, price-setting markets was, from the outset, profoundly destabilising. Undermining social cohesion and leaving millions of free wage labourers at the mercy of the market, the liberal-market vision was, he argued, a utopian project. Left to itself, the utopian project of the Market Society would destroy both nature and the social fabric. For this reason, argued Polanyi, market liberalism almost immediately engendered a “countervailing movement for societal protection”. This manifested itself in the gradual extension of the regulatory state (what Bourdieu has called “the left hand” of the state [Loyal and Quilley 2017]) over all aspects of social reproduction that were formerly the exclusive province of families, communities, feudal estates, or religious institutions.

In this way, capitalist modernization involves above all the disembedding of individuals, the unravelling of local place and kin-based forms of reciprocity, and the emergence of the formal economy as a distinct sphere that is intimately tied to the emerging nation state. The process of “disembedding” involves the relentless expansion of a transactional economy involving increasingly instrumental-rational individuals in the context of mutually dependent institutions of market and state. But significantly, dominant “common sense” conceptions of progress, freedom, and affluence have also come to be understood through the same lens, i.e. the capacity of

individuals to pursue their interests and goals, to make choices, to behave, to move around, to make/unmake relationships unconstrained by any ascriptive social context.

As has already been intimated above, in the early modern period there were many bottom-up, communitarian social innovations (Friendly Societies, Guilds etc.) that sought to create symbolic forms of familial reciprocation and security (Quilley 2012). These communitarian experiments would be in the bottom right hand corner of Figure 15.1. These can be seen as transitional attempts to shield increasingly mobile individuals from the vagaries of the market. But in the event, from the end of the nineteenth century such social innovations were displaced by expanding state institutions. And in the twentieth century social progress has been conceived in a very consistent way as a function of the State balancing the Market – a dyad that mapped neatly onto a binary left-right political spectrum. Political debates have focused on the balance of state and market and in more recent decades on the extent to which the state uses market-like mechanisms to allocate goods and services. Nevertheless, the elimination of bottom-up forms of communitarian social insurance rooted in the domain of what Polanyi called “Livelihood” has been an invisible default mode for both public policy and debate.

How might we understand this process through the lens of ecological economics? In essence, more complex institutions and disembedded processes, involving a greater throughput of energy and materials, more transactions in the formal economy, and a higher “transformity” value, have consistently replaced lower-complexity and more embedded forms of provision associated with the domain of livelihood. Thus, for example, informal, familial care of people with disability has been supplemented or even displaced by special schools, residential care units, complex processes of legal regulation, and a labyrinthine architecture of welfare benefits directed at individuals. The sector is predicated on a highly disembedded and visible array of transactions and complex system for training and regulating the educators. The same kind of shift from (embedded) household/livelihood systems of support to much more complex, disembedded, individually-focused systems – can be seen in every arena of societal reproduction.

[insert figure 15.1 here]

**Figure 15.1** *The politics of state, market, and livelihood*

Source:

Together this expanded tissue of state activities as a backdrop to a society of mobile, instrumental-rational, and sovereign individuals, disembedded from the ascriptive fabric of traditional society, has become the taken-for-granted landscape of social reality – not just a description but a not-so-subtle prescription. And because the SDGs were created unconsciously with this reality and prescription in mind, they reflect and valorise the idea that social progress must be a function of expanding social complexity, an elaborating mesh of state activities, and more extensive markets, all of which presuppose growth.

Our position is that, as presently conceived, the SDGs are wedded to this paradigm of modern individualism, and as such are unable to produce the kind of change necessary for real socio-ecological change. Instead, we seek to advance genuinely sustainable **Ecological-Economic Goals** (EEGs) – goals which necessarily involve the re-emergence of livelihood and community as one

principle of social and economic organization, and which balance both the state and market (Kish 2018).

### **Sustainable Development Goals, complexity and growth**

No one will argue that the SDGs are inherently bad. Who could argue with the eradication of poverty, hunger, and ill-health? The problem is that the common sense understanding of each goal is firmly rooted in a modern and individualistic frame of reference. If “no poverty” means every country has equal opportunity to grow and produce in the same way as many nations already have, then we have a very clear ecological conflict with the goal. This kind of conflict is replicated in relation to every specific goal. Moreover, what is significant about these examples is not necessarily the headline goal or target (e.g. security in old age), but that the implicit range of solutions reflects deep ontological assumptions about the nature of modernity. Some key assumptions are:

- A. Social justice and security aspirations must refer primarily or only to individual citizens.
- B. The agents involved are spatially and socially mobile, rational individuals.
- C. Security is primarily a function of the relation between individual and state.
- D. Progress will likely see the further consolidation of this survival unit at the expense of traditional (clan, family, place, community, estate) forms of security and mutual identification.
- E. The number of separate households per capita is likely to rise as a function of the dissolution of extended families, reduced social pressures against divorce, individual living patterns etc.

For example, consider SDG 3 (“Good Health and Well-Being”). UN indicators refer variously to the need to: reduce maternal and infant mortality ratios to “Western norms”; end epidemic diseases; greatly extend prevention and treatment for narcotic abuse and addiction; extend systems to reduce road accident deaths; ensure universal access to sexual and reproductive health systems and achieve universal health coverage; extend state and corporate governance systems to reduce death and illness from chemical pollution; strengthen the capacity of developing countries, for early warning, risk reduction, and management of national and global health risks.

Other things being equal, these are all laudable aims which, taken together, represent an aspiration to generalize Western standards and approaches to health and well-being. But of course, at the risk of repetition, such systems are “entropically expensive”. Without exception, they involve the supplanting of less complex, more embedded forms of care and management largely in the domain of families and communities, with more complex forms organized by the state (represented by a shift from the bottom to the top in Figure 15.1). It is easy to see that such systems are more expensive in financial terms. Because they elaborate complex organizations with paid labour forces, training and standards protocols etc. they depend entirely on fiscal transfers from a growing economy. The near collapse of the health system in post-Soviet Russia and Cuba (in the 1990s) and again in Greece in 2008-10 provide visceral examples of this dependence. But following Odum (2007), it is also clear that such systems involve the elaboration of objects and processes that involve more energy transformations (with higher transformity values) further along the energy hierarchy. Take, for example, care by a professional nurse as opposed to a child’s mother. The nurse has to be trained by health educators, in a teaching hospital, which has to be provisioned,

heated, regulated, inspected, audited, periodically upgraded. S/he then has to be paid on an ongoing basis. Tracing out even such a simple system involves an almost innumerable series of financial transactions and energy transformations – which ultimately involve a very direct ecological (carbon, water, materials, pollution) footprint.

At the same time, the implied programme of health care seems also to embody the same ontological and sociological assumptions (A-E) referred to above. But the pattern of life associated with this version of modernity is associated with its own set of health problems which incur further energetic and ecological costs. For instance, a large contributing factor to the decline of mental health in Western society is this excessive differentiation of the individual and the self-perception of separation, autonomy, and independence (Twenge and Foster 2008; Donnellan, Trzesniewski, and Robins 2009; Twenge 2010; Waugaman 2011). Twenge and Foster argue that this obsession is not an organic human development, that it has been engineered by advertising companies, social media, and consumer society, which creates a feedback loop. More realistically it should be understood as a function of modernity, i.e. complexity and the extension of the social division of labour; the process of disembedding; the loss of connection with place-bound communities; and individual relations to market and state (Beck 1992; Elias 2007). Nonetheless, this perception of the self as sovereign and self-determining is sold to modern individuals through advertisements and reinforced through the labour market and through mechanisms of social and private insurance.

Taking into account SDG 4 (“Quality Education”), indicators once again embody rather explicitly the same ontological assumptions (A-E). The goals refer to universal numeracy and literacy, and gender-blind, free, and equitable access to high quality primary and secondary education systems with explicit reference to the “gender sensitive” inclusion of women and people with disability. Quite clearly, this goal reflects a commitment to the idea of rational individual agents who are able to effectively engage with the institutions of state, civil society, and market economy *as individuals* and in ways only minimally mediated by lower level group affiliations.

In this way, this vision unconsciously reflects the priorities of what Ernest Gellner (1983) referred to as “exo-education” i.e. the replacement of informal and local /familial processes of acculturation by monopolistic agencies of state. For Gellner the principle objective of such exo-education was to impose a shared “high culture” involving standardized norms, categories, and ontological-cognitive frameworks – and equipping individual citizens with the skills and competences necessary to engage effectively with the labour market and the institutions of the nation state. In the nation-state formation, education is the field which most deliberately articulates the process of individualization and the corollary transition from tribal/local “survival units” to that of the “imagined community” of the nation-state.

There is no doubt that such processes of exo-education are a prerequisite for the project of democratic state formation and the advancement of both citizenship-based entitlements and more general human rights. And since the sometimes more, sometimes less coercive elaboration of a shared national “high culture” marches in tandem with a whole set of wider institutional capacities, including the state’s monopoly on violence, SDG 4 is intimately related to the achievement of other SDGs, notably SDG 8 (“Decent Work and Economic Growth”), SDG 9 (“Industry, Innovation and Infrastructure”), and SDG 16 (“Peace, Justice, and Strong Institutions”).

However, none of this is necessarily sustainable. For a start, the relationship between modernizing education systems designed to create able, individual citizens and polyvalent workers, both depends upon and is a driver of growth. Complex education systems depend directly on the regular flow of fiscal resources from a growing economy. At the same time, an effective education system provides the skilled workforce necessary for ongoing processes of technical innovation and economic transformation.

The imposition of a single language or high culture necessarily involves a winnowing of subaltern cultures, with thousands likely to disappear in coming decades. Ironically, this process of homogenization and rationalization upon which all the other SDGs depend must involve something tantamount to cultural genocide – at least in (most) states in which often hundreds of potential language-nations jostle for recognition. With regard to cultural genocide, Article 7 of the 1994 Draft of the UN Convention on the Rights of Indigenous Peoples includes reference to “Any form of assimilation or integration by other cultures or ways of life imposed on them by legislative, administrative or other measures” (UN 1994, page).

More generally, the process of state sponsored exo-education is part of a deliberate unravelling of traditional communitarian forms of society often rooted in shared religious cosmologies and in the rhythms and seasonality of rural societies structured around common pool resources (Ostrom 1990). This orchestrated deconstruction of the rural *gemeinschaft* accelerates the Weberian processes of individualization, rationalization, and secularization that are unfolding in the great movement of peasants into the cities.

One of the most challenging goals relates to gender equality and sensitivity – SDG 5 (“Gender Equality”). The indicators for SDG 5 refer to ending discrimination, eliminating violence and sexual exploitation, and tackling the problem of unpaid household/caring labour through the provision of services (elder care, childcare, disability services etc). As well as promoting equality within the home and the extension of reproductive and sexual health services, the provisions also refer to equal participation and leadership in all areas of economic, cultural, and political life.

Whatever else, this SDG is very explicitly directed at the unravelling of traditional forms of rural society which are predicated upon ascriptive social roles and a highly gendered division of labour. As we have seen, the involuntary and forcible disembedding of individuals from traditional roles and obligations is a defining feature of modernization. Certainly, this can be construed as a project synonymous with the Enlightenment vision of social emancipation. But as with the domains of health and education, it is also deeply implicated in the process of state formation and the creation of the society of individuals. The Market Society is also necessarily a Civic Society of Sovereign Citizens.

But, once again, even discounting the possibly Eurocentric and even neo-colonialist overtones of this universalist understanding of individual rights, an unavoidable corollary of emancipatory gender-individualism is the growth of complexity. Many, if not all, of the specific policy vehicles designed to achieve SDG 5 rely firmly on processes deeply dependent on economic growth: e.g. institutional education; affirmative action; childcare; complex gender-specific health provisions; contraception; state (income, care, housing) support for single parents; and state safety nets designed to work alongside the policy of instant, fault-free divorce. In each case, relatively simple,

embedded, and energetically cheap arrangements in the informal/gift economy are replaced by administratively complex, multi-tiered, financially expensive, transactional, and regulated systems in the formal economy, tied either to the state or the market or both. It follows that any process of ‘degrowth’, economic contraction, or relocalization in the wake of energy/resource constraints would necessarily see a shift in the opposite direction (Figure 15.1). Having given women enormous freedom over their bodies and lives and a driver of the feminist vision of emancipation through the labour market, birth control provides a salutary example of the tension between social and environmental priorities (Heer and Grossbard-Shechtman 1981; Goldin and Katz 2002). An IUD requires the creation of plastic and mining of copper, and pills require exact measurements of hormones in a laboratory – all of which require highly complex systems and an economic division of labour involving hundreds of millions of people working. And as with the other examples, following Odum (2007), the associated embodied energy footprint is not just embodied in the particular artefact or processes of development, but distributed across an incredibly complex networked hierarchy of energy transformations (Zywert 2017). Exactly the same considerations apply to childcare arrangements. From the 1960s feminist advocacy focused on emancipation through the labour market and demands for the state to take on responsibility for both child and elder-care, equalising the position of men and women as citizens-consumers-workers. In effect this involved shifting the care functions from the (now residual) pole of livelihood towards systems of state and market (from the bottom to the top of Figure 15.1).

### *Summary*

The deep egregious tension between sustainability and development is perhaps captured most obviously by SDG 12 (“Responsible Consumption and Production”), which is associated with just two indicators of progress:

- “Decoupling economic growth from natural resource use is fundamental to sustainable development”.
- “Countries continue to address challenges linked to air, soil and water pollution and exposure to toxic chemicals under the auspices of multilateral environmental agreements”.

This is egregious because it seems wilfully blind to fifty years of failure in relation to the technical project of ecological modernization (compare Rockstrom et al. [2009] with Mol and Spaargaren [2000]). Similarly, two goals, SDG 8 (“Decent Work and Economic Growth”) and SDG 9 (“Industry, Innovation, and Infrastructure”) are in direct and obvious conflict with any low-growth agendas. However, by the same token, these goals are prerequisites for the SDGs discussed above that relate to a broad swathe of social justice targets. That is so precisely because the latter are predicated on a shift from less complex systems rooted in the domain of family/community/livelihood to more complex systems orchestrated through state, market, and directed at citizens, consumers and rational individuals (see Figure 15.1).

### **State, market and livelihood**

If sustainable development founders in part because of a pre-analytical commitment to the society of individuals, then what might be the alternative? What shape and institutional architecture would it have? What kind of binding culture and ontology? And how would these features shape the



“average personality” structure of citizens? How might the I/We balance begin to change (Elias 2010)? What might a feminist agenda look like in such a context?

One possibility suggested by Polanyi’s account of modernization would involve the partial re-embedding of the market economy. In what follows, we suggest that the alternative to a one-dimensional reliance on the nation-state would involve a different kind of “re-embedding” – namely the re-emergence of the familial, community, locality-based principle of *livelihood* as a triangulating counterpoint to both the *state* and the *market*. Such re-embedding through livelihood shares an affinity with the notion of *subsidiarity* that underpins the social-catholic vision of Distributism (Médaille 2010). Developed by G.K Chesterton as an alternative to both capitalism and socialism, this putative “third way” intimates the ways in which the re-emergence of livelihood might unveil political scenarios in the adjacent possible that are rendered invisible by the left/right polarity of state versus market.

Livelihood in Polanyi’s sense retains the possibility of a lower transformity/complexity version of modernity in Odum’s sense. This is because any such transition would involve a shift from more elaborate and institutionally differentiated state/market systems geared to the life course of free-floating individual citizen-consumers, to less complex, less specialized forms of provision rooted in hearth or community and oriented to figurations of interdependent individuals tied together by processes of structured and culturally-endorsed reciprocity. Partially reversing many of the extensions of state and market mechanisms that have proliferated since the nineteenth century, a political economy of livelihood would reduce the number and scale of energy transformations and “transformity values” associated with particular functions. Thus, for instance, informal reciprocal child-care arranged between neighbours or siblings involves much less embodied/distributed energy than the elaborate institutionalised forms that have expanded over the last forty years.

Quite clearly any significant processes of relocalization and re-embedding would involve a systemic shedding of some of this complexity along with the contraction of the economy and the informalization of activities that for the last two centuries have been moving from the domain of livelihood into the quantifiable, fungible domain of the formal economy – orchestrated by companies and visible to the state (Scott 1998; Quilley 2015). The recovery of livelihood as a counterpoint to both state and market would point also to the re-emergence of early-modern patterns of solidarity and mutualism in the advanced economies of the Global North (and the retention and repurposing of pre-modern, agrarian principles of solidarity in the Global South (Zywert and Quilley 2018).

In practical terms any movement in this direction will always be hampered by an underlying ubiquitous commitment to the rationality of actors as sovereign individual-citizens. Elias’s (2010) work demonstrated an intrinsic connection between culture and “average personality”, and even to average patterns of perception and cognition. Over the last century, the competing political economies of left and right have taken for granted this landscape – with the focus for contestation being the boundary between the market and the state. A premise of the putative alternative “basin of attraction” is that the re-emergence of the domain of livelihood – self-sufficient provisioning, maintaining of body and soul in the context of extended family, community, and on the basis of gifting, reciprocity, and mutual aid – might open new ways for security, welfare, and livelihood to be achieved without the continual expansion of the state-market society. Such a project resonates

with green visions of bioregionalism, anarchist and libertarian visions of the state-less society, virtue ethics and the social-Catholic project of distributism (Pabst and Milbank 2017). Taking Polanyi as a point of departure, our framework describes a region of the “state space” as a flexible and negotiable balance between state, market, and livelihood. We now go on to consider the kind of indicators – Ecological-Economic Goals – that might be congruent with such a political economy of livelihood.

### **Alternative Ecological Economic Goals (EEGs)**

Synthesising insights from literature on historical sociology (Giddens 1987; Beck 1992; Bauman 2000; Elias 2014) and case studies of alternative economies (Quilley 2012; Bauhardt 2014; Kish, Hawreliak, and Quilley 2016; Zywert and Quilley 2017, 2018) we articulate a new, community-based approach the SDGs.

Table 15.1 defines each of these Ecological Economic Goals (EEGs) and states’ associated challenges and opportunities. The “challenges” relate to potential nonlinear and/or unintended consequences that may be associated with the pursuit of an EEG (Kish and Quilley 2017). The “opportunities” are based on possible ecological economic applications that might facilitate the development of the EEG in question. The opportunities column of this table is not exhaustive and can be built upon significantly. The idea is that the EEGs would be used as benchmarks against which to explore how, and the extent to which, communities may already be meeting those goals; and the role of ecological economic tools and techniques in facilitating further progress.

[insert table 15.1 here]

#### **Table 15.1** *Ecological-Economic Goals*

Source:

These EEGs are certainly normative, but no more so than the SGDs. They stand out because they embody a set of principles around the triptych of livelihood, state, and market – principles that represent a stark contrast to those more implicit and unacknowledged predicates in the SDGs. The purpose is not to claim that the achievement of these eight goals would lead to sustainable relationships between the biosphere, society, and economy. Rather the case is made that, together, these EEGs represent a new way to approach community-based problem solving, as well as a frame for imagining an ecological-economic trajectory for development. If the UN SDGs are incompatible with biosphere integrity, we need to rethink some of our fundamental ideas of what “development” means. Using this framework, any future ecological economic tool or technique should contribute to at least one EEG and, as far as possible, not detract from the integrity of the others.

It is also true that in some measure the EEGs embody insights from the more radical tradition of developmental thinking that goes back to Tolstoy, Geddes, and Gandhi (Ishi 2001) and, just prior to the consolidation of the Sustainable Development paradigm, to Schumacher and the appropriate technology movement. 1970s critics such as Alexander (1987), Alexander, Neis, and Anninon (2005), Jacobs ([1978] 2011), Turner (1976) and Ward (1976) looked to the favelas and shanty towns of South America, identifying a generative process of self-organization that produced more organic, functionally coherent, and cheaper forms of community design and architecture than top-

down development. Their insights chimed with the wider movement for “appropriate technology” (CHF-BRI 1983; Hazeltine and Bull 2003) that drew explicitly on Gandhi and Schumacher as well as the highly influential work of Illich (1973) and radical innovations such as China’s “barefoot doctor” programme (Zhang, Kleinman, and Tu 2011). They have also been echoed in more recent work on the Squatopolises of the Global South by Neuwirth (2006). The unifying thread is an implicit commitment to finding forms of technology and linked social institutions that can deliver “development” and some vision of modernity at a much lower “price point” in terms of the energy and material flows, as well as the prerequisite fiscal transfers drawn (ultimately) from the market sector. All of these authors and theorists understood implicitly that the Western model of consumer society, extreme forms of individualization and a top-heavy state/market complex probably could not be sustained in the West, let alone transferred to the Global South. They sought to reconcile an indictment of aggressive consumer capitalism with a commitment to a different kind of modernity. For example, the Centre for Alternative Technology in Machynlleth, Wales, played an important role in pulling countercultural ideas and techniques (passive solar, photovoltaics, biogas, composting, domestic permaculture, self-build housing) often drawn explicitly from Third World experience and innovation into the mainstream of UK sustainability discourse and policy. There is then a body of experience and research to build upon.

### **Implications for global governance**

The implications of this perspective for global governance are stark and unpalatable. During the 1970s the prospect of biophysical limits to growth was dismissed by the left in the West because the Keynesian social compact was depended on growth. It was dismissed in the Global South because development depended likewise not only on endogenous growth, but access to lucrative markets in the advanced industrial nations. Nothing has changed in the intervening period. Large scale shifts of manufacturing capital from North to South consequent upon globalization and neo-liberal free trade policies enforced by institutions such as the World Bank and the International Monetary Fund as well as the priorities of the G7, have produced a very visible transformation in countries across Asia and parts of Africa. The development of domestic high-tech innovation hubs, military capacity, and a burgeoning middle class in cities as far removed as Nairobi, Mumbai, and Shanghai have all underlined the undeniable medium-term advantages of industrial growth and development. There is a deeply entrenched and realistic assessment on the part of governing and corporate elites that social cohesion within and geo-political stability among nation-states that are fragile and still in the process of formation depends on the flow of material and financial benefits that come from economic growth. But at the same time, this Faustian pattern of development feeds the narcissistic “we-identity” and flattering self-image of citizenries that is perhaps a necessary concomitant of an effective “imagined community” (Anderson 1991).

How then to break the cycle? Nation-states, trade organizations, corporate lobbies, international institutions, NGOs, consulting companies and the great majority of academic experts are wedded to a pattern of growth that, by definition, cannot deliver sustainable development; and to development goals the rigorous pursuit of which will precipitate or accelerate a trajectory of economic and ecological collapse. But this said, there are very clear first steps – some of which are in fact concordant with current thinking in relation to sustainable development; and others which are gently subversive of this agenda.

First, international agencies and other organizations (including academics) should be more consistent about using alternative indicators other than GNP/GDP in order to open up a wider civic conversation among general publics, North and South, as to the overarching societal goals. Such simple metrics are very significant in structuring development discourse and investment priorities and all public opinion in all nation states is overly receptive to messages about relative national standing in international league tables (whether football, economic growth, innovation etc.)

Second, where possible research and investment should be redirected to areas of technical, economic, and regulatory innovation which have the potential radically to reduce the unit “transformity cost” of given products and services, i.e. the embedded energy associated with the distributed web of activities across the entire production system that are brought to bear in the production, delivery, and consumption of any particular item (Odum 2007). This would include, for instance: open source innovation platforms; and micro-fabrication systems facilitating radical localization of economic activity (e.g. 3D printing). It would also include regulatory changes that invert the unit cost of regulation so that the burden is proportional to the size of enterprises, their scope and geographical scale of operations. The impact of such changes would be to unleash the power of the market in local/familial and community contexts whilst raising the cost of intra-regional and international trade and globalized production systems. Kevin Carson’s (2010) “Homebrew Industrial Revolution” gives some indication of what such a political economy might look like – libertarian with respect to the state; but communitarian with respect to relations between people in particular places.

Third, any limits perspective must at some point address the problem of global trade. Modernity has been built upon a foundational commitment to the theory of comparative advantage. But in a world of limits and zero sums, this “empty world” perspective begins to break down in the face of the more traditional mercantilist and Malthusian concern with absolute advantages. Tim Morgan (2018) has argued that the protectionism that is beginning to appear in the wake of the Trump victory represents a new, albeit perhaps unwitting, kind of economic realism. Certainly, from the perspective of EEGs, it should be assumed as a matter of priority that the goal of public policy should be to reduce levels of trade, to shorten production chains, and to relocalize production in regional blocs, national economies, and local communities. At the level of discourse, EEGs would side unequivocally against both the corporate agenda of globalization but also the liberal cultural commitment to globalism – and even the idea of global governance. There is a paradox here in that it is reasonably assumed by the great majority of commentators that global governance is a prerequisite for addressing planetary problems such as climate change. The usually unacknowledged assumption is that such a commitment will necessarily be rooted in the intensifying interdependence of institutions, corporations, policy makers, opinion formers, and cultural elites – communities of thought and practice that can affect the necessary regulatory restraints and cooperation to solve global problems. This makes complete sense within the framework of sustainable development, ecological modernization and SDGs. But it makes no sense in a world of limits. At a most basic level, the order of magnitude increase in complexity associated with this frenetically integrating world – the 350 million products offered through Amazon; the constant escalation of air travel etc. – must entail a corresponding increase in the metabolic load, energy flows, pollution, and resource consumption. And the same pattern of functional interdependence and geographical dispersal of production and consumption activities also creates ever more insuperable barriers to the flows of information in the system, impeding

any checks and balances and creating negative feedback loops. A renewed emphasis on the integrity of nation states and national economies combined with sub-national localization is a prerequisite for addressing what Meadows (2008) argued were key leverage points in the process of system change, namely the flow of information and the control of feedback loops. At the same time, reducing international trade flows and interdependencies whilst re-centring the nation state as well as subnational communities, would also address the third most significant in her list, namely the distribution of power over the rules of the system, by prioritising the principle of economic and political *subsidiarity* (Médaille 2010).

Finally, participants in development discourse and policy should begin to be much more circumspect about advancing taken-for-granted shibboleths, categories, and goals of Enlightenment social-emancipatory thinking. Instead, the emphasis should routinely focus on wicked dilemmas, paradoxes, and trade-offs – and on the possibility that “better” might be good enough and more sustainable than “perfect”. Also, and even more unsettling, there should be a focus on the prospect that completely different, traditional approaches to questions of moral regulation, social cohesion, and culturally-embedded understandings of progress may be more appropriate or viable than the shopping list that features in the relevant UNESCO/UNHCR or Oxfam operations manual. A case in point would be a more tempered understanding of the relationship between individual rights and familial/community identities and obligations. This is by no means a recommendation to abandon the concept of human rights, but rather to recognise that effective human restraint, conscience formation, and non-state/market forms of mutual aid and care may require a different or additional ontological framework, and that any clear-cut set of values and categories carries with it a cost. This emphasis on the deep categories at work in the development narrative addresses what Meadows (2008) argued were the two most central levers for system change – the goals of the system and the mindset or paradigm out of which the system, its goals, power structure, rules, and its culture arises.

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