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## **Listening to Ecological Voices from the global South**

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Globalisation as we know it creates crises - destabilising ecologies, economies, societies, and bodies. Yet the response of the affluent global North and multilateral agencies is unintentionally creating more of the same. And climate mitigation through carbon trading and technology transfer in the name of 'renewables' all too often imposes more costs than benefits on the global South. The latest UN and government model of sustainable development, for example, a so-called 'green economy', breaks down local ecosystems and people's capacity for self-sufficiency. It undermines cultural diversity, traditional knowledge systems, and political autonomy, locking communities into dependency on, and control by, global business interests.

This approach is quite distinct from crisis solutions offered by many ecological voices from the global South. The idea of 'living well' or *vivir bien* introduced at the 2010 Peoples' Climate Summit in Bolivia, is a case in point.<sup>1</sup> This grassroots philosophy rejects the North's high energy-high-pollution industrial consumerism in favour of low-carbon eco-sufficient economic provisioning. To quote the international peasant union Via Campesina: 'We are cooling down the Earth!'<sup>2</sup> Or in the words of the alternative globalisation movement: *Another Future is Possible*.<sup>3</sup> All of us, as citizens in this complex neocolonial dialectic, will need to look closely into the choice between a technology based ecological modernisation or more earth friendly models of living well.

Right now the twin global crises – environmental and economic – have corporations, governments and the UN working hard at answers. But the transnational ruling class is reluctant to let go of its wealth, privilege, and control. The political mantra of neoliberals since Thatcher has been 'There Is No Alternative' and Gore's famous plan for a sustainable America typified the solipsism. Gore envisaged congressional incentives to reduce deforestation and support solar, wind and geothermal spots in the US South-West. There would be a national low-loss underground grid, plug-in hybrid cars, retrofitted buildings, and conservation advice for households. In response to climate change, Gore hoped to replace the Kyoto Protocol with a treaty to cap carbon emissions, then trade them.<sup>4</sup>

The trouble is, that construction of new smart tech cities means erosive mining, road building, and water supply infrastructure. And it consumes vast amounts of front-end fuels for welding turbines and power grids, heavy mechanised transport, air-conditioning for houses, malls, and schools. What is offered is an ecological mortgage – borrow from nature now, pay later. Another fragile biodiversity is damaged and communities, particularly women, carry the psychological costs of mass resettlement - mostly likely of poor urban blacks transplanted from the US East Coast. Under Gore's fantastical ecological modernist vision, the new urbanisation would resume US food growing land, to be replaced by large American agricultural leases in say, El Salvador. Moreover, it is known that industrial agriculture itself warms the planet. And how much heat pollution is generated by overland food trucking to US supermarkets? And will these displaced Central American peasants become a new generation of border-crossing techno-policy refugees?

Examples are many, but I use this vignette to show why the 'ecological modernisation' favoured by governments and corporations can be an incoherent response to the environmental breakdown that has come to us with the industrial era. In fact, 66 per cent of natural ecosystem functions have been lost since 1950.

The problem is that with an international financial system never far from collapse, 'the environment' has been coopted for a new wave of capital accumulation. At the first Rio Earth Summit back in 1992, the transnational ruling class, steered by the Business Council for Sustainable Development, was already looking into this. More recently, the UN Environment Program's 'green new deal' offered a rationale for protecting nature by commodifying or pricing 'ecosystem services' - that is, life giving processes carried out by forests, sunlight, or ground bacteria. The International Monetary Fund has been promoting another Green Economy Initiative to be built on free market ideology, while a book from the World Bank spells out the steps towards what it calls *Inclusive Green Growth*.<sup>5</sup> The official declaration of the Rio+20 Earth Summit - *The Future We Want* - launched by the UN Environment Programme in 2012 announced a 'bio-economy'.<sup>6</sup> But in these days of climate colonialism: Who exactly, is the 'we' in *The Future We Want*?

The key global political issues are energy access and efficiency; food security and sustainable agriculture; green jobs; urbanisation; water management; chemical wastes; oceans; risk and disaster amelioration. At the same time, corporations and governments in the G8, G20, NATO, and now BRICS, insist that environmental policy be compatible with agreements such as Agenda 21, the Johannesburg Declaration, Monterrey Consensus, Doha Round, Istanbul Programme for Least Developed Countries, and Bali Strategic Plan for Technology Support and Capacity Building. Within this neoliberal frame, a 'new global financial architecture' is envisaged, and moves to transform UNEP, into a 'world environment organisation' backed by a comprehensive scheme for 'earth system governance'.

Such ideas have varying degrees of state and private sector support. However, the World Bank and major multilateral agencies have committed to making transparent the ecological impacts of their economic decisions. While the new 'green economy' is offered as a panacea for social justice and development, in effect, climate change becomes a money spinner, as the global North 'compensates' less polluting countries of the global South with technology transfer on 'easy terms'. Of course, such exports are not only profitable, they colonise by spreading eurocentric values. The big United Nations meetings like the famous Copenhagen climate negotiation, all rely on promotional agencies, think tanks, and websites designed to reinforce this cultural hegemony.<sup>7</sup>

Nevertheless, the UN maintains a stakeholder forum for Major Groups such as Labour and Unions, Indigenous Peoples, Women and Youth. Although that said, business often enjoys a seat in there as well. If the international establishment lacks a class analysis, 'vulnerabilities' such as gender and racial difference are acknowledged. At Rio+20, a Major Group of some 200 organisations was run by Women in Europe for a Common Future, Voices of African Mothers, and the Caribbean NGO Development Alternatives with Women for a New Era. In this stakeholder forum, the focal points were more ecological than economic: land access, property rights and inheritance; radioactivity, global warming, GMOs; subsidies, and 'green wash'. People seeking alternatives to the official 'green economy' have tended to be those who labour hands-on to reproduce living processes outside of the money economy. - Women now demand recognition of their domestic

labour. Peasant farmers want local food sovereignty. Indigenous peoples want land and water rights. In a genuine earth democracy, these 'meta-industrial workers' would actually constitute a political majority.

A deep sociological divide exists between the transnational business and technocrat elite versus communities whose livelihoods are being destroyed by industrial development, corrupt banks, militarised resource grabs, and ill-considered climate policy. Sometimes, corporate captured governments will even criminalise displaced indigenes and precarious workers. Nevertheless, a 'movement of movements' has emerged since the successful 1999 Battle for Seattle against the World Trade Organization. On the streets of Davos outside the World Economic Forum and at UN climate negotiations like Durban, activists are pursuing the vision of an alternative kind of globalisation. This builds common ground between workers, peasants, indigenes, women, youth, and ecologists. These activists talk of an economic paradigm shift towards self-sufficiency based on the indigenous Andean philosophy of 'living well' or *vivir bien*. By one description:

*Vivir bien* is a way of living in balance with all other elements of *Pacha* (the universe), according to the basic principles of the Andean *pachasofía*, which are the principles of relatedness, complementarity, correspondence, reciprocity and cyclicity. *Vivir bien* is neither wealth nor poverty. It's not waste nor shortage, nor deficiency nor luxury, but a life in harmony with all other beings, a type of coexistence that is intercultural, intergenerational and inter-biotic.<sup>8</sup>

There may be some overlaps in this sensibility with the African ethic of *ubuntu perhaps?*

Meanwhile, on the global scene, neoliberal interests are forging a homogenising discourse of international governance, a shared monoculture of social and material expectations across nations, classes, and bodies. Yet commodities like carbon trading, geo-engineering or 'climate smart' agriculture cannot restore broken life support systems in nature. For the small producers, landless, rural women, indigenes, youth, and farm workers of Via Campesina, the UN's green 'bio-economy' is just another structural adjustment program realigning national markets. For the Canadian people's science advocate, ETC, mainstream climate policy rationalises a post-petroleum capitalism, where plastics, chemicals, drugs, and energy will be derived from crops like soy bean, 'transformed through high-tech bio-engineering platforms' like genomics, nanotech, and synthetic biology.

The logic of markets generates many random consequences - global warming, biodiversity loss, toxic or nuclear emissions. But neoliberal responses like taxes or geo-engineering simply paper-over an economic system designed for individual competition and gain. The corporate 'green economy' depends on five kinds of thermodynamic 'extractivism': a social debt owed to workers, a postcolonial debt owed to peasants and indigenes, an embodied debt owed to mothers, an intergenerational debt owed to youth, and an ecological debt to all life on earth. Modernists claim to 'dematerialise' resource use by introducing energy efficient technologies. However, digital production does not avoid polluting energy and resource draw-downs; as Commoner, the late great ecologist would say: 'There's no such thing as a free lunch!'<sup>9</sup> In the human metabolism with nature, technology never actually solves a problem, the best it can do is displace it. The displacement may be spatial - shifted on to the backs of less powerful classes or races; or the displacement may be temporal - shifted on to the backs of future generations. The extractive costs to nature at large are spatial and temporal - highly complex systemic impacts. Unfortunately, too many

well intentioned citizens believe that tech transfer is necessary for a 'just transition' to sustainability.

Intellectually, the climate establishment operates with a confused amalgam of 'financial capital, human capital, natural capital, and physical capital'. But there is a profound disjunction between the constructs of ecology on the one hand, and economic constructs, on the other. In order to impute 'economic value' to the life-giving capacities of 'ecosystem services', living metabolic flows must be reduced to imaginary tradeable units. This is an epistemological violence. The measurement and pricing of air, water and biodiversity as 'natural capital' calls us to think more deeply about the politics of climate strategy. And, as a globally powerful private sector weakens governments, as universities are starved of cash, academics in particular must take care to avoid being compromised by corporate donations.

Like the UN's Rio+10 before it, Rio+20 achieved very little. China and the G77 bloc got up a set of Sustainable Development Goals - content still 'to be determined'. Regulatory proposals like the removal of fossil fuel subsidies dissolved into voluntary commitments. On the other side of the ledger, the Jakarta based international peasant union Via Campesina attempted to ground the climate dialogue with their argument that *Small Scale Farmers are Cooling Down the Earth*. By this analysis, policies imposed by the World Trade Organization and Free Trade Agreements are - to quote:

significantly contributing to global warming and to the destruction of rural communities. Intercontinental food transport, intensive monoculture production, land and forest destruction and the use of chemical inputs in agriculture are *transforming agriculture into an energy consumer ... [so] contributing to climate change*.<sup>10</sup>

To explain: 1 kilo of asparagus imported from Mexico to Switzerland needs 5 litres of oil to be transported 11,000 kilometres by plane. The same food produced at home needs only .3 litres of oil to reach the consumer. This is why climate politics and people's 'food sovereignty' go together. In addition, nitrous oxide from artificial fertilisers is a potent greenhouse gas. Again, emissions are actually increased by the demand for reduction through 'renewables' such as the conversion of corn crops to biofuel. In other words: on a planet that the global North claims is facing starvation due to overpopulation in the global South, the recommendation is now to grow food for cars.

Alternatively, if the global South is not to convert its farmland over to biofuels for the North, it is induced to offer up its forests as 'sinks' to absorb and reprocess the polluting carbon emissions of rich countries. The UN Clean Development Mechanism is one such ill-considered strategy. Thus, the government of a country like Costa Rica agrees to lock its indigenous foragers out of their traditional homelands, which are now dedicated as 'carbon sinks' - and as it happens, mining zones. The displaced communities have no choice but find their way to cities in search of work. But opportunities are few and so many women have to support their families by prostitution. The ruling class now draws a double economic benefit from the climate crisis: mining royalties and profits from sex tourism.<sup>11</sup>

In response to these injustices, peoples of the global South are making their voices heard in climate politics. For the irony is that the sacrifice of their careful pastoralism, hands-on food production, and custom controlled fishing, is exacerbating the very environmental crisis that the transnational establishment aims to mitigate. During UN climate negotiations in Cancun, peasants and their supporters travelled in caravans overland from

Chiapas, Oaxaca, and Guatemala. During the negotiations in Durban, they travelled from Mozambique, Tanzania, and Zimbabwe, educating others along the way with their critique.

As they say, the agro-industry paradigm is unsustainable because:

it imposes energy intensive mechanisation, chemicals and genetically engineered seed -

it contaminates streams and aquifers -

it destroys the capacity of soils and vegetation to absorb carbon -

it leads to land grabs and unemployment of small farmers -

it replaces supportive communities with a class based plantation system.

And as noted above, by transporting food around the world, corporate agriculture becomes a net energy consumer rather than energy producer. The climate solutions put forward by Via Campesina are estimated to cut back global warming by around 40 per cent. They protect both livelihood and psychological well being. An exemplar of this *vivir bien* can be seen in the Pacific island state of Vanuatu, which tops the Happy Planet Index despite a very modest GDP.

So too, the Indigenous Peoples' Global Summit in Anchorage have called for a new economic template - self-managed local communities based on food and energy sovereignty. They demand that the UN Framework Convention on Climate Change acknowledge the ecological debt of affluent societies as main greenhouse gas emitters. They propose that the UN hold regular 'Technical Briefings by Indigenous Peoples on Traditional Knowledge'. They write:

In order to provide the resources necessary for our collective survival in response to the climate crisis, we declare our communities, waters, air, forests, oceans, sea ice, traditional lands and territories to be '*Food Sovereignty Areas*', defined and directed by Indigenous Peoples according to customary laws, free from extractive industries, deforestation and chemical-based industrial food production systems (i.e. contaminants, agro-fuels, genetically modified organisms).<sup>12</sup>

The global North does not give due credit to the capacities of peoples at the margins of capitalism; rather, conventional rhetoric emphasises the South's 'need for development'. This line serves capital accumulation based on economic extraction from the geographic periphery; and it serves secondary accumulation through the idea that access to consumer goods means 'progress'. Another kind of ethnocentrism can be found in the modelling assumptions of the Intergovernmental Panel on Climate Change. Some might call it environmental racism but, in any event, it is about treating the lifestyle of the global North as a universal norm. For instance, a UN REDD scheme obliges the Indonesian government to sign over the peat lands of poor Kalimantan farmers, to be developed by Australian 'aid' as a carbon sink. In this way, wealthy Australia buys a 'moral indulgence' to offset its polluting coal-based economy.<sup>13</sup>

True, the UN and big NGOs express concern that peasants and fisherfolk will suffer badly from climate induced sea level rises, but racism appears again when conservationists claim that the populations of India and China are the biggest threat to global warming. In fact, ecological footprint studies show that consumption per capita in China is negligible compared with the average individual footprint in the US.<sup>14</sup> The 'ecological footprint' indicator should help keep international governance equitable, but measurement alone does little to shift a belief that the current global model of production is the only way. Research and policy based on adjusting input/output parameters simply delays a more thoughtful, sociologically reflexive, response to sustainability; or better said, to the

question of sustainability with justice.

It really is time to stand back and ask: Why has the globalising North configured its humanity–nature metabolism so badly? Metabolism is the cyclical process by which humans take from nature, digest, and give back in return; and cultures across the world have devised different ways of managing this. The pioneering ecological economist, Georgescu-Roegen, made society–nature metabolism the centrepiece of his new discipline. He introduced an awareness of biological systems and thermodynamic principles into economic reasoning.<sup>15</sup> Yet today this would-be sustainability science largely deals with the tip of the production iceberg, because most transfers between humans and nature are ‘meta-industrial’, outside of any money economy and, in fact, not even named as economic.<sup>16</sup>

By contrast, the linear economics of extraction > manufacture > transport > market > consumption > disposal, maintains a chasm between humans and nature. Even Marx observed that the rise of industrialisation would cause a ‘metabolic rift’ between town and country.<sup>17</sup> Corporate free trade now exports this metabolic rift across the earth. Some scholars suggest that the alienated modern and postmodern consciousness is an outcome of the capitalist division of labour. Moreover, the more technologically mediated daily life is, the more people lose a feeling for their own organic embodiment in nature. Ecological feminists go further, arguing that the psychological splitting expressed in the abuse of nature has a gender dimension to it.<sup>18</sup>

The split between humanity and nature is clear in the methods of some ecological economists for whom ‘scarcity’ is an ontological constant rather than a man-made anomaly. In the post-Enlightenment eurocentric mind, living systems are reduced to dead matter for turning into commodities. Complex natural metabolic flows are computed as linear variables. Economists show little interest in active human co-evolution with the environment, bypassing the historically gendered, class, and racialised origins of economic concepts. Hence the new ecological modernist vocabulary of ‘human capital’ and ‘natural capital’. In economics, the psychology of nature externalisation is assisted by all kinds of quantifying devices, and this in the face of overwhelming qualitative incommensurables on the ground. The distortion is exacerbated by the prioritisation of exchange value and adoption of money as the main standard of comparison. Another distancing technique is the fantastical projection of the economy as ‘an engine’. But enough said.

The transformative potential of academic disciplines remains latent as long as sociological bias in our analytic tools passes unnoticed. Thus, Daly and many of his environmental economic confreres do not ask: Who decides on scale? Who distributes to whom? Who is entitled to make allocations? And, why is this so? True, conferences now include sections on peasant and indigenous societies and, sometimes, even host a feminist symposium. But all too often these appear as marginal strands added on, ‘problem areas’, examples of ‘distributional conflicts’, or ‘externalities’ waiting to be assimilated into the master map. If the amnesia of industrialisation could be shaken off, perhaps then it would become respectable to explore other ways of satisfying human needs. Recent and quite exhaustive scientific research by Badgley *et al.* concludes that small scale organic farming could feed an even larger global population than currently exists, so minimising environmental, climatic, and health costs of agricultural production.<sup>19</sup> In fact, internationally, the greater part of food consumed is already produced organically through peasant cultivation and local fishing in the global South, while healthy forager economies exist as well.<sup>20</sup>

The question is: how to introduce such a claim into the white middle-class masculinist discourse of the Group 8, World Bank, International Monetary Fund, and World Trade Organisation? Historians Guha and Martinez-Alier have written a magisterial review of ecological knowledge in grassroots communities at the global periphery.<sup>21</sup> But conventional wisdom is sorely tested by the call to value such 'meta-industrial' economies. The rhetoric of 'incapacity' in the global South is so ingrained, easing as it does the guilt of neocolonial domination. As our generation has been taught, non-industrial peoples must fall to the 'inexorable wheel of progress' - with bank loans essential to get them on the bottom rung of the 'development ladder'.

Governments measure 'productivity', but have a hard time with the idea of reproductivity. Few environmental economists focus on the energetics of regenerative cycles, but Shiva does just this, in her ecofeminist accounts of meta-industrial labour among Indian forest dwellers.<sup>22</sup> Here it is women who manage the integrity of ecological and human cycles. As healers they gather medicinal herbs among the trees and, as catalysts of fertility, they transfer animal waste to crops, returning the by-products to animals as fodder. Their daily round - protecting natural sustainability and human sustenance - is an exemplar of scientific complexity in a synergistic economy. Shiva shows people self-managing their resources in common with a sophisticated ethic of mutual cooperation and sharing. Similarly, indigenous peoples from Borneo to Peru practise a kind of ecosystemic 'holding' that facilitates both conviviality and metabolic exchange. Aboriginal Australians make their seasonal walk through country with deliberation and disciplined harvesting in the knowledge that it will replenish. Three hours' work a day suffices in this bioregional economy.<sup>23</sup> According to Gowdy, the hunter-gatherer rarely extracts more matter/energy than is needed for maintenance.<sup>24</sup> In the global North today, young people are rejecting consumerist materialism to celebrate this form of self-organisation as 'commoning'.<sup>25</sup>

In contrast to the linear logic of production, meta-industrial provisioning follows the circular logic of reproduction.

- The *consumption footprint is small* because local resources are used and monitored daily with care.
- *Closed loop production* is the norm.
- Scale is intimate, maximising responsiveness to matter-energy transfers in nature, so *avoiding disorganization and entropy*.
- Judgments are built up by trial and error, using a *cradle-to-grave assessment* of ecosystem health.
- Meta-industrial labour is *intrinsically precautionary* because it is situated in an intergenerational time frame.
- *Responsibility is transparent* – far from the confusion of small decisions that often impairs corporate or bureaucratised economies.
- Where social organisation is less convoluted than in urban centres, the efficiencies of *synergistic problem solving* can be achieved.
- In farm settings and in wild habitat, *multi-criteria decision-making* is common sense.
- Regenerative work patiently *reconciles the time scales of humans and other species*, and readily adapts to disturbances in nature.<sup>26</sup>
- This is an economic rationality that *knows the difference between stocks and flows*; no more is taken than is needed.
- It is an *empowering work process*, without a division between the worker's mental and manual skills.
- The *labour product is immediately enjoyed or shared*, whereas the industrial worker has no control over his or her creativity.

- Such provisioning is eco-sufficient because it *does not externalise costs on to others as debt*.
- Autonomous local economies imply *food and energy sovereignty*.<sup>27</sup>

Among communities where livelihood resources are free from colonising impacts - sustainability is already in action. Meta-industrial production techniques display an exacting empiricism and closely match principles advocated by good environmental consultants in the global North. The trouble is that in capitalist societies committed to economic growth, governments under pressure from business often shelve such expert advice. Then again, bureaucratic administrations may be so unwieldy that advice is lost. The synergistic way in which indigenous economic models can satisfy multiple needs at once is also impressive. To paraphrase the Chilean economist Max Neef: their techniques are not only sovereign and independent but environmentally benign and creatively social. Besides subsistence, eco-sufficient economies foster learning, participation, innovation, ritual, identity and belonging.<sup>28</sup>

In a time of ecological crisis and capitalist collapse, technical briefings on traditional knowledge can be a salve to global confusion and despair by showing that there are well-established alternative ways of configuring the society-nature metabolism. This is not to say that everyone should head for the hills, but to argue that the epistemology of meta-industrial production can provide 'capacity building' for a global North staring in numb denial at a 'wrong way, go back' sign. This capacity building is not only about protecting sustainability. A synergistic economy is essential for a democratic globalisation based on mutual respect. International media notwithstanding, the world's majority is not 'costing the earth', although the mists of environmental racism can make this hard to see. What costs the earth and wastes its peoples is the begetting of money by money.

The next round of climate negotiations will be in Paris, 2015. How can we get these alternatives on to the table?

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<sup>1</sup> World Peoples' Conference on Climate Change, Cochabamba 2010, *Universal Declaration of the Rights of Mother Nature*: <http://pwccc.wordpress.com/programa/>. The concept of *vivir bien* or 'living well' was advanced by Andean indigenous peoples at the 2010 Cochabamba climate summit. This later inspired a *Universal Declaration of the Rights of Mother Nature* presented by President Morales of Bolivia to the UN General Assembly.

<sup>2</sup> Via Campesina, *Small Scale Farmers are Cooling Down the Earth*, Jakarta: VC, 2009. The NGO Via Campesina is an international movement of peasants, small and medium sized producers, landless, rural women, indigenous people, rural youth and agricultural workers. It describes itself as an autonomous, pluralist, and multicultural movement, independent of any political, economic, or affiliation. Begun in 1993, *Via Campesina* now links about 150 organisations in countries across Asia, Africa, Europe, and the Americas.

<sup>3</sup> People's Summit, *Another Future is Possible*: Rio de Janeiro, WSF, 2012. [www.rio20.net/en/propuestas/final-declaration-of-the-people](http://www.rio20.net/en/propuestas/final-declaration-of-the-people).

<sup>4</sup> Sharon Astyk, 'A New Deal or a war footing? Thinking through our response to climate change', *The Chatelaine's Keys*, posted 11 November 2008: <http://sharonastyk.com>.

<sup>5</sup> Ariel Salleh, 'Rio+20 and the Green Economy: Technocrats, Meta-industrials, WSF, and Occupy', *ZNet*, posted 31 March 2012: [www.zcommunications.org/rio-20-and-the-greeneconomy-technocrats-meta-industrials-wsf-and-occupy-by-ariel-sal](http://www.zcommunications.org/rio-20-and-the-greeneconomy-technocrats-meta-industrials-wsf-and-occupy-by-ariel-sal).

<sup>6</sup> UNEP, Rio+20 Statement, *The Future We Want*: New York: UN, 2012: [www.daccess-ods.un.org/TMP/7610005.73635101.html](http://www.daccess-ods.un.org/TMP/7610005.73635101.html).

<sup>7</sup> At the 2012 Rio+20 gathering, the Canada-based International Institute for Sustainable Development provided what is called these days 'knowledge management'; a way of homogenising agendas from as far afield as the New Economics Foundation in London, Congo politicians, and California based World Future Council.

<sup>8</sup> Josef Estermann, cited by Pablo Solon, 'Notes for the Debate: Vivir Bien / Buen Vivir?', *Systemic Alternatives*, posted 30 July 2014: [www.systemicalternatives.com](http://www.systemicalternatives.com).

<sup>9</sup> Barry Commoner, *The Closing Circle*, New York: Viking, 1972.

<sup>10</sup> Via Campesina, *Small Scale Farmers are Cooling Down the Earth*, Jakarta: VC, 2009.

<sup>11</sup> Ana Isla, 'Who Pays for Kyoto Protocol' in A. Salleh (ed.), *Eco-Sufficiency & Global Justice: Women write political ecology*, London: Pluto Press, 2009.

<sup>12</sup> Indigenous Peoples' Global Summit on Climate Change, *The Anchorage Declaration*, 24 April 2009: <http://www.indigenoussummit.com/servlet/content/declaration.html> [italics added].

<sup>13</sup> James Goodman and Ellen Roberts, 'Is the United Nations' REDD scheme conservation colonialism by default?', *International Journal of Water*, Vol. 5, No. 4 (2010) 419-428.

<sup>14</sup> Mathias Wackernagel and William Rees, *Our Ecological Footprint: Reducing Human Impact on the Earth*, Gabriola Island: New Society, 1996; for national comparisons see Global Footprint Network: [www.footprintnetwork.org](http://www.footprintnetwork.org).

<sup>15</sup> Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process*, Cambridge, MA: Harvard University Press, 1971.

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<sup>16</sup> On 'meta-industrial' see: Ariel Salleh, *Ecofeminism as Politics: nature, Marx and the postmodern*, London: Zed Books, 1997, pp. 164–66 and 175–78; Ariel Salleh, 'Globalisation and the meta-industrial alternative' in Robert Albritton, John Bell, Shannon Bell and Richard Westra (eds.), *New Socialisms: Futures Beyond Globalization*, London: Routledge, 2004.

<sup>17</sup> John Bellamy Foster, *Marx's Ecology*, New York: Monthly Review Press, 2000.

<sup>18</sup> Ariel Salleh, 'Body logic: 1/0 culture' in *Ecofeminism as Politics*, London: Zed Books, 1997.

<sup>19</sup> Catherine Badgley, Jeremy Moghtader, Eileen Quintero, Emily Zakem, M. Jahi Chappell, Katia Aviles-Vázquez, Andrea Samulon, and Ivette Perfecto, 'Organic agriculture and the global food supply', *Renewable Agriculture and Food Systems*, Vol. 22, No. 1 (2007), pp. 86–108.

<sup>20</sup> Food and Agriculture Organisation, *International Conference on Organic Agriculture and Food Security*, Rome, May 2007. As the Food and Agriculture Organisation noted in its 2007 Rome report, unlike agricultural monocultures favoured by business, these polycultures foster biodiversity and water security, naturally sequester carbon, and are resilient to infestation and climatic disturbance. In short, they demonstrate Georgescu-Roegen's economic principle of dovetailing human activities with metabolic flows in nature.

<sup>21</sup> Ramachandra Guha and Joan Martinez-Alier, *Varieties of Environmentalism: Essays North and South*, London: Earthscan, 1997.

<sup>22</sup> Vandana Shiva, *Staying Alive*, London: Zed Books, 1989, p. 45. Also see Veronika Bennhold-Thomsen and Maria Mies, *The Subsistence Perspective*, London: Zed Books, 1999.

<sup>23</sup> Deborah Bird Rose, *Nourishing Terrains*, Canberra: Australian Heritage Commission, 1996.

<sup>24</sup> John Gowdy (ed.), *Limited Wants, Unlimited Means: A Reader in Hunter-Gatherer Economics and the Environment*, Washington: Island Press, 1998.

<sup>25</sup> For 'commoning' see: People's Summit, *Another Future is Possible*: Rio de Janeiro, WSF, 2012. [www.rio20.net/en/propuestas/final-declaration-of-the-people](http://www.rio20.net/en/propuestas/final-declaration-of-the-people). The Commons means direct access to social wealth, bypassing competitive market relations or redistributive public policies. The Commons is a participatory, provisional, form of political creativity in action.

<sup>26</sup> Barbara Adam, *Timescapes of Modernity*, London: Routledge, 1998.

<sup>27</sup> Adapted from Ariel Salleh (ed.), *Eco-Sufficiency & Global Justice: Women write political ecology*, London: Pluto Press, 2009, pp. 302–303.

<sup>28</sup> On the term 'synergistic': Manfred Max-Neef, *Human Scale Development: Conception, Application and Further Reflections*, New York and London: Apex Press, 1991.