



## Security and a Sustainable World

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### Abstract

This article explores how issues of security, conflict, violence and the military are considered in the sustainability literature. Despite these issues not being particularly well developed within the sustainability setting, various approaches are identified, critiqued, and compiled into a preliminary typology framed around reformist and transformational approaches to a sustainable world. The analysis also reveals how efforts to link military activity to concepts of economic, social, and environmental sustainability are creeping into sustainability narratives at the political level to justify continued militarism under the guise of sustainability language. Footprint analysis is also used to support an argument that without decisive action, including a substantial reallocation of society's resources away from the military to sustainability focused initiatives, competition over natural resources is likely to intensify in the future and the long standing tradition of exploitation by the rich and powerful of the poor, future generations, and other species with which humans share the planet, is likely to continue.

**Keywords:** Sustainability, Security, Human security, Ecocentric security, Military, Conflict, Violence, Footprint analysis

### 1. Introduction

This article reviews different approaches to security as evident in the sustainability literature, where sustainability has to do with humans living in a manner that is consistent with the flourishing of life on Earth for what is for all intents and purposes a forever time frame that is, for there to be a sustainable world. In this context, sustainability is considered at ultimately a global level and, although looking at the issue from a human behaviour perspective, takes into account both human and non-human life interests. The article begins with a brief review of the development of current day sustainability discourse and discusses why the concept is so difficult to pin down to a coherent and broadly agreeable definition. A typology is then used to represent what it means for there to be a sustainable world, with consideration given to some of the characteristics of current day sustainability discourse this typology reveals. In particular, reformist and transformational formulations of a sustainable world are identified and some thoughts are offered as to which of these formulations is the most dominant and why this might be so.

The issue of security as evident in the sustainability literature in terms of the reformist-transformational representation is then reviewed. The discussion focuses on four key areas namely (a) what the term 'security' means in the sustainability context, (b) military spending and capability, (c) greening-of-the-military and the military as an economic enterprise, and (d) conceptions of violence including peacetime violence, metaphorical weapons, and surrogate violence. These different approaches to security are then considered using footprint analysis data. Finally, some general observations concerning the reformist and transformational approaches to security within the broader sustainability context are presented.

It is apparent from conducting the literature review for this article that the literature linking issues of security and sustainability is not particularly well developed at this point in time. It is hoped however that this article will help pull together some of the key themes that are evident into an orderly and coherent framework for further development.

### 2. Sustainability and a sustainable world

Although concern about the damaging impacts of human activity on the environment has a history dating back thousands of years (Hughes, 2001), early development of ideas that gave rise to contemporary sustainability discourse is often dated from the 1880s and the response to environmental damage that paralleled the emergence of the industrial revolution. From this followed a progression of environmental thought through to the advent of the modern day environmental movement in the 1960s (Estes, 1993; Mebratu, 1998; Pezzoli, 1997). Mainstream prominence of the concept, particularly in the form of sustainable development, came about during the 1980's and early 1990's through a series of key publications and events including the 1980 World Conservation Strategy, the 1987 WCED report "Our

Common Future" (the Brundtland Report), and the United Nations (UN) 1992 Rio Conference on Environment and Development (Blewitt, 2008; Mebratu, 1998; Speth & Haas, 2006). Although this modern day sustainability discourse remains concerned with environmental issues, it also encompasses social and economic dimensions to varying degrees giving the concept a richer set of characteristics than may be evident in its historical roots.

Despite numerous attempts to define the term sustainability (or any of its permutations including sustainable development) it remains a vague and ambiguous concept, applied in numerous and varied ways. This is both helpful and troublesome in that it allows buy-in from diverse groups with different ideological positions, but also allows the concept to be manipulated to serve self-interest agendas that have little to do with the 'living sustainably on Earth' intent (Manderson, 2006; Porritt, 2005). In trying to make sense of why the concept remains so difficult to pin down to something on which all agree beyond a mere 'yes, sustainability is something we need', a number of authors have pointed to the differing value systems, perceptions of reality, and cultural contexts that underpin interpretations of what sustainability has to do with, making the concept more than simply vague in meaning, but also inherently pluralistic and contested (Gibbs & Krueger, 2005; Osorio, Lobato, & Castillo, 2005). Even the most prominent of the sustainable development definitions, that of the Brundtland Report namely "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43) is very general in its terminology and open to a wide range of interpretations. In short, problems of contested meaning cannot be solved by trying to develop more complex and extensive sustainability definitions.

Before moving on to consider how the concept of sustainability can be meaningfully represented, one final point will be addressed to aid in the discussion that follows, and that is to clarify usage of the terms 'sustainability' and 'sustainable development' and explain why in this article the sustainable development term is avoided despite its otherwise broad acceptance. The terms sustainability and sustainable development appear throughout the sustainability literature. Some authors use the terms interchangeably (Lamming et al. (1999) is an example) while others make a clear differentiation in one of two main ways. The first sees sustainability as the desired goal and sustainable development as the behaviour or process needed to achieve that goal (authors who use this approach include Doppelt (2003), Dovers (2005), Porritt (2005), and Voigt (2005)), and the second sees sustainability as the desired goal and sustainable development specifically defining this goal in terms of sustaining continued human development (authors who use this approach include WCED (1987), Lele (1991), Gladwin et al (1995) and Gallopin (2003)).

Although sustainable development is very general in its meaning and open to broad interpretation, this ambiguity does not rest in what sustainable development seeks to sustain as its primary goal, which is clearly to sustain continued human development. Ambiguity instead rests in what it means to develop and how this development is to be achieved, with the answers to these two questions carrying strong historical bonds to reformist sustainability narratives (Escobar, 1995; Orton, 1990) (see below for a discussion on the reformist approach). Sustainable development can then be viewed as a particular form of sustainability where sustainability does not require, but also does not exclude, continued human development. Sustainable development however not only requires human development but this is itself the primary goal of what is to be sustained, making the 'sustainability as the desired goal' approach (as above) the preferred interpretation of the difference between sustainability and sustainable development. Adopting sustainable development terminology in this or any other discussion on security risks carrying the baggage attached to the sustainable development terminology into the discussion and further risks discounting the importance of alternate views. The use of the more generic sustainability and sustainable world terms in this article is an attempt to avoid this baggage problem.

### **3. Representing a sustainable world**

As an alternate to seeking increased clarity of what it means for there to be a sustainable world through ever more sophisticated definitions, a number of authors have opted for a typology approach based around various principles that are seen to comprise a sustainable world, and identifying for each of these principles the differing viewpoints on how each is conceived (for examples such typologies see Dobson (1996), Handmer & Dovers (1996), Diesendorf (1997), and Naess (2003)). This typology approach has a number of advantages over a definitional approach, in particular it acknowledges a sustainable world's inherent pluralism and does not attempt to condense this pluralism into a definitional singular (Dobson, 1996).

It is not the purpose of this article to discuss in detail the broad set of key sustainable world principles and their various interpretations that are evident in the literature, however a simple typology is presented as table I. This article instead focuses on the security principle and explores this in detail. Before turning to this task however, some elaboration on the content of table I will be helpful in framing the discussion that follows.

Firstly, different formulations of what it means for there to be a sustainable world can, in a general sense, be categorised into two main camps – reformist (or reformism) and transformational. Reformism claims that what is needed to address current problems that see humans living in an unsustainable way is mostly "reforms that do not challenge the basis of our societies but that may lead to changes in emphasis at the margins" (Handmer & Dovers, 1996, p. 499). These changes at the margin to current economic and social systems are mostly to 'green them', and make them more socially

equitable and just. Reformism however also promotes, amongst other things, globalisation, free-trade, and the role of large corporations as key contributors to achieving a sustainable world so in many ways it is not "change in emphasis at the margin" for all societies but rather the global spread of a green and equitable version of key aspects of the neoliberal economic agenda. Reformism is consistent with the main themes of environmental economics, ecological modernisation theory, the sustainable development agenda promoted by the UN and its related bodies, and the sustainable development agenda of key business groups (such as the World Business Council for Sustainable Development). A transformational view on the other hand proposes that reformism simply will not work and it is the current dominant economic and social systems themselves that need substantial restructuring as they are inherently ecologically and socially destructive. Transformational views are consistent with ecological economics (to some extent at least) but more so the emerging field of green economics, treadmill of production theory, and ecocentric approaches to life on Earth such as Arne Naess' deep ecology movement.

Second, at times the distinction between reformism and a transformational approach is seen as a form of continuum where, for various principles, a reformist view sits at one end of the continuum with a transformational view at the other, and along this continuum are a range of intermediate positions. This continuum view is however somewhat misleading in that it can easily be interpreted to mean that the gap between reformism and transformational views is simply a matter of degree. What is mostly the case however is that differences are grounded in fundamentally and incommensurately different world views that are not matters of degree at all.

Next, it is also a misleading to interpret reformism as being the first step towards what will ultimately be a transformational outcome. Although it may be possible for the pursuit of reformism to eventually progress to transformational change, this is not the reformist objective. Reformism is itself promoted as a viable and credible approach to a sustainable world, not merely a stepping stone to embracing a transformational approach. Although some transformational advocates may see reformism as a first step, and some current reformist advocates may be actively pushing that agenda as a first step in a more transformational journey, the lead agenda of the reformist view is that it is itself the end-game.

Lastly, the current dominant espoused approach to a sustainable world is clearly reformist (Gould & Lewis, 2009; Handmer & Dovers, 1996) and there appear to be three main non-mutually exclusive explanations for this. First is that reformism is itself believed to be genuinely capable of delivering a sustainable world outcome, it is superior to the transformational view, and there is no need to expose society to the risks associated with embracing the degree of change inherent in a transformational approach (for examples of narratives that advocate approaches to a sustainable world that are consistent with the reformist view see WCED (1987) and Hart (2007)). Transformational advocates would reject this view.

Next is that reformism is currently the only viable approach to a sustainable world as transformational approaches are too far removed from current political, economic, and social thinking to be accepted as credible. As such reformism dominates as a transformational approach is 'too far out there' to be accepted as a viable and realistic current pathway to a sustainable world regardless of any alternate narratives supporting a preference for a transformational approach (Cato, 2009; McManus, 1996; Robinson, 2004). Transformational advocates may acknowledge this but even if they do, this is not considered a justification for failing to push forward with a longer term transformational agenda.

Finally is a view that reformism is the outcome of capture of the sustainability agenda by the economically and politically powerful elite to allow a more-or-less business as usual approach to current dominant corporate and political activity (Bruno & Karliner, 2002; Mayhew, 1997). In this view reformism is, to a significant extent, the product of powerful economic and political engineering of the sustainability concept to protect the interests of the elite, legitimised through the use of sustainability language. Many transformational advocates probably concur that such capture has in fact occurred.

#### **4. Security and a sustainable world**

So where does the security principle fit into the sustainable world typology? A review of the sustainability literature shows that the security-sustainable world connections are not particularly well explored, however in what follows this issue is considered based on narratives that are evident with the discussion grouped under four main topics:

- a) What does 'security' mean?
- b) How is military spending and military capability considered?
- c) What current activities are evident that seek to incorporate sustainability themes within the military?
- d) How is violence conceived?

##### *4.1 Security*

The dominant approach to security from both an historical perspective and what is currently being practiced today is in the form of national security (Archer, 2005; WCED, 1987). This approach sees the unit of focus and the dominant actor

as the nation-state, with emphasis on the military as the means by which national security is achieved. Under this model people are considered in terms of their status as citizens of a nation and their security is achieved through the achievement of national security. There is however no support evident in the sustainability literature for this national military-focused approach to security as being consistent with sustainable world objectives either in its view of how security should be conceived or how security for a nation is best achieved. Instead the national military-based approach is heavily criticised for draining society's financial, human, and natural resources away from addressing human and ecological wellbeing initiatives. This draining of resources is seen to fuel underlying conflict drivers such as weapons proliferation (Dhanapala, 2001; UNGO, 2008), resource scarcity (Archer, 2005; Renner, 2008) and inequality (Chua, 2004; Gould, Pellow, & Schnaiberg, 2008). Further the national military-based approach is seen to be focused on the wrong thing in that it fails to consider the broader aspects of what really matters in the security context.

Although it is true that there is a significant focus of attention on military spending and capability in the world today, it is important not to overplay the dominance of this approach over all other national security focused policies of governments. Going hand-in-hand with militarism is an insatiable appetite by virtually all national governments to progress their national security agenda, and the security and wellbeing of their citizens, through continued economic growth which is seen as both important from a power and influence perspective and as a key to solving virtually all of society's ills (Bruno & Karliner, 2002; Daly, 2005). For many nations, population growth or at the least a non-declining national population is another mainstream strategy for advancing national security objectives (Engelman, 2008; UN, 2008).

A broader view of security is that of human security which is commonly framed around the freedom-from-want and freedom-from-fear double. This approach focuses on a range of threats to the security and wellbeing of people and communities not just externally created national threats, and includes threats from economic ills such as loss of job opportunities, from organised crime, the drug trade, terrorism, disease, pollution and environmental degradation, deprivation, and oppression (Archer, 2005; UN, 2000; UNDP, 1994). This view makes clear the reasons for inclusion of security as a sustainable world principle whereby the flourishing of human life is inconsistent with a world where people are subjected to continued insecurity and exposure to harms. Human security then is clearly a necessary, although not sufficient, condition for there to be a sustainable world.

The general characteristics of the human security approach are well covered in the literature however a few key observations are important to this current discussion. Firstly, this view of security as human security is just that, a human security discourse. Some authors have attempted to promote a broader perspective incorporating the security needs of other species as what can be termed ecocentric (or life-centered) security (Davion (2004) is an example), but the human security approach remains dominant. This human focus does not mean that ecological impacts of militarism and the importance of ecological wellbeing for the achievement of human security are not well covered in human security discourse, but rather the general theme remains anthropocentric (i.e., human centered and where non-human species are mostly seen in terms of their instrumental value to humans). Needless to say, and as argued by Davion (2004), extending consideration of interests to non-human species in other than mere human instrumental terms makes the justification of military conflict or activities such as military exercises and weapons testing virtually impossible to justify in any context.

Second, the human security focus seeks to address the underlying drivers of human insecurity rather than merely addressing symptoms such as civil unrest and conflict (Archer, 2005; Jolly, 2004). This address-the-symptoms approach is supported by a general call for reduced military spending and the application of the resulting peace dividend to initiatives focused on progressing issues linked to sustainability objectives including poverty reduction, improving overall equity between and within nations, and addressing problems of ecological degradation. This call for application of the peace dividend can be found in both reformist focused sustainable development discourse (UNDP (1994) and WCED (1987) are examples) and also those advocating a more transformational approach to sustainability (ECC (2000) is an example).

#### *4.2 Military spending and capability*

Within this collective sustainability discourse of the drivers of insecurity, military spending, and application of the peace dividend, two main themes concerning military spending and military capability are evident. The first is a clear call to reduce military spending coupled with active measures to enforce current weapons treaties, pursue and achieve the non-proliferation and, preferably, elimination of weapons of mass destruction, and to control small arms proliferation. These narratives, particularly evident in UN sustainable development documents (such as The Brundtland Report and a recent UN Security Council press release (UNSC, 2008)), tend to be somewhat reserved in their calls for broad-scale disarmament and demilitarization, although quite forthcoming in the call for the resulting peace dividend from the advocated reductions in military spending to be applied to sustainability, or more commonly sustainable development, initiatives. In this article, this approach will be termed 'conservative disarmament'.

The other narrative is one that is openly bold in its call for disarmament and demilitarisation to the point of national non-provocative defence capability only, including the total elimination of all forms of weapons of mass destruction including nuclear, chemical, biological, and any other form of toxic weaponry. Under this model no nation would have the military capacity to wage aggressive military action against any other nation, with stronger peace keeping forces placed under international control (Holdren, Daily, & Ehrlich, 1995). In this article this will be termed 'broad-scale disarmament'. Despite this narrative lacking dominance in current day sustainability discourse, it has a long history dating from the 1941 'freedom speech' by US President Roosevelt (Roosevelt, 1941):

"[t]he fourth is freedom from fear — which, translated into world terms, means a world-wide reduction of armaments to such a point and in such a thorough fashion that no nation will be in a position to commit an act of physical aggression against any neighbor — anywhere in the world".

The irony of course is that the US is now the nation most capable of committing acts of military aggression against any other nation.

Both the conservative and broad-scale disarmament perspectives call for the application of the resulting peace dividend to sustainable world initiatives. What is inconsistent with any sustainable world narratives as evident in the literature is for an achieved peace dividend to not be applied directly to sustainability initiatives of poverty reduction, ecological protection and renewal, and reducing inequality. A case in point is the peace dividend that arose from reduced military spending during the post Cold-War period being used to support economic growth in the North which some authors claim was a lost opportunity to promote the broader collective good (Archer, 2005; Jolly, 2004). Jolly (2004) however makes the point that some claim this application to economic growth in the North did in fact drive further global economic activity with positive flow-through effects for all. It is beyond the scope of this article to debate this claim in detail other than to say many would argue (as does this article's author) that this claimed flow-through benefit has not materialized in any meaningful way and the accelerated growth in the North has in many ways brought more harm to the world (socially and ecologically) than good. It is worth noting however that despite no apparent open support in the sustainability literature for such an approach, application of a (significant) proportion of a peace dividend to driving economic growth in the North is not necessarily inconsistent with a reformist approach to a sustainable world although it is unlikely to get any support from transformational advocates.

#### *4.3 Current activities*

This discussion has so far focused on narratives in the sustainability literature that call for change from the way things are now, where the current state of play from a security perspective is characterised, amongst other things, by broad-scale increased military spending in the face of continued ecological decline and persistent poverty, and little progress (in some areas, regression) on the reduction in stocks and proliferation of both of weapons of mass destruction and small arms. In parallel with these calls for change, two streams of thought are evident in the literature that deal with current actions – things that are being done now, not just talked about – that are of particular interest to this security-sustainability discussion namely the 'greening of the military' and the military as a legitimate economic activity.

Greening-of-the-military refers to efforts to incorporate environmental concerns into the activities of the military, the services it provides, and the products it uses. Examples of this approach include that of the Australian Defense Force which has a stated goal of making its military's activities more consistent with the objectives of ecologically sustainable development (AGDD, 2006), and the US military which espouses an objective to make itself more environmentally sustainable (ENN, 2008) by incorporating a triple-bottom-line approach covering "Mission, Environment and Community" (US Army, 2007). Some of these greening strategies include general initiatives linked to day-to-day operations such as reducing green-house gas emissions, green procurement policies, recycling, and contamination clean-up (AGDD, 2006; ENN, 2008; Parr, 2009), the military encouraged to conform to national environmental norms in relation to the treatment and disposal of hazardous waste (UN, 1992a), and actions to protect the environment in times of armed conflict (UN, 1992b). Incorporating environmental concerns into military activities is also at times framed within a win-win dialogue whereby initiatives that are seen to be pro-environment and socially responsible are presented as a positive for sustainability and a positive for the military (Parr, 2009; US Army, 2007).

In critiquing this approach however, Parr (2009) sees greening-of-the-military as failing to address the fundamental conflict between the military as an institution structured to inflict violence, and the flourishing-of-life principles of sustainability. In particular, Parr sees greening-of-the-military initiatives conducted within a setting of continued military expansion and/or use of the military to engage in hostile acts as little more than a deliberate exercise to conceal this fundamental conflict and give a sustainability legitimacy to militarism as a worthy national pursuit. In short, it seeks to present a claim that militarism is a social good as it not only provides national security but it does so in an environmentally sustainable way. This of course does not mean that the military should in any way hesitate to act decisively in reducing its harmful impacts on the environment. The problem is the use of greening narratives to legitimise and gain social support and licence for governments to pursue militarism as a worthy social goal.

The second issue is the linkage between military spending and economic activity, where two main issues are evident. The first is the outsourcing of military activities in both the manufacture of military equipment (which is a long-standing tradition (Fredland, 2004)) and increasingly in more recent times the contracting to private military companies of various services that might otherwise have been traditionally undertaken by national military institutions themselves (such as logistics, security services, and physical combat engagement (Avant, 2004; Fredland, 2004; Singer, 2005)). Arguments in favour of this outsourcing to the private sector include lower costs, improved functionality, and providing governments with alternate means of progressing national objectives. Critics however paint a different picture in both rejecting that many of these claimed advantages actually materialise in real life but more importantly, point to the fundamental disconnect between seeking reductions in military spending and the achievement of a peaceful world, and clear self-interest economic and profit making incentives for this to not come about.

A similar problem arises where governments seek to use military activities as a tool for economic activity. An example is an Australian state government that has targeted the defense industry as a key plank of its economic policy with a year 2013 goal of increasing defence industry employment from 16,000 to 28,000, and doubling the defence industry contribution to the state's economy from \$1 billion to \$2 billion (SAG, 2007). This goal is actively supported by the creation of a unit to promote the state's defence industry capability (for details, see SAG (2008)), and the issuing of regular public statements from the government celebrating the opportunities for, and securing of, new defence contracts (for examples, see McPhedran (2009), and SAG (2009)). It might be argued that this is a defence, not aggression, issue, and that it would be foolhardy for a government such as this to simply ignore these economic opportunities when defence contracts will be awarded anyway and someone will get them. But this is hardly the point. It is difficult to see how the government in question here, or any other government body in a similar position, could at the same time engage in any public dialogue, let alone forceful dialogue, that actively calls for reductions in military spending and otherwise publicly denounce continued militarism. But for society to progress to a sustainable world someone has to make a stand. Continued flight to the 'if we don't take advantage of this opportunity someone else will' argument is not going to get us anywhere but will instead reinforce the business-as-usual allocation of a substantial portion society's resources to the military that could otherwise be spent on helping to address some of the core drivers of our currently unsustainable way of life.

From a sustainability perspective, and as perverse as it may seem to many (including this article's author), it is possible to construct an argument to bring together these economic and greening narratives to provide legitimisation for the continued pursuit of military spending in that it adds to economic growth which contributes to economic sustainability, provides jobs which contributes to social sustainability, and can (supposedly) be done in environmentally responsible ways which contributes to environmental sustainability. This form of argument has not yet (to the author's knowledge) found its way into the sustainability literature and hopefully it won't, but there are signs that it is (regrettably) gaining some political traction.

#### *4.4 Violence*

The final issue of focus in this section deals with how violence inflicted on others is conceived. Violence, from a national security perspective, but also to a noted degree for human security (although human security clearly does take a broader view) is mostly considered in terms of physical harm, often caused by armed conflict of some form. But violence also has many other dimensions including the notion of peacetime violence, the use of metaphorical weapons, and the use of surrogate violence.

Peacetime violence is a form of non-military violence that inflicts harm (with harm considered in a broad sense) on humans and on non-human life in various ways, that comes about as a result of human behaviours. Shiva (2005) for example, talks of two main forms of peacetime violence namely economic violence resulting from economic activity that in particular favours the rich over the poor, and cultural violence that is imposed by dominant cultures that destroy local cultures. Rees & Westra (2003) in a similar vein talk of violence in the form of high and unsustainable levels of resource consumption by the rich, especially the North, that appropriates resources from the poor, damages the ecosystems on which the poor are reliant, and drives dispossession of land and the means of livelihood of the poor. Also picked up in the notion of peacetime violence are actions of organisations, particularly but not limited to large corporations, in knowingly inflicting harm on humans and other species in order to pursue profit making agendas. This form of corporate violence manifests itself in many ways including the sale of harmful products, the deliberate withholding of information demonstrating product harm in order to maintain sales, the exporting of harmful substances banned in home (mostly developed) countries to less developed countries, the enclosure of commons for private ownership and profit, and the use of child and slave labour to produce goods and services for the wealthy (for examples of these forms of corporate violence, see Shiva (2005) and Michaels (2008)). Peacetime violence can also be extended to incorporate violence by humans against non-human species and ecosystems including their systematic degradation, destruction, and extinction.

Metaphorical weapons are described by Archer (2005) as non-material weapons used to achieve national and/or corporate objectives without reverting to what would otherwise be seen as military based conflict. They include the imposition of sanctions of some form, pressure to repay debts, threats to cut off aid or trade arrangements, and the conduct of commercial activities that harm local citizens and the local environment.

Surrogate violence is a term used in this article to refer to violence, both military and peacetime violence, that is in some way funded, armed, supported, or encouraged by one party that otherwise seeks to remain removed from the violence itself. This can manifest itself in many ways including governments engaging military or metaphorical weapons to further the interests of corporations, private military companies used as mechanisms to further the foreign policy objectives of home nations, and governments funding military groups in other nations in order to overthrow existing regimes (for examples of the use of metaphorical weapons, see Tucker (2000) and Klein (2007)).

The point being made here is that just as the concept of security needs to be expanded beyond mere national security in order to capture what is important from a human (and other species) well-being perspective, so too does the concept of violence. Of particular importance is that the forms of violence discussed above mostly centre around the activities of the economically and politically powerful elite over the poor and less powerful, with an ultimate goal of securing resources necessary to further the elite's own self interests, an issue that will be explored further below.

One final point before moving on is that for critics of the reformist approach to sustainability, the neoliberal principles incorporated in reformism such as the pursuit of globalisation, free-trade, economic growth as a principle tool for curing society's ills, and the key role for multinational corporations in pursuing these agendas is, in its current form, inherently violent in ways consistent with the three forms of violence discussed above. For transformational advocates, this violence is not something that can be solved simply by attempting to 'green' these traits or attempting to make them more socially just.

#### *4.5 Security and a sustainable world*

Pulling the key points from the preceding discussion together, different perspectives of security within the sustainable world context can be summarised as shown in table II. In this typology:

- a) The 'human security focused - conservative disarmament' approach is consistent with reformism.
- b) The 'human security focused – broad-scale disarmament' approach is consistent with a transformational view from a disarmament perspective but with reformism in other respects, especially its anthropocentric focus and its links to mainstream sustainable development discourse.
- c) The 'ecocentric security focused – broad-scale disarmament approach' is consistent in a complete sense with a transformational sustainable world view.

### **5. Looking to the future**

Although this summary of the main approaches to security within the sustainable world context that are evident in the sustainability literature may be useful in its own right, what is more important is to consider what humanity should be doing about this and why. In this section, these 'what' and 'why' questions will be considered using insights that footprint analysis can offer from a future natural resource usage and availability perspective.

The history and general characteristics of footprint analysis are well documented in the literature (for details, see the Footprint Network web site at [www.footprintnetwork.org](http://www.footprintnetwork.org)). In brief however footprint analysis involves the calculation of an Ecological Footprint (Footprint) measure, a measure of available biocapacity, and comparing the two to determine a measure of ecological credit or deficit. In doing so it presents a measure of a sustainability bottom-line – the need for humans to live within the reproductive capacity of the Earth's natural systems.

The Footprint is a measure of human impact on the Earth's ecosystems, expressed in standardised units of global hectares, mostly as global hectares per capita (ghpc). It shows the biologically productive land and water area that the unit of focus (say, a person, nation, or all of humanity) uses to produce the resources consumed and assimilate the wastes generated, regardless of where consumed goods are made. Biocapacity is a measure, also expressed as ghpc, of the actual productive capacity of land and water that is available to provide resources and assimilate wastes to meet human demands and to meet the needs of other species with which humans compete for resources.

At a global level, an ecological deficit (i.e., Footprint exceeds available biocapacity) means that humans are living beyond the Earth's natural resource regenerative capacity or in simple terms, humans are living on nature's capital base as opposed to limiting resource consumption and waste assimilation to renewable capacity only. This is how things are now where, at a global level, humanity has an average Footprint of approximately 2.7 ghpc compared to available biocapacity of about 2.1 ghpc (Footprint Network, 2008). Drawing down on renewable natural capital however carries a price, and in this case the price is paid by future generations who will inherit a degraded environment, the poor who mostly suffer as a result of resource exploitation by the rich, and other species with whom humans share this planet.

At a national level, an ecological deficit means that citizens of a nation are not able to live off the nation's natural resource renewal capacity even if they wanted to. A nation in ecological deficit can only maintain its resource consumption levels by depleting its own natural capital, exploiting the global commons (such as the atmosphere for CO<sub>2</sub> emissions), or by exploiting the resources of other nations. Dissection of footprint analysis data to show the current state of rich as compared to poorer nations (see table III) helps to illustrate this point. What table III shows that is of particular interest for this article is that high-income countries (comprising countries of the industrialised West, plus Japan and a few other highly developed nations) comprise about 15% of the world's population but consume about 40% of the available global biocapacity. More importantly however is that these high income countries consume more biocapacity than is available within their collective national borders – about 74% more. What this means is that current lifestyles in these nations is funded by additional externally sourced resources unless these nations are happy to run down their own natural capital, something they seem reluctant to do and actively seek to limit through the enactment of environmental protection laws. These countries get their additional resources from two areas namely the global commons but more so from the less developed countries where such exploitation is a long standing and well documented tradition, particularly by the developed West but also by other nations such as Japan and China. It is here that we see a history of direct military violence, peacetime violence, the use of metaphorical weapons, and the application of surrogate violence, as means to secure resources for the economically and politically powerful at the expense of the poor and weak.

Looking forward however, the picture is more worrying. One way to look at the future from a natural resource (i.e., biocapacity) usage perspective is by application of the I=PAT identity. I=PAT, first introduced by Ehrlich and Holdren in the 1970's (Holdren et al., 1995) presents human impact on the environment 'I' (Ecological Footprint), as a product of population 'P', consumption/production per capita 'A' (or affluence, usually as per capita GNP), and the impact per unit of consumption/production 'T' which is often referred to as technology but is really a catch-all for everything not captured in 'P' and 'A'. In its basic format however, I=PAT does not show what the relationships are between 'I' and the 'P', 'A' and 'T' elements that is, does a change in one element (say, 'P'), produce a straight multiplicative change in 'I' or are the relationships more complex? This issue is not well researched at this point in time however work to date suggests that a business-as-usual one-to-one relationship is a credible view (i.e., a 1% increase in 'P' or 'A' produces a 1% increase in 'I', although some evidence suggests an exponential 'I'-to-'A' relationship) in the absence of deliberate and effective interventions in 'T' to decouple 'I' from increases in 'P' and 'A' <sup>(i) (ii)</sup>.

Allowing for UN mid-range projected global human population growth to 9 billion by 2050 (UN, 2007), real economic growth net of the population growth effect of say 1% pa (although the Brundtland Report calls for annual economic growth of 3%-4% in the North and 5%-6% in the South! (WCED, 1987)), and assuming one-to-one 'P'-'I' and 'A'-'I' relationships, by 2050 the global average Footprint will be in the order of 4 ghpc compared to available biocapacity of about 1.5 ghpc. The 1.5 ghpc is however not all available for human use and needs to be shared with other species. How much should be set aside for other species is a debated issue but something in the order of 50% is often proposed as necessary to preserve biodiversity and prevent continued species extinction <sup>(iii)</sup>.

The end result of this is that reliance only on 'T' in the I=PAT formulation, as is the case for a reformist approach to a sustainable world, requires technology and behavioural change to decouple increases in the Footprint from population and economic growth, plus produce a real reduction in the current Footprint, collectively amounting to Footprint reduction of about 65% by 2050 as compared to a business-as-usual outcome. Allowing for the needs of other species (at 50% biocapacity sharing) sees this reduction impact of 'T' become about 80%. An optimist will of course state that humans are creative and competent problem solvers and this challenge is well within our ability to achieve. But a good dose of reality is needed here as the level of decoupling between Footprint and the twins of population and economic growth that is needed to see humans use natural resources within the Earth's renewable capacity is simply showing no signs of being achievable in the foreseeable future. We can of course argue error margins in the Footprint and biocapacity numbers that have been shown here, and whether the reduction in 'T' needs to be 65%, 85%, or something else, but this is a distraction from the core issue that humans are utilising natural resources faster than they can be renewed, the upward pressures on resource exploitation are substantial, and environmental degradation is continuing to worsen.

What the footprint analysis data means, and why it is relevant to the issues considered in this article, is that current trajectories paint a picture where competition for resources is most likely to become increasingly severe and the various forms of rich-world resource appropriation of the past and present will intensify in the future, not abate. Proponents of both the conservative and broad-scale approaches to security and a sustainable world propose that, by application of the resulting peace dividend, sufficient human, financial, and natural resources can be released to address the most pressing problems of poverty, environmental decay, and inequality. The extent to which this is true has yet to be proven simply because it is not being attempted, but the hope is that such action will dampen underlying drivers of conflict and help lead an orderly and peaceful transition to a sustainable world.

But which of the conservative or broad-scale approaches to security should we favour? The conservative approach is certainly more desirable from a sustainable world perspective than the current national-military approach which may very well see a future world that brings about a need (from the perspective of the rich and powerful) for the very military capability it currently supports. The conservative approach also seems to take a bet each way in that it seeks to free up some of society's resources for application to sustainable world initiatives, but at the same time leaves nations with military capacity sufficient to act unilaterally in securing for themselves resources outside of their national borders. The risk here is that the conservative approach is simply inadequate to achieve a transition to a sustainable world with a resulting reversion to militarism in order for the rich to secure resources for themselves at the expense of the poor.

The broad-scale approach seems to offer two main advantages over the conservative approach. The first is that the extent of disarmament and demilitarisation it advocates offers a greater potential for substantial resources (financial, human, and natural) to be freed up for application to sustainable world objectives. The hope, and probably a justified hope, is that such a dramatic shift in resource allocation will see a significant downward impact on conflict pressures and also make major inroads into addressing the serious social and ecological problems humanity is creating for itself. The second advantage is that the broad-scale approach leaves nations with non-provocative military capacity only, giving some hope that the sharing of the Earth's resources can be done in a cooperative and equitable way rather than through the use of force to benefit the powerful over the weak.

## **6. Conclusion**

In conclusion, what can be said about the security typology presented in this article in reference to various claims concerning the sustainable world typology shown as Table I?

Firstly, are the reformist and transformational views presented simply points on a continuum or fundamentally different and incommensurate paradigms? The human security and ecocentric security views are most certainly paradigmatically different, reflecting substantive differences in what has value in the world. The human security conservative and broad-scale disarmament views also differ on more than simply matters of degree on the extent of disarmament, but rather present fundamentally different views on what military capacity any one nation should be able to hold, and how greater peace keeping capacity is to be secured. It seems then that we are dealing with views that are different in substance, not just degree.

Next, is the human security conservative view presented as merely a first step toward human security broad-scale disarmament, and then to ecocentric security broad-scale disarmament as the end result? There is little evidence in the sustainability literature supporting this progress line. Narratives presented by human security conservative disarmament advocates seem devoid of 'these are first steps' statements, and human security broad-scale disarmament advocates show little if any indications that society needs to move to an ecocentric view. This of course does not mean that broad-scale disarmament advocates do not see a conservative approach as a first step of a journey that encompasses more substantive change, which they most probably do.

Lastly, why is conservative disarmament the current dominant approach to security within the sustainability literature? Whether this approach is genuinely capable of delivering a sustainable world outcome cannot of course be considered independently of other initiatives that society might pursue to achieve this end so the answer to this point needs to be framed within the broader reformist narrative as discussed earlier in this article. In one sense though the conservative approach can be seen as a controlled risk strategy as it offers individual nations, especially the rich, continued capability for using military capacity to secure resources and maintain current lifestyles. On the other hand, it can be seen as risk enhancing (as compared to a broad-scale approach) in that it does not offer the release of resources for sustainable world initiatives to more thoroughly address conflict pressures than is available under a broad-scale approach. From a current political, economic, and social thinking perspective, it is probably true that the broad-scale approach is unlikely to be embraced to its full extent in rapid time. It is hard enough trying to get agreement on any reductions in global military spending and capacity build up, let alone the dramatic change proposed by broad-scale disarmament, but this does not mean that this stronger narrative should not be openly advocated as a worthy goal. Finally, does the conservative approach represent a capture of the narrative to protect the interests of the economically and politically powerful elite? There are probably good reasons to suspect that this is to some degree the case for at least two reasons. One, as discussed above, is that economic self-interest is an integral part of the current global military machine for both government and the private sector, and it is hard to see how these powerful bodies will let lucrative self-interest political and profit making opportunities slip away without a fight making a broad-scale disarmament approach simply untenable to these interests. The other is the extent to which militarism is fundamental to various ideological agendas, an example being that of neoconservatism which, in reference to the US, Harvey (2005) describes how neoconservatives

"emphasize militarization as an antidote to the chaos of individual interests. For this reason, they [neoconservatives] are far more likely to highlight threats, real or imagined, both at home and abroad, to the

integrity and stability of the nation. In the US this entails triggering .... 'the paranoid style of American politics' in which the nation is depicted as besieged and threatened by enemies from within and without. This style of politics has had a long history in the US. Neoconservatism is not new, and since the Second World War it has found a particular home in a powerful military-industrial complex that has a vested interest in permanent militarization" (pp. 82-83).

It is again difficult to see how the security aspects of such political ideologies of the elite will willingly be surrendered to the uptake of broad-sale disarmament.

So can we realistically envision a world where, in the foreseeable future, either of the conservative or broad-scale disarmament approaches to security become a reality? Without wishing to resort to simple and well rehearsed platitudes, it is true to say that to give up hope is to ensure that such change will not come about. If anything has been reinforced from this review of the sustainability-security literature it is that the case for disarmament and peace dividend application is not well covered and not forcefully argued so as to create a coherent, believable, and desirable pathway for society to progress to a better and sustainable world. The open and robust legitimisation of these narratives in the sustainability context is surely needed, to which this article hopefully makes a positive contribution.

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#### Notes:

- Note 1. For examples of projections of the Footprint in the context of the I=PAT identity, see York, Rosa & Dietz (2007) and WWF (2006).
- Note 2. There is little evidence that such a decoupling of 'I' from 'P' and 'A' pressures is occurring at the moment when 'I' is viewed in a broad global impact perspective (Rothman, 1998; York et al., 2007).
- Note 3. Estimates of the amount of biocapacity needing to be set aside for the needs of other species range from a minimum of 10% to 50% or more, although lower estimates are seen by some authors to be insufficient to prevent continued biodiversity loss (CABS, 2003; Soulé & Sanjayan, 1998).

Table 1. A sustainable world

Sustainable world principles*	Perspectives (Different meanings/perspectives given to each of the sustainable world principles)	
	Reformist orientation	Transformational orientation
<b>Primary goal</b>	<b>Weak anthropocentrism:</b> The flourishing of life on Earth where human interests, based on considered human preferences, dominate (i.e., considers issues such as long term human interests, inter-generational equity, and human interests beyond mere material satiation). Non-human life is considered mostly, but not always, in human instrumental terms.	<b>Ecocentrism:</b> The flourishing of life on Earth where human interests (based on considered human preferences), and non-human interests, are given consideration – humans interests do not take automatic preference. Non-human life has value beyond mere human instrumental value.
<b>Satisfying of interests</b>	<b>Equitable weak anthropocentric orientation:</b> First: Equity for <u>all</u> humans in meeting needs necessary for a fulfilling and meaningful life; when achieved, then Equity in opportunity to meet human wants.  Interests of non-human species are based mostly, but not always, on their ability to satisfy human interests.	<b>Equitable ecocentric orientation:</b> First: Equity for humans and non-human species in meeting needs necessary for a fulfilling and meaningful life that is relevant to each species, then Equity in opportunity to meet human wants.
<b>Human population</b>	<b>Manage a sustainable world to population</b> Population settles to a 'natural limit'; reduce very high rates of growth; prevent reductions in some (mostly developed) countries; orientation to maximizing the human population that can be sustained within sustainable world criteria.	<b>Manage population to a sustainable world</b> Current human population seen as too high and unsustainable and an issue for all countries to address; a long term reduction strategy is required through collective non-coercive and non-discriminatory choice; such a reduction will benefit both humans and other species.
<b>Resources</b>	<b>Weak sustainability</b> Sustainability as human interests satisfaction requires that the aggregate value of natural ( $K_N$ ) and human forms ( $K_{HF}$ ) of capital is sustained.  Capital types are substitutable beyond minimum critical values.	<b>Strong sustainability</b> Sustainability as human interests satisfaction requires $K_N$ and $K_{HF}$ to be maintained separately. $K_N$ and $K_{HF}$ are mostly complements and only marginally substitutable.  An alternate form of strong sustainability sees it reconstructed to incorporate ecocentric principles. $K_N$ as nature rather than defining $K_N$ as merely aspects of nature useful to humans; $K_{HF}$ incorporates values beyond mere forms of capital.
<b>Growth and development</b>	<b>Sustainable growth</b> human wellbeing, including elimination of poverty and the resolution of ecological problems, is achieved through equitable and ecologically sustainable, unlimited, and global GDP growth supported by free-trade, market-based sustainability incentives, and where the business sector, especially multinational corporations, play a key role. Technology and human ingenuity are the keys to overcoming any apparent limits to growth and in resolving problems that might otherwise be caused by growth.	<b>Qualitative development and sufficiency</b> human wellbeing is progressed through equitable and ecologically sustainable qualitative development and consumptive sufficiency, achieved through a steady-state economy (that is, one where resource throughput is non growing and contained within ecological limits), internationalisation not globalization, and a preference for consumption from local production.  Continued consumptive growth is seen as being not sustainable and is a primary cause of both ecological problems and of poverty. Poverty is resolved through resource reallocation not more global-level through-put growth. There are absolute limits to resource throughput growth that must be respected.

\* Notes:

*Intergenerational equity is not listed in this table as a sustainable world principle as it is mostly seen in the sustainability literature as a defining feature of what it means for there to be a sustainable world, whereby all other principles need to support intergenerational equity objectives and intergenerational equity is achieved if the requirements these other principles are met.*

*Intragenerational equity is also a key sustainable world principle evident in the literature but for the purposes of this table, it is picked up in the satisfying of interests and growth and development headings.*

Table 2. Security and a sustainable world typology

Elements	Security approaches to a sustainable world reformist.....transformational			Inconsistent with any formulation of a sustainable world
	Human security focused – conservative disarmament	Human security focused – broad-scale disarmament	Ecocentric security focused – broad-scale disarmament	
<b>Security</b>	Human security focus addressing root causes of insecurity.	Human security focus addressing root causes of insecurity.	Ecocentric security focus addressing root causes of insecurity.	National security and military based focus.
<b>Disarmament</b>	Enforcement of current treaties; reductions in military spending; non-proliferation and preferably elimination of weapons of mass destruction; control and non-proliferation of small arms.	Broad-scale disarmament to national non-provocative defense capacity only; stronger peace keeping capacity under international control; total elimination of weapons of mass destruction.	Broad-scale disarmament to national non-provocative defense capacity only; stronger peace keeping capacity placed under international control; total elimination of weapons of mass destruction.	Continued high levels and/or escalation of military spending and capability.  Failure to make progress on disarmament and arms control initiatives, especially in relation to weapons of mass destruction and small arms proliferation.
<b>Peace dividend</b>	Applied to human development, especially issues of poverty and inequality, and to environmental protection.	Applied to human development, especially issues of poverty and inequality, and to environmental protection.	Applied to the wellbeing of all human and non-human species consistent with ecocentric principles.	Where any reduction in military spending is achieved, a failure to apply the resulting peace dividend directly to the progress of sustainability initiatives focused on human and ecological wellbeing notably poverty reduction, reducing inequality, and progressing ecological repair and renewal.
<b>Violence</b>	Incorporates to some extent concepts of peacetime violence, metaphorical weapons, and surrogate violence, but mostly considered mostly in anthropocentric terms.	Incorporates in a comprehensive way concepts of peacetime violence, metaphorical weapons, and surrogate violence, but mostly considered in anthropocentric terms.	Incorporates in a comprehensive way concepts of peacetime violence, metaphorical weapons, and surrogate violence, but considered in ecocentric terms.	Conceived in limited terms mostly as deliberate and clear physical harm, and ignoring issues of peacetime violence, metaphorical weapons, and surrogate violence.
<b>Economy</b>	The military remains a	The military is not a	The military is not a	Economic and

	legitimate economic activity for both government and private enterprise, however strategies are adopted to counter economic incentives that might drive increased military spending.	desired area of economic focus but for activities that are undertaken, strategies are adopted to sever the link between military spending and profit generation.	desired area of economic focus but for activities that are undertaken, strategies are adopted to sever the link between military spending and profit generation.	corporate profit incentives being structured such that they drive increased spending on the military.
<b>Environment and social</b>	Decisive efforts to make the activities of the military consistent with principles of ecological and social sustainability, framed within anthropocentric and reformist sustainability principles.	Decisive efforts to make the activities of the military consistent with principles of ecological and social sustainability, framed within anthropocentric and, for the most part, reformist sustainability principles.	Decisive efforts to make the activities of the military consistent with principles of ecological and social sustainability, framed within ecocentric principles.	Pro-environmental and social initiatives of the military being mostly used as a mechanism to legitimise militarism.
<b>Economy and population</b>	Green and equitable economic growth, and maintaining population levels, important to maintaining human security.	Green and equitable economic growth, and maintaining population levels, important to maintaining human security.	Security for humans and non-human species enhanced through steady-state economy and reduced human population.	Ecologically damaging and/or inequitable economic growth, and maintaining population levels, to benefit the rich over the poor.

Table 3. Footprint analysis data – grouping by national wealth

	<b>World</b>	<b>High Income Countries</b>	<b>Middle Income Countries</b>	<b>Low Income Countries</b>
Population (millions)	6,476	972	3,098	2,371
% of pop'n	100%	15%	48%	37%
Current EF (ghpc)	2.7	6.4	2.2	1.0
Total EF (millions of gh)	17,444	6,197	6,787	2,377
% of total EF	100%	40%	44%	15%
Current biocapacity (ghpc)	2.1	3.7	2.2	0.9
Ecological deficit (ghpc)	0.6	2.7	0.0	0.1
% overshoot	31%	74%	2%	14%

*Constructed using data from the Footprint Network (2008)*