BEYOND THE THRESHOLD

Using Climate Change Literature to Support Climate Change Response

Richard A. Slaughter

ABSTRACT This article is intended primarily for those involved in some aspect of climate change but who are only marginally familiar with Integral Theory. It draws on a sample of recent climate change literature for two main purposes. First, it employs integral methods to honor and explore what each has to offer, thus contributing to a larger picture. Second, it seeks to support and strengthen climate change responses at the level of social policy and action. The article explores underlying patterns in the literature and makes suggestions about how the integral lens can both clarify issues and promote actions that are, in some sense, "called forth" by the threat of climate change. It concludes with a discussion of new kinds of motivation that will be needed to resolve the global crisis.

KEY WORDS: climate change; integral methods; literature analysis; research; quadrants

Global civilization is currently at a threshold that has been described as a contrast between "breakthrough" and "breakdown" (Chapman, 2008; Randers, 2008). This article employs aspects of an integral approach to consider a sample of recent, leading-edge work on climate change. I have two goals: 1) to explore and honor what each offers and how each contributes to a larger picture, and 2) to strengthen a range of climate change responses, some of which are discussed below. Since integral methods bring new clarity to contested issues, my intention in this article is to provide support for some of the innovations and strategies upon which our future may well depend. The article is not intended primarily for Integral specialists but for those focusing on climate change whose expertise lies in other areas.

The prospect of dramatic climate change, coupled with early evidence of its onset, has led to unprecedented collaboration among the scientific community. Despite attempts to cast doubt on the evidence, scientists have been virtually unanimous in their verdict (Maslin, 2009). Careful study of past climate change has shown that for the last 650,000 years, atmospheric CO_2 has ranged between 190 and 280 parts per million (ppm). Currently, it is close to 390 ppm and, in a business-as-usual scenario, could reach 1,000 ppm by the end of the century. This, in turn, would take the climate system beyond irreversible tipping points such as polar ice melt, methane release from melting tundras, and the eventual increase of global temperatures by six or more degrees Celsius (Lynas, 2008). With rising oceans, increased storms and hurricanes, human migration, and conflict on an unprecedented scale, the ability of the global system to support current population levels would rapidly diminish. A human die-off on this scale would not only be a catastrophe in its own right, it would also exacerbate the plight of other species—otherwise known as the "sixth extinction" (Leakey & Lewin, 1996).

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This is clearly an unprecedented situation. It means that humanity is challenged as never before to discern its universal interests, put aside many of its usual preoccupations, and collaborate in ways that transcend all previous attempts to do so. Hence the subtitle of Lester Brown's (2008) powerful appeal—"mobilizing to save civilization"—is by no means overstated. Yet, at the same time, it is also clear that there is a profound and continuing disconnect between the *facts* that have emerged from the science and the lack of *political will* to act effectively together. As one observer put it:

> ...climate change demands more of politics and international relations than I think they can deliver: the end of politics as the art of the possible and of compromise between interest groups; the negotiation of an international agreement of an unprecedentedly altruistic kind; the creation of an atmosphere of wartime emergency in the absence of an enemy. (Manne, 2008, p. 32)

Significantly, the author adds: "About what is happening, what we lack is not knowledge or understanding but the *courage* to face what we know, and the *energy and capacity to act*" (p. 30). It is this nexus that I hope to address in this article. To have any real chance of dealing successfully with climate change certainly requires the redesign of infrastructures and the rapid development and deployment of a whole new raft of technologies, not least of them solar. Yet for any of this to happen, and to happen in time, we need to become more aware of the ways that the outer world is mediated by the inner worlds of people and cultures. We also need to be much clearer about where such reserves of "courage, energy and capacity" can be found. In a conventional view, such human qualities seem to be in short supply. Yet this is where an integral perspective can help.

Part I: Aspects of the Integral Method

In order to avoid repetition, this section will outline three aspects of the Integral method only. Those wishing more detailed accounts are directed to web-based sources where they are given in much greater detail.[1] The three main aspects used here are:

1. Four perspectives on the world (the four quadrants)
2. Four levels of complexity through which reality is perceived
3. Six value levels that disclose different operational possibilities

The Four Quadrants

Figure 1 provides an overview of the four quadrants. Each may be thought of as a "window" on reality that provides access to four irreducible domains. These are:

1. Upper Left (UL)—the unique interior world of each individual
2. Upper Right (UR)—the exterior world of human action and behavior
3. Lower Left (LL)—the interior worlds of cultures, languages, institutions, etc.
4. Lower Right (LR)—the familiar exterior physical world we inhabit

The value of using this scheme is at least twofold. First, it helps us to see that different "ways of knowing" with their own tests of truth apply in different areas. We can therefore be much clearer about what knowledge

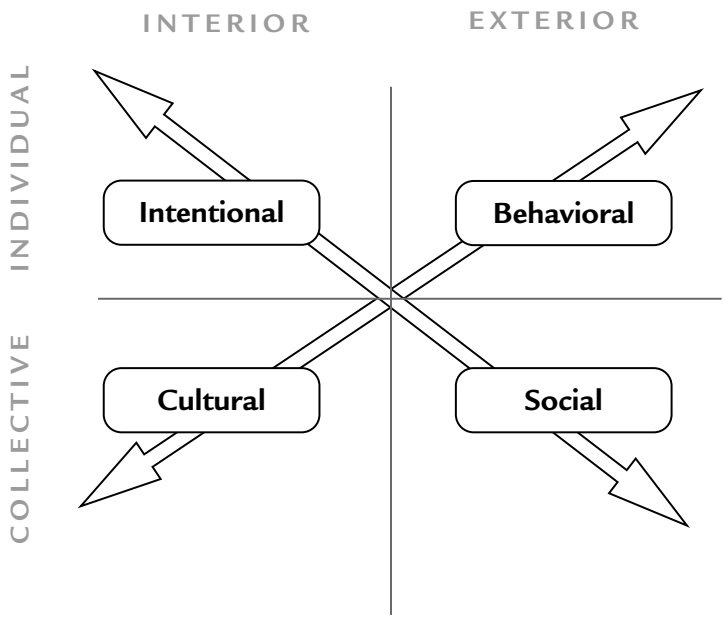

Figure 1. The four quadrants.

is appropriate in each domain. Another is that the quadrants provide us with a simple checklist. In any work we can ask, "Which of these domains have been covered and which omitted?"

Four Levels Of Complexity

One way of helping to define an overall stance or way of approaching the world is to distinguish between four levels of complexity. Those I have chosen to use here are: pre-conventional, conventional, post-conventional, and integral (Wilber, 2000). It is common knowledge that human beings experience various stages of growth in many aspects of their development. Broadly speaking, they move through different *waves* of existence.

- *Pre-conventional*—characterized by an instinct for survival and self-protection. Here climate change is problematic and unlikely to receive serious attention.
- *Conventional*—individuals have been successfully socialized. They have adopted standard, largely passive, ways of thinking. It is the norm to operate unreflectively and people tend to put their energies into maintaining the status quo. There is a tendency to be preoccupied with instrumental power, especially via the products of science and technology. Dualistic ("us and them") thinking is common.
- *Post-conventional*—individuals look beyond simple dualisms (right/wrong) to deal more successfully with ambiguities and paradox. It embraces reflexivity. It readily transcends rules and regulations, in part because it sees them as socially constructed and therefore to some extent provisional. Post-conventional thinking and behavior is open to complexity and oriented to change. It may well involve systemic thinking and support extended perceptions and novel behavior. The latter may be perceived as disruptive.

Pre-conventional UL: Has no significance; therefore unable to be comprehended UR: Has no perceivable consequences for action or behavior LL: Cannot be seen in the present, so does not require social response LR: Infrastructure and provisioning from the past are sufficient
Conventional UL: Has happened before, will happen again (i.e., fatalism) UR: Not my/our problem, so no personal action is required LL: "They" will deal with any issues, if and when they arise; "Necessity is the mother of invention" LR: Our traditional strengths served in the past and will continue to serve in the future
Post-conventional UL: Climate change alters everything: review values, seek greater understanding; modify behavior and re-conceptualize needs vs. wants UR: Personal behavior change is important and helps drive social change. I can be an example to others LL: It is imperative to reduce CO_2 emissions and reign in consumption. Earth shares and other such social innovations are vital LR: Initiate transformation of infrastructure and reinvention of economics
Integral UL: Accept and value all constructive responses and sympathetically work with others; actively develop new, novel and far-reaching options for self and others; seek broad synergies; all contributions matter UR: An ecology of appreciative actions: accepting, encouraging, respecting, involving, promoting people, actions, strategies and solutions LL: Develop spectrum of responses across the board and at many levels in a variety of contexts; see cultures as representing different, but partial, answers to the same or similar problems LR: Develop a spectrum of practical arrangements (systems) in ways that are appropriate to local needs, cultures, etc., and reconcile with emergent global imperatives. Nest human systems within natural systems. Growth and development is contextualized in broader spectrum, including the non-material

Table 1. Climate change considered at four levels within four perspectives.

- *Integral*—individuals accept and value contributions from all other perspectives and seek to work sympathetically across boundaries, disciplines, and cultures. It embraces "an ecology of appreciative action," and is open to the development of new ways of knowing and being. Human systems are nested within their appropriate natural contexts where intrinsic value prevails over use value.

If we take these distinctions and apply them to the four quadrants and climate change, what emerges is a pattern that I have attempted to characterize in brief in Table 1. What emerges most strikingly about this pattern is the way that each successive stage involves an increase in breadth, range, complexity, and originality. In other words, a hierarchy of this kind shows how interior human development leads us to frame our concerns in ways that offer a spectrum of responses. Becoming aware of this suggests one central conclusion—interior human development through such stages (and, of course, they can be framed and conceptualized in very many different ways) can be seen as one of *the* main keys to effective climate change response.

Six Value Levels

Within an integral approach, there are many different lines of development. Those in the UL quadrant include the cognitive line (which supports the progressive development of complexity in thinking), the self-sense line, the communicative line and so on, running to over 20 different lines in all. Another of the most significant is the values line, which has been intensively studied by Clare Graves and his successors (Graves, 2005; Beck & Cowan, 1996; Wilber, 2000). The six sets of values of interest to us here have been color-coded as per Wilber's altitude spectrum and can be summarized as follows:

- *Red*—egocentric and exploitative
- *Amber*—absolutist and authoritarian
- *Orange*—multiplistic and strategic
- *Green*—relativistic and consensual
- *Teal*—systemic and integral
- *Turquoise*—holistic and ecological[2]

Red It's a jungle out there. Only the strong survive. We must dominate in order to have a chance. We will do whatever it takes to stay on top.
Amber Strong government and a comprehensive set of strictly enforced rules are the only way forward. Overpopulation and pollution will lead to our extinction unless we conform to the imperatives of survival.
Orange Though times are challenging, we can innovate to survive. There are many opportunities for those who are clever and persistent enough to see beyond the present crisis: new industries, new urban forms, new ways to travel, grow food, etc. Solutions will be found if we step up to the mark and bring the best entrepreneurial intelligence to bear.
Green The communities of the world now have the best reason ever to put aside their differences, work together, and fashion a new world. Joining together in this way, we go beyond the profit motive and seek progress through harmony and love.
Teal Chaos is normal–we have been here before. The challenges are great, but so is our individual and collective capacity to respond. We can use the crisis to fundamentally shift our civilization to a new level of complexity and systemic awareness. Breakdown leads to breakthrough, which takes many forms.
Turquoise The breakdown of the old world order will be painful, but it is a prelude to the new in which cosmic truths prevail, along with principles of "enoughness" and balance at all levels. Individual and community life is centred around, and guided by, holistic and transpersonal energies. Earth resources are no longer limited to the physical and tangible, but embrace subtle energies as well. What is meant by the "known universe" expands manyfold. New human and cultural options emerge and ancient enmities are finally transcended.

Table 2. Climate change at six different altitudes.

The value of these aspects of Integral methodology is that they provide a fresh way of looking at climate change literature and the many proposals found within it. If we now consider how climate change may appear at each of these levels, we find a pattern resembling the one depicted in Table 2.

Scanning such a table immediately brings to mind many of the responses that we have observed in our daily lives as people respond in different ways to the eruption of climate change into our collective and individual awareness. It provides one kind of explanation as to why some dismiss the prospect out of hand while others alter their lifestyles and expectations in quite radical ways. It provides a "first cut" guide to what values are perhaps being evoked through these responses. On the whole, it would appear that for many people climate change is a rather distant prospect that they view with a mixture of concern and suspicion.[3] Clearly, that is not likely to be the response of the authors of the works considered below.

Part II: Emergent Patterns in Climate Change Literature

We now turn to a sample of climate change literature. For this article, I reviewed a number of works that I felt had something useful to say about climate change and global warming. It was not my purpose to be encyclopedic, so I selected the works according to an assessment of their originality and contribution to the wider debate. In each case, I attempted to summarize key ideas and also to highlight omissions. The task was both appreciative and critical.

Table 3 outlines some of the main features of the 14 works that were selected and analyzed. For those requiring more detail, a fuller summary is available online.[4] Brief comments on each are also given in the numbered endnotes accompanying the discussion below. Taken together, these contributions cover the climate change territory in a range of ways and put forward many ideas and proposals for new ways of thinking, strategies, innovations and so on. Each author has started with specific intentions and explored these through particular domains, most usually a combination of the LL and LR.

Figure 2 places the above works into five broad thematic groups. The latter are defined by the *range* of their concerns. That is, some have worked to clarify the historical context of climate change. Some have reported early consequences from around the world. Over half have suggested strategies of response and several have articulated calls for action.

Historical Context, Reportage, and Diagnosis

Four works have been placed in this group: Clive Hamilton (2007),[5] Jared Diamond (1998, 2005),[6] James Lovelock (2006),[7] and W. L. Steffen and colleagues (2004).[8] Hamilton has looked at the political and institutional context of climate change decision-making during the decade or so of the Australian Howard government, a time when avoidance and denial were evident at the highest levels. Australia stood with the United States in refusing to sign the Kyoto treaty and valuable time was lost. Diamond's in-depth cultural and historical overview provides a valuable macro-context, a set of "lived examples" that show very clearly how past societies survived or failed. Steffen and a number of scientific teams from around the world tackled an even more ambitious agenda. They attempted to look back and reconstruct how the Earth system used to operate, how it operates now, and how it may operate in future. Clearly, this application of "Earth science" is a work in progress. Its main focus is certainly on the LR, but it is also an outstanding example of worldcentric

Source	Purpose	Domains	Contributions
Brown (2008)	Diagnosis of civilization predicament and strategies.	LL/LR	Strategies: an honest market; tax restructuring: calculate indirect costs; wartime mobilization; basic social goals and Earth restoration.
Diamond (2005)	Review success and failure of past societies. Implications for us.	LL/LR	Places current dilemmas in a long-term context. Identifies reasons for bad social choices. Reasons for hope.
Faris (2009)	Reports from places where climate change is already visible.	LL/LR	Six case studies that show evidence of global warming and its early consequences.
Flannery (2008)	Individual statement of need for urgent action.	LL	Explores impacts of climate change in Australian context.
Hamilton (2007)	To show how last government colluded with "big coal" to deny climate change and delay responses.	LL	Valuable case study that puts the record straight. Makes it harder for future governments to follow suit.
Lovelock (2006)	Originator of Gaia hypothesis; reflects on diminished prospects for civilization.	LL/LR	Puts controversial case forcefully and challenges accepted views.
Lynas (2008)	Gathers and collates scientific info. in coherent form.	LL/LR	Confirms two-degree threshold. Presents compelling evidence based on scientific data.
McIntosh (2008)	Summarizes science. Puts forward human solution.	UL/UR/LL/LR	Broader analysis; explores solutions in greater depth. A Scottish case study.
Meadows (2005)	Reflects on a 30-year project and implications.	LL/LR	Authoritative reflections on a major project provides a unique perspective and a real challenge to orthodoxy.
Monbiot (2006)	To carry out a well-researched study into CO_2 reduction options.	LL/LR	Detailed exploration of options to reduce CO_2 by 90% in UK. Key strategies to achieve this.
Spratt & Sutton (2009)	Reviews climate change science and policy responses in Australia.	LL/LR	Critique of government policies; argues for re-direction of economy. Policy & strategy recommended.
Starke (2008)	Showcase of innovations that lead to sustainable economy.	LL/LR	Collection of innovative possibilities and positive stories.
Steffen et al. (2004)	What science can tell us about how the Earth was, is, and may be.	LR	Thorough multidisciplinary team effort. Tells "the story that connects."
Taylor (2008)	Tells truth about overshoot and collapse. Seeks ways forward.	LL/LR	Systems perspective gives coherence. Half of book deals with "social transformation."

Table 3. Summary of the 14 works that were analyzed.

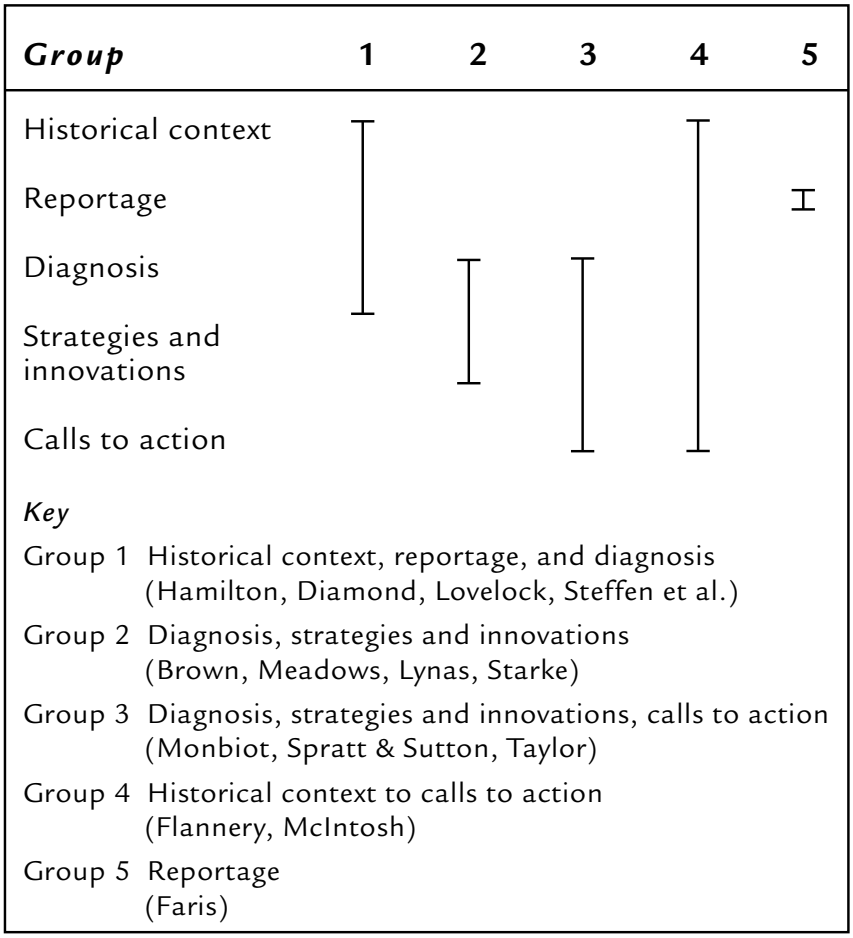

Figure 2. Themes of the 14 works that were analyzed.

thinking and values. It casts a good deal of light on the overall "health of the planet" and ways to monitor and assess various indicators. Lovelock's contribution is that of a mature scientist with a distinctive view of Gaia (his term for the Earth system) and a downbeat view of humanity, whose ability to negotiate the current crisis he seriously doubts.[9]

Diagnosis, Strategies and Innovations

The four works in this group are those by Lester Brown (2008),[10] Mark Lynas (2008),[11] Donella Meadows and colleagues (2005),[12] and Linda Starke (2008).[13] Their main efforts are directed to understanding the current threats to humanity and its world, and to propose changes that they consider necessary. Meadows is the most comprehensive in that over a 30-year period, the research team employed a sophisticated model of aspects of the world system, the results of which were later validated independently (Chapman, 2008). This work has benefited significantly from feedback and reflection over that time. The contributions of Brown and Starke are related in that they both spring from the "State of the World" tradition in the United States. Both primarily address economic issues (e.g., looking to modify the operation of the market to include indirect costs and "tell the truth"). Finally, Lynas assembles a great deal of scientific data into a readily comprehensible pattern. He makes the point very clearly that humanity should do all in its power to keep the average rise in global

temperatures to no more than 2 degrees Celsius. As temperatures increase, so the consequences for humanity and its world worsen.

Diagnosis, Strategies and Innovations, Calls to Action

David Spratt and Philip Sutton (2009),[14] George Monbiot (2006),[15] and Graeme Taylor (2008)[16] are among those who occupy this niche. The first two works focus upon a diagnosis of the threat of global warming. In the former case, this deals with Australia and in the latter the United Kingdom. Both are highly critical of their respective governments, suggesting that the kinds of actions and responses that are necessary are nowhere in sight. Monbiot, in particular, carried out an exhaustive examination of a variety of different energy strategies, concluding that a combination of these is technically possible but politically fraught. Spratt and Sutton want to see similar strategies taken up and also serious efforts mounted to reduce the amounts of CO_2 in the atmosphere. Both works are also calls to action. Taylor's analysis is broader. He takes up the notion first outlined by the Meadows team of a global breakdown known as "overshoot and collapse" that will occur as humanity's demands continue to spiral out of control. This thesis has also been reviewed by Randers and found to be credible (Chapman, 2008; Randers, 2008). Taylor's is a culturally aware systems approach that is also characterized by truth telling. His analysis of the process of "overshoot" is exemplary. He also places a great deal of faith in "social transformation," which makes a great deal of sense when seen as an aspiration. What he means by this, however, remains unclear. It would be strengthened by reference to the relevant interior structures of awareness and capacity, and also by acknowledging the range of perceptions that these support (e.g., see Table 2).

Historical Context, Reportage, Diagnosis, Strategies and Innovations, and Calls to Action

Tim Flannery (2008)[17] and Alastair McIntosh (2008)[18] cover this broad ground, drawing on real-world examples to inform their diagnosis and also to propose strategies. As in the previous example, both have in common a clearly articulated desire to "tell the truth" about what they see and to link this with calls to action on a number of fronts. Flannery's earlier work (1994, 2005) included a detailed look at some of the issues covered by Diamond (i.e., the effects that different groups had on locations that they colonized). He is keenly aware of the available evidence and what it means when projected into the future. Yet the standard scientific worldview says relatively little about the human and social sources of these issues. McIntosh, however, while less well known, is the only writer in this survey who not only covers all four of the domains represented by the four quadrants, but also divides the book fairly equally between them. Specifically, he looks back to early Greek sources to rehabilitate a notion of "sensibility" and then goes on to outline his own interior pathway to dealing with the enormity of climate change. He finishes with an attempt to craft what he calls a "cultural psychotherapy." This is "big picture thinking" with a soul and thus far it appears to be quite rare in this context.

Reportage

The final work, by Stephan Faris (2009),[19] is by no means the least. He merely restricts his attention to six specific places he has chosen to visit and limits a later discussion to some of the key points noted above. While the book does not belabor the seriousness of the situation we face, it succeeds by leaving us to draw our conclusions about possible responses.

The above provides a structured overview of how a number of writers have responded to the challenge of climate change. Each has defined a number of specific purposes and worked to bring clarity to what appears to be the greatest challenge of our age. Viewed together in this way, a pattern has started to emerge. When we deepen our view using aspects of the AQAL framework, the picture becomes clearer still.

Quadrants

A glance at Figure 3 shows that 10 of the 14 works display a near exclusive focus on the LL and LR quadrants. Two appear to focus mainly on the LL and one in the LR. Only one explicitly encompasses all four domains. What this suggests is that the role of human agency in dealing with climate change has been underestimated and, by the same token, requires a great deal more focused and rigorous attention. Further work on climate change and related issues needs to pay as much attention to the interior worlds and external actions of individuals as it does to their collective equivalents. Barrett Brown put it well when, referring to the quadrants, he suggested that, "The more that is known about the influences of consciousness, behavior, culture, and systems on sustainable development, the more effectively programs can be designed and implemented" (Brown, 2006, p. 380). In other words, use of all four quadrants provides much more systematic coverage than would otherwise be possible.

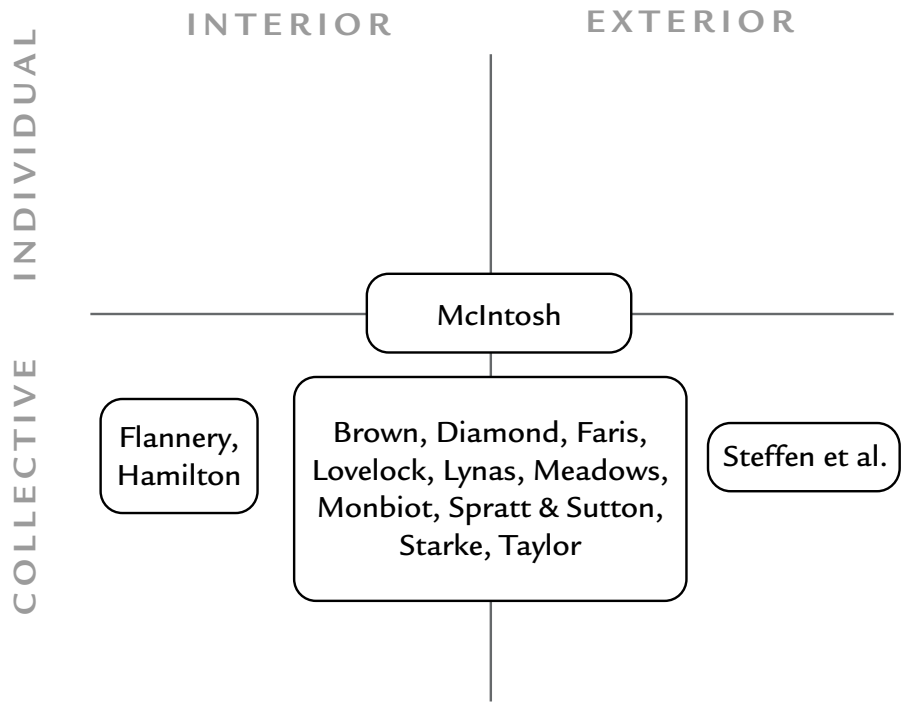

Figure 3. Quadrant focus of the 14 works that were analyzed.

Values

As part of a renewed focus on the UL, the role of values will be central because they help to determine our responses to information and knowledge about what is happening in the external world. The most familiar aspect of this is the progression through various value levels, implying a reduction in ego-based strategies, fear,

prejudice, and so on. This, it is widely believed, increases the openness, originality, and, overall, the ability to deal with exactly the kind of challenging and complex issues now facing us. Overall, the works examined here appear to embody perspectives ranging from red to teal altitudes, with a preponderance of the latter. Clear evidence for turquoise values was not found anywhere. Rather than view this as a shortfall, however, the very presence of more advanced stages of values development (among others) can be seen as a kind of "pull" factor. That is, under the pressure of global emergency, we have access to an articulated set of ideals and goals that can inspire those wishing to move forward. It is here that new and renewed motives—such as global service, interspecies equity, and obligations to future generations—can and will emerge.

Perspectives

Of the four developmental perspectives considered here, the one most well represented was post-conventional. The reason is that these writers have all emerged from immersion in conventional taken-for-granted sociocultural contexts and are not merely questioning inherited meanings, structures, practices, etc., but are also proposing alternatives to them. This is encouraging and consistent with the fact that all the authors, almost by definition, are dealing with the anticipated breakdown/renewal of an international social and economic order founded on unconstrained material growth, profligate energy usage, enormous demands on natural resources, and capricious uses of the environment. At least three questions emerge at this point. First, how quickly can significant numbers of people be assisted both to cross the threshold from conventional to post-conventional operations and access higher order values? Second, how can those already accessing these stages themselves move on?[20] Third, how can the full functionality of options within each perspective be more fully explored and expressed?[21] Such questions, while familiar in integral contexts, need to be taken up and seriously considered much more widely in relation to climate change. This is a pivotal step and one that is at least as significant as any relating to infrastructure and technology. The reverse is also true. Further technical advances will not, by themselves, bring forth new solutions unless they are guided by appropriate values.[22]

Part III: Beyond the Threshold

This part sums up the results of the survey and considers some changes that may help to equip us for the tasks ahead—changes that arguably become clearer when viewed through an Integral lens. It is convenient to approach them through the four-quadrant domains while realizing that such issues do of course fundamentally evoke all of them.

Domain of Experience

A key conclusion of this article is that it is here in the UL quadrant that the sources and many of the solutions to global problems can be found. The basic reason for this is that, as was suggested above in relation to complexity of cognition and the evolution of values, interior human development leads to increased capacity, breadth, and originality. Conversely, it is in the outworking of limited perspectives and restricted values that we find various pathologies writ large upon the world. So it is these interior realities, long overlooked, that should command greater attention and be brought into balance with the more usual focus on exterior realities. A sustainable economy, for example, necessarily relies upon sustainable values and perspectives (Brown, 2006). These therefore become primary concerns. Furthermore, they constitute the wellspring of the "courage, energy, and capacity" that Manne (2008) seeks in attempting to resolve the looming political crisis.

Central to the task of actively responding to climate change is the need to clarify different types of constructive human agency and to explore how the latter can be evoked, developed, and applied to a world slipping into deep crisis. How, for example, can people be assisted in moving from passive to active responses? (Johnstone, 2006) How do you draw energy and hope from a continuous diet of bad news? To whom or what do you turn for inspiration and refreshment? (Leonard & Murphy, 1995; Wilber, 2000; Welwood, 2000.) Theodore Roszak and colleagues (1995) explored the theme of ecopsychology, which considers how experiencing and revaluing natural environments can have a variety of productive effects. Joanna Macy (1983, 1991) goes deeper and shows how even the threat of nuclear war can be countered by considered immersion in some of the great wisdom traditions. On a more pragmatic level, we can also consider how the skills of "reading signals of change" can be more widely developed and contribute to an enhancement of futures awareness. Such developments anticipate the rise of *social foresight* as a powerful new driver of adaptive change (Slaughter, 2004).

Domain of Behavior

How people act in response to the global sustainability crisis also requires a great deal more focused attention. The works examined above provided evidence of a consistent disconnect between innovations, strategies, and calls to action on the one hand and the actual modalities of personal action that are available on the other. The view is widespread that the problems are not only "out there" but they are also "beyond me." Yet there are ways of dealing with this sense of disempowerment that complement the climate change literature. We can be clearer about just exactly how it is that individuals can make a difference, and not merely a cosmetic one at that.[23] This topic has been researched in the United Kingdom and reported in a valuable in-depth study on "driving public behaviours for sustainable lifestyles" (Darnton, 2004). The notion of social innovations has been around for some time and is beginning to be more widely taken up and applied. One example is the "transition towns" initiative which seeks change at a grassroots community level.[24] Similarly, Tony Fry's (2009) work on "sustainability, ethics and new practice" presents a useful synthesis of leading edge and practical options that are worth taking seriously. There are also educational issues here that connect with cultural possibilities in the LL (Slaughter, 2008).

Domain of Societies and Cultures

Many contributions to the climate change debate are focused on the LL and the LR. But there is enormous scope to utilize deeper knowledge of how societies actually evolve and function. For example, wider recognition of the progression of worldviews that so powerfully shape societies and actors within them would be a very helpful and clarifying step (Wilber, 2000). Such dynamics are implicit in the "State of the World" literature (represented here by Brown [2008] and Starke [2008]), and it would be a significant gain to deal with them more explicitly. Similarly there's a great deal of accumulated knowledge in, say, sociology and social psychology that, when approached through the AQAL framework, can be put to more effective use.[25]

Much has recently been written and reported about climate "tipping points," whereas social ones are equally significant in this context (Gladwell, 2000). Similarly, McIntosh (2008) spelled out the need for what he called a "cultural psychotherapy" and gave some examples of the issues he would like to see addressed. We need to understand in greater depth just what this might mean. How well do practices that evolved to help individuals translate into social terms? And to what extent would Monbiot's call for wider involvement in

radical politics be assisted if the dynamics of such involvement were more clearly articulated? What, for example, are the costs to individuals; what are the benefits?

One of the central issues that an integrally informed social psychotherapy could address is how developments in social values could catalyze changes long thought impossible. For example, we could take Fry's notion of "re-directive practice" and apply it to the advertising industry. That is, instead of using its extensive range of communication skills to drive further material consumption, options available to it from, say, teal altitude and a post-conventional stance can be explored, asking how that industry could help encourage worldcentric values and actions across the board. To "re-purpose" advertising in such ways is an immensely productive and, quite possibly, widely liberating development for significant numbers of people. A fine example of this work in practice is the U.K. firm Futerra Sustainability Communications (www.futerra.co.uk), which has rendered communications tactics for climate change into an accessible set of "new rules" worthy of wide application.[26]

One of the greatest omissions in the climate change literature is that of "the shadow" and how it operates in social contexts. This underlying issue needs to be confronted if proposed innovations and strategies designed to respond to the prospect of drastic climate change are to succeed. Currently, the shadow is evident in the activities of various actors within the global system. These are social entities that have become split off from society and that actively block, or work against, any effective action or response to global issues. This is very far from being merely a theoretical issue. Social and economic innovations such as are suggested in the literature (carbon taxes, demand management, non-violent security, "truthful markets," etc.) cannot attain their full potential, or may be marginalized, while such entities continue to subvert more progressive social intentions.

International criminal networks and the correctly named "shadow economy" that they operate—dealing in prostitution, drug running, arms dealing, and the like—represent a hidden drain on the entire economy of the world, both human and non-human. Within civil societies we should also address the still vast investments in merchandising, the policies of oil and coal companies (and the "perverse incentives" that they still attract) as well as the gigantic sums invested in short-term, "empty" wealth. Nor are these merely "Western" concerns as the boom (and later, bust) economy of Dubai suggests (Hari, 2009). Then there are the actions of militaristic and failed states that, in so many cases, work directly against wider human interests through endemic conflict and environmental degradation. This array of embedded social dysfunction needs to be brought back into full awareness—in a sense "owned" by us all—and addressed in any future climate change proposals. As Taylor (2008) notes, currently the sums of money expended on a broad range of "negative" uses (such as military expenditures, advertising, and perverse subsidies) vastly exceed those needed to fund basic human needs and Earth restoration.[27] This is yet another pointer that directs our attention back toward the social and personal interiors.

We should also acknowledge that the social formations currently devoted to understanding the global predicament need to be strengthened, enhanced, and better integrated.[28] While some commentators take an optimistic view of NGOs and related social movements, the evidence that they are able to achieve the necessary changes in time is unclear (Hawken, 2007).

Domain of Systems

The LR is the domain most familiar to conventional observation and practice. It is the well-worn territory of new technology, improved infrastructures, more fuel-efficient cars, architectural innovations, urban redesign, and so on. To say this is not to demean it. Yet it is so often taken to represent nearly the "whole picture" when, in an integral view, it is only a part of it. So the key point is to begin to uncover and make clear some of the dense interconnections between this familiar external world and the realities of the interiors, as has been attempted here.

Discussion

The view that emerges from the above is, I think, both encouraging and empowering. The existing climate change literature provides welcome starting points that can be broadened and enhanced through the use of integral methods and by accessing some of the other rich sources that are now more widely available than ever before. We are by no means "out of the woods," but there are certainly many ways forward that make sense and are achievable. For example, in the UL we now know that different sets of values implying various actions, strategies, and solutions also need to be expressed in *multiple* terms so that they will have meaning within different value worlds. Karen O'Brien (2008) has drawn attention to this in relation to the growing conflicts over various uses of the newly accessible Arctic region.[29] Supporting this is Brown's (2006) reminder that there is both the "high road" of transformation and the "low road" of translation at any level.[30] Finally, Gail Hochachka (2007) reminds us that "a large proportion of development is horizontal—it is a filling out of that particular stage of growth and an elaboration of what it means to live and be at that stage" (p. 108).

Clearly, there are many in the world whose life conditions make it difficult or impossible to attend to climate change and associated issues of equity (Beer et al., 2008). Here is where the works by Lynas (2008) and Faris (2009), who are reporting back on the early impacts of climate change, are so valuable. They assist more people in the rich countries to "connect the dots" and begin to see that we are all in this together—there is no "us and them" anymore. As our individual and collective grasp of the global predicament gains clarity and definition, it also becomes unavoidable that the major burdens of innovation and change fall squarely upon the rich who must now begin to use their current wealth, their current degrees of freedom, to make the necessary changes. As we have seen, there are many such innovations in progress.

In this context there is a unique opportunity for a particular social institution that has thus far remained remarkably passive—the university. There is a strong case for suggesting that universities, in a sense, "drop everything else they are doing" (or, at least, put it aside for a while) in order to re-focus on the increasingly problematic human prospect. Such priorities and concerns are surprisingly uncommon in academia. Yet the connection was clearly established in a 1997 statement by Don Aitkin, the then Vice Chancellor of the University of Canberra, Australia. In part, he wrote:

> It seems to me that humanity may have only two generations left in which to sort out how to modify the impact of the human species on the planet. If it does not learn how to do that, then the world is likely to experience a catastrophe even more severe than that which followed the collapse of the Roman Empire. Compared with 1500 years ago, we do know in some detail what is happening and we know at last some of what

> needs to be done. Moreover, we understand that where we do not know something, we can set about finding it out. (p. 33)

He then added, "The principal institution in humanity's race to save itself, if we set aside enlightened governments, is the modern university" (Aitkin, 1997, p. 33).

Such statements are as rare as the proverbial hen's teeth in academia. Yet universities already have within them many of the people with the expertise to understand every aspect of the global predicament, both inner and outer. They are scattered through a bewilderingly fragmented array of departments, institutes, research centers, and the like. Yet, with the example of the IPCC (International Panel on Climate Change) in mind, it is not beyond human ingenuity to assemble a significant number of leading thinkers and practitioners around a momentous mission of this kind. They could and should be freed to work together in an organized and effective way to deal with the unprecedented situation facing humanity.[31] As O'Brien (2008) and others have noted, the integral perspective in general, and Integral Methodological Pluralism in particular, provides a unique foundation for achieving a new level of interdisciplinary cooperation. In summary, if universities put their collective minds to it, they could reorganize themselves to create humanity's most powerful means to understand, confront, and resolve all the major issues of climate change. Some emerging scholars have already completed Ph.D.s that demonstrate the power of an integral approach in relation to these very issues. For example, Chris Riedy (2007) provides an Integral perspective on sustainable development and climate change response. Peter Hayward (2008) has taken up the topic of wisdom and looked at how foresight develops in individuals and groups.

Beyond academia stands what I sometimes think of as the "great unanswered question" of our time—the constitution of re-humanized futures. This is, I think, the essence of the civilizational challenge that we face.[32] The bias noted in this article towards exterior, empirically based phenomena embodies a significant difficulty for our era—the confidence and instrumental power vested in technology/science and the flood of advanced technologies that have emerged from it. As a result, "the future" has come to be over-identified with science and technology while issues concerning human values, social needs, or environmental well-being have been eclipsed. The collective price, however, is very high. When the new powers obtained through technology and science become associated with inadequate values, ego-based motives, and the like, then dehumanization and ecocide are not far behind. Therefore, the re-balancing of focus, concern and effort that this article has sought to identify can be seen as a structural necessity and a precondition to any lasting solutions.

The promise of integrally informed approaches to climate change is that they offer a broad, deep, and systematic framework within which many different kinds of ideas, contributions, and practices can be respected, find their place, and be more widely accepted and applied. The future of our children and their world depends not only on reducing our reliance on fossil fuels, de-carbonizing the economy and having it "tell the ecological truth," vital as these are. It also depends on encouraging us all to see the sources of global problems within ourselves and our social contexts. It is perhaps this step that has the greatest potential to take us "beyond the threshold" toward greater clarity of purpose, broader social support, and enhanced functional capacity at every level. Future work that emerges from this analysis will become increasingly visible in an array of worked examples.[33]

Conclusion

This article has drawn on a number of examples of recent climate change literature. It has attempted to honor each of them while also being alert to gaps and omissions. Collectively, they provide us with a rich and suggestive overview of the dangers facing us as well as a plethora of suggestions about how we might respond. By using aspects of an integral approach, I have attempted to highlight patterns and identify areas where greater, or more carefully focused, efforts can yield more effective results. None of this is simple or easy. There is a very real danger that humanity may not unite in time—in which case it could find itself marooned, as it were, at the threshold of climate change response, with nowhere to go.

Global warming has, in a sense, "crept up" on the human race rather quietly and insidiously. Now that the nature of the threat, not only to ourselves, but also to every living species, has been revealed, we must act. But how do we act, with whom do we act, and toward what ends? These are the questions that must be resolved on a global scale.

Very briefly, we can perhaps say that we act by gaining clarity about the global context and our own capacities for growth and development. We seek to act with others who are also awakening from the slumber of taken-for-granted immersion in social and cultural contexts. Personal growth is vital, but we must at the same time engage in acts of cooperation, grace, and purpose whenever and wherever they are needed. So, to paraphrase Faris, just what global warming will mean for the world depends on how serious we become in confronting it—and ourselves.

When the scales fall from our eyes, the global climate crisis is like a koan that suddenly reveals its truth. Looking beyond ego and the traps of the rational mind to the higher reaches of human potential we see that the answer has been staring us in the face all the time. Quite simply, it is time to wake up to who we really are and take collective responsibility for what happens next.

Notes

[1] An excellent place to begin is the Integral Institute: www.integralinstitute.org.

[2] A useful overview of this area can be found at http://en.wikipedia.org/wiki/Spiral_dynamics.

[3] It is important, however, to note that public distrust of scientific pronouncements about issues such as climate change is not simply a matter of individual psychology. There is firm evidence that significant resources have been devoted to *obscuring* the science of climate change and denying its reality. As one source put it, "Doubt is our business." See Pearse (2009).

[4] A more detailed overview of each of the 14 works summarized here can be found at www.richardslaughter.com.au.

[5] Hamilton (2007) provides a necessary corrective to anodyne views of the past decade. His overview of the Howard government's strong rejection of climate change as a significant issue provides part of the explanation for why effective responses in Australia were significantly delayed.

[6] Diamond (2005, 1998) provides a valuable historical context and many examples of how societies adapted, or failed to adapt, to change. He sees societies as a scientist (i.e., from the outside). Hence this work understates the role of power, worldviews, values, and so on.

[7] Lovelock (2006) presents a catastrophic view of the prospects for humanity. He considers that we are "no more qualified to be stewards of Earth than goats are to be gardeners" (p. 137).

[8] Steffen and colleagues (2004) work from a valuable Earth science perspective. They consider the Earth as it was operating prior to "human forcing," as it operates now, and how it may do so in the future. This is possibly the most authoritative text on the LR domain. Its particular gift is to set out a "story that connects" the different pieces of the global puzzle in a clear and systematic way. As such it provides a context for the other works considered here.
[9] Lovelock's work has always been controversial. In an Integral Theory context it attracts the charge of "subtle reductionism" by elevating the notion of Gaia "above" that of human agency at any level. It is included here, however, as part of the range of current responses to the onset of dangerous climate change.
[10] Brown (2008) sets out an ambitious plan for rescuing civilization. The book contains a fine grasp of LR issues, constraints, and strategies. It lacks a grounded critique of the dominant U.S. worldview, values, practices, etc., and needs to be complemented by LL and UL insights.
[11] Lynas (2008) reviewed the scientific literature on climate change and concluded that every effort should be devoted to avoiding a more than 2 degree centigrade global temperature rise. The book offers a strong case for anticipatory action, but only a glimpse of hope. Thus it is a very challenging work indeed.
[12] Meadows (2005) is among the most coherent and well-grounded sources available. It assesses work carried out over a 30-year period and clearly highlights the centrality of human and social interiors.
[13] This is a compendium of views, some of which are potentially useful and innovative. Yet, overall, the book nibbles at the edge of reasons for systemic unsustainability, its dynamics, and the reasons for its continuation. Like Brown (2008), it works from a U.S.-centric view and does not offer any real critique of the United States' complicity.
[14] Spratt and Sutton (2009) address climate change in relation to the Australian context. It is highly critical of government inaction and explores a variety of strategies for reducing CO_2 to safe levels. The book is well researched and written. Its thesis would be strengthened, however, by greater attention to social and personal factors.
[15] Monbiot (2006) is one of the most well researched sources available. It canvases many options for reducing CO_2 emission but few or none appear to be politically viable. Hence it portrays our social dilemma.
[16] Taylor (2008) attempts to sketch in aspects of a renewed world order with the aid of a systems approach. The inclusion of integral concepts and methods would greatly enhance and strengthen it.
[17] Flannery (2008) offers another science-based view that provides a fine understanding of natural systems. As before, this needs to be supplemented by a greater understanding of human and cultural factors.
[18] McIntosh (2008) covers the basic science of climate change but also views biographical solutions as possible steps to social ones. He offers a "12-step plan" that is very ambitious in the current context. It is the only work considered here that incorporates elements from each of the four quadrants.
[19] Faris (2009) provides a readable overview of some of the impacts of climate change that are already visible. While not "deep," it is likely to be more widely read than more demanding accounts.
[20] Ken Wilber has addressed both questions in some detail. See, for example, Wilber (2000, 2007).
[21] The healthy aspects of all such perspectives do perhaps need to be more fully explored, understood, and respected.
[22] This is one of the central themes of *Futures Beyond Dystopia* (Slaughter, 2004).
[23] Hochachka (2007) makes the point very clearly in relation to community development when she states that "not only does change require the cognition to *imagine* new possibilities, but also growth upon other developmental lines to actually *inhabit* those new frames of reference" (p. 130).
[24] For example, see an interview with Rob Hopkins at http://www.treehugger.com/files/2007/03/rob_hopkins_transition_town.php.
[25] One indispensable starting point is Thomas Luckmann and Peter Berger's (1966) now-classic work on the social construction of reality. It deals, for example, with the central issue of how societies provide or withhold legitimation which, seen thus, is one of the main keys to change. Another valuable and more recent source is Deborah Winter and Susan Koger's (2004) book on the psychology of environmental problems.
[26] Futerra's philosophy is succinctly summed up in an online book titled, *New Rules: New Game*, available at http://www.futerra.co.uk.
[27] Figure 11 in Taylor (2008) provides some details. For example, global military expenditures are estimated at $1,235

billion, while those needed for basic human needs and Earth restoration are estimated at $77 billion and $133 billion, respectively.

[28] There is, for example, much duplication and wasted effort on the part of organizations that overlap in various ways but often do not cooperate with each other.

[29] O'Brien (2008) notes that here, as in so many other situations, a range of values, worldviews, and interests are actively involved. There is no single "silver bullet" solution and what is required is a "multitude of measures."

[30] Brown (2006) provides useful examples of how people with "traditional" and "modern" value systems "might choose sustainability." Also both "healthy" and "unhealthy" expressions of those value systems. In so doing he opens out some of the options for work *at* these levels (as opposed to "transformative" work at new levels).

[31] The Seattle-based Foundation for the Future, endowed by philanthropist Walter Kistler, has already made a start on this work.

[32] The "constitution of re-humanized futures" is perhaps the single greatest cultural challenge we face beyond that of global warming. See Slaughter (2004, 2006).

[33] A number of suggestive examples can be found in Fry (2009) in relation to design, architecture, and community development for what he calls "the sustainment."

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