Behavior and Culture Change: Steps necessary to achieve timely and enduring emission cuts

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Introduction

The urgency to address climate change has become more apparent with the scientific evidence identifying the range of ecosystem and human impacts likely if anthropogenic heat-trapping emissions remain on current trajectories. Our human civilization needs to fast track from high to low carbon energy and agricultural systems or face an increasingly unstable and unpredictable world. A multi-faceted approach drawing on cultural, social, economic, and technological solution is needed to achieve the necessary emission reductions.

So far, technological and economic solutions have dominated the public discussion of strategies to reduce carbon emissions. The types of cultural and social changes likely required to achieve and sustain deep cuts remain unexplored and under-appreciated. Yet, history teaches us that technological change typically takes place over time scales on the order of decades while new behaviors can propagate quickly through society, especially in times of perceived crisis. In this sense, changes in behavior are a better match than technological change for the short time frame remaining to address the climate crisis. Furthermore, cultural and social acceptance of climate change action may be required to gain political support for sweeping economic and technological solutions.

Climate protection requires human well-being be decoupled from resource-intensive consumption. Such a transition is likely to be facilitated through changes in the behavior of individuals and organizations in addition to and in support of technology substitution. Pro-environmental behaviors combined with ambitious technological change present the most plausible approach to stabilizing climate and preserving ecosystem integrity. Fortunately, there is ample evidence that consumption and material wealth do not substantially improve self-reported feelings of satisfaction and happiness beyond a modest level of personal wealth or access to material resources. Thus, the possibility exists that patterns of behavior might shift to activities that provide more fulfilling livelihoods while simultaneously reducing demands on the technological and biophysical support systems.

## Existing tools proposed to address sustainability and behavior are not sufficient

Many of the proposed solutions for addressing sustainability issues are either economic or technological in nature. However, economics is an incomplete behavioral science. Individuals are driven by more than prices. Our behaviors, underpinned by our biology, are also shaped by our values, our social norms, and our relationships, especially with our close relatives. What might look like a market failure may in fact be a failure of market theory. For instance, research shows that many energy efficiency technologies could be implemented at negative costs - the discounted stream of energy savings outweighs the initial capital costs. If energy efficiency improvements save money and reduce environmental impacts, why are they not implemented more widely? Do institutions and individuals fail to recognize the true value of these resources - an information gap? Do they lack the financial incentives to make these changes attractive to implement? Or are they just naturally inclined to favor business as usual - a form of social inertia?

The technological management approach to sustainability depends on more and more efficient resource uses and generation of energy to supply an ever increasing demand. It would be a mistake not to pursue all low carbon energy sources and technological innovations given the urgency to reduce emissions. However, every technology bring with it unintended consequences. Because the scale of human activity is global, these consequences are increasingly global as well. In addition to climate change, we are threatened by environmental toxics, water pollution and scarcity, air pollution, ecosystem collapse, and a whole host of conflicts rooted in resource scarcity. If we concentrate all of our efforts on meeting the increasing demands of a continuously growing addiction to energy, we will only buy ourselves a bit more time on the treadmill-. In the long run (and not-so-long run) we need to address the behaviors and appetites that are driving this treadmill, and to do so, we will need a more complete understanding of human behavior as it relates to sustainability.

New tools to address sustainability and behavior will draw from a multitude of disciplines

There exists a broad set of disciplines that could contribute to our understanding of behaviors related to sustainability, especially sustainable patterns of consumption. These include fields such as ecology, evolutionary biology, anthropology, political science, economics, ethics, philosophy, religion, ethnic studies, sociology, cognitive science, and psychology (See figure 1).

Figure 1: Disciplines to draw on for a new behavior science
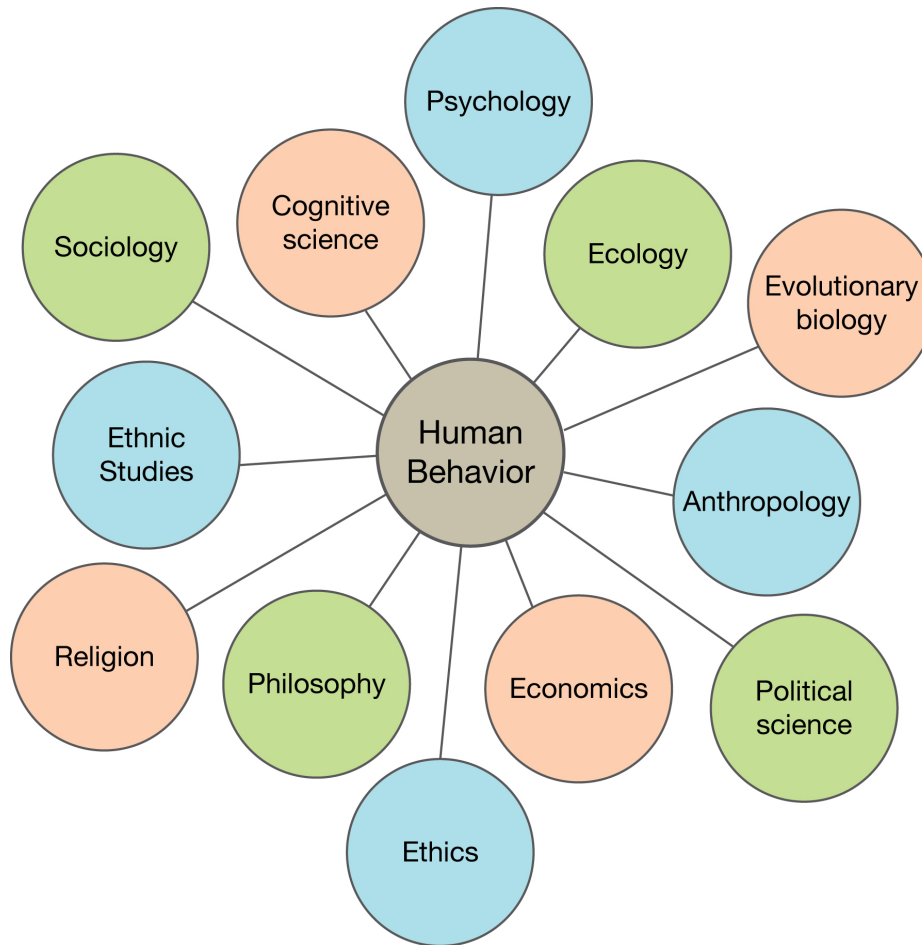
Additional information on the contributions of the biological and social disciplines to understanding behavior, as well as important considerations, such as ethics, long-term cultural values, and developed versus developing countries can be found in Appendices 1-5.

Proposal
Climate change, environmental degradation, pollution, and many other interconnected and increasingly urgent sustainability challenges are all unintended consequences of our collective activities. The short term fix required by climate change in particular will require collective action and demand mitigation fast enough and at a scale sufficient to buy time for the deployment of a low carbon infrastructure. Across both short and long time scales, an understanding of the sophisticated manner in which human beings make individual and group decisions and the many social, economic, and biological factors that shape behavior and consumption must be developed and applied to the challenge of aligning individual behaviors with a common interest in a sustainable future. (See Appendix 6 for an example of an institutional structure that could carry out this work in conjunction with researchers from other already established institutions.)

Specifically, we must address the following questions:

1. Which behavioral changes can improve sustainability? More specifically, what are the critical behaviors that might most reduce our carbon footprint in the next twenty years and what are their determinants?

2. How does decision making work around those behaviors, e.g. What is the role of culture, values, norms, etc.?

3. Using the information that we learn from question 2, how can we best design policies and interventions to further sustainability goals through behavior change?

Research Program

It is too late to develop a perfect theoretical understanding of behavior and culture before taking the first steps to steer them toward sustainable outcomes. We must adopt an attitude that allows important research on behavior to progress while engaged in the practical work of addressing our most pressing problems. We propose a program that initiates and studies the outcomes of diverse "sustainable behavior" projects. In the finest tradition of empirical science, it will adjust and adapt to steadily improve our theoretical understanding of the issues while cultivating and disseminating the most effective approaches to improve real-world best practices.

The program will:
1. Explore the diversity of behavior change strategies by drawing on multiple disciplines with insights to offer on the nature of human behavior.
2. Investigate the interface of behavior change with technology, economics and politics.
3. Develop metrics and criteria to enable comparative measurement of behavior change success.
4. Create and empirically test behavior change models and disseminate the most successful ones.
5. Support timely and aggressive programs in efficiency, conservation, and consumer education.
6. Develop the theoretical understanding and real-world experience to better inform policy making processes and improve their outcomes.

Research Findings Communication and Implementation Strategy

In order to move society toward more sustainable behaviors, research findings and recommendations for the design of policies and interventions will need to be communicated to both policymakers in the public sector and practitioners in the non-profit and business communities. This can be achieved by distilling findings and recommendations into toolkits for policymakers and practitioners, which contain guidelines for identifying behavioral drivers and the best points of leverage for behavior

change. These should be made widely available.

Implementation of behavior change campaigns using information garnered from the research will necessitate leadership from within both the public and private sectors, as well as active public dialogue about desired sustainability goals. This discussion could occur in the public sector at many levels, such as within local communities, within state governments, and among national leadership. Based upon goal prioritization and information from the toolkits, these different levels of governance could design policies that would best facilitate desired changes in behavior. Champions within the private sector could also take up the cause to identify sustainability goals and lead behavior change initiatives among their employees and customers.

Conclusion

Opportunities exist to decouple our sense of well-being from material consumption and such a cultural shift could have broad implications for achieving sustainability - a stable climate and well-functioning ecosystems that will provide resources for many generations to come. Rapid shifts in consciousness have occurred before.

The field of positive psychology indicates that one of the things that makes us happy in life is having a sense of meaning; aligning our actions with our high-level intentions makes us feel good. We call upon our leaders, both political and cultural, and our fellow citizens to rally around the common goal of accomplishing sustainability. This would provide us with an organizing principle, permitting us to find meaning and achieve a measure of happiness in the present as we create a better future for our children. There are many simple things we can do now to begin on that path:

1. Reduce meat consumption (loose weight, improve health, reduce impacts)
2. Give gifts that are not things or make them yourself (more meaningful, reduced impacts, reduced unwanted stuff, improve quality of life and strengthen connections)
3. Use your influence at work (organizations often have more power than individuals)
4. In particular, consider the impacts of your biggest investments and most enduring decisions (only a handful of decisions in life determine where we live, what kinds of appliances we own, and how efficient our homes and vehicles are)

Many of these changes to reduce material consumption in fact come at zero up-front cost and will tend to save money, increase free time, improve health, promote human interaction, secure a brighter future, create better neighbors, and provide sense of meaning and collective action while at the same time reducing global impacts and the costs of mitigation programs (CO2 prices), through rapidly reduced emissions.

The changes needed to rapidly align out behaviors with the goal of creating a stable and productive future are significant. New, interdisciplinary research can inform our understanding of how behavior works and how to package initiatives in effective ways

that are compatible with cultural norms and expectations. New institutions are needed to conduct this research, educate the public, and accelerate change. However, these things will take some time. One thing is clear in the immediate-term. Leaders must promote a socially positive, lower consumption vision of the future and challenge citizens to do their part for their nations and the world. This goal will grant us a sense of collective meaning in pursuit of a shared social objective while reconfirming our ingenuity, the quality and vision of our leaders, and the power of self-aware intelligence.

Appendices - Areas of Consideration

Appendix 1 - Biological Determinants of Behavior (Sam)

The Biological Basis of Behavior

There is a slippery slope from discussing the potential for behavioral and cultural change to discussions of free will and determinism. Everyone intuitively understands that there is not a clean mathematical description of the factors that determine his/her behavior and that behavior is not pre-determined. However, there do seem to be common patterns in aggregated human behavior and statistical patterns of individual behavior. Clearly, simple utility maximizing behavior is a long way away from the sophisticated, sometimes hierarchical, at times altruistic or self defeating, and often inscrutable behavior actually observed in people, yet in certain situations, it provides a good model. However, in many other situations, including matters of social values, self identity, and common interest, it is a poor one. As highly intelligent social creatures, we apply a great deal of our mental capacity and intuition to understanding and interpreting each other, yet we can hardly summarize all the complex and possibly irreducible factors that lead us to our own behaviors, let alone those of others. It is likely that our intelligence is as much an evolutionary *result* of our need to understand and relate to one another as it is the *source* of our behavior. In other words, we may have grown more sophisticated and inscrutable together through a positive evolutionary feedback.

For this reason, it is necessary, though not sufficient, to examine the biological basis for behavior as one of the many factors that influence what motivates people to make the decisions and take the actions they do. Although we wear fancy clothes and go the opera, there is much evidence that we are not as dissimilar from our fellow creatures as we tend to believe. We share a common ancestry and set of biological needs with one another, and to a lesser extent with other mammals and the rest of biology[1]. From an evolutionary point of view, behavioral choices are a mechanism for improving the chances of survival and procreation. In aggregate, there is an evolutionary incentive to continue behavior that has not had any negative effects, because such behavior is safe. New behavior, on the other hand, is risky. "Because that's the way we've always done it" is therefore sufficient explanation for behavior, and we should expect that incumbent behavior will require extended effort (or extreme influence) to change. Similarly, reflexes, instincts, gut reactions[2], habits, and perhaps stereotypes and biases, can all

play important roles in helping avoid harmful decisions and danger. After all, high level reasoned though is a resource intensive and time consuming activity. Shortcuts and simplifications of the processes that determine behavior facilitate an ongoing triage operation in which only the most important information is processed by the higher functioning parts of the brain. Every one of these shortcuts can be counterproductive, and none (excepting perhaps reflexes) are immutable, yet all things being equal, there has been a selective pressure towards preserving them in aggregate. To counter these, much of the cultural knowledge that we inherit from our elders and refine on our own works to ensure that behavior is socially acceptable and does not slavishly or even primarily extend from our genetic inheritance. Indeed behavior is meaningless absent a social context, and it is correspondingly meaningless to discuss either purely social or purely genetic bases for it.

The motivations for our behavior are often deeply interconnected with our relationships with other people. We behave in accordance with power relationships, ingrained social values, and to evoke behaviors in others that we desire. An argument in favor of altruism (and explanation of the motivation of tribal life) can emerge from the understanding that people often have shared interests and motivations for cooperation. However, it has also been argued that it is the genes and not the people that evolution acts upon (see, for example Dawkins with "The Selfish Gene"). In this model, a directly self destructive behavior could preserve the genes of your relatives and thereby increase the potential for your genes to survive into future generations. The sacrifices of parents for children are among the clearest illustrations of this, but relationships are generally stronger between all family members than arbitrarily selected strangers (and not solely due to familiarity). Thus there is an argument for a genetic basis for different behaviors towards family, friends, associates, and other members of one's "tribe" compared to strangers. Issues of common resource management can be seen to be mediated based on the nature such relationships. As interactions in big cities or between nations indicate, it can be very difficult to realize altruistic behavior across large interpersonal and cultural divides[3]. If we understand long term sustainability as an issue that requires collective actions among distant and anonymous people, we begin to see the need to tap into more powerful drivers of behavior than shared interest.

The Biological Basis of Consumption

To be alive is to consume. Our metabolism requires inputs in the form of food, water, and oxygen. Our livelihoods require the extraction and transformation of materials and energy from the environment around us. In a very fundamental sense, we would cease to exist without consumption. For many (and certainly for our ancestors), this is a painful reality that divides the fine line between life and death (and the line between success and failure in passing on one's genes). Such a strong selection pressure has surely left its mark on our biology. We experience compelling pangs of hunger and thirst, our metabolisms adapt to periods of scarcity, and we store energy and nutrients in deposits within our bodies. From a behavioral standpoint, it makes sense that people would accumulate and horde resources, and indulge as much as possible in times of plenty. In

fact, these are sound risk mitigation strategies. However, through collective innovation, we have learned to provide for our basic needs and beyond (with notable exceptions). This has propelled most of humanity beyond the conditions of our evolution and we are poorly biologically equipped to deal with the drawbacks. Obesity and addiction are good examples of illnesses associated with consumption that have biological origins in systems of feedback that evolved to compel us to strive to meet our basic needs. However, the biological rewards that are operative in these illnesses are also triggered by all sorts of consumption. In a very basic sense, consumption is a reliable way to experience short term pleasure and something to look forward to doing again. Combined with our remarkable knack for invention and innovation, this has led to a truly astonishing number and variety of consumptive activities, many of which have unintended consequences.

However, the simple model of consumption being its own reward is not the full story. There are at least two other major biological drivers of consumption that should be highlighted. The first comes from the theory of sexual selection. This theory recognizes that natural selection is not the only factor determining our genetic legacy. We are often engaged in highly sophisticated behaviors designed to attract and keep perspective mates. Yet there is an explanation for all of these strange and seemingly superficial activities. The whimsy associated with fashion, physical attraction, public displays of loyalty, wealth, and intelligence are all helping potential mates attract each other's attention and assess the quality of each other's genetic stock. In peacocks, the males have evolved the most elaborate tail feathers imaginable, and among elk, the males have evolved elaborate horns. The evolutionary explanation offered for such extravagance is that unhealthy or unfit animals would never be able to support such biologically expensive attributes. Thus they provide strong evidence for biological fitness and evidence that their offspring will tend to do better than average[4]. Translated into modern culture, accumulations of wealth, conspicuous and wasteful consumption, sky scrapers, sports cars, gigantic houses, outdoor air conditioning, and other displays of excess can be understood as displays intended to attract the attention of discerning mates.

The second stems from the human need for interaction and interpersonal connection. As our means have increased, we have witnessed a nearly unimaginable rate of progress in the technologies related to communication and transportation. Indeed, right after the innovations that address our basic individual biological need for food, health, and shelter, our greatest innovations cluster around transportation and communication. As long as people have the means, it seems, they will expend substantial energy and resources travelling to meet one another and exchanging goods and information. The strength of these impulses have conspired to create great cities, major shared infrastructure, and a seemingly unquenchable desire to travel faster and further. Transportation stands out as a source of substantial environmental (and even personal) harm that is likely to remain a robust and compelling human desire.

[1] In his groundbreaking and controversial work on sociobiology (see his book by that name), E. O. Wilson laid out the argument for the influence of biology on social interactions without invoking biological determinism.

[2] See also for example, Malcolm Gladwell's "Blink" and his discussion of "world views".

[3] This is one explanation for "tragedy of the commons" type of resource management issues, and it can be argued that diffuse and time delayed global impacts of behaviors are the most extreme forms such issues. Climate change, ecological degradation, environmental toxics, overfishing, etc. all have this feature in common.

[4] See for example Matt Ridley's book "The Red Queen" for a more detailed discussion of the many manifestations of and paradoxes associated with sexual selection.

Appendix 2 - Social Determinants of Behavior & Social Agents (Catherine)

- Social change can move faster than technological change therefore given the short timescale to mitigate dangerous climate change greater emphasis and resourcing is needed to mobilise social changes in support sustainable lifestyles.
- Policymakers have limited understanding of the collective drivers determining lifestyle construction and therefore have not been able to create an integrated policy framework that could foster and encourage the shift from high carbon to low carbon lifestyles.
- To inform policymakers & social change agents the research community can help by:
    - Developing and testing integrated psychological and sociological behaviour change models tested with empirical evidence. The models need to reflect the key individual and collective drivers shaping behaviour of the individual and group.
    - Developing a greater understanding of hardwire and softwire human behaviours, i.e. what behaviours are malleable with the right incentives and co-benefits that would open-up opportunities for tougher behaviour changes? What are the limitations and barriers of behaviour change?
    - Helping identify the critical social change agents for supporting sustainability. How can the power of these agents be effectively accessed and levered? Can a social network between social change agents be created for fast tracking behaviour change & bring it to scale? What would this involve?

Appendix 3 - Long-term Cultural Values (Allison)

Explore curriculum that explores the intrinsic value of nature, in both the arts and the sciences; such curriculum would need to 1) examine strategies for preserving a balance between the freedom of inquiry offered by secularism with a respect for nature as something valuable as an end it itself and not existing solely for the purpose of human interest, 2) look beyond the *products* and *results* of the arts and sciences as a way to

recognize the intrinsic value of nature and more towards their *processes* and *methodologies* and the kinds of values they teach: patience, sincere observation and listening, respect, restraint from manipulating the process so that the outcome conforms to predetermined expectations. These are values inherent in both art and science that have been downplayed in our linear goal/product-oriented culture.

Appendix 4 - Ethics (David)

We are at a unique point in the history and evolution of the human species. Activities, which have sustained and advanced our societies during the twentieth century, are now the very ones that are threatening our continued existence. Burning fossil fuels has provided our species with an abundant supply of cheap and easily accessible energy. The solar-driven process that produced the fossil fuels of today required the absorption of CO2, which conveniently lowered CO2 concentrations, and therefore the temperature of the planet. Unfortunately, by essentially reversing that process, we obtain not only energy, but CO2 as a product as well.

An additional aspect of our challenge in responding to climate change is the fact that release of CO2 into the atmosphere changes the earth's climate with an inherent time delay due the dynamics of the global climate system. Our activities of today result in unwanted changes tomorrow. To respond to this crisis, a major evolutionary change in our species is required, but the classical model of change driven by an external force cannot apply. If we wait long enough to experience the full effect of global climate change, we will have waited to long. To prevent the changes that global warming will produce requires action before the changes are realized.

If our species is to successfully combat climate change, it will require a distinctly unique step in our evolutionary path. We are faced with the dilemma of consciously choosing to stop using a convenient, available, and profitable source of energy that we have grown accustomed to using. This choice requires that we seek a path that in the short term will be one of discomfort, difficulty, and sacrifice. Yet, if we do not cease our dependence on fossil fuel, all indications are that the problem will grow exponentially until we will cross the point of no return. At that point the increasing momentum of global warming will be beyond our ability to influence.

In general term, the issue we face is whether or not we have the capacity as a species to make decisions that deviate the from the path of lowest energy, least resistance, to one that inflicts a certain level of hardship and difficulty in foreseeable future, but contains the promise of survival and a better quality of life. Too successfully to negotiate this crisis would be a major evolutionary change, the likes that has never been observed. Working against such a transitions is time and human nature as we understand it to be.

The cold war between the United States and the Soviet Union shares important similarities to the climate crises, and therefore, may offer insights we can learn from. At

the close of WWII, the United State chose to use two nuclear weapons against our species. Results from this action, along with scientific research, led to the realization that such behavior was unsustainable for our species, and as such the decision was made to never detonate a nuclear weapon on Earth again. Amazingly, so far we have met this challenge. Coincidentally, the challenge required to stop a nuclear holocaust contains many of the same elements that must be addressed to stopping global warming. Either, a nuclear holocaust or, the continued use of fossil fuels will lead to an unsustainable environment for our species. To face either of these challenges successfully, requires that all members of our species agree to the common constraints or success is not possible. The decision not to pursue a course of action must be made without the external physical external realities being realized. It is interesting to note that we can speak of "cooking the planet" by either the use nuclear weapons, or the continued use of fossil fuels. Thought the former would happened essentially instantaneously, and the latter over the course of decades.

We have the ethical responsibility to cease using fossil fuels as quickly as possible. The only conscientious path is to leave the remaining quantities of coal, gas, and oil in the ground. Decisions and actions made be government, or private enterprise, all contain underlying values and unexamined assumptions of the individuals involved, which in part, determine the direction and goal of that organizations effort. The question of what are appropriate values for society to embrace is a question that has, and will continue to evolve in response to the world experienced by its citizens. As we come to realize the impact our past choices have had upon the world and the unintended consequences for our future, as well as future generations, it is clear that the time has come to question our values that led to the effects we are only now beginning to experience in the biosphere. The survival of all species depends upon choices that we are free to make. As such, it is incumbent upon us to accept the ethical responsibility of insuring that our actions do not knowingly damage our earth's environment.

We need a "Global Cooling Race". The race to reach the moon set a mission for a nation, the race to decarbonize our energy sources sets the mission for a planet. As a species we possess creativity and ingenuity in excess, therefore, the challenge is to direct our efforts in a concerted manner. Once we make the conscious choice to cease following the dead end path of fossil fuels, we will have begun an exciting new era of human achievement, an era that holds the promise of continuing our adventure on planet earth.

Appendix 5 - Developed versus Developing Countries (Yazhidi)

The realization of sustainability at a global level is quite complex, diverse and requires different ingredients in spatial and temporal terms. This is more pronounced when considering developed and developing countries. In light of addressing this complexity at the two development levels, we need to understand and isolate the key issues that require strategic interventions at those levels and which can provide niches interfaces.

Whilst the major threat to achieving sustainability in the developed countries is largely linked to consumption patterns that elicit emmissions and lead to massive resource extraction; in most developing countries high poverty levels coupled with rapid population growth that put enormous pressure on the natural resource emerge as the biggest threats. In respect of this diversity strategies for behavioural change and ultimately sustainability require different strategies and pathways at both the micro (local level) and macro level (global). The key questions may then be; what actions can be initiated or undertaken at individual level, local level and national level; and what actions need to be executed at global level? What interfaces exist at different levels? Drawing on experiences in developing countries and also understanding the major constraints, I would argue that transformations at a local level would entail understanding cultural constraints and harnessing/leveraging opportunities inherent in the community e.g. use of common resources such as grazing land in pastoral communities in Africa, communal agriculture in Africa etc. Such structures offer an organizational base and institutional framework for society mobilization and transformation. To obviate obstacles to sustainability and inculcate behavioural change, developing countries require innovations and novel strategies that will avail alternative livelihood options, optimize agricultural productivity and improve people's welfare. This will however require research to understand optimum levels beyond which welfare improvement does not become counterproductive or lead to unsustainable consumption patterns. They key actors will entail civil society for behavioural change at community level, governments for formulation of appropriate policies, institutional development and resource provisioning, multinational organizations for provision of funds and technological innovations, global players to address regional conflicts.

Appendix 6 - Institute for Sustainability Innovation and Transformation (Alan)

The are many possible ways to carry out our proposed research, but we submit that the challenges we face may require a novel type of institution to address them. Below is a description of the form such an institution might take.

Mission

The mission of the institute for sustainability innovation and transformation is to provide the ideas, implementation tools, and practitioners necessary to facilitate the emergence of resilient and sustainable communities throughout the United States. The institution is intended to be a hybrid organization that will research, train, and do. It will conduct research informed by the pressing needs of sustainability, provide education informed by practice, and initiate action based on innovation.

Vision

In order to pass the America that our forefathers envisioned on to our children, we as a

people must undergo a societal transformation. We know that while technology can aide us, the real tools of transition lie in people. The components for such a transition already exist, but we have not yet built the tools. While the talent and knowledge about sustainability exist, we do not yet have a corps ready for action. The goal of the Institute is to coordinate the living experiment of America's adaptation to sustainability, to build on the strength of people to develop the tools and strategies for a resilient and sustainable America.

There are four major divisions to the activities within the Institute. The first, research and applied knowledge generation, will bridge the gap between knowledge generation and action, drawing on the existing educational and institutional foundations within the US to rapidly develop the tools necessary to facilitate a equitable transition to a resilient and sustainable society. The second, education, training and dissemination activities, will develop and train a sustainability corps, a network of trained consultants and facilitators who can help communities to explore their options and develop strategies for transition. The third, consultation and implementation, will employ the sustainability corps to facilitate an adaptive, action-based learning process across many communities, using the action research to inform applied research, to identify successful innovations, and coordinate the propagation and adoption of valuable strategies. The fourth division, collaboration facilitation, will help to steward the open, collaborative atmosphere that is critical to the success of the institute. The design of the institute is intended to be quite porous, with a constant flow of ideas, people, and resources in and out of the organization as well as across work boundaries.

Organizational Components

Research and Knowledge Generation - The research activities main focus would be on generating mutually-reinforcing strategies for transition. Research teams would work closely with universities and consulting teams to inform innovation with the existing knowledge base and active practice.

Training, Knowledge Exchange & Dissemination - The training facilities would have three tracks, an apprenticeship for aspiring practitioners, a journeyman program for continuing training of current practitioners, and residence program for masters. Each track would involve applied research, work with a consultation team, and collaborative learning assignments. In addition to training practitioners at many levels, the division would be responsible for structuring tools for dissemination of successful strategies and providing forums for the exchange of ideas from practitioners across disparate geographical areas.

Consultation and Implementation - Consultation activities would be conducted at multiple scales, from working with regional and city governments to neighborhood associations. The role of consultation teams would be to provide a pragmatic tools, training, and planning assistance in the process of moving towards greater localized communities in each of the focus areas. Consultation activities would provide a

signficant part of the revenue supporting the activities of the Institute.

Collaboration Facilitation - Critical to teaching that is informed by practice, research that is informed by need, and action informed by innovation is an organizational structure that reflects the complexity of the challenge, and the humanity of its solutions. To that end, a division devoted to facilitating the skills, environment, and tools of collaboration is critical. The contemplation and facilitation division would be responsible for providing the essential working environment, and through a distributed democratic planning process guiding the future development of the Institute.