The Productive House

AUTONOMY, INTEGRATION & DIVERSITY.

Rune Kongshaug

Minimum Cost Housing Group
School of Architecture
McGill University, Montreal.
August 25, 2006

A thesis submitted to McGill University in partial fulfillment or the requirements of the degree of M.Arch II – Minimum Cost Housing

Your file Votre référence
ISBN: 978-0-494-32646-6
Our file Notre référence
ISBN: 978-0-494-32646-6

Abstract

Cities evolve in a rhizome-like fashion:[1] interconnected nodes accelerating the flow of information, rate of innovation, and the accumulation of wealth, but also making apparent new inequalities and informal economies. Since the '70s, the green and feminist movements, and self-help housing, are challenging the duality of Western discourse, scientific methods, and the separation between working and living. The creation of productive livelihoods and self-sufficient households—including local food production—can help restore local cultural and ecological habitats in the urban milieu. Sustainability is redefined as maintaining, improving and restoring local household productivity levels. This multi-disciplinary study considers the evolution of technological, social and artistic innovation; it considers housing as *a fluid interface* between human and biological systems, thus a social organization defined by its human ecology. Overall productivity performance is measured in terms of cultural and biological diversity, and leisure time produced.

Resumé

Les villes évoluent à la manière de rhizomes.[1] Points nodaux interreliés, la communication intensifiée, la croissance du taux d'innovation et l'accumulation des richesses, font apparaître de nouvelles inégalités et économies informelles. Depuis les années 70, les Verts, féministes et apôtres de la maison à faire soi-même remettent en question la dualité de la pensée occidentale, la méthode scientifique et la dichotomie vivre-travailler. La redéfinition d'une vie productive au sein des ménages autosuffisants, dont certains pratiquent l'autoproduction agricole, permettra une restauration de l'habitat culturel et écologique en milieu urbain. Le développement durable est articulé comme : maintenir, améliorer et reconstituer au niveau local la productivité des ménages. Cette étude multidisciplinaire s'intéresse à l'évolution technologique, sociale et artistique du logement comme interface fluide entre systèmes humains et biologiques, tel un organisme social défini par son écologie humaine. La performance productive est mesurée par la diversité culturelle et écologique, ainsi que la qualité des temps libres.

---

[1] Rhi·zome n (1) a thick underground horizontal stem that produces roots and has shoots that develop into new plants. Source: Encarta® World English Dictionary.

Acknowledgements (prologue)

I would like to extend my special gratitude to Professor Vikram Bhatt
Director of the Minimum Cost Housing Group at McGill University
Without whom this work would not have been possible.
Thank you for your friendship, guidance and Love.

I would like to dedicate this work to four ladies some 30 odd-years apart
Four generations, which is about as far a human life can span
Before another household leaves yet another mark.

Lilly Delphine
Kareen
Solrun
Grandma Lilly

See and feel:
Life goes in circles around a center,
Of which only you and yours form part.

New York City (August, 2006)

Table of Contents

Table of Contents

"The aim of every political constitution is, or ought to be,
first to obtain for rulers men who possess most wisdom to discern, and most virtue to pursue,
the common good of the society;
and in the next place, to take the most effectual precautions for keeping them virtuous
whilst they continue to hold their public trust."
—James Madison, FEDERALIST #57 (1787)

If you want to change the world, change your own life
—Jim DeKorne

- A Matter of Choice (introduction)

Technological and social change is evolving at an unprecedented pace. Never have so many people held hopes about significantly improving their livelihoods within their own lifetime or see their children prosper. Yet at the same time, our society has become more complex with rapid social change that affects every social organization from the household level to the nation-state; new frameworks of cooperation, citizen participation and *empowerment*. People are *appropriating space* in new unconventional ways: a growing urban sector made up of informal settlements and economies that exist simultaneously and share space with official economies and spaces; digital information highways linking command centers in a global economy; guerilla news networks that compete with national media; modern technologically-driven urban centers that also produce their own food through urban agriculture; work-at-home; and grassroots social activism.

This new social landscape has its own rules of engagement with negotiation between its various constituents. It challenges conventional wisdom about design, innovation, social organization, and one may question whether this new direction is in any meaningful way *appropriate* or maybe inevitable, and if so, whether it constitutes a radical shift in the way we think about and conduct our living?

We have become overwhelmingly urban and more mobile. Even farmers are knowledge workers.[2] Technicians are becoming specialized linking theoretical and specialized knowledge with specialized manual skills. New skills, and not only technical skills, are needed to remain competitive. Traditional, sometimes forgotten survival skills again become relevant when acts of God strike, and men and women find themselves dealing with Nature. New realities place new demands to design, organization and management

Additional applied research is needed, comparing the various, and sometimes conflicting discourses, narratives and observed behaviors, and in particular a knowledge gap between expert knowledge and observed popular phenomena.

The painful truth is that, industrial production methods are succumbing to the same fate as pre-industrial artisan practices. Highly specialized manufacturing and assembly models are being replaced by cheaper machines or labor elsewhere. Richer cities benefit through this out-sourcing, and poorer regions are offered an opportunity to "catch up" in an efficient but highly competitive game of allocating resources according to *comparative advantage*.[3] In a global marketplace, innovational capacity and new knowledge have become paramount for survival.

Ideas of how cities are formed, urban upgrading and revitalization schemes and housing have gone through a tremendous evolution, and more organic or ecological ways of understanding the city may better describe actual phenomena than linear input-output models and dichotomies North-South, rich-poor, city-countryside, and raise new questions about observable dynamics.

---

[2] Peter F. Drucker (1999). Peter Drucker first recognized that management is a discipline worthy of deep and formal study and for coining the concepts of "privatization," "knowledge workers," and "management by objective." (Brent Schlender,2004).

[3] Ricardo, David (1772-1823). "The theory of comparative advantage is perhaps the most important concept in international trade theory. It is also one of the most commonly misunderstood principles. There is a popular story told amongst economists that once when an economics skeptic asked Paul Samuelson (a Nobel laureate in economics) to provide a meaningful and non-trivial result from the economics discipline, Samuelson quickly responded with, "comparative advantage""(Irwin, 1996).

1.1. Research Problem

The problem at hand is that many people are left out of this transition towards ever more information and knowledge, creating new inequalities. What is the nature of this transition, and where do individual household economies belong in this evolution? How can elected leaders stay in power while guiding us through the painful adjustments of continuous learning, seeing old skills becoming constantly obsolete? What kind of "survival skills" are needed to stay the course of booms and busts, that is: how to create stable livelihoods without having to be dependable on natural resources from an increasingly volatile world? What does individual responsibility; individual consumption and production behaviors have to do with it? Are some social organizations better than others in helping people to adjust and become productive in an ever-changing economy? What about becoming self-sufficient? Does autonomy mean autarchy, isolationism, or an utopian ideal, or is a certain degree of self-sufficiency possible, indeed *desirable*, within an integrated whole?

Many are frustrated, and increasingly vocal or violent about Western discourses on Liberty and Freedom, often—and rightly so—associated with personal or national debt, especially amongst the world's poor and middle classes, who see long hours of work but little leisure; a heavy-handed liberal economy that tolerates few alternatives—few viable alternatives being proposed or considered—; a system that even seems to condole greed, sloth and excess; the pursuit of material status over society; and most importantly where the human Equality and Dignity principles often seem left out for someone else to figure out.

So, if it is not business and not government, whose responsibility is it to redress inequalities? Is it thus up to people to organize and take matters in their own hands?

1.2. Rationale of the study

The Energy crises in 1973, 1976 and 1979 were linked with events of hegemonic competition and geographical spheres of influence; conflict over oil, nuclear proliferation, border conflicts, and the degradation of our living environment. These events were also linked with peoples' struggle for self-determination or individuals' drive for self-realization, fueled by the hope of a better future. These events reveal a competition to control peoples' minds, their pocket books and their way of life. The 'American way of life' is still by far the most popular dream that now most people struggle for, and it is important to understand individual motivations of self-realization, health, happiness and prosperity.

The geo-political, lifestyle-related and commercial, *behavior-related struggles* are just as relevant now as 30 years ago, and even 60 years ago. Yet, while the political landscape is filled with many of the same conflicts today as then, our "way of life" is not a fixed variable.

In fact our ways of living are evolving so fast that it also begs to question conflicting worldviews, as *lifestyle* and *quality* of life are not necessarily the same thing. We are witnessing differences between the rhetoric of official discourses and observable results in the choices that people actually make.

How do cities, the wealth and inequalities we observe within them, come into being, and how can design, and in particular housing design, help empower and not frustrate peoples' aspirations?

1.3 Goals and objectives / intended readers

My main objective is to show that we are in the midst of a revolution that will significantly change the way we look at our place in the world. The real change is being brought to us by the informal sectors in rich and poor nations and new forms of social organization.

Revolution is to be understood as the dramatic change in ideas and practice, and particularly in the way the performance of new social organizations can be measured in terms of the ecological and cultural diversity that they produce. As all revolutions that involve technological and social change, this change is not sudden but an evolution where certain events or patterns are becoming discernable, and that, as an aggregate, bring about radical change.

My secondary objective is to show the importance of the household economy in this emergence of new social organization . Important segments of the society is not being seen or accounted for according to their importance, and do not receive the attention they deserve. I say "deserve" both from a theoretical standpoint, in terms of understanding their due place in the literature or academic discourse, and, in terms of the inferior position in our society, which means that certain segments of our society has less power to affect outcomes than their "merit" based on their productive performance and overall contribution to society. This problem of exclusion and segregation runs deeply in our society, and maybe in every society. The Feminist and Green movements, the Civil Rights movement, and Human Rights have all made tremendous contributions in redressing this injustice, and as a whole, our social organization has evolved and become more civilized as a result. However, the recent successes of those movements should remind us that the problem, which I will here refer to as "otherness" is still amongst us (Chapter 2, Otherness).

My hypothesis is that this exclusion is at the heart of many of the frustrations that we can see and feel in the world today, and that the elimination of otherness and instead consider diversity and its manifold as a social organizing principle, will help us see people for what they are, instead of categorizing certain groups as "other."

This change in attitudes could contribute to a more balanced discourse that would seek to tie actual policies with meaningful social reform. In practical terms, I will here focus on including the *domestic space* as an important and valuable social organization. With respect to division of labor, the domestic space becoming autonomously productive has several implications for the way we study productivity and the household economy's performance in society as large.

My third objective is to show how new forms of social organizations are emerging in which the household economy participates as a "producer" and not only as a "consumer" or as "labor-force" (Chapter 3, Design Priorities). This means that increasingly, knowledge worker in cities are controlling their own productive means. An important category of knowledge workers that is often overlooked is the category of food producers, farmers and productive gardeners. Food producers in or around cities are increasingly controlling their means of production as worldwide popular phenomena such as urban agriculture is increasingly receiving support and recognition.

A fourth objective is to focus on the role of city-making and housing, in other words the division of labor that is physically expressed between places of living and working, and the flows of food, energy and resources that together define a culture and a way of life (Chapter 4, Foodways and Architecture). Particular attention will be given to income-producing households and the potential for incorporating ecology with local culture. In other words, how to conceive of housing that incorporates productive natural living systems with housing design. A particular case will be the role of urban agriculture, which as an observed

phenomenon all over the world is showing that food production, housing and the planning of cities are intrinsically related, and that in many instances food production should be a permanent, thus planned, part of the city core.

A fifth objective is to look at housing events that can illustrate this change and in particular the role that housing plays in strengthening the productive capacities of the household economy (Chapter 5, Ecology and Self-Help Housing). A multitude of people is affecting day-to-day changes, which as a whole redefines our way of life. Most of these individual events are anonymous and therefore difficult to observe, but some are visible such as self-help and owner-built housing in both richer and poorer nations. Housing occupies such an important place in a person's life and is a center for social organization and economical decision-making, which arguably affects every other aspect of life.

My hypothesis is that if sufficient and significant new types of behaviors can be observed within housing, then this also tells us something about how society is evolving as a whole. Self-help and informal housing are sometimes referred to as ghettos in the North and as slums in the South. Sometimes they are perceived as survival strategies, and some of them are precarious and offer only temporary shelter. Others evolve over time to become permanent places filled with life, beauty and meaning. In both poorer and richer nations, this segment of popular housing traditionally represent a liability to city officials and an eyesore to others, but here they will be considered an overlooked asset. Their interaction with other built and planned environments have often escaped analysis or planned application due to the difficulty of working with community-based and popular phenomena. Often being informal, their contribution is not accounted for. This thesis hopes to contribute to that knowledge, or at least firmly identify an oversight.

My sixth, and final objective is to show how forces already at play are redefining social organization, but that outcomes may be lessened and inequalities needlessly painful if we ignore these changes or continue repressing *otherness* (Chapter 6,

Autonomy and Integration). New forms of social organization and production can help—and many examples of housing are already helping to restore ecological *and* cultural diversity, making a positive contribution to society's productivity as a whole. Recognizing these new forms of social and productive organization will help society outperform itself. The goal is thus to identify these undervalued assets that are currently in the making, in front of our eyes.

This work should be longer and more developed based on the vast information available on the subject, but this initial attempt should be of interest to Architects, Urban Planners, Economists, Environmental Scientists, Housing Professionals, Individual Home-Builders and Growers, Agronomists and Development Professionals, Behavioral Scientists, Psychiatrists, Phenomenologists, and Philosophers. I welcome the feedback from all these disciplines. Basically, the household economy and the performance of social organization is a topic that touches every walk of life.

1.4. Methods / Scope / Structure

Technology and social "breakthroughs" can help approach us, or distance us, from solving our basic problems of existence: shelter, food and heat. A dwelling is also art if it contributes to artful living, a heightened awareness and should be a source of joy. Utility is good, yes, but not at the expense of pleasure, beauty and joy. The methodology employed is intended to place the discussion of housing outside of conventional discourse and method.

1.4.1 Methods

Cogito ergo sum[4] concluded Descartes and thus ushered the modern era of Western objective thought, dominated by a *duality* between mind and the body-machine. This duality is scrutinized and rejected by many, such as David Abrams[5], who consider instead that our cognitive and sensuous capacities all form part of Nature. The scientific revolution also profoundly transformed the ancient arts of architecture[6], whereby industry replaced the guilds, crafts and trades, and to a certain extent the engineer replaced the architect-artist or architect-builder. Our scientific discourses and methods were also shaped by this modern approach, creating separate disciplines and a rigorous method analyzing systems as made up of distinctive parts, or organs.

Here I will use a method that is subjective and experimental, inspired by the fields of sociology, phenomenology, deep ecology, thus a subjective and ecological realism of sorts that seeks to be multi-disciplinary and "hands-on" in terms of accounting for personal experiences and field-work in addition to the literary review of what other thinkers have thought on the subject. I purposefully intend to be contemplative, rather than scientific, because holistic knowledge will always fall short of scientific rigor, but with the added advantage of "being all over the place." If actual experience of life is deemed insufficient for scientific method, then maybe there is something wrong with the scientific method.

1.4.2 Scope

Since the early 1970s one can witness an acceleration of individual housing "events," both stand-alone buildings and a body of knowledge that discusses

---

[4] I think therefore I am. René Descartes (1596-1650).

[5] Abrams, David (1997). In his book The Spell of the Sensuous, one way that David Abrams solves the complicated problem of how we human beings in the modern world have our perceptions cut off from nature, when it is those very perceptions that make us most human and most natural, is to say that writing did it, or in particular, alphabetic writing. (Anonymous blogger, *Literacy: the original virtuality.* http://jimmiebluegoose.livejournal.com/. (Apr. 14th, 2006 04:21 pm)

[6] Pérez-Gómez, Alberto (1983). Architecture and the Crisis of Modern Science. The MIT Press. Cambridge, Mass (1996)

"autonomous," "green," "ecological" or "healthy" housing. These events have in common a more self-sufficient, environmentally responsible or more frugal approach to resource-use, promoting income-producing building methods and operations. A particular problem facing these efforts—and therefore what distinguish them—is to what extent they emphasize different grades of technology in terms of their up-front cost, complexity, and degree of autonomy or integration with existing energy sources. They also differ in social organization and to which extent they mark a continuation or a departure from official discourse, existing institutional frameworks, design and construction methods.

Productive technologies will refer to technologies that do not pollute, in other words where waste equals food (input) for another process, that are "carbon-neutral,"[7] income-producing or cost-saving, and that work in a synergetic, non-linear fashion to achieve an overall productivity and social good is larger than each of its parts considered separately. Productive technologies will rely heavily on renewable resources, such as the primary productivity of plants generating oxygen and biomass (carbon), aerobic or anaerobic microbial productivity, sun radiation, wind power, hydrological cycles, and human input hear referred to as "sweat equity."

Wasteful technologies are referred to as those that pollute and use an excess of non-renewable resources that necessitates expensive extraction of natural capital (uranium, oil, gas, mineral ore) from the Earth. Choosing the "right" technology is not easy. On one hand the choice of productive technologies risk to become overly dogmatic as if guided by religious fervor, political conviction or counter-productive if coerced by regulative regimes for the greater social good. On the other extreme, the meaning of ecology is currently being flattened, and can mean just about anything that is not conspicuously environmentally harmful or does not pose an immediate (or proven) threat to human health.

[7] Carbon-neutral would include the burning or natural decomposition of wood since wood is a renewable resource that over its lifetime traps CO2 from the air and stores it in biomass.

The latter view looks at "Eco-" as yet another brand of lifestyle. Maybe Green is just a fashion, a passing fad? Is a house with photovoltaic panels an ecological house? Must autonomous houses produce all of its own electricity or it can be connected to the electricity grid? Can an autonomous house use a diesel generator in case of need, or must it only use non-renewable resources to be considered truly autonomous? What about natural gas for cooking?

As for the aesthetics and form, does the presence of a passive solar atrium or greenhouse automatically signify ecology? Are certain ecological housing components recognizable as part of an ecological form language, such as green roofs? Should all ecological housing be LEED (leadership in energy and environmental design) certified? Should industry decide or governments? Is ecology an evolving material standard or a manufacturing process standard... or does it altogether require new thinking?

The choice can be one of personal conviction or preference, or pragmatism based on need, budget and local availability, but in the end, *ecology* is employed here as a value system and a method of observation that understands and respects natural processes and is inclusive of otherness.

Deep ecology, ecological design and the emerging field of *biomimicry* take a moral and aesthetic stance on the concept of place, or maybe we should really say the "no-place." Like the negative space in a painting, ecological design is not so much about the object itself, but what gives the object form and life, emphasizing relationships and flows rather than its singular functions or characteristics. This no-place is also recognizing the belonging of one place in a larger ecology, ecosystem and environment. There is really no adequate word for describing a place that is inter-connected with life this way. Maybe it must be felt.

Basically, a place needs to be honored and not violated. It shows restraint in certain areas where consequences of our actions are impossible to predict. The disregard of cause and effect have led to the disregard of health risks and threats to future generations, such as the proliferation of nuclear energy and nuclear waste, and genetic engineering, allowing immediate concerns of power or profit outweigh sound scientific judgment of risks related to uncertainties. These uncertainties are not only about the technologies themselves, but about human capacity, or rather the lack thereof, to cooperate and manage complex issues that require multi-national collaboration, and multi-generational planning. Ecology is not a thing for luddites, but is a high-growth innovative field driven by technological and scientific innovation. Biological engineering incorporates time-proven natural processes and boldly seek to *restore* bio-hazardous, toxic super-fund sites in ways working with nature that are effective, progressive and affordable, and seek to restore our place in the world.

The productive capacity of a house is thus not only defined by its autonomy, nor regionally determined by the richness of the soil, air, water and natural environment, but also by its cultural ties, and a regional or global sense of interconnectedness and diversity, thus with the decisions made by other households that affect our quality of life as an aggregate. Individual households are well placed to make decisions, preserve and restore the richness of the soil, air and water and the surrounding natural as well as cultural environment. What is proposed is to look closer at social organization of the household economy and to define a more productive way of designing and living through relationships with nature and local culture. Social and technological innovation is thus subjugated to social and ecological realism at the "micro" household scale.
Thus the value-system employed in my analysis should be clear: human dignity and livelihood first, technology second. Ecological diversity, artistic creativity and heightened awareness are viewed as design *goals,* while useful new paradigms and technological solutions are viewed as *tools*. Here, the reality we need to apply is that of the sociologist and the phenomenologist, the ecologist and

the poet who seeks reality in the multiplicity and sensory overload of a healthy natural environment.

1.4.3 Structure

To paraphrase Gilles Deleuze, this is a "body without organs" (BwO)[8], as a living body, whose purpose is to be alive and not dead. Studying organs dissected only reveal the most basic mechanical functions, but the synergy between organs is what makes the organism come alive, and therefore the body must be studied alive and whole.

Likewise, this body of research thus has many connective tissues around a structure, which has painfully and joyfully grown into being. Pain and joy seem both part of growth, as do both the dreams *and* the struggles that motivate individual events. Autonomous housing falls into this category of self-help and self-realization. The connective tissues are themselves in relationship with other organisms: my own household economy, the street outside, the computer I am just now typing on, the reader who reads, the Academia, and the world of business, are all social organizations connected to this evolving body of knowledge. But somewhere, somehow, our field of perception needs to be narrowed down.

I propose a structure divided into seven moving and equally important parts, to which overlapping and interconnected tissue is attached. No section is more important than the other, and it should be possible to begin with any chapter first. Each part should say something about productive living and new forms of social organization as it is being experienced from different but complementary perspectives. This introduction is the first part, and it is informing the organism

---

[8] Deleuze, Gilles (1980). "The Body without Organs is a limit. In particular, it is the limit at which all the flows which constitute the world flow completely freely, each into the others, so that no distinctions exist among them any longer. Deleuze and Guattari (sic.) describe a world in which everything flows and everything is made of flows: not only water, air, magma, blood, paint, electricity, not only grass, earth, sun, but ideas, people, culture, books, conversations flow. What allows us to distinguish these flows from each other, to single out one or another, is a threshold or a point which separates each of them. Every flow is made by cutting off another flow, by restricting or drawing off a flow" Evens, Adens (U. of Virginia, 3 Jun 1996 21:17:34 –0400).

of a sense of direction guiding you, the reader, through a landscape to different vantage points or *vistas.*

Chapter 2. Otherness, is a subjective narrative that will serve as the background to our journey through a landscape. It considers overlapping cultures and the existence of multiple subjectivities. It relates how a Norwegian 2nd-grader would perceive world events in 1979 as they unfolded, which will help us compare what has changed comparing then and now. This approach will help question the central role of the nation-state as a social organizer of people's struggles for nationhood and self-determination, as well as its limitations. It also discusses the narratives of Women, particularly in relation to the household economy. Her role will permeate the rest of the work, and she already is (since I have a mother.) Women's voices are contributing to this perspective through Feminism and Eco-Feminism. Otherness will also include the perspective of Black people in the U.S. through the study of DuBois, the father of Sociology.[9] The voices of the Saami people, again from Norway, will be heard, thus shedding light on nomadic and tribal cultures that struggle to co-exist with sedentary forms of social organization. The readings of Gilles Deleuze also will add perspective in this respect. The section hopes to shed light on social organization, cooperative frameworks, cultural diversity, and evolutionary patterns.

Chapter 3. Design Priorities, reviews recent literary works primarily since the 1970s, that are helpful in establishing the multi-disciplinary, multi-cultural, and evolutionary context behind productive living. We will review concepts from ecological design, economic performance and management theory, and urban planning as they relate to the *evolution of cities.* The section considers social organization at various scales, from large bioregions and multinational international frameworks to the community scale and household economy. It is thus a multidisciplinary landscape where each discipline represents a different vantage point of a discipline.

[9] W.E.B. DuBois (1868-1963).

In architecture and urban planning, the perspectives of Kubler, Geddes, Mumford, Jacobs, Alexander, Sassen and Castells will be touched upon; in Management Theory, the perspectives of Schumpeter, Schumacher, Drucker, Peters, Hawkens and the Lovins'; in ecology, biological design ad *deep ecology*, the perspectives of Carson, Ehrenfeld, Shiva, Goldsmith, Irvine and Ponton, Trainer, Orr, and Næss, the Todds[10], and others. Note that the 'households" of the Todds, the Lovins' (Armory and Hunter) and the Vales (Brenda and Robert) stand out as particularly prolific contributors to this field, and I am tempted to make a conjecture that their collaborations and productivity to the literature supporting a "productive house" is no coincidence.

Collectively, these vistas give us a sense of understanding place in a different way than conventional discourse or disciplines standing alone. *Deep ecology* considers a new way to think of ourselves in relation to nature, how we live, and thus how we build and pursue scientific pursuits and economic behaviors, towards self-sufficiency rather than excess.

Chapter 4. Foodways and Architecture, provides an expanded definition of Edible Landscapes. This section will cover various institutional and household behaviors and contrast discourse, practices and motivations as they relate to food production in North and in the South, and in particular in relation to urban households.

To this purpose, the concept of "Edible Landscape" (or simply EL) is here defined as *a community-based approach to create an integrated urban-rural landscape for a food-secure future that restores cultural and ecological diversity by integrating growing with design.* The concept of EL most commonly refers to landscaping with plants that can be eaten, but current research of this author, in association with Professor Vikram Bhatt of McGill University's Mininmum Cost

[10] In 1971: John Todd, his wife, Nancy Jack Todd, and their compatriot Bill McLarney founded the New Alchemy Institute to explore a "new alchemy of earth stewardship" with the notion thaqt in nature, the concept of waste simply does not exist.

Housing Group[11], Mr. Luc Mougeot[12] of the International Development and Research Centre of Canada (IDRC), and Ms. Marielle Dubbeling[13] of ETC-Holland, have expanded the EL concept to include urban design and development, merging the fields of architecture, urban planning, environmental sciences and agronomy, under the heading "Making the Edible Landscape."

The chapter will proceed to further expand on the concept of EL comparing our own results with that of other studies exploring the following themes: the links between city-making and urban agriculture; historical foodways[14] and vernacular housing[15]; a review of the division of labor between men and women in household production, and finally offering a review of individual urban grower motivations that compares subsistence farming motivations and productivity with market-driven motivations and productivity. Also, the section offers an original perspective how EL can be incorporated with urban revitalization and how its social organization is affected through partnerships of local and global collaboration between various, local, nonprofit and governmental actors. The section proposes original work from the analysis of vernacular foodways in the Northern hemisphere centered around the community kitchen and the division of labor between various food-related private and public realms, also considering new forms of food-based social organizations and movements such as "Slow Foods," "Biodynamic Agriculture," "Permaculture," and "Urban Agriculture."

The Northern official discourse of agro-business, development and humanitarian aid will be contrasted with a more grassroots approach spearheaded by communities in cities of the South: Havana (Cuba), Kampala (Uganda), Rosario (Argentina), and Colombo (Sri Lanka). In these instances, "innovation" in poorer regions can inform housing practices in the North, thus offering yet another way

[11] Bhatt, Vikram and Kongshaug Rune (2004, 2005, 2006).
[12] Mougeot, Luc (2005).
[13] Dubbeling, Marielle (2003, 2006).
[14] Cromley, Elizabeth (1996); Kongshaug, Rune (2003).
[15] The examples of "productive housing" found in vernacular housing traditions has been explored be this author in the study of the vernacular Acadian housing (Kongshaug R, 2003).

of recognizing the value of cultural and ecological diversity. The Southern example can even offer an objective outsider's perspective to Northern discourses, thus an *acculturation*, of our own cultural practices and expand the horizons of this body of knowledge, emphasizing the primacy of cities in agricultural practice. The willingness and capacity of our culture to accept lessons from alternative foodways from both the North and the South requires a more humble approach. For Western thought to know its limits, unheard voices must be also heard. Popular housing in the third sector, and recent applied research in the South is therefore of critical importance.

Chapter 5. Ecology and Self-Help Housing, will consider housing events, built or planned since the early 1970s until now, that introduces new, alternative, innovative housing solutions in the Northern hemisphere that are leading the way for new forms of housing. The builders' motivations for autonomy or interdependence will contribute to our awareness of alternative technology uses and new forms of social organization, and how these aspects were prioritized (or not). British, American, and Canadian houses will be visited, and we will review their motivations for being built. Recent housing that describe these housing events include Brenda and Robert Vales' "Autonomous House" (1983) and "New Autonomous House" (1992)[16]; Bill Dunster Architects' "BedZed" housing project (2004)[17]; The Farrolones Institute's "Integral Urban House" (1974)[18], the Canadian Housing and Mortgage Corporation's "Healthy House" (1991), and more recent "Net Zero Healthy Home" (2006)[19]; and Ensemble Terre-Ciel's blueprint for "Maison Productive House" (2006)[20].

These housing events can be analyzed in terms of pilot and next generation houses. We shall consider the New Autonomous House and The Net Zero Healthy

[16] Vales B and Vales R (1983, 1991, 2000)
[17] Bill Dunster Architects (2005). Also see http://www.zedfactory.com
[18] The Integral Urban House (1974) stands out as urban and integrated with the urban fabric at a time when autonomous housing usually meant rural or "cut off" from existing urban networks and in particular the electricity grid.
[19] CHMC (1991, 2006)
[20] See http://www.ensembleterreciel.com

Home as the next generation of the pilot Autonomous House and the Healthy Home, respectively. The current Zero Energy Development (ZED) housing projects of BedZed and Maison Productive House, are next generation examples in an urban setting to the pilot Integral Urban House. These housing events will inform us about individual process and their evolution within the context of the last 30 years. The effect of external events, such as energy crises, technology innovations, and new forms of social organization on individual motivations will be considered. Some of these houses represent in and of themselves new social forms, and to what extent the social organization of the house was more or less a prominent goal, it also serves to think how technology choices are made with respect to social organization.

Placing these events within a larger context of radical change of ideas and practice will help us evaluate each project in a larger evolutionary context.

Chapter 6, Autonomy and Integration, will discuss citizen participation and identify frameworks that are effective for community-based housing design. These frameworks can be applied anywhere, regardless of the North-South divide and as a measure against creating new categories of haves and have-nots, exploring the impacts of design methods on social impacts. The chapter points to effective means of maximizing household and local means of production in the context of hierarchical spatial relationships, and overlapping cultural and socio-economic strata. Scenarios for productive housing along soft- or high-technology "paths" will picks up previous discussions about technology initiated by, amongst others, Witold Rybzcynski,[21] Armory and Brenda Lovins'.[22]

Productive housing design will be presented as a flexible approach whereby architects and end-users have various choices at their disposals for sustainable and

[21] Rybzcynski, Witold (1980)
[22] Lovins, Armory and Hunter (1982).

household-centered development that aims to maintain, improve and restore local productive capacities.

Social organizations driven by a social goal, such as schools, religious institutions, nonprofits or non-governmental organizations, are replacing functions that we earlier had hoped either the welfare state or the private sector would fulfill, but have failed to do. Equally inefficient has proven to be the hand-me-downs and "top-down" schemes at improving livelihoods both in richer and poorer nations. The discussion challenges the notion of North-South divide and seeks to rebuild a framework of overlapping cultural patterns and strata that exist side by side in cities. In this framework, cities have become the loci of both local and global transactions, negotiations and appropriation of space between new forms of social organization.

Chapter 7. The Power of Example, will end the journey where we started. Having formed a full circle, this body of work attempts at connecting living tissues within a larger perspective of geo-politics and bioregions. Similarly to sitting around the fireplace glazing into flames transforming one form of matter into another, we will attempt to connect whatever always was and always will be, and what is new: how new forms of social organization are unfolding in front of us, and contemplate further wherein lays the power and example of a multitude of individual events, and in particular the contribution of self-help housing and productive housing events.

Look at me. I hope I am a natural man. I have not a natural tan. I am blond.

The Saami people are the people of the thousand faces, and we don't fit into the indigenous people stereotype with black hair and dark skin. That gives a lot of trouble - but also some advantages. You never know who and where we are. It also gives us exits to fly into the big societies if the world becomes too hard.

That is a problem to face when you are a Saami.

When it comes to recognize us as indigenous people, we don't fit into the natural-tanned-stereotype. So the participation to the elections cannot be based upon a natural tan in combination with mathematics about blood percentage.

- Ande Somby

1 Otherness (preface)

Looking critically at the overall productive performance of our social *fabric*, involves considering its composition, the productivity of all of its components, and their division of labor. In particular, one should not forget to consider the "Other" whose contributions are seldom accounted for. This other is part of biological and cultural diversity, and sometimes is studied in sociology, biology, ecology or anthropology. This other is dying fast. Inclusion of otherness will help understand the productive performance of society as a whole in an evolutionary perspective that seeks to maximize diversity and stability. My hypothesis is that official studies of productivity tend to ignore the contribution of this other, and I will seek to embrace this otherness believing it has *richness* that is not recognized in official discourses and therefore undervalued in practice.

Occidental modern thought is founded upon a *separateness* between mind and matter, proposing a machine-like worldview. I will therefore attempt to go off on the Other's 'deep end' to perceive of the unseen and unheard. I will use anecdotal and subjective information, conjecture and imagination. I will also make inferences from applied research, but rely on my instinct rather scientific method wherever possible in order to make odd ends connect. Instead of relying on official studies only, I will try to make an entirely subjective attempt at discovering *relationships* between various contributors in society as a whole.

When a spoken language is lost, or a species becomes extinct, how does this affect overall productive performance? This section will consider current geo-politics of production and consumption, and wealth creation with respect to the underlying natural capital of bioregions, and cultural diversity. I will challenge current development discourse and practices based on *exploitation* of natural capital and a *flattening* of cultural landscapes. Official discourse affects the 'reality' that we perceive and practice; including how we design, build or socially organize.

The environmentalist John Todd, reminds us that: "[f]or most part of humanity's evolution, bioregionalism has been (unselfconsciously and effortlessly) a part of design—from the yurts of Central Asia to the magnificent Pueblo dwelling of the American southwest, to the tents of wandering bands of nomads—culture and identity, geography topography, climate, and indigenous resource base all have been for millennia silently but eloquently expressed in a manner appropriate to the bioregion."[23]

David Abrams, adds to the definition of Otherness, calling it: "the strange difference between the experienced world, or worlds, of indigenous, vernacular cultures and the world of modern European and North American Civilization."[24] The problem of Otherness is captured in the *sciences of experience* or Phenomenology, which challenges the machine-view and duality of Western Thought, and the modern tendency to describe the world as a dichotomy of values between the dominant world view suspicious of other (non-dominant) views.

The dichotomies of dominant discourse seem inadequate at explaining how the world and its component parts are made up or interact [See Illustration 1. Dichotomies of Dominant and Other Realms, p. 134].

---

[23] Todd J (2004, p45)
[24] Abrams D (1996, p31)

An experiential approach looks at *relationships* and tries to avoid polarities and consider instead: "the strange difference between the experienced world, or worlds, of indigenous, vernacular cultures and the world of modern European and North American Civilization"[25] The "other"—whether it is the perspective of colonies, feminists, ecologists, or that of tribal/nomadic people, or minorities—can sometimes be more objective about dominant discourse than dominant discourse own subjective analysis about itself. The Others' critique of dominant culture, or their inclusion into dominant discourse, such as W.E.B DuBois (1868-1963) depicts the Blacks' living and housing conditions in *The Philadelphia Negro* (1899), and pioneered social study that contributes by making unheard voices heard and unseen conditions acknowledged.[26] While DuBois can be characterized as a radical thinker for his time, his works helped prepare the grounds for the Civil Rights movement in the US and he is also considered one of the founding fathers of modern Sociology [See Illustrations 2. Philadelphia's Seventh Ward and 2b. Consequences of Otherness, pp. 136-137].

I have therefore chosen to use a phenomenological approach to evaluate the relative productive performances and social contribution of different components of our society emphasizing the domestic realms of the household economy.

The origins of the machine-view of modern science is relatively new in terms of the evolution of human social organization. Again according to Abrams:

> It was only after the publication of Descartes's *Meditations,* in 1664, that material reality came to be commonly spoken of as a strictly mechanical realm, as a determinate structure whose laws of operation could be discerned only via mathematical analysis [...] Yet these sciences consistently overlook our ordinary, everyday experience of the world around us [...] Even the scientifically disclosed "objective universe" of contemporary Western civilization cannot genuinely be separated from the particular institutions, technologies, and ways of life endemic to this society since the seventeenth century."[27]

Phenomenology is concerned with how we experience the world, and is a field that originated with German philosopher Edmond Husserl (1859-1938) and

---

[25] Abrams, David (1996, p31)
[26] DuBois, W.E.B. (1899)
[27] DuBois, W.E .B .(1899, pp. 41-42).

French philosopher Maurice Merleau-Ponty (1908-1961), who began to study the *intersubjectivity* thus the relationships between multiple subjectivities. Abrams continues,

> It was Husserl's genius to realize that the assumption of objectivity had led to an almost total eclipse of the life-world in the modern era, to a nearly complete forgetting of this living dimension in which all of our endeavors are rooted [...] Merleau-Ponty begins [sic.] by identifying the subject—the experiencing "self" with the bodily organism. *Synaesthesia*, or the 'fusion of senses' recognizes perception as involving sight (viewing, observing), hearing, smelling, tasting and touching. "By the term perception" we mean the concerted activity of *all* the body's senses as they function and flourish together. Indeed, if I attend closely to my nonverbal experience of the shifting landscape that surrounds me, I must acknowledge that the so-called separate senses are thoroughly blended."[28]

The study of the productive house will employ this kind experiential perception as an attempt to consider the multiple subjectivities that exist between dominant and non-dominant human societies and ecosystems and consider their relative productive contribution and performance. This is not an easy task.

Because, as Ferdinand de Saussure (1857-1913), 'father of modern linguistics' once pointed out that there is a "theoretical distinction between *la langue*—language considered as a formal system of terminologically, syntactic, and semantic rules, and *la parole*-the concrete act of speech itself."[29] Thus we may seem trapped within the dominant perspective and not be able to hear Other voices, especially Nature herself or the voices of oral cultures, that are silenced.

---

[28] DuBois, W.E.B. (1899, p.60)
[29] Abrams, David (1996, p. 66)

2.1 Eco-feminism and Deep Ecology

Dominant culture has adopted a violent discourse and practice whereby science has become synonymous with Man's domination and exploitation of Nature. This is a position that Eco-feminism and radical ecology (*Deep Ecology*) have reacted strongly against, helping us understand society's *departure* from honoring Mother Earth as a feminine, nurturing and healing quality, and tracing this departure to the historical origins of the scientific revolution.

Sir Francis Bacon (1561-1626) is maybe best known for leading the scientific revolution with his new 'observation and experimentation' theory, which is the way science has been conducted ever since. However, Fritjof Capra points out in *The Turning Point,* (1983)[30] that Francis Bacon was also a statesman serving as attorney general for King James VI and VII during a time of torture and witch-hunts, whose "goals for science [was to acquire] knowledge that can be used to dominate and control nature [...] his new method of investigation were not only passionate but often outright vicious. Nature, in [Bacon's] view, had to be 'hounded in her wanderings,' 'bound into service,' and 'made a slave'. She was to be 'put in constraint' and the aim of the scientist was to 'torture nature's secrets from her.'"[31]

Writes Vandana Shiva, an activist for women's struggle for survival in India, in *Staying Alive* (1988):

> A new awareness is growing that is questioning the sanctity of science and development and revealing that these are not universal categories of progress, but the special projects of modern western patriarchy [...] The death of nature is central to this threat to survival. The earth is rapidly dying; her forests are dying, her soils are dying, her waters are dying, her air is dying. Tropical forests, the creators of the world's climate, the cradle of the world's vegetational wealth, are being bull-dozed, burn, ruined or submerged [...] [W]e are loosing our life-support systems. This destruction is taking place in the name of 'development' and progress [...] The violence to nature, which seems intrinsic to the

[30] Capra F (1983, pp. 37-41).
[31] Idem.

> dominant development model, is also associated with violence to women who depend on nature for drawing sustenance for themselves, their families, their societies. This violence against nature and women is built into the very mode of perceiving both, and forms the basis of the current development paradigm[32]

Arne Næss, the Norwegian mountaineer, ecologist and entrepreneur who some may better know as former husband of Diana Ross, in 1973 coined the world Deep Ecology, as having the following seven (7) attributes:

(1) *Rejection of the man-in-environment image in favour of the relational total-field image.* Similarly to the phenomenologist, experiential approach, Deep Ecology recognizes that merely by *existing* human and nature affect each other, so the reality of *intersubjectivity*, e.g. the nature of the relationship is a more accurate description of what is being experienced each subjectivity taken separately. In other words, feeling and relating to one whole instead of a general assumption of separatedness;

(2) *Biospherical egalitarianism – in principle.* Næss says 'in principle' because some level of killing of other species is unavoidable, therefore acceptable;

(3) *Principles of diversity and of symbiosis:* Næss has this to say about Darwinian theory of Natural Selection, interpreted here as *increasing,* rather than the dominant perception of evolution as 'survival of the fittest' especially in relation to competitive frameworks of market economics or between societies:

> Diversity enhances the potentialities of survival, the chances of life, the richness of forms. And the so-called struggle of life, and survival of the fittest, should be interpreted in the sense of ability to co-exist and co-operate in complex relationships, rather than ability to kill, exploit and suppress. 'Live and let live' is a more ecological principle than 'Either you or me.' [33]

I should specify at this point that Deep Ecology is compatible with cutting edge scientific pursuits, as this point rejoins eco-design and ecological engineering

---

[32] Shiva, Vandana (1988, pp. xlv-xviii).
[33] Næss, Arne (1973, pp.95-9.)

principles of the emerging and multi-disciplinary field to which belongs Paul Hawken, John Todd, Jaine Benyus (the pioneer of the emerging field of Biomimicry), Wes Jacson, David Suzuki, Armory and Hunter Lovins, David Orr and many more people who believe in advancing a new social and scientific ecology.

(4) *Anti-class posture:* The exploiter lives differently from the exploited, but both are adversely affected in their potentialities of self-realization;

(5) *Fight against pollution and resource depletion.* Note that this fifth point is what Næss calls "shallow ecology" when applied to increase the health and affluence of people in developed countries, with disregard for the other principles listed. In other words, environmental self-preservation without consideration of Otherness.

(6) *Complexity, not complication.* Næss emphasizes that that cities and countryside need not be separated but rather should be integrated in ways that keep into account a variety of life, work, recreational and agricultural activities:

> Applied to humans, the complexity-not-complication principle favours division of labour, *not fragmentation of labour* [...] It favours complex economies, an integrated variety of means of living (Combinations of industrial and agricultural activity, of intellectual and manual work, of specialized and non specialized occupations, of urban and non-urban activity, of work in city and recreation in nature, with recreation in city and work in nature).[34]

(7) *Local autonomy and decentralization,* To this last point, Næss stresses the philosophical and normative values of ecology, as guide as an aid in setting value *priorities* according to social ecology or and 'ecosophical' framework. It is a knowledge that can not come by logic or scientific induction, alone, but that is given to us, as a gift that we receive when engaging with the Other intersubjective realm of *being.*

> This lends our support to strengthen local self-government and material and mental self-sufficiency.[35]

---

[34] Næss, Arne (1973, pp.95-9.)
[35] Idem.

2.2. Anno.1979: Haves and Have-nots

Wealthy places like Norway, Denmark or Holland, or cities like Paris, New York, or Montreal, are bound to attract immigrants and become less homogeneous due to their relative wealth, but risk to become ghettoized, xenophobic, or to relegate immigrants perpetually to a second-rate status in society and the functions they occupy in the workforce, unless distinct creeds and cultures can find a meeting points that celebrate diversity and relative contribution.

A small young nation[36], such as Norway, can provide a useful starting-point for the discussion of self-determination of peoples against the backdrop of international events in relation to the struggle for natural resources. The pace of change accelerated notably during the 1970s. I purposefully would like to begin with a purely subjective narrative focusing on the year of 1979. I was old enough then to think about world events, and every person has their own story however subjective as it may be.

2.2.1. To be a have or a have-not

When I was in 2nd grade, our teachers decided to conduct with the entire school a practical experiment to teach us the sense of "have" and "have-not." The year was 1979 in Norway and it was wintertime. It was a day-long experiment whereby about one fifth of students were selected at random and allowed to stay inside in the warm school to play and do pretty much what they wanted, and eat and drink what they wanted—including cake and soda—while the remainder had to spend the day outside, with a typical lunch pack: full-grain bread, brown goat cheese, an apple, some vegetables that was prepared and brought from home,

[36] Norway last year celebrated its centennial of gaining independence from Sweden in 1905, and also marked 100 years since the passing away of that famous Norwegian-born playwright Henrik Ibsen, who inspired by the French revolution (1789) had republican leanings and helped usher an area of social realism in the arts. There are about four million people in Norway, but maybe as large a population of Americans of Norwegian descent that emigrated during the national formation and before oil was discovered.

complemented with a pint of milk purchased at school with a milk coupon, as was then and still is the local custom.[37] Part of the experiment was that the 'have-nots' were not allowed to leave the schoolyard. I considered myself fortunate to be chosen amongst the four fifths of "have-nots." We stayed outside and had more fun. Despite the restricted movement, we felt relatively freer and less supervised than the "haves" who stayed inside, despite their relative comfort. The students inside—who first had celebrated their lucky advantage, and after eating their cakes—were longingly watching us from the inside as most of us had a free break enjoying the elements playing in the snow.

Lesson 1. Comfort and cake isn't everything there is to life.

2.2.2. International Year of the Child, War and Energy-crisis

A lot was happening in 1979. It was proclaimed International Year of the Child by UNICEF, and I remember singing *We are the Children, We are the World* at the school's weekly reunion, as well as Bob Dylan. I can also remember, Pink Floyd's live version of *The Wall* that came out that year, and *Beattlemania.*

In March of 1979, Israel and Egypt signs the Israel-Egypt Peace Treaty, a result of the 1978 Camp David Accords between Menachem Begin, Jimmy Carter, and Anwar Sadat, and Israel proceeded to return Sinai and the Alma oilfields in the Gulf of Suez to Egypt. I remember learning the names and discussing with my grandfather the prospects for peace in the Middle East. He was a fisherman turned homebody and delivery person when my grandmother became self-employed

[37] The Norwegian lunch pack came into effect in during the 1930s as a government-sponsored program and as a result of the "Oslo breakfast" introduced by Norwegian nutrition experts in the 1920s when the provision of healthy nutrition to school children was still a high priority. Many grew their own food. Cash was rare. Also adopted in Denmark, the basic idea behind the Oslo breakfast was a sandwich brought from home complemented with a ration of milk (subsidized). In 1991, 96-98% of school children of elementary school brought such lunch packs, a practice also followed by most Norwegian adults, who still bring their home-made lunch packs to work on a daily basis. Initially, the Oslo Breakfast consisted of bread, milk, cheese, cod liver oil, vegetables and fruit. While the whole pack was first provided at reduced prices, the expense became too high, and the parents were taught to prepare their children lunch packs instead, though films and educational campaigns. [Also see Meiselman H L (2000). *Dimensions of the Meal: The Science, Culture, Business and Art of Eating.* Aspent Publishers, Gaithersburg, Maryland. Pp 196-197.]

custom seamstress and later factory-owner. He also took care of me when my parents were at work. He was also good at telling stories and reciting poetry. The Camp David Accords also called for the establishment of an autonomous self-governing authority in the West Bank and the Gaza strip and to fully implement Security Council Resolution 242 adopted in 1967 in the aftermath of the Six Day War and made binding after the 1973 Yum Kippur War, an event which had led to the OPEC embargo and 'first oil crisis.'[38] It called for the "withdrawal of Israeli armed forces from territories occupied in the recent conflict...and [t]ermination of all claims or states of belligerency."[39] In hindsight, one can note that this was a bilateral agreement representing parochial interests rather than a regional shared vision.

Sadat's unilateral move to recognize Israel may have been an attempt at breaking up the impasse of Cold War spheres of influence, and an honest attempt at building economic and other ties that Egypt much needed at the time, hoping that others would follow suit and that peace could be had, and silence fundamentalists in the process—a typically Western discourse: solve political unrest with the promises of increased economic well-being. Israel found it preferable to negotiate with one Arab nation rather than one united Arab bloc. Palestinians and other parties concerned were excluded from the process; other Arab nations found that more concessions should have been asked from Israel with respect to Palestinians' right to self-determination. From being the strongest voice in the Arab League, Egypt found itself squeezed out and ostracized as a result. Sadat was later assassinated by the *Muslim Brotherhood* who were angered by the deal.

Lesson 2: Bilateral agreements also means someone is being excluded. Western discourse and promises of wealth doe not reassure people who feel disenfranchised.

---

[38] Security Council Resolution 243 Security Council Resolution 242 was reaffirmed and made binding by UN Security Council Resolution 338, adopted after the 1973 Yom Kippur War the, which was the cause for the "first oil crisis."
[39] Caradon et al (1981).

OPEC, the organization of oil producing countries,[40] were reported in June to have raised the prices of crude oil by a 23%. However, Saudi Arabia and other OPEC nations actually increased production during this crisis to *offset* the reduced an erratic supply from Iran as a result of the Iranian revolution and the general chaos that resulted. The total loss in oil production was about only 4%. However, a widespread panic resulted, driving the oil price far higher than would be expected under normal circumstances. Also in July, President Carter gave a famous *Malaise Speech*, which I think is useful at painting the general mood 30 years ago, and since the 'first oil crisis' of 1973:

> We believed that our nation's resources were limitless until 1973, when we had to face a growing dependence on foreign oil [...] To give us energy security, I am asking...to develop America's own alternative sources of fuel -- from coal, from oil shale, from plant products for gasohol, from unconventional gas,
>
> These efforts will cost money... It will be money well spent. [...] [I will] require as a matter of law, that our nation's utility companies cut their massive use of oil by 50 percent [...] I'm proposing a bold conservation program to involve every state, county, and city and every average American in our energy battle. This effort will permit you to build conservation into your homes and your lives at a cost you can afford.
>
> And I'm asking you for your good and for your nation's security to take no unnecessary trips, to use carpools or public transportation whenever you can, to park your car one extra day per week, to obey the speed limit, and to set your thermostats to save fuel. Every act of energy conservation like this is more than just common sense -- I tell you it is an act of patriotism.
>
> [...] You know we can do it. We have the natural resources. We have more oil in our shale alone than several Saudi Arabias. We have more coal than any nation on Earth. We have the world's highest level of technology. We have the most skilled work force, with innovative genius, and I firmly believe that we have the national will to win this war.[41]

President Jimmy Carter also made symbolic gestures to encourage energy conservation, such as installing solar power panels on the roof of the White House and a wood stove in the living quarters, but these were later dismantled by Ronald Reagan who took office in 1981. Carter advocated an end to oil price controls, which was achieved under President Reagan.

2.2.3. The Anti-Nuclear Movement

---

[40] OPEC is made up of Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela. Note that Indonesia may leave OPEC as it has become a net oil importer and the North Sea producers (Norway and Great Britain) is not part.

[41] Excerpts from The "Crisis of Confidence" speech by Jimmy Carter, televised on July 15, 1979.

In addition to the second oil crisis, the growing opposition to nuclear energy and arms raise –conspicuously absent from President Carter's speech—was adding to a global anti-nuclear movement and a consciousness for peace and environmental protection. The second strategic arms limitation talks (SALT I), came into effect and was signed between President Carter and Leonid Brezhnev in 1979 and was a continuation of SALT I (1972), which had sought to limit the number of intercontinental and submarine-launched ballistic missiles (ICBLs and SLBMs). SALT II sought to limit the production of strategic weapons all together.

This was the height of the Cold War and even a 2nd-grader knew that nuclear technology was out of control. Anti-nuclear rallies happened all over, and in 1979 Jane Fonda and 200,000 attend an anti-nuke rally in Battery Park of New York, while Bruce Springsteen gives a No Nukes concert. Marine biologist Jacques Yves Costeau, one of my all-time favorite childhood heroes, in his address to the United Nations in May of 1976, hade tried (in vain) to appeal to reason rather than politics and parochial interest. He introduces here *ecological sustainability* as a goal several years before my countrywoman Gro Harlem Brundtland would in *Our Common Future*[42] (with more success) define sustainability as a global objective. I will quote Costeau at length:

> The world was brutally introduced to the nuclear age. Instead of stealing fire from heaven, Prometheus had extracted it from the very heart of matter. [...]
> In 1959, as director of the Oceanographic Institute in Monaco, I hosted the first international conference of nuclear waste. It was generally agreed that the quantities of nuclear waste to be produced in the future would be enormous. What to do with it was the hot issue. Listening to all the debates, my conclusions were:
>
> First, the only participants who dared express doubts about the planned disposal operations did not belong to a nuclear agency or had nothing to gain from atomic proliferation.
>
> Second, with a few exceptions, the pros came from specialists in physics and chemistry, while the cons were expressed by biologists and physiologists.
>
> Finally, when the Russians violently opposed Western plans to dump wastes in the ocean, I realize that the issue was clouded by politics as well.
>
> [...] Simple, basic questions about actual efficiency, economic validity and safety remain unanswered after 17 years. Nuclear technology has formidable implications on the way the world has to be run. No other single enterprise touches all the issues of corresponding

[42] UN (1987).

> need to provide a basis for justice and equity amount the communities of our planet; the right of all people to lead healthy and fulfilling lives; our right to social structures founded on dignity and freedom; our relationship to the beautiful, intricate, fragile and increasingly imperiled world on whose survival our own depends, and above all, the obligations we have for our descendants.
>
> [...] Despite the best efforts and intentions of the people of the United Nations, human society is too diverse, national passions too strong, human aggressiveness too deep-seated, for the peaceful and the warlike atom to stay divorced for long. We cannot embrace one while abhorring the other; we must learn, if we want to live at all, to live without both.[43]

Despite this call for reason in support for individual action and self-build, only in 1979, at least 35 nuclear tests were conducted under or above ground by the following countries:

U.S.S.R.	27	
U.S	5	
France	3	(South Pacific)
China	1	
UK	1	(Nevada)
Israel	1	(Indian Ocean)

On March 28, 1979, a major nuclear accident at 3 Mile Island, Middletown, Pennsylvania caused no (immediate) deaths.

Lesson 3. Leaders will not shy away from experimenting with Nature and human lives, disregarding potentially grave and unknown consequences for generations to come.

2.2.4. Science Fiction

Another topic of global importance discussed at school and around the dinner table in Norway was of course the 1979 premiere of Ian Flemming's 11th James Bond film *Moonraker.* I remember James Bond arriving in Rio de Janeiro on an Air France Concorde jet, starring Roger Moore as James Bond, Lois Chiles as Holly Goodhead, [see Illustration 8. Moonraker, p. 146]. Interestingly, *For Your Eyes Only* was originally scheduled for 1979 but Moonraker was moved up to tie

[43] Skurka N and Naar J (1976, pp 8-9). From and address delivered by Costeau at the conference on nuclear energy and world order at the United Nations, May 1976. Excerpt is from the foreword

in with the new space shuttle program, as well as the *Star Wars* craze."[44] In 1979: there was competition at sending engines into space:

> Japan sent their Hakucho and Corsa-B satellites into orbit;
>
> U.S. Voyager I photo reveals Jupiter's rings; Voyager 2 takes 1st ever photo of Jupiter's satellite Adrastea; Voyager 2 flies past Jupiter (J14); Pioneer 11 makes 1st fly-by of Saturn, discovers new moon, rings; NASA launches space vehicle S-203.
>
> U.S.S.R. Soyuz 32 carries 2 cosmonauts to Salyut 6 space station is launched; Soviet Cosmonauts Vladimir Lyakov and Valery Ryumin returned to Earth aboard Soyuz 34 after a record 175 days in space;

Lesson 4: Media and official discourse sometimes mix fantasy with reality.

Both real and fictional mass media are *narratives,* which come down to executive decisions to fill to broadcast certain content, which in turn feed the public imagination. The way these media broadcasts are prioritized around headline news and popular culture do not necessarily reflect other kinds of equally important 'news', such as radically new ways of self-built housing or alternative lifestyles, which in hindsight may contribute *more* to the evolution in thoughts and practices.

2.2.5. Poverty and Self-determination

1979 was filled with images and discussions about poverty and war, and people struggling for self-determination. Norwegians have a tendency to identify with small "underdog" nations that successfully rid themselves with foreign corporations or occupational powers, and 1979 had several ex-colonies becoming independent and drafting their constitutions. These other events took place in 1979 and were discussed in Norway:

- *Vietnam invades Cambodia.* That put an end to the Khmer Rouge.
- *The Soviet Union invaded Afghanistan* and it was Cold War business as usual.
- *China resumed diplomatic ties with the US* as a result of Nixon's earlier Ping-Pong diplomacy, and was admitted to the International Olympic Committee

[44] http://www.klast.net/bond/moonrake.html

- *Tanzania takes Kampala* (Apr-11) and *Ugandan dictator Idi Amin is overthrown.*
- *Strikes break out in Gdansk against price increases. Solidarnosk* led by Leck Walesa will soon become a household name. This was the first sign of undoing the Yalta Accords (1945), which effectively transformed Eastern European countries into satellite states under the Soviet Union. When Roosevelt, Stalin and Churchill brokered a deal behind closed doors, those nations were not consulted, but when we discussed it in Norway we felt "perestroika" (spring) already in the air.
- In addition to the Palestinian failed terrorist attack after Camp David, there were additional terror: "The Moslem Brotherhood kills 62 sheiks in Aleppo, Syria."

Lesson 5: People will become terrorists if they are frustrated and desperate enough. Making us feel unsafe is their strategy until they can provoke regime-change. Mass media coverage seems to focus Dominant discourse and violence hardening each side's ideological stance.

2.2.6. The Sandinistas in Nicaragua

One event that stands out in my memory against all the others events in 1979 and that made a most lasting impression was the rise to power of the Sandinistas in Nicaragua. While the news headings red: "Nicaraguan dictator Anastasio Somoza flees to Miami", and on July 19: "Nicaragua Liberation Day; Sandinistas take over from Somoza" were cause for celebration. We had followed the Sandinistas' struggle for self-determination for some time, and even though the U.S. was our official ally of the "free world" against Communism, I think, we recognized our own battle for nationhood and sense of fairness in the Sandinistas' success. We will come back to this point in sections 4. *Foodways and Architecture* and 6. *Autonomy and Integration* to contrast with recent events in Cuba and the Zapatista movement Chiapas (Mexico).

2.2.7. Wonderful Christmas

After all these coups, revolutions, invasions, terror, arms race, energy crisis and ongoing hostage crisis, 1979 came to a close with Paul McCarthy releasing his "Wonderful Christmas." And we are all still here.

Looking at the news now and then, how much has the world changed? On one hand, politics and official discourse seems to have changed very little if at all. Cold War has given way to War on Terror. Cold War spheres of influence and containment has been replaced with an even more global and ill-defined enemy that can strike anywhere, anytime, strengthening the concept of otherness, "Us" vs. "Them." With the nuclear genie out of the box, escalating violence and mutual suspicion, how to build trust? Is self-built housing in the end an act of patriotism to reduce oil dependencies or does it rather find its motivation and meaning in new ecological and community-based thinking?

In 1979, there was a climax of world crisis and Cold War. In hindsight, this was avoidable by helping people frustrated with failed aspirations in seeing their own livelihoods erode while others have problems of consuming too much. Yet news failed to report the deeper forces at work. Not dealing with Otherness is avoidance of the problem. Current crises has brought us back to reconsider some the pressing issues that faced us in the 1970s, Social Justice, Feminism and Ecology now resurface in a very different society where personal means of production and communication capabilities have increased many-fold.

Of the news recorded in 1979, the only lasting and positive effect is related to people who gained their independence and power to self-determinate their future. Those who did so by peaceful means have been more successful that those who consolidated power violently or had foreign powers meddle in their affairs.

2.3 Self-determination and natural resources

In the context of little Norway, coming to terms with *otherness* has been a double-edged sword, being a nation dominated *and* a domineer. The Norse society was an expanding and ocean-going society that made settlements from Sicily, to Normandy, Iceland, Greenland and "Vinland," the 'land of grapes' as the Norsemen called the New World. As Jared Diamond points out in *Collapse (2006),* societies rise and fail because of variety of internal and external reasons, including disease, climate change or self-inflicted ecological collapse causing peoples to die or societies to collapse. This was the fate of Greenland and Norse culture. The Black Plague killed another estimated two thirds of the Norsmen and Norsewomen. This led to 400 years under Danish rule and 100 years under Swedish domination. The reinvention of a nation-state and a national identity were shaped by being a dominated 'Other.' Regaining sovereignty was linked to a struggle for regaining control over natural resources. During the early part of the 1900s, many of Norway's resources were largely controlled by foreign, especially British (and to a lesser extent Swedish) ownership.

The struggle for control over non-renewable resources such as oil, gas, and minerals, and renewable resources such as hydraulic power, forestry and fisheries, played a central role in the formation of a national identity and in turn, in shaping its use of power for self-determination or influence on the world scene. In the late 1800s and early 1900s, a large portion of the population emigrated to America, but since the 1970s many people from the South and East are immigrating to Norway, thus reversal of the flow of people linked with individual choices people make to improve their livelihoods. Recently Norwegians have again needed to come to terms with two groups of Others: the recent immigrants and the nomadic Saami peoples of the North.

2.3.1 International frameworks of cooperation

The creation of the United Nations and its Charter in 1942, and the *Universal*

Declaration of Human Rights (1948) and the UN specialized agencies to uphold the United Nations Charter, support the principle of people's right to self-determination appearing, among other places in both Preamble to the Charter and in Article 1. The International Court of Justice refers to the right to self-determination as a right held by people rather than a right held by governments alone,[45] given both have a history of independence or self-rule in an identifiable territory, a distinct culture, and a will and capability to regain self-governance: Article 55a: Higher standards of living, full employment, and conditions of economic and social progress and development; Article 55c: Universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.[46]

The relevance of these principles to this study is to introduce a value-system in which relative autonomy, integration and diversity can be studied in relation to various levels of social organization, the smallest one being the household. When considering productive housing, and in particularly in light of people seeking more self-sufficiency, it is useful to compare institutional discourse against observed practice, especially of those events affecting people that are under-represented .

Lesson 6: Out of conflict and use and force can evolve social organizations and cooperative frameworks that seeks to settle disputes peacefully by recognizing the interdependence of various participants.

2.3.2 The nomadic tribes of the North

The Saami people's right to exploit the land and ocean in traditional ways is still today a contested issue. The "problem" of the nomadic Saami culture is that they do not live in same spot throughout the year, and that their relationship to the

[45] International Court of Justice (Western Sahara Case, 1975, 12:31)
[46] Gros Espiell, op.cit. and Critescu, op. cit.. Critescu defines "people" as denoting a "social entity possessing a clear identity and its own characteristics" (op. cit. at p. 41) and implying a "relationship to territory" (id.).

earth and the sea does not correspond well with the legal frameworks of land-rights, farming or commercial fishing quotas of a sedentary culture. Their practices do not require an intensive use of these resources, but is geared towards subsistence and adjustment to local conditions. In *About how another Hydro-electric Dam Project was Forced Through Norway* (1999),[47] Ande Somby explains how the conflict over the Alta Dam, led to open conflict and confrontation ending in a hunger-strike of Saami and Norwegian sympathizers in front of the Norwegian Parliament in 1979. The question was raised as how we could be bearers of ownership? Article 27 of the UN International Covenant on Civil and Political Rights, establishes that persons shall have the right together with other members of his group to have his culture, and the Saami had neither. As a result of the conflict the Saami obtained their own parliament and recognition of Saami culture, language and society in the Norwegian constitution.

The Saami culture is communicated in the form of chant called a 'Yoik.' Its non-linear structure (or lack of a recognizable structure to the Western mind) characterizes well the diversity in worldviews and how this diversity transcends social organization and natural stewardship:

> Yoik is different from the regular idea of singing in several ways. I will point out a few differences. You don't yoik about someone or something. You yoik someone or something. Yoik has no object. That emphasizes perhaps that talking or thinking about yoik in subject-object concepts isn't possible. Maybe the singer is a part of the song? The regular concept of a western European song is that it has a start, a middle and an ending. In that sense a song will have a linear structure. A yoik seems to start and stop suddenly. It hasn't a start and neither an ending. Yoik is definitively not a line, but it is perhaps a kind of circle. Yoik is not a circle that would have Euclidian symmetry although it has maybe a depth-symmetry. That emphasizes that if you were asking for the start or the ending of a yoik, your question would be wrong. Therefore I have to use what is perhaps the most common language in the world, broken English.[48]

Lesson 6. Pluralism and diversity does not exist if *otherness* is not actively recognized and empowered. This empowerment has to come from within and through control over own means of production.

---

[47] World Commission on Dams (1999).
[48] Somby (1999, p1).

2.3. Social contracts, wealth distribution and happiness

In 1979, Norway was in the midst of becoming the welfare society that we know today, enjoying one of the world's highest living standards. This has widely been attributed to the pillars of consensual democracy, a socialistic market economy, and gender equity.[49] These pillars are founded on a *social contract* of equitable wealth distribution and access to land, through taxation and social spending on universal health care and education; a regional policy seeking to preserve the quality of life by balancing country and city growth through agricultural subsidies, universal access to public land including privately owned shore-lines and a national love for the out-doors.

2.4.1. Mapping World Happiness

Norwegian welfare society seems to have worked, but it also has its limits. Norwegians were just voted number 20 of the happiest people in the world as part of a study based on data from, amongst other sources UNESCO and the WHO [see Illustration 9. Map of World Happiness, p. 147].[50] Other Nordic countries also ranked high with Danes considered the happiest in the world, Iceland fourth, Finland sixth, and Sweden seventh, enjoying welfare societies similar to Norway (but more market-oriented and less dependent on oil exports than Norway). Canada, the US and the UK came out 10th, 23rd and 41st, respectively, and France, despite the short workweek and 100's of tasty cheese varieties, on 62nd.

According to the study Japanese were surprisingly not as happy *collectively* as previously thought, coming in on 90th place. The 'happiness study' suggests that Asian usually score higher in comparative studies based on their traditionally strong "collectiveness." However, this study seems to tell us that people favor individual measures of happiness rather that collective ones. India ranked 125th,

[49] Kongshaug (1994).
[50] For a full list of countries and their rankings, see http://www.physorg.com/news73321785.html

while the worst off were the poor, war-torn African nations of Congo, Zimbabwe and Burundi on 176th—178th place. Happiness was found to be most closely associated with health, followed by wealth and then education, suggesting that the pursuit of happiness should stand higher on the governments' agenda than the lure of wealth.

Lesson 7: People's wellbeing is measured in relative and not absolute terms. Happiness is more likely to be perceived in individualistic rather than in collective terms.

2.4.2. Gender Equity

Back to Norway. The traditional division of labor in the household economy had already begun to change during the 1970s and 1980s, with women winning seats in municipal and regional politics and later in parliament and business sectors traditionally reserved for men. Most women at first felt it their obligation to do double-duty between the homemaking and a professional existence, but this also began to change. The women's emancipation from patriarchic gender models was akin to a "silent revolution,"[51] contributing to a new gender culture both in the workplace and at home, progressively also favoring the man's contribution to home-making with shorter work-weeks, longer holidays, including a 4-week paid exclusive *paternity* leave of absence from (professional) work (Mørkhagen, 2006)[52]

The inclusiveness of women in the workforce and of men in the domestic household economy was won collectively through political activism, and

---

[51] The "silent revolution" referring here to the women's emancipation and their changing identity in relation to the home and professional pursuits. As a cultural study, this could be compared to other silent revolution of women in other cultures, e.g. francophone Quebec who also did away with traditional patriarchic role models as enforced by the Catholic Church. While Norway would in the 1980s experience an economic boom, Quebec would not due to a politically induced economic depression sometimes identified with the separatist/independence political struggle, indicating a markedly different socio-economic and political environment.

[52] Today the weekly average is 39 hours for men and 34 hours for women. [Mørkhagen P L (2006). Kvinners stilling i Norge, Royal Norwegian Ministry of Foreign Affairs http://odin.dep.no/odinarkiv/norsk/ud/2003/annet/032091-991767/dok-bn.html]

individually in every household. The gender battle in Norway is now simultaneously being led for both men and for women, each making inroads in the Other's traditional spheres of influence. Norwegian women still want their men "manly" and men still prefer women "feminine." Some things never change, or ought they?

Lesson 8. Fathers can tend to small, even newborn children.

It is not enough to give women equal access to work, men must also take part in the household economy, that is the functions that make the home-base work. This requires a cultural development, including both collective (cooperative social change) and individual changes in attitude as well as self-image.

Design is the fundamental soul of man-made creation
- *Steve Jobs*

Design affects everything we create – products, services, processes, websites, conversations, and even careers. Its effect is rarely neutral. The purposeful thought (or lack thereof) that we put into design is the difference between an experience that is easy, helpful, fun, and inspiring – or totally frustrating... Design transforms the perception of what is possible
- *Tom Peters*[53]

Only insofar as the ecology movement consciously cultivates an anti-hierarchical and non-domineering sensibility, structure, and strategy for social change can it retain its very identity as the voice for a new balance between humanity and nature and its goal for a truly ecological society
- *Murray Bookchin*

The entire range of living matter on Earth from whales to viruses and from oaks to algae could be regarded as constituting a single living entity capable of maintaining the Earth's atmosphere to suit its overall needs and endowed with faculties and powers far beyond those of its constituent parts.
- *James Lovelock*

[Architecture] is the art of building communities, and this is true whether or not architects are involved in its creation.[54]
- Ralph Erskine

3. Design Priorities (literary review)

The productive house is a dwelling. It comes in many shapes and forms in that its productivity derives from cultural and ecological diversity. It is connected to the Earth and its manifold. The nurturing and productive qualities of *making a livelihood*, that is: the work done to earn a living is at the center of the analysis. The productive house is designed to secure an economic foundation in an increasingly urban world where the primacy of knowledge defines productive performance and social belonging. The hypothesis is that every person values productivity, that is: doing more with less effort, and therefore have more time to enjoy. Productivity is measured in leisure time gained.

[53] Peters, Tom (2002, See http://www.tompeters.com/).
[54] Erskine, Ralph (1987) From "Architecture the Useful and Universal Art" In 1987, Ralph Erskine was awarded the RIBA Gold Medal for Architecture. In connection to the award ceremony Ralph held a speech that in many respects summarized his view on architecture and his own w orks.

The ancient Greek made little distinction between the disciplines of *economy* and *ecology,* both terms referring back to the sound management of that smallest social entity, the household. The word Ecology comes from the Greek, *oikos*, meaning house or dwelling, after *œconomy*. To the ancient philosophers Earth and House, and their sound management, essentially meant the same thing at different scales of magnitude. Design today may take new inspiration from Antiquity. Another *Renaissance* may be under way to change our ways.

To many traditional human societies and to a growing number of scientists, Earth herself is a life form. Biologist, John Todd, sees in Earth the smallest autonomous life form capable of restoring herself and create manifold. Every bioregion and ecosystem we know derives their life from the relative stability that Earth has achieved by creating complexity, diversity, and abundance. She constantly produces but never wastes. The productive house thus seeks to participate in the productivity of Earth herself as a strategy for doing more with less.

This section will review the literature relating to ecological design, and the role of the household economy in the creation of complex human ecologies called cities. In doing so, we will not play gods, but participants in ecosystems. As social organizations, both cities and houses work within systems of relative autonomy and integration. Observing social organization as a natural phenomenon, it should be possible to better understand the evolution of housing and cites in terms of patterns that replicate natural evolution.

Kenneth McDonough, Paul Hawken, the Todds and the Lovins and many others have incorporated ecology into design principles such as *Cradle-to-Cradle* and *Waste equals Food.* Jane Jacobs, in *The Economy of Cities* (1969), has used a similar concept to explain innovation and diversification as the main sources of city growth. The works of George Kubler, Lewis Mumford, Christopher Alexander, Emanual Castells and Saskia Sasken will further provide a sound

foundation on which to judge the productive house's role in the evolution of thought, practice and the evolution of cities.

When considering *autonomy* we are always talking about relationships within a living system at various scales: mega geological scale to quantum physics. Geological time is measured in millions of years, while bioregions and ecosystems evolve over hundreds of years or in decades. Some life forms perform their tasks in minutes. Large or small, slow or quick each becomes food for another biological process. When life gives up one form to become part of another, it is always towards creating more diversity. Between and in the center of these extremes, is the human scale and our sensory world, which for all practical purpose is our starting point for measuring human productivity. Thus, instead of using the conventional timeframe of a business plan, the productive house uses an inter-generational planning involving two, three, maybe four generations, say 90 – 120 years. This should give some encouragement to the poorer builder, as he has the time to build and improve over time and not all at once. This is also how the informal sector builds: little-by-little and when possible. The house grows according to the household's productivity. Therefore, informal building practices will be considered alongside conventional business practices. A house can be relatively autonomous or integrated with many other households, or a neighborhood. Together they form a more complex social organization, and therefore evolves in a timeframe similar to that of an ecosystem over decades or hundreds of years. Sometimes change comes suddenly in the form of new thoughts and practices. A neighborhood may suddenly strive or loose its identity with the arrival of new wealth, or with the arrival or disappearance of a new factory. A city is both autonomous and integrated. It transforms itself through internal and external dynamics: A sudden external event, such as an act of war, a natural disaster, or a new economic activity may change its course. Economic performance is dependent on internal and external markets creating vulnerabilities and dependencies. How important is the productive house to city growth and vice versa?

3.1 Utility and Leisure

The first step in considering the productive house is to reaffirm an anthropocentric and philanthropic approach, which places the human perception of time and place in the center. The productive house is thus center-field of human perception: an intimate and immediate physical reality. It also gives meaning an a heightened sense of perception within an inter-generational time and community space.

> "Overthrow of the Copernican Theory... The original ark, earth, does not move" [55]

The second step is to analyze conventional approaches to measuring productivity and sustainable development. The productive house must be able to compete or secure its position within the existing frameworks of wealth generation that proclaim to also care for ecology or social justice. Our current economic models originated with thinkers such as Adam Smith (1723-1790)'s *The Wealth of Nations* (1776) and "invisible hand" and David Ricardo (1772-1823)'s *Principles of Politcal Wealth and Taxation* (1817). These thinkers laid the foundation for our current capitalist system of allocating production where it is most profitable. These thinkers also respectively introduced the concepts of the *invisible hand* and *comparative advantage* as the cornerstones for liberal trading regimes as the best model for wealth creation.

Sustainable development is one of those troublesome catch phrases that may at first seem like a reasonable objective. In reality it raises one of those fundamental philosophical questions of life: Can development be sustainable? And if so, How? This question is similar in importance to: Where do I come from? And where am I going? Sustainable development has become a shared policy agenda with reduction targets in greenhouse gases and toxic components. Other goals, such as the Millennium Development Goals have set specific targets in reducing the world's inequalities.

---

[55] Abrams. David (1996, p. 41). Merleau-Ponty, the phenomoneologist as he had scribbled on an envelope before passing away.

The first problem relates to what is a sustainable practice. The second problem relates to the nature of development, how economies are created and cities grow. Development also relates to poverty reduction, and promoting social justice and human dignity. In view of current practices, each of these goals seem to pull in different directions as economic growth has proven to cause both human inequalities *and* deterioration of the living environment. The official discourse is that more economic development is needed, not less. Some radical thinkers advocate zero-growth or to reorganize the way business is run. Yet others think there is something fundamentally flawed in the way we think, and that humans need to heal before the planet can.

While the profit-motive as incentive cannot be discounted, we have seen that people may value their happiness more that wealth and that happiness is dependent on other variables than wealth, such as health and education. The health of the natural environment, or *intangible goods,* are also important. Since the health of the environment is shared by all, and cannot be owned by any particular group, it escapes traditional profit-maximizing behavior. The deterioration of the common good is sometimes referred to as the 'tragedy of the commons' whereby profit-maximizing behavior in the absence of coordination may lead to the deterioration of the common good. This is to a large extent happening with the environment today. In order for household economies to take a more active part in the protection of natural environment, it may therefore be necessary to identify new incentives and behaviors that also will maximize the common good. This section will explore the value of using *leisure time* as an incentive to not only maximize happiness but that is consistent with the incentives of more wealth, health and education. In simple terms, while conventional economic wisdom is founded on the macro-economic maximizing behaviors of nation-states, the household productivity is based on micro-economic maximizing behaviors of individual households that may care less for wealth and power and more for happiness, health and personal empowerment.

3.1.1. Sustainability

To sustain something, means in this context to provide somebody with nourishment or the necessities of life, or to keep somebody going with emotional and moral support.[56] To sustain oneself or one's kin, refers to the household's *internal* strengths. To sustain also has its *external* attributes, in terms of managing to withstand outside pressure or support somebody else from faltering.

A sustainability principle therefore deals with both internal and external relationships: *internal relationships* referring to the division of labor in the household economy; *external relationships* referring to social and ecological webs that link the household economy to the world.

If basic needs can be satisfied with lesser and lesser effort, it means that the culture and social organization is evolving, in other words that the livelihood is improving. If basic needs can only be satisfied with increasing effort, due to whatever reason, such as loss of health or loss of a productive household member, increasing family size (more mouths to feed), increased competition from others (competition for resources), or a deteriorating environment, then the livelihood is deteriorating and the quality of life is threatened, unless new solutions are found.

Sustainable practices can thus be expressed as finding an equilibrium, or a steady state, which may require draconian means of population control or a voluntary reduction in living standards. Alternatively, if finding a steady state is not possible or desirable, the sustainability principle will require finding new ways of doing more with less. In other words, the need for constant innovation is linked with any economy that sees more people competing for the same amount of natural resources. Of course, there is a third way, which amounts to taking resources from other people. While this third method is widely practiced, we shall discount it as contrary to the principles of Human Rights and right for self-determination.

---

[56] Encarta Dictionary.

However, the sustainability principle also needs to address competitive frameworks in which economies innovate at different rates. No household is an island. If we consider more mouths to feed or external competition as facts of life, then sustainability means a certain rate of innovation, or constant improvement in terms of doing more with less, as the true measure of sustainability.

My hypothesis is that the most meaningful way to express quality of life at the human experiential level is as *leisure time enjoyed.* As an extension, I consider a household's productive *performance* the relative rate of innovation between different households. When households form part of a larger productive social entity, it is the ability to innovate of this social organization with respect to other social organizations that determine its level of productive performance.

Performance always is relative to how someone else is doing. Productive performance, then, can also be expressed as the effectiveness of households at maximizing their leisure in a competitive framework. Sustainability, however, is not concerned with maximizing but in maintaining, improving and restoring. As noted above, our field of perception is limited, and social organizations will survive us. Therefore, design must be sustainable in that it seeks to facilitate the rate of innovate doing less with more for generations to come. Productive housing is thus about giving individual households the means to not only produce, but to innovate at a certain rate that can help increase production over time.

3.1.2. Productivity

At the heart of our capitalist economic and cultural value-system lies the notion of productivity, defined as: (1) the quality of being productive; (2) in *Economics,* the rate at which goods or services are produced especially output per unit of labor, and; (3) in *Ecology,* the rate at which radiant energy is used by producers to form organic substances as food for consumers.[57] (4) *Primary Productivity* is: "the rate

[57] The American Heritage Dictionary of the English Language, Fourth Edition.

at which plants assimilate the energy of sunlight [...] The flux of energy though populations of herbivores, carnivores and detritus feeders, and the biological cycling of nutrients through the ecosystem are ultimately tied to the primary productivity of plants.[58]"

For the purposes of the this study, the four definitions of productivity outlined above, the *qualitative*, the *economical*, and *ecological* productivity, will help to define the productive house. It may also be useful to apply the definition of productive efficiency: "the ratio of work accomplished to energy supplied."[59]

Qualitative productivity will be identified as healthy occupancy and lifestyle benefits, and in particular the maximizing of leisure time. The economical productivity relates to growing and building systems that either creates commercial or community value or that helps to save money. Moneys saved in energy-related and food-related expenditures is equivalent to more financial freedom for each household. The ecological productivity is related to maximizing primary productivity in the design while minimizing negative ecological impacts.

3.1.3. Utility

Utility is a concept, which similarly to *productivity, convenience* and *leisure* occupies an important role both in social and economic science, as well as our cultural value-system: In *Economics,* "utility is a measure of the happiness or satisfaction gained consuming good and services. Given this measure, one may speak meaningfully of increasing or decreasing utility, and thereby explain economic behavior in terms of rational attempts to increase one's utility. In neoclassical economics, rationality is precisely defined in terms of utility-maximizing behavior, under economic constraints."[60]

---

[58] Riclefs (1983)
[59] Jacobs, Jane (1969, p.89)
[60] Wikipedia.org

3.1.3. Convenience

Is defined as "a luxury that is intended to save a consumer time or frustration. A convenience store, for example, sells items that have nothing to do with gasoline or petrol, but it saves the consumer a stop or separate trip to the grocery store."[61] Convenience is thus a time-saving devise, but it is used as a remedy to recoup time rather than a measurement of productivity per se.

3.1.4 Leisure

Leisure according to the Oxford dictionary is simply, *free time*, so why these days is it so hard earned? Like other "free goods" such as air and clean water, why are we not accounting for its productive value? Leisure, even in its most idle "do nothing" state, may be one of the most under-valued and productive activities that one can engage in. Leisure is also referred to as "*freedom or opportunity* to do something specified or implied" (my italics).[62] Aristotle described the importance of leisure in the following manner:

> As I must repeat once again, the first principle of all action is leisure (*Pol.*, Bk VII, 3)
> We are busy that we may have leisure. (*Nich. Eth.* Bk X, 7.). [63]

The traditional definitions of leisure identify the fundamental value of leisure as both the means and the end of productivity, as an act of freedom that is both active and utilitarian. Leisure is *when* you live. However, leisure as defined in more recent texts stresses *leisure* as a form of idleness or time away from work or utility, and indeed blurs its meaning with that of convenience: Lei·sure: *Freedom from time-consuming duties, responsibilities, or activities.* Idiom: *at (one's) leisure: When one has free time; at one's convenience: I'll return the call at my leisure.* [Middle English, from Norman French leisour, from Old French leisir, *to be permitted*, from Latin licre.]

---

[61] Idem.
[62] The Oxford English Dictionary.
[63] Miller, Michael (1997).

In *Praise of Idleness,* Bertrand Russell (1872-1970) re-introduces the utilitarian value to time spent in leisure. He argues how less work-hours and more leisure would increase overall productivity, reduce unemployment, and in passing he points out, the still too commonly shared judgment amongst the privileged and conventional planners and architects, that leisure is a luxury reserved only for the rich. While this underlines the fact that poor people spend relatively more time at securing basic needs, it also has the perverse effect of not considering leisure as a social goal to also increase the productivity of the poor, or taint it with moral judgment, e.g. laziness:

> First of all: what is work? Work is of two kinds: first, altering the position of matter at or near the earth's surface relatively to other such matter; second, telling other people to do so.
>
> The first kind is unpleasant and ill paid; the second is pleasant and highly paid. The second kind is capable of indefinite extension: there are not only those who give orders, but those who give advice as to what orders should be given. Usually two opposite kinds of advice are given simultaneously by two organized bodies of men; this is called politics. The skill required for this kind of work is not knowledge of the subjects as to which advice is given, but knowledge of the art of persuasive speaking and writing, i.e. of advertising [...]
>
> The idea that the poor should have leisure has always been shocking to the rich. In England, in the early nineteenth century, fifteen hours was the ordinary day's work for a man; children sometimes did as much, and very commonly did twelve hours a day. When meddlesome busybodies suggested that perhaps these hours were rather long, they were told that work kept adults from drink and children from mischief. When I was a child, shortly after urban working men had acquired the vote, certain public holidays were established by law, to the great indignation of the upper [leisure] classes. I remember hearing an old Duchess say: 'What do the poor want with holidays? They ought to work.' People nowadays are less frank, but the sentiment persists, and is the source of much of our economic confusion (my addition of leisure in brackets). [64]

[64] Russell (1932). The text from wich these quotes were borrowed was first provided by the Massachusetts Green Party. See http://www.zpub.com/notes/idle.html.

3.2 Ways to Compete

Management theory stresses the central role of knowledge, innovation and design to gain comparative advantage. The marketplace being competitive, it should value a sustainable principle based on constantly doing more and better, for less. However, business practice does not always coincide with theory. This problem is related to the problem of Otherness discussed earlier whereby dominant discourses do not always correspond with observed practice, except that for management theory and practice, the problem is reversed: It seems that while business theory corresponds well with the utility principle, actual practice is linked with a dominant discourse of exclusion whereby 'the greater good' or 'invisible hand' is not allowed to work. Many people are excluded from fair competition. In fact, the hands of state or corporate control are highly visible, while informal and household-based economies are largely invisible and not able to compete on an equal footing. Despite these problems business theory provides a useful starting point to equate household economies with small businesses: *utility* is for a household what breaking-even is for business, but *leisure* for a household is similar to business profits. While utility is needed to cover the basics, leisure is what we live and work for.[65]

3.2.1. Management Theory

Management theory and practice has a rich background in looking at performance, but surprisingly maybe, the 'wisdom of teams', 'creative destruction', 'partnering with the poor' or 'everything is design', though frequent in the literature, and observed in informal sectors, is only recently beginning to gain formal practitioners in formal economies.

[65] Likewise, the future of household productivity is a result of leisure time invested in children, future generations and their happiness, not unlike how a business would reinvest its profits to build its productive base.

My hypothesis is that only now are appearing household economies that can effectively challenge corporate control. Informal and household businesses are increasingly becoming producers (rather than consumers only.) Also, consumers tastes are changing moving their purchasing choices to locally produced and artisan patronage. More and more people realize that spending dollars is not a passive act, but an investment in a certain type of livelihood. Maybe nowhere is this more apparent that in the agricultural sector where people engage in subsistence farming, slow foods, equitable trade or community-supported agriculture. This is consistent with comparative advantage if one considers the quality and freshness of local production as a comparative advantage as compared to packaged or processed goods that travel long distances.

Household productivity is also linked to local social organization and solidarity networks whereby people make decisions based on valuing human ecology, that is: the relationships between human beings and their natural and social environments. Household productivity should thus not be understood in its conventional sense of production *or* consumption, but rather production-consumption choices made within a mutually supporting web of producer-consumers within a local economy. A final point is that household producer-consumers may attribute extra value to their relative autonomy, thus favoring the strengthening of local self-sufficiency as a safeguard against external control. This prompts official business to move and cater to local and more varied demands. It is the informal sector dynamics that drive big business, not wise versa.

3.2.2. Design is everything

Design permeates management, organizations, services, and the creation of built and open environments. Also, architects and city planners are looking for their new role to play in the midst of social, technological and environmental change. This change is driven by cities. The urban poor, informal economies, grassroots activism, popular and self-built housing and urban agriculture display new forms of social organization and practices that defy conventional institutional

discourses. Society is in such a rapid flux that the *performance* of these new social organizations, and the role of the household economy, needs to be questioned and reexamined at every level.

Designers are thus faced with the challenge to design houses and plan social organizations that maximizes a multitude of economic production-consumer behaviors. Learning from the informal sectors, this means to design a certain level of self-sufficiency into housing and community design.

3.3 Evolution of Cities

This section will look at the primacy of cities in generating innovation and growth, including food production. Food production is used as an example to also illustrate other productive activities that an urban household can engage in. By focusing on food, which conventionally is thought of as a rural economic activity, two goals will be achieved: challenge the conventional rural-urban division of labor, and establish the productive potential of the urban household in other activities. Food production has the added advantage that it is within the reach of various socio-economic groups and skill levels, and therefore has appeal to a wide range of audiences including children, youth, the elderly and immigrant populations. In addition to elaborating on the relationships between cities and agriculture, we will also consider the role of cities more generally in terms of innovation and economic growth. It will help establish the role of the household economy and its relative autonomy or integration with the city fabric.

3.3.1. A Theory of City Origins

Jane Jacobs (1916-2006) in *The Economy of Cities* (1969), challenges the assumption of agricultural primacy with respect to cities, that is: that agriculture appeared *before* cities in Neolithic hunting hunting-gathering societies, and instead she suggests: (1) that the assumption of agricultural primacy originated in

the field of Economics with Adam Smith's *The Wealth of Nations (1775)*; (2) that this assumption is erroneous, and has never since been challenged by other scientific fields;[66] (3) that, instead: the most dynamic cities act as sources of rural work; (4) that, further: cities are places of innovation including agricultural innovation and that sedentary growing or livestock communities (first examples of specialized farming communities) came into place as a division of labor between city and countryside whereby cities outsource farm-work to surrounding lands, which in turn can generate specialized farming societies, e.g. the precursors to agri-business; (5) that cities strive on innovation replacing older export economies into new import and export economies, and; (6) that diversification resulting in more imports and exports make cities grow by a multiplier effect which generates a local economy and the creation of new goods, services and commercial agriculture serving local markets.

Based on the remains of actual Neolithic cities, Jacobs uses a thought-experiment to generate a theory of the first sedentary agriculture that occurred in the city of imaginary New Obsidian (Anatolia, Turkey), showing how seed selection and natural selection of crops suitable for agriculture could only have occurred in an urban settlement of hunters and gatherers also engaged in trade. The frequent exchanges between people and their foodstuffs had to be sufficient and sustained to develop over time a selection of crops and livestock suitable for domestication. Hence the first agricultural practices would be born in the city-center, but progressively outsourced to specialized farming communities in the city's vicinity to allow for more land for raising animals and growing food. These secondary settlements would still depend on the city center for their urban supplies of goods, and would experience a decline if the city declined.

Similarly to cities elsewhere, in medieval Europe or on other continents (ancient cities such as Beijing in China comes to mind), innovations in agricultural practice would primarily derive their innovation and improvement from trading

[66] Jacobs, Jane (1969, pp 1-48).

communities that would over time add and diversify their trades and develop sophisticated urban societies based on guilds and increasing levels of specialization.

Jacobs also compares other post-agricultural and modern cities such "efficient Manchester, inefficient Birmingham"[67] where Birmingham due to its manifold and small home-based economies, and *inefficient redundancies*, ultimately proved more dynamic, more socially equalitarian, and more innovative, than the centrally-operated but highly efficient textile-mill city of Manchester. Manchester figured as a model city for early industrialization while Birmingham seemed chaotic in comparison.

> Birmingham had a few relatively large industries, although nothing remotely approaching the scale of Manchester's, and even these accounted for only a small part of Birmingham's total output of work and total employment. Most of Birmingham's manufacturing was carried out in small organizations employing no more than a dozen workmen; many had even fewer.[68]

Birmingham's multitude of small trades and enterprises with an apprentice systems and only a few employees in each outfit dates back to medieval times. Manchester had only a few very large enterprises with a marked social separation of a few very rich capital-owners who controlled the productive means, and poor laboring masses without productive means, which inspired both Marx and Engels to decry the socially perverse effects of capitalism.[69]

Today about 40 years after Jacobs's observations, Birmingham and Manchester are still competing. How do these two cities compare today? One would assume that the decentralized organization of Birmingham would be heavily vested with a multitude of small community and business interests and therefore continue on a path of innovation. Likewise for Manchester, one would expect to either see an upswing in economic performance linked with a restructuring or continued stagnation.

---

[67] Jacobs, Jane (1967, p.86)
[68] Idem (p.89).
[69] Idem (p.87).

- Birmingham (2006: 1,021,000 residents): "Status of World Class City, Core City UK, Euro City and Midland (regional) City Center, not dissimilar in size and characteristics from a regional capital such as Montreal. Commonly known as known as "the workshop of the world" or the "city of a thousand trades,"[70] Birmingham was ranked one of the cities most familiar with Europe by a recent study.[71] In terms of social performance, Birmingham still seems to reflect what was observed during the industrial revolution and what Jacobs observed in the late 1960s:

> Evidence of highly successful capacity building and community involvement was recognised amongst small scale projects and the City Council intended to generate this sense of local involvement on a city-wide basis. Ward advisory boards engaged councillors locally and proposals for devolution to a constituency level decision-making structure were being prepared. Local communities wanted to contribute to the improvements of their local areas and expressed concerns that the decision making process should be delegated from the centre and not the reverse where local community interests and responsibilities become centralized. This Council shift was in recognition of people wanting to realise neighbourhood benefits outside the city centre development focus. Community pride, tackling anti-social behaviour and degraded environments, developing better awareness and ownership of local solutions and creating a better choice and condition of housing emerged as priority themes.[72]
>
> The City Council has always been a significant partner on the regional scene and formalised mechanisms are now consolidating its contributions and to establish an influential and sustainable City in many spheres. To strive for a status as a World Class City, Core City UK, Euro City and a City at the heart of a thriving West Midlands region, it needs to ensure that becoming sustainable is an essential aim. It needs to recognise this as a necessary requirement in order to compete with its global peers.[73]

- Manchester (2006: 412,000 residents): Manchester has just completed a phase of urban renewal. With a new airport the city has become international hub in international travel. Manchester recently moved up from 19th to 13th place in a European ranking in terms of European cities in which to do business.[74] It still is competing with Birmingham to achieve the second-city status after London:

> Tourist officials attribute the turnaround to a more "international image" created by the city in recent years... A nationwide *sic.* poll found 34% of people placed Manchester ahead of traditional rival Birmingham, which has a much larger population... [W]ith the 2001 census recording its population as 392,819, it is much smaller than Birmingham which boasts nearly one million inhabitants...The West Midlands city has also enjoyed a regeneration in recent years, based around its canal network and the opening of the recent

[70] http://www.birminghamuk.com/go/history.html
[71] http://www.citymayors.com/
[72] City of Birmingham (2004, p.20) .
[73] Idem (From conclusion, p.52).
[74] Cushman et al. (2006, See http://www.citymayors.com/business/euro_bizcities.html).

> Bullring shopping centre, which features an outlandish Selfridges building... [W]e do want to compete with successful European regional capitals like Barcelona, Lyon, Glasgow and Frankfurt.[75]

In terms of social performance, however, Manchester seems to still wear some of the signs of social disentrancement, judged to only be "improving adequately" according to an independent audit.

> Manchester City Council is delivering improvements in services for local people. Services in most priority areas have improved over the last two years, with significant progress being made in crime reduction, waste recycling and libraries. There have been improvements in the management of children's services and adults services. However, further improvement can be achieved in education attainment and attendance levels and improving other areas of low relative performance compared to other authorities. The Council is working effectively with its partners to tackle issues which affect the quality of life of local people such as improving community safety, improving the quality of housing, and raising life expectancy. The Council continues to work closely with Manchester's diverse communities to develop services and promote race equality. The Council is addressing areas in need of improvement including how it delivers value for money and manages performance. Plans are in place to enhance the way people access services across the whole Council. Significant challenges remain which are being addressed including ensuring changes in the way services are delivered lead to better outcomes for local people.[76]

Thus, some dynamics between Birmingham and Manchester appear to have remained similar, especially with respect to Birmingham favoring a business environment for "thousand trades" and Manchester catering to bigger business. Also, with respect to the presence of a strong and active community-network in Birmingham and the absence of this in Manchester. These social networks are linked to competitiveness and if Jane Jacob's analysis is correct and my hypotheses prove true, Birmingham will continue to remain a more dynamic center for 'home-grown' innovation and relative wealth.

However, the brief analysis the more recent data also reveals new dynamics in terms of inter-city competition. Both cities are striving to be recognized as a leading regional, European or international metropolis to attract foreign businesses, skilled workers and connect with international markets for new sources for growth. Urban upgrading, the construction of cultural attractions such

---

[75] BBC News (Thursday, 12 September, 2002)UK Manchester 'England's second city'
[76] Audit Commission (2005) Comprehensive Performance Assessment: Manchester City Council 2005 scorecard Comprehensive Performance Assessment (CPA)

as museums and sport stadiums or an attractive downtown to live and work are all important to earn high livability and business ratings for skilled workers or companies to come and reside in a "world class" safe, and clean cosmopolitan metropolis. The "image" that the city to the outside world thus seems to be a key factor in remaining competitive. Monumental "outlandish" architecture, such as that one designed by Frank Gehry in Bilbao can thus act as catalyst for a regional development centered around a smaller urban center.

Brooklyn and New York are two other cities where urban planning and the design of monumental buildings have, since the creation of the *Prospect Park* (1858-1868 by Frederick Law Olmsted and Calvert Vaux) and the *Brooklyn Bridge* (1868-1893 by John Augustus Roebling) up until Gehry's current Brooklyn urban renewal project, placed a decisive role in inter-urban competition.

Here is an exchange that shows the tension between *internal* community-based concerns versus the *external* concern of "image" that a building gives:

[Asks a writer who lives in Boerum Hill, Brooklyn:] *An Open Letter to Frank Gehry*[77]
What's wrong with the buildings Frank Gehry wants to put in my neighborhood?

[Mme "X" answers:] *Context??*
Well I'll overlook the fact that Gehry's gimmicky buildings all look the same. Assuming that your neighborhood is not composed of other metal, free-form buildings, then Gehry's building will stick out like a sore thumb. His designs leave no room for context, so this building will be the main event on the block instead of forming part of a cohesive neighborhood. If this building is part of a revitalization plan, even worse! It will draw attention, but will not respond to the unique needs of the neighborhood and will not create a true thriving community.

[Mr. "Y" answers:] *Needs versus Architecture*:
[Mme X's] simplistic overreaction shows a lack of appreciation for Gehry Partners' work on an urbanistic level. Both the Bilbao Guggenheim and the Disney Concert Hall, to cite two examples, effectively deal with complex urban conditions to create compelling places for people to engage these sites. While I'll concede that these projects are visually distinctive, they display deeply considered responses to their respective contexts.

[Mr. Frank Gehry describes this dilemma in a separate interview:] *Architecture as Service:* [78]
[...] But as people in Brooklyn expect the borough to be all "brownstones and tree-lined streets," Gehry's project has met with opposition from the community. "You can't do that with a project of this size..." Gehry decided to develop a "design hierarchy," where

[77] www.slate.com
[78] www.columbia.edu/cu/news/05/11/frankGehry.html

> several "iconic towers" will be surrounded by "background buildings." [...] But the dilemma, he said, is that the background buildings end up looking ordinary, like standard-issue housing projects. "Sometimes I think I should be less polite," he said -- implying that life would be easier if his buildings were all attention-getters.

Finally—and this is a point that also goes to Montreal, Chicago, Atlanta, Vancouver, Oslo, etc—there are increasingly high stakes for cities to improve their image on the international scene to stand up to the leading metropolitan centers, such as New York, London, Paris, Frankfurt and Toronto, etc. The secondary cities are competing on communications, transport, livability, business environment, and proximity live-work. Monumentality as "image" needs to be balanced with context and "forming part of a cohesive neighborhood." Cities with a stronger locally based economy and community network will be more concerned about their environment's integrity than cities more dependent on attracting large businesses from the outside.

3.3.2. Jacobs' critique of Laissez-Faire

Jacobs is not criticizing Adam Smith's *invisible hand* per se, but she is demonstrating Smith's own illogical inconsistencies, and the survival of dogmas regarding agricultural primacy despite evidence to the contrary. She shows that in the context of the late 1700s the Biblical imagery of all life originating at the same time and in a garden of Eden, agriculture was always assumed a given. Even later, with Darwin (Charles Robert, 1809-1882), the separation of agricultural work from cities was not questioned and remain with us until this day in urban planning, architecture and economics. It is in the field of Anthropology that new evidence is appearing to show that people were "civilized" and highly organized urban dwellers *before* they become farmers. Why is this important?

This is important because the division of labor within and between cities is linked to innovation and growth, *including* the innovation and growth in agriculture. As such, there are two widely distinct paths currently being pursued. The first one is "playing God" and is heavily reliant on chemical inputs and currently pursuing genetic engineering to create new crops. The other one is playing with Nature,

using biological engineering, alternative farming practices, or a combination of the two seeking to improve yield and crop selections, locally. Both agricultural societies are being pursued with new skills and practices that are born out of cities. By focusing on agriculture as a "rural problem" without making the link to cities, we are failing to understand the dynamics that can also help rural development. In short, rural development is a result of city development and not vice versa. The problem is that institutions engaged with development projects or economic policy still believe agriculture is a "rural problem" as illustrate these quotes from the Rockerfeller Foundation from 1964 and 2006, respectively:

> When man learned to cultivate plants and to domesticate animals...society for the first time was able to plan ahdead and organize itself through the division of labor. (Rockefeller 1964)[79]

> While many correctly argue that the root cause of such hunger is poverty, some seem to miss that, in predominantly agrarian societies, the root cause of poverty is lack of sufficient food and income from small-scale farming. (Rockefeller, 2006)[80]

3.3.3. The primacy for city growth: diversification and exports

Before going further, I will make the distinction between primary and secondary city production, as Jane Jacob did before me in *The Economy of Cities* (1969).

Primary economic sectors are sometimes referred to as the (non-urban and the capital-intensive) extraction or conversion of natural resources, such as oil, farming, agribusiness for export, fisheries, and forestry. *Secondary activities* refer to manufacture and construction (the traditional capital *and* labor intensive sectors), while the tertiary sectors refer special urban professional service industries trading "intangible" goods.

Here, however, similarly to Jane Jacobs, I shall refer to *primary activities* as essentially activities that originate in cities for exporting goods and services, and that are driven by innovation. These primary activities include agro-business,

[79] Jacobs, Jane (1969, p.47).
[80] Rockefeller Foundation (2006, p.1).

natural resource extraction, processing, manufacture, services, *including* the import of goods and services earmarked for more production of export-related goods and services. *Secondary activities* shall refer to the equally essential *urban* activities that result from the primary activities and that are essentially support-industries. The secondary economy is thus exclusively serving local needs, providing manufacturing, products and services to the primary export industries, including the city's residents. This secondary group of activities would include local commercial farming practices that may happen within or at the periphery of the urban core to serve local food needs. Importantly this secondary market includes the imports that serve *domestic consumption* as opposed to imports that serve the primary export industry of the city. A tertiary category of activities would in my definition correspond to subsistence activities serving the household economy that derive their livelihood from the immediate surroundings with a high degree of self-sufficiency. This last category can be either urban or rural as it does not need to derive its livelihood from the city.

Each of the primary, secondary and tertiary economic activities in a city thus defined can run either formally or informally. Here it is seeing and recognizing the activities as such that counts. It does not matter to this analysis whether current accounting practices are keeping track of them or not. And this is the main point: A strong autonomous and diversified household productivity can prosper through booms and busts; tertiary (subsistence) economy can sometimes evolve to become a secondary activity (serving the local export economy) or a primary (export) activity. This is especially true when a local market is expanding and able to import primary expertise and knowledge to build new and diversified exports. The tertiary subsistence economy is what can be referred to as "home-grown," "home-spun," "grassroots" or "seed" businesses striving on family-size operations and individual initiative, sometimes referred to as "sweat equity." New social organizations and the primacy of knowledge increasingly is helping individual households control their own means of production.

3.3.4. The Garden City

Throughout the 20th century, the central role of "nature" in city planning was established, at least theoretically. Practical applications have more often than not been curtailed by conflicting and more powerful interests, such as the creation of parkways and public works as exemplified by for example Robert Moses (1881-1981) in New York, where inhumane public housing projects modeled after Le Corbusier's (Charles-Edouard Jeanneret,1887-1965) 'towers in the park' replaced otherwise vibrant neighborhoods characterized then as 'ghettoes.'

Frank Lloyd Wright designed his *Broadacres, Unisonian House* and *Natural House* as attempts to bring society back to its rural roots, back to the land, advocating the concept of a house and its one-acre (4000 m2) garden. Even before 'sustainability' became a household concept, Geddes' proposed his *City Beautiful* concept and Ebenezer Howard sketched his *Garden City*. Le Corbusier proposed the *Radiant City*, though we live only with specters of his totally-designed and machine-like towers: the surrounding spaces once thought of as green having been filled with either similar structures or parking lots. Post-WII suburbia was born with carbon copies of Levittown and nature was brought out of the city. Things turned out differently than what Wright had imagined:

> The broad acre city, where every family will have at least an acre of land, is the inevitable municipality of the future . . . We live now in cities of the past, slaves of the machine and of traditional building. We cannot solve our living and transportation problems by burrowing under or climbing over, and why should we? We will spread out, and in so doing will transform our human habitation sites into those allowing beauty of design and landscaping, sanitation and fresh air, privacy and playgrounds, and a plot whereon to raise things.[81]

Contemporaries of Jane Jacobs and Lewis Mumford (1885-1990) were not able to translate theories or urban garden-oriented communities into application against the abandonment of city neighborhoods. A suburban culture organized around automobile transport has emerged as a result.

The most notably exception is Frederick Law Olmsted (1822 - 1903) whose city

[81] Wright, Frank Lloyd (YEAR)

"lungs" of *Central Park* (Manhattan), *Prospect Park* (Brooklyn) and *Mont Royal* (Montreal), still stand as a shining example of large-scale city planning as potentially creating socially inclusive urban green spaces.

> What artist so noble...as he who, with far-reaching conception of beauty, in designing power, sketches the outlines, writes the colors, and directs the shadows of a picture so great that Nature shall be employed upon it for generations, before the work he arranged for her shall realize his intentions. –Frederick Law Olmsted.

His "meandering career, from scientific farmer and critic of the slave owning South through service to the Union war effort, finally produced a landscape architect, pioneer environmentalist, and city planner."[82] In Witold Rybzynsky's words:

> The difference is that he's not a bystander; he's usually in the middle of things and very much involved in them. He's somebody whose life really is also the story of the time he lives in... His parks were things that only a wealthy society -- or at least one that saw future benefits of wealth -- could undertake. So he couldn't have done it earlier. And I think later it became difficult, because the money got so concentrated in a small number of hands. Today, of course, the bureaucracy and the politics would get in the way. There would be so many interest groups that you could never decide on something like a Central Park. Seattle tried to build the Commons, an eighty-acre park (which is tiny by comparison), and that was voted down twice... There are several lessons I think we can learn from Olmsted in terms of planning and design. One of them is that he really worked on a big scale. It seems to me that we've lost the ability to do that in planning -- partly because the public has lost confidence in planners...because of the highway construction and the urban-renewal projects of the 1950s and 1960s, when whole neighborhoods were demolished and then not really replaced in a pleasing way.[83]

The practical application of urban planning and architecture, as a means to design and implement an urban vision, depends on a political will or consensus. The ability to implement an urban vision depends on the coming together of various groups, which in unique circumstances, such as those enjoyed by Olmstead or Moses, can be favorable to large-scale projects. The architect and planner may have to take an active political engagement in the processes that can lead to the implementation of an extraordinary vision. Currently, limited visions that are short-term and building-oriented, such as Frank Gehry's schemes, seem to command the necessary consensus, while socially-motivated and larger-scale urban visions don't. Even these limited scale projects may not be able to

---

[82] Rybzynsky, Witold (1999).
[83] Idem.

surmount local resistance or commercial interests. Also, while a large urban vision takes many years, sometimes more than a decade to implement, the cultural environment has changed whereby larger visions have become rare: various interest groups and shorter-term market-driven approaches seems to curtail a visionary who is dependent on a unified political will and wealth to justify large projects. However, several emerging urban phenomena and trends in urban planning and architecture can 'revitalize' this situation.

3.3.5. Lewis Mumford and Ecological Regionalism

Lewis Mumford (1895-1990) stands out as a visionary whose ideas did not realize during his lifetime, but whose time has come. His community-based regionalism is today echoed by urban interventions that seek to restore urban ecology. In 1923, he was a founding member of the Regional Planning Association of America (RPAAP) of which an 'inner circle' also included Charles Harris Whitaker, Frederick L. Ackerman, Robert D. Kohn, Benton MacKaye, Clarence Stein, Henry Wright, Robert Bruere, Stuart Chase, Edith Elmer Wood, and Catherine Bauer.[84] These people thought of new ways to apply design and planning to create a socially and ecologically more just urban development.

Mumford, like his precursors Urban Planner Ebenezer Howard (1850-1938) and Scottish botanist Sir Patrick Geddes (1854-1932), was motivated by addressing the "sprawling character of cities (particularly British and North American cities, a tendency he called conurbation." However, Mumford went beyond Geddes's *City Beauiful* in the realization of a *regionalism* that called for regional planning. This meant to adapt technology to natural patterns so as to respect limits and diversity, addressing (in addition to urban sprawl) two phenomena: the destruction of nature and the decline of urban life. His program was to: (1) Shape human lives (adapt to ecosystems); (2) Re-contextualize cities in relation to nature, or rather, the city as polis in relation to the organic complexities of the regional

[84] Lincoln Institute of Land Policy (2006, See http://www.lincolninst.edu/pubs/pub-detail.asp?id=274).

ecosystem; and (3) Promote natural economies (not scale and overcome over-specialization).[85]

Mumford became a cultural critic, recognizing that the conservation of land and landscape would create new social forms. He was particularly challenged by the war efforts of WWI and II. Although he enlisted as a soldier and supported the war efforts to protect democratic ideals, he put into question what he termed "an atavistic demand for complete [and false] spiritual unity", "that war was constitutional to the state...which by nature is imperialistic." Instead, he sought to realign social organization around a practical regionalism whose "existence resides in the 'facts' of geography, climate, soil, and terrain [that] constitute the "fundamental basis of existence." He went further to suggest regionalism as a new means to participate and restore community life and that new social forms may be organized with the to aide nature: "most important here is not work per se, but the notion of livelihood; the labor that sustains meaning in life..."[86]

He joined other thinkers in criticizing a technological society, such as Thorsten Veblen—whose *Theory of the Leisure Class* (1899) was responsible for introducing *conspicuous consumption* into the sociological and economic literature—and Paul Goodman's (1911-1972) proposal to create a modern society on the human scale. Mumford's contribution includes recognizing livelihood as a productive means and as social engagement crucial to *self-realization.*

His approach was multi-disciplinary and holistic with new relevance for economists, scientists, environmentalists, cultural critics and community activists who currently apply regionalism or bio-regionalism to restore local livelihoods. On the characteristics of cities, Mumford emphasizes the theatrical character, organizational complexity and social diversity as resembling that of a "plexus" or a rhizome. He thus identifies the form and functions of cities—their overlapping

[85] Lucarelli M (1995, p.13).
[86] Mumford, Lewis (From Lucarelli, 1995)

divisions of labor and cultural processes—with networks and flows found in biological systems:[87]

> [T]he city is a related collection of primary groups and purposive associations: the first, like family and neighborhood, are common to all communities, while the second are especially characteristic of city life. [...] The essential physical means of a city's existence are the fixed site, the durable shelter, the permanent facilities for assembly, interchange, and storage; the essential social means are the social division of labor, which serves not merely the economic life but the cultural processes. The city in its complete sense, then, is a geographic plexus, an economic organization, and institutional process, a theater of social action, and an aesthetic symbol of collective unity. [...] [T]he personalities of the citizens themselves become many-faceted; they reflect their specialized interests, their more intensively trained aptitudes, their infer discriminations and selections, the personality no longer presents a more or less unbroken traditional face to reality as a whole. [...] The full diversity of life is more appreciated and accepted in city-life.] through the deliberate efforts, of art, politics, and education [that] make the drama more richly significant, as a stage-set...Social facts are primary, and the physical organization of the city, its industries and its markets, its lines of communication and traffic, must be subservient to its social needs.[88]

3.3.6. The Desire to be Wired: Primacy of information in urban centers

Of primary concern to this study is to expose the dynamics between multiple economies and work cultures, and how conflicts between dominant and new social forms are negotiated. A growing body or research is concerned with how new technologies and a global marketplace is affecting social change and creating new inequalities. Most disciplines concerned with social change are replacing static modeling with dynamic models trying to describe *the nature of change*. Rapid change has become a fact of life. In addition the emergence of powerful information technologies (which makes such modeling possible), "new media" has lead to new distinctions between real versus virtual realities. In addition to describing physical space, one needs to understand the impacts of virtual spaces, that are not less real in that they affect our livelihoods and dynamics of place.

Sociologist and Economist, Saskia Sassen (1949-) and Manuel Castells (1942-) bring an expanded focus of the dynamics involved in the so-called global information economy. According to Sassen, "one particular concern here [is to]

---

[87] Plex·us n (1) a network of nerves, blood vessels, or other vessels in the body; (2) any complex network or interwoven structure. Rhi·zome n (1) a thick underground horizontal stem that produces roots and has shoots that develop into new plants. Also called rootstock [Encarta® World English Dictionary]

[88] Mumford, Lewis (From Lucarelli, 1995, p.95).

understand how new forms of inequality actually are constituted into new social forms, such as gentrified neighborhoods, informal economies, or downgraded manufacturing sectors."[89]

To Castells, the current discourse is dominated by an ideological debate polarized between "Techno-elites" and "Neo-luddites:"

> [F]or those true believers in the magic of the market, everything will be just fine, as long as ingenuity and competition are set free. All we need are a few regulatory fixes, to prevent corruption and to remove bureaucratic impediments in the path of our flight to hyper-modernity.
>
> For those around the world who are not ecstatic about surfing on the Internet, but who are affected by layoffs, lack of basic social services, crime, poverty and disruption of their lives, globalization is noting more than a warmed up version of traditional capitalist ideology. In their view, information technology is a toll for renewed exploitation, destruction of jobs, environmental degradation and the invasion of privacy.[90]

Rather than taking sides in this polarized debate, Castells seeks to explain the synergistic and complex dynamics that are driving social change. He also expresses how this social change could lead to a socially and environmentally sustainable society.

> Like all major transformations in history, it is multidimensional: technological, economic, social, cultural, political, geopolitical. Yet, I the end, what is the real meaning of this extraordinary mutation for social development, for people's lives and well-being? And is there a shared meaning for everyone, or must we differentiate people in terms of their specific relationship to the process of social change? If so what are the criteria for such differentiation?[91]

He identifies two processes that are driving change: the information technology revolution and the process of globalization. He proceeds to explain how these are complex, overlapping and contribute to "the generation of inequality and social exclusion on an unprecedented, planetary scale." He points out the pervasiveness of capitalism through which "even the few remaining command economies are surviving or developing through their linkages." He perceives Capitalism as reinventing itself in both old and new forms: Old, in its pursuit of profit and

---

[89] Sassen, Saskia (1994).
[90] Castells, Manuel (1999).
[91] Idem.

individual satisfaction, but new because of the productivity sources that information and communication infrastructure and tools bring.[92]

Saskia Sassen recognizes the city as a new "contested space" between economic globalization and place, where one can observe various co-existing strata of cultural overlaps. These strata are not represented according to their relative contribution to overall production. Certain activities are over-valued while others are under-valued. In her own words again:

> We see at work here a dynamic valorization that has sharply increased the distance between the devalorized and the valorized—indeed overvalorized—sectors of the economy. These joint presences have made cities a contested terrain.[93]

Sassen summarizes her findings in terms of division-of-labor and conflict over urban space: (1) cities are increasingly strategic for global capital day-to-day work in the leading industrial [global] complex, finance and specialized services, and (2) marginalized people have come into representation and are making claims on the city as well. She effectively dispels the myth of a North-South divide as an overly simplistic model in explaining the dynamics of social change. Instead she describes a *peripheralization* between dominant and informal social forms that occurs *within* and around the *periphery* of cities and *on a global scale* with new forms of global governance appearing with respect to the protection of natural environments:

> [T]he geography of centrality and marginality, which in the past was seen in terms of the duality of highly developed and less developed countries is not also evident within developed countries and especially within their major cities... We have long known about segmented labor markets, but the manufacturing decline and the kind of devaluing of nonprofessional workers in leading industries that we see today in these cities go beyond segmentation and in fact represent and instance of *peripheralization*. Furthermore, the new forms of growth evident at the urban perimeter also mean crisis: violence in the immigrant ghetto of the *banlieus* (the French term for *suburbs)*, exurbanites clamoring for control over growth to protect their environment, new forms of urban governance...The regional mode of regulation in many of these cities is based on the old center/suburb model and may hence become increasingly inadequate to deal with intraperipheral conflicts – conflicts among different types of constituencies at the urban perimeter or urban region...The challenge is how to bridge the inner city, or the squatters at the urban perimeter, with the center...strong polarization occurring in the income distribution and occupational distribution of workers... Almost half

[92] Castells, Manuel (1999).
[93] Sassen, Saskia (1994, p.211)

> the jobs in the producer services are lower-income jobs, and the other half are in the two highest earning classes...[94]

Similarly to Jane Jacobs, Sassen is expanding upon the division of labor between a primary and secondary economic sectors in relation to the city core and the city periphery:

> The center now concentrates immense power, a power that rest on the capability for global control and the capability to produce super profits. [...] These global centers of control command manufacturing that is dispersing around the globe. In fact it is the intermediary activities of the economy (such as routine office work, headquarters that are not geared to the world markets, the variety of services demanded by the largely suburbanized middle class) and of the urban population (the middle class) and of the urban population (the middle class) that can and have left the cities. The two sectors that have stayed, the immensely rich and the "other," contest the urban space for their operations.[95]

It may be useful to rephrase Sassen's language using the vocabulary of primary and secondary economy used earlier. It is important to note that lines are being blurred as command centers may be located in one city while the manufacturing activities may be located on the other side of the globe. Thus what defines the new urban elite is the access and active participation in an inter-linked global network of command and production. A new division of labor is occurring between those subservient worker classes that support the new urban elites within the (global) primary economy. However, the new poor do not enjoy the same access and power in this economy as to their employers. Neither do they play an important role in the secondary economy, which produces skill-based services and goods for the local market. The secondary (local) economies provide professional services to the primary economy, but these are increasingly located outside the urban core in suburban well-to-do towns. Neither these secondary markets are active participants in the global economy, other than consumers of imported consumer goods (secondary market). "Third World cities—while economically subordinate to global command centers—are also stratified by income"[96]

---

[94] Sassen, Saskia (1994, p.211)
[95] Idem (p.212),
[96] LeGates R T and Stout F (2000, pp. 210-211).

3.3.7. Creative Destruction and Knowledge Workers

One last contribution needs to be mentioned before completing the section on design priorities and literary review, and that is the field of management and business, which studies closely business behavior and management decisions. Many outstanding individuals have made contributions in this field, or which I will only mention two: Joseph A. Schumpeter (1883-1950) and Peter F. Drucker (1909-2005), both of Austrian descent. The first one is credited amongst other things, for the concept of *creative destruction* the second one for introducing the *knowledge worker.* Both these thinkers have advocated the need for management practice that celebrates information and innovation driving competitive advantage.

> The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers, goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates. As we have seen in the preceding chapter, the contents of the laborer's budget, say from 1760 to 1940, did not simply grow on unchanging lines but they underwent a process of qualitative change. Similarly, the history of the productive apparatus of a typical farm, from the beginnings of the rationalization of crop rotation, plowing and fattening to the mechanized thing of today–linking up with elevators and railroads–is a history of revolutions. So is the history of the productive apparatus... [...] Steel illustrate the same process of industrial mutation–if I may use that biological term–that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in. . . ."[97]

Drucker went beyond business management theory to also advocate the need for other forms of social organizations, neither driven by profits nor politics. Thus instead of business and government he foresaw that social development would increasingly be tied to a vast new sector of philanthropy based on multiplicity, and driven by a social goal. He insisted that these organizations needed not be nonprofit or NGOs (which is an accounting or legal standard), but that they would have in common volunteerism and solidarity for a more complete human satisfaction that can not be fulfilled by business or government alone. He rejoined other thinkers in advocating organizational design and sound management as the key success factors.

---

[97] Joseph A. Schumpeter (1942, pp.82-85).

3.4 The History of Innovation

This section will briefly review a method to interpret the history of innovation as proposed by George Kubler in *The Shape of Time: Remarks on the History of Things* (1962). It is an attempt ton consider when an event is significant enough to provoke drastic social change, or in what circumstances such events need to happen in large enough numbers, long enough or at high enough frequency to be considered a revolution or *renaissance.*

As noted, there are sometimes a notable gap between theory and practice, and between dominant discourse and the realities as lived by the Other. The focus is on social change and to what extent we can observe a drastic change in both ideas *and* practice. This will be helpful to analyze observed practices in cities, such as urban agriculture and self-help housing events, and to what extent these practices challenge and force dominant discourse and world "order" to change or become more inclusive of alternative world views, informal and household practices.

3.4.1 Theory: Formal Sequences linked by mental and physical forms

Kubler focuses on the study of relationships rather that the study of meaning. He comments on the (dominant) practice in material culture to "separate materiak and mental culture, or things and ideas" and how these classifications lead to an "illusion of classed order."

He introduces instead useful tools for analyzing and classifying the history of innovation by using *formal sequences,* made up of common problems *(mental forms)* and linked solutions, as a method to classifying events *(class of being).* The linked solutions may be recognized aesthetically or otherwise as part of a "form class." In addition, formal sequences form a *topology.*[98] This is helpful in avoiding assigning value, e.g. avoid judging a housing event in terms of more or less wealth. Also, to discern new forms of social organization based on individual

[98] From mathematics, topography is a geometry without magnitudes or dimensions but only surfaces and dimensions.

housing events further classification is possible through *speciation,* which in biology science refers to the manifestation by a large number of individuals undergoing genetic change. Instead of using the more conventional biographical classification system that builds an illusion of meaning, Kubler links the notion of genius, e.g. DaVinci, with being "in the right place at the right time" and thus ties outstanding moments of prolific innovation and change by considering the relationship between events in a topology.

> But our conception of artistic genius underwent such fantastic transformations in the romantic agony of the nineteenth century that we still today unthinkingly identify genius as a congenital disposition and as an inborn difference of kind among men, instead of as a fortuitous keying together of disposition and situation into an exceptionally efficient entity.
>
> Sometimes the problem is a rational one, and sometimes it is an artistic one. We always may be sure that every man-made thing arises from a problem as a purposeful solution.[99]

3.4.2 Practice: Innovation as solving shared problems.

Based on Kubler's classification of innovation, I have attempted to define what to look for in housing events: The first events are those who present a *technical or economic improvement to existing solutions,* e.g. improve waste treatments to make sewage economically valuable at the community level;

Second, those radical improvements to economic process, scientific method or framework of thought akin to a *paradigm shift,* introducing a *radically new way of thinking* e.g. the advances in quantum physics and in ecological design that consider flows and relationships in living systems instead of inductive methods thus positing a systematic rather than a mechanistic approach. This view recognizes current capitalism and social democracies as able to address the world's inequities by internalizing externals, that is improving ecological accountability to the point where waste is eliminated or considered waste as food[100] for another production process, or value nature's ecosystems and diversity for the *services* they can render and moneys they can save, rather than a *thing,* to

---

[99] Kubler, George (1962, p.8).
[100] Waste equals food

be discarded or a common good without an owner to maintain it.[101] This second category of innovation, while striving to make human interventions more equitable and less wasteful and while contributing to the redefinitions of Man's place in nature, still seeks to operate within existing social frameworks and hierarchies, and thus represent an approach that primarily serve the developed nations of the Northern hemisphere.

Finally, a review of those events, ideas and innovations that display *radically new relationships* between social agents in how they relate and solve shared problems, suggests that a paradigm shift may not sufficiently describe the nature of innovation deemed "revolutionary." This type of change suggests a shift or a jump to new forms of social organization rather than improvements to previous methods or ecological accounting practices. This shift suggests that current patriarchic, hegemonic, and industrial means of production, consumption and domination of Man over Nature, man over woman, rich over poor, etc. permeates our culture of excess, and that true stewardship will require different humanist and social structures that value multiplicity and complexity, that incorporate Women's role in ecological stewardship, and that embrace the notion of society's overall productivity as tied to diversity rather than domination.

Effectively dealing with *otherness* does not mean to negate the value of the other by becoming "color blind" or by flattening the physical and cultural landscapes, literally with bulldozers or through segregation and rebuild a perfect mirage of our ideal neighborhood (superpose our formally recognized cultural landscapes on their not formally recognized cultural landscapes). This act of violence should not be forgiven as "well meaning" as it is akin to a judgment: their way of life as "inappropriate" and our vision of world order and progress as "superior," according to official dictums that we feel comfortable with. This sort of narrow-mindedness feeds on its own self-righteousness to justify over and over again acts of violence to the natural world and to other cultures than our own.

---

[101] *Waste equals Food.* (Hawken P, 1999) and *Cradle to Cradle* (McDonough K, 2002).

3.5 Drivers of social change, productivity and city growth

Here is as summary of the major points reviewed in chapter

(1) **The primacy of social organization**: design, management, natural and biological systems, formal and informal economies, the nature of innovation, how social actors interact to solve shared problems, and events that may be considered improvements, paradigm shifts or revolutions;

(2) **Information as driver of social change**: knowledge-workers, wealth creation and new inequalities tied with unequal access to education, and global markets;

(3) **Innovation as source for city growth**: creation of primary export economies and supporting secondary local economies through a constant cycle of diversification and creative destruction;

(4) **The primacy of cities for agricultural innovation:** primary export markets or secondary food production serving local markets in or around cities;

(5) **New forms of social organization:** philanthropy and cooperative frameworks driven by ecology and social goals, new contested spaces in cities, and urban agriculture;

(6) **The limits of nation-states**: provision of social justice or regional planning;

(7) **The limits of capitalism**: strong allocation capacity but poor distributor, advantage is increasingly expressed by new, informal and third sector social organizations such as household economies maximizing leisure time, home-grown business operations, generational planning, local autonomy, solidarity and community outreach.

> [I]t all boils down to recognizing and making known the benefits that traditional local products bring [...] Food customs have not evolved by chance, but have always changed in response to specific factors. At some times they were a result of pleasure-seeking epicureanism, at other times they were driven by economic pragmatism. Every food has to enable people to survive in hard times and to provide pleasure when times are good. It is worth remembering that, in antiquity, food habits reflected lifestyles and reinforced the close links with farming activities. Once humans appeared on the earth, they had to rely on their one natural endowment, instinct, to gather and consume food in order to survive.
>
> - Fausto Cantarelli (The Slow Food University, 2003)

4. Foodways and Architecture (field-work and primary research)

Cities are centers of social change and innovation. This chapter will review social change connected with agricultural innovation, and in particular the role of urban agriculture in the household economy.

What motivates citizens' active involvement in their own diet, food production, and under what circumstances is it beneficial to grow your own food, even in cities? We all need to feed ourselves, and while we can take a more active or passive part in the processes that bring food to our table, we are all part of a food culture. The traditional local food staples and division of labor in agricultural practices, and food preparation, have drastically changed with constantly evolving standards, technologies and know-how. The industrial farmer has become a an industrial knowledge worker, increasing the yield with more and more sophisticated inputs. Different agricultural practices employ various technologies and social organizations, and some of these different practices exist side by side.

Food production, preparation and enjoyment of a meal will be discussed with respect to the household economy and ecology, considering vernacular housing, third sector housing, as new productive housing models and planning practice. Nutrition and food security are intrinsically related to the discussion of relative autonomy, integration and diversity.

4.1 Foodways and Folklore

In *The Acadian "Salle Commune:" a locus for social organization and adaptability (2003),* this author observes how the Acadian shared kitchen space (salle commune), is the center of an independent household economy and food culture that is determinant to Acadians' resistance and cohesion as a society in the 18th and 19th centuries. While the focus here is on cities, it is useful to briefly consider relatively self-sufficient local societies that are very different from cities but that can still maintain autonomy. This was not an agrarian society but rather well-rounded hunters, traders, fishermen, farmers and innovators who perfected sustainable technologies such as the reclaiming of lands from the sea using seawalls (aboitteaux) and nourishing the lands by controlled flooding of cultivated lands by opening and closing of the walls. They perfected a tradition brought with them from Brittany and Normandy for local climate and context. Some Acadians were persecuted and had to flee during the colonial contest between the English and the French, and again adapted their technology, food and culture to become "Cajun" in and around the Mississippi river delta and New Orleans. As seen in these examples there can be local self-sufficiency as a foundation for trading and exporting whilst further strengthening the cohesiveness of local culture.

Housing and city design can evolve to consider the productivity of edible landscapes and the linkages of housing with local *foodways* linking housing with urban-rural development. Foodways was a concept first employed to cultural studies and folk cookery by Don Yoder:

> Considering the reaction of man to his basic natural environment, the study of folk cookery covers such subjects as the influence of environment on cuisine, seasonal foods, and local crops and local foods on the various cultural landscapes studied by cultural geographers and ecologists. The economic historian adds aspects of food distribution in such phases as marketing, droving and shipping, which affect the local economy and the local foodways[102]

[102] Yoder, Don (1972, pp. 295-324).

While Yoder's focus was to map regional variations in American folk cookery, and to bring and emulate progress in this field done in European folklife research, and the comparative study of American and European folklife, several scholars have attempted to extend the multicultural study of foodways into architecture and design.

4.2 Performance measured by Happiness and Environmental Stewardship

Few studies as of yet have explored the link between a city's ecological performance and its citizens' quality of life, happiness, or productivity in terms of leisure time gained. The relative happiness performance of *nations* has recently been the object of study, however, producing a *Map of World Happiness* (Illustration 9, p. 147). Another study by Yale and Columbia Universities, called the *2005 National Environmental Stewardship Index (ESI),* has looked at the ecological performance of nations (Illustrations 6 and 6b., pp. 142-143). This section will make an attempt to quantify the relationship between people's happiness and the performance of their local ecology. An attempt will be made at correlating these two sets of data and explore the potentials for undertaking a similar study at the city-scale.

4.2.1 Results: Quality of environment can predict Happiness

The two data sets have certain strengths in that they compare similar entities, all nations, and in sufficient numbers to be statistically significant (Illustrations 7 and 7b, pp. 144-145). The first sample considered in this study included 26 nations: 10 of the "happiest", 15 nations of special interest, and three of the "unhappiest" nations. The correlation between overall happiness was important with a correlation coefficient of .71. For a sample of 141 nations, the correlation was .37. The results would suggest three things:

(1) *Ecological Performance* measured in terms of environmental stewardship performance and *Happiness* measured in terms of health, wealth and education, are strongly correlated at the scale of nation-states.

(2) This correlation is strongest for the richest nations and for the poorest, as well as for those that display "surprising results" (some poorer nations performing exceptionally well in the area of environmental stewardship, and some richer nations that also performing well environmentally being not as happy as one would expect, e.g. Japan).

(3) Size matters. If there is more natural endowment per person, it is expected to give the nation relatively more satisfaction in terms of the natural endowment, everything else equal. However, some nations are performing surprisingly better and others surprisingly worse that what their ecological stewardship or quality of the natural environment would predict.

When correlating the current *World Happiness Map* data and the *ESI,* I have made an attempt at establishing the overall importance of natural endowment relative to the happiness as a measure of performance. It is a method to analyze the country's reliance on its natural endowment, and it may be possible to direct development efforts based on how they perform relative to their natural capital. It is an attempt to expand on the definition of productivity beyond physical output per unit of capital, labor or energy supplied, and one step in the direction of using David Ricardo's concept of comparative advantage that is inclusive of happiness and environmental stewardship as measurements of productive performance.

The current project of *Making the Edible Landscape* (2004-2006) at McGill University's Minimum Cost Housing Group is concerned with city planning and housing design that incorporates urban agriculture as a catalyst for community participation and development: Rosario (Argentina), Montreal (Canada), Kampala (Uganda), and Colombo (Sri-Lanka). All of these four countries register happiness performance below what their natural endowment and quality of

environmental stewardship would predict. These countries also tend to heavily export agricultural or natural capital without a strong domestic economy, which in part can explain the gap between societal and environmental performance where the latter is "out-performing" the former.

Urban agriculture as a "fall-back" position to provide households with food security may be more frequent in these situations, than economies that are in the reverse position, over-performing in terms of Happiness despite a poorer environmental quality. In these latter economies, urban agriculture would be highly specialized, commercialized and dependent on investments in human knowledge and technologies. Urban agriculture in these countries would supply a discerning local urban elite who is connected with the global marketplace through (primary) export-oriented economies. Urban agriculture is therefore not always a poverty or food-alleviation measure, but its local application is tightly linked with the strength of the local (secondary) urban economy and the strength of the exports and imports (primary market activities).

4.2.2 Happiness versus Convenience

People do not want more convenience unless it can help increase productivity, help saving time with activities that are frustrating, that is: neither productive nor pleasant. Convenience costs money and is marketed so one can switch to more productive activities and ultimately produce more leisure for oneself and family. Convenience is a means towards more leisure. If the urban lifestyle is only adding frustration and is neither increasing productivity (doing more with less) nor providing more leisure, then it is not more convenience that is needed but more household productivity.

If the "city-state" as a whole is under-performing in primary export and import related activities—that is a low rate of innovation and diversification from old to new income-generating activities eroding comparative advantages in a global marketplace—then it can still be performing in its secondary domestic activities

and create leisure and satisfaction. However, this requires more autonomy and self-sufficiency in the secondary domestic economy, since the secondary economy does not itself export to earn "hard currency."[103] Only a booming export-economy can afford (expensive) imports or it would risk "living beyond its means" and become indebted or exhaust its natural capital, ultimately affecting the leisure and happiness of this and future generations. Secondary economies are only cash-rich insofar as its patrons in the primary export sector constantly need their services.

In certain instances, urban food-production can provide added household productivity and income, and provide nutritional value, monetary savings and income. We shall not forget to consider productivity not only in monetary terms, but in terms of overall leisure time gained. Also, in some instances, secondary activities—including artisan food production for a local city market—can become a primary export market, usually serving high-end and exclusive urban elites in other foreign markets. Not only large corporations are engaged in primary production: The domestic small-scale informal economy can also be a primary activity: little hand-packaged spices entering the flow of global goods. *The*

---

[103] Hard cash being the favored currency for trading commodities, or services, or capital assets (author's definition). The argument goes like this: If a world-traded commodity such as oil, which is a significant item on every city's economic ledger, and is traded in a certain city's currency, say the "New York schilling" this would become the 'hard cash' currency. For now, in this thought experiment let us forget about nation-states and national currencies, which tend to give room for different protectionist discourses. Being a hard currency gives purchasing power in the international marketplace, e.g. the power to directly dictate the balance of payments of other countries. While a negative trade balance (poor primary economy with a secondary economy relying on a disproportionate share of imports for consumption), may either (a) drive up public spending [leading to negative fiscal budget] and a foreign borrowing [domestic-foreign debt balance, e.g. issuance of IOUs] or increased taxation or tariffs to curb spending on local secondary market consumption, or (b) increased private debt to finance the consumption. This private debt can be partly financed through the sale of physical domestic assets, such as the foreign investment in primary productive capital (e.g. a Japanese factory setting up a factory in Wyoming, or a Japanese CEO buying a luxury loft in NYC). In other words, strong primary export-economies (cities) with high imports for primary production and a strong secondary production (with low imports for secondary economy consumption), will slowly emerge as a 'hard currency.' During a transition period, this new hard currency economy may act as the banker of finance a stagnant economy with high imports for consumption, which may in the end help the old-currency maintain its hard-currency status despite failing to domestically grow a new primary (export) economy. The new (export) primary economy will help maintain the secondary economy—and its associated consumption—but the profits or leisure from innovation will have benefited the strongest primary economy.

rationale is to build affordable homes that offer true value in terms of more leisure time and space. These homes need to maximize the income-potential and time spent productively in order to facilitate more satisfactory urban lives. How to create more time and space in cities where both seem lacking?

4.2.3 Assumptions and limitations of the analysis

Let me point out certain assumptions I have made and potential limitations I have found in my own method that would warrant further and subsequent study:

(1) By comparing using these two sets of *national* data, I am assuming that Happiness of cities is fairly well represented by the overall Happiness of a nation and that a similar process can be used (and improved) comparing "city-states." In richer countries, the national populations are mostly urban, and we have also established that cities are also principal drivers of rural economic health in poorer countries. However, to improve the analysis, one should consider running a similar analysis of "World Cities Happiness Map."

A similar assumption was made using the ESI data as an approximation to city resource endowments and sound ecological management.

(2) That the World Happiness Map is a fair approximation in terms of leisure time produced, the standard for productivity employed in this paper. Adrian White and his team at Leicester University found that: "a nation's level of happiness was most closely associated with health levels (correlation of .62), followed by wealth (.52), and then provision of education (.51)..." They also found that populous nations were not as happy as sparely populated ones, and that nations valuing collective values like Japan performed (surprisingly) poorer than those societies more individually motivated. There are two potential limitations of using the *World Happiness Map* as an approximation of leisure time produced. First, if the raw data considers only the *formal* economical wealth and not *informal* economical contribution, it excludes an important third sector. Second,

official wealth—as well as the importance of relative wealth in people's lives—may prompt more equalitarian societies without informal economies, thus with more incentive to distinguish oneself according to relative wealth, than countries with deep inequalities and informal economies, where the need and motivation to build collective solidarity networks may be more valued, especially in poorer segments of the population. Therefore, the inclusion of informal economical data would further impact the final ranking of nations in terms of Happiness and correct for bias by considering official wealth, only.

Despite these limitations, in so far that Health and Education come up as 1st and 2nd criteria, respectively, the World Happiness measure can been used as an approximation of leisure time as leisure time is needed as a pre-condition both to stay healthy and engage in continuous learning or education. Relatively poorer nations may seem less likely to have access to these leisure-related activities as compared to wealthier nations. But it would again be interesting to do a cross-correlation (covariance) to see if those variables of happiness, health, wealth and education are vectors that usually pull together. Again, the informal economies relating to health, such as growing of traditional herbal remedies, or the transfer of traditional skills in the form of apprenticeships should be accounted for when ranking sources of happiness in economies with strong autonomous informal economies. Note that both the happiness measure (White) or the leisure measure (Kongshaug) both depart from a narrow definition of happiness as tied with prosperity only thus "rich" nations may perform relatively poorer, and "poor" nations may indicate values that people value more than wealth. Thus the World Happiness Map should be seen as a step in the right direction, departing from conventional measurements of productive performance.

Finally, the measure of relative wealth used in White's study is a useful measure in comparing the relative importance of a country's official economy on overall Happiness.

(3) That the two indices actually have considerably different sets of data to avoid a exaggeratedly strong correlation based on similar underlying data sets. This I find is potentially the most contentious point for a valid analysis. The Happiness data is derived from UN sources and the WHO, CIA, amongst others.

The EBI uses some of the same sources, particularly with respect to health. However, the EBI uses a 72 distinct environmentally-specific variables in the following areas [see Illustrations 6 and 6b, pp. 142-143]: Environmental systems Global Stewardship, Reducing Environmental Stresses, Reducing Human Vulnerabilities, Social and Institutional Capacity. Subsequently, it would be interesting to run a similar analysis for city-specific environmental stewardship with respect to cities' bio-regions for a comparison of city-scale performances rather than on the national states. Some cities are larger that some countries, and they have a proportionately much larger impact on surrounding bio-regions, e.g. Montreal is half the size of Norway, and NY is twice the size in terms of population.

4.3 Edible Landscapes

In a given time and place there may exist many parallel and overlapping food cultures. Housing and food is in this respect intrinsically related, and I will propose that housing, urban planning and design cannot be separated from food-related behaviors, food production, health and the economics of land-use planning and geo-politics. Here we are particularly concerned with the primacy of food in the household economy.

4.3.1 Definition

Edible Landscapes, or simply EL,[104] here refers to the knowledge of incorporating *growing,* including the productive growing of plants, the rising of

[104] EL = growing + design.

livestock, or more generally working with biological functions including micro-organisms, with *design.* Design encompasses design or planning practices, including landscape design, architecture and urban planning, and the popular self-help housing sector, to create an integrated urban-rural landscape for a food-secure future that restores cultural and ecological diversity. Design also refers to intending something of a particular purpose, or an observed pattern. Growing can also refer to the capacity of a human-ecological system to develop naturally, and remain in a naturally healthy state, e.g. reaching a place of balance. Thus, EL is not only a desired outcome, a pristine landscape, but maybe more importantly refers to the design method and processes whereby this landscape comes into being through its productive employment by its participants.

This is obviously a difficult, complex and multi-disciplinary task with many variables, and this section will outline some of the challenging facing the successful development of edible landscapes.

4.3.2 Challenges

EL is the coming together of two cultures, two very distinct bodies of knowledge and practice areas, growing and design. EL also bridges a gap between institutional and popular practices in that it seeks to be participatory and community-based it requires a negotiation between various interests. Agronomists or agricultural economists very seldom participate in design *charettes* or community-based design workshops, so there are barriers to overcome related to language and professional methods. A very small but growing number of engineers, city planners and landscape architects have begun to consider alternative uses of plants for food production, soil-remediation or water filtration. The norm for city greening still is the creation of beautiful recreational spaces to be enjoyed as a visual amenity only rather than (potentially equally beautiful) functional green spaces dedicated for food production or ecological services, such as purifying used water, soil remediation, or storm water retention techniques that can be less costly and more environmentally friendly than conventional methods.

Planners and landscape designers have traditionally collaborated little with horticulturists or nutritionists. Architects usually know little about seeds, plants or livestock, plant cycles, local species or their yields; about living environments, space requirements, soil composition, sun exposure, and watering needs; or about the physical volume required for growing edibles or raising livestock. "Green" is treated as the color of an object, not as chlorophyll engaged in primary production or as a living system. Trees on architects' models are shown fully grown, they rarely are edibles or bear fruit of any sort, nor are they intended to propagate. Planners can model complex transportation systems, but face similar professional barriers in dealing with the ecology of plants, except as ornamentals. Inclusion of edibles or livestock in the city cores is seen as contrary to civilized urban life.

4.4 Urban Agriculture

A dynamic way of modeling biological and human systems is emerging in design. The design of integrated biological systems with housing construction and land-use planning is a new area that also will require industry and government participation. Since the 1970s and still today, housing projects that incorporate growing and biological systems tend to be unique pilot projects or owner-built, and largely inaccessible to the mainstream. New attitudes and technique with respect to materials, zoning, building code and urban planning strategies are needed, and this may initially make EL more expensive, or deemed unattractive for a flurry of reasons, including cultural and institutional barriers. Unless low-cost, participatory and incremental approaches are proven to be effective, ecological housing may be more the product of personal fancy for those who can afford it. Larger scale ecological housing projects that incorporate urban agriculture could help communities actively engaged in meeting social and ecological objectives, such as reduction in food insecurity and reduction in carbon emissions. Embracing growing and biology as part of housing design requires both attitude and behavior change.

4.4.1 City-making and urban agriculture

Growing your own food is not only a solution for the poor. Richer clients, who often set an example that others want to emulate, can endorse EL, but it is first and foremost intended for developing local capacities for a mixed group of clients, and it is particularly for those that are food-insecure that low-cost solutions must be found. Two barriers, the relative high price of healthy (organically or bio-dynamically produced) food stuffs, and the lack of access to a points-of-sale in their vicinity have motivated people in food-insecure neighborhoods to develop their own enterprises and outreach networks, including urban agriculture and food cooperatives.

The lack of spaces to grow within cities is *not* the main problem, but informal practices often escape institutional norms of what is *appropriate*[105] forms of agriculture and appropriate city land-use. Small-scale household and subsistence farming practices may be ignored, although they make a critical difference in many people's lives, while larger scale collective and commercial urban farms may be tolerated, although not in the city's core, deemed un-city like by most planning norms. Women growing food as an extension of the domestic household economy, may be ignored as compared to Men growing as "heads of households" and selling to an external marketplace may be deemed more important that home gardening that supplements the household diet. The growing of ornamentals is conventionally deemed more proper than edibles. Growing edible plants is more tolerated that raising livestock, etc. even though animal raising may require less space and provide more income or protein to the household, and ultimately help the urban farmer become more self-reliant.[106]

The problem is one of failing to consider what is there; not considering *otherness*, institutional mandates clashing with the priorities of the household economy;

---

[105] Appropriate (adj.) "suitable for the occasion or circumstances"
[106] Bhatt, Vikram and Kongshaug, Rune (2004, 2005); IDRC (200, 2006); Premat (2005).

social and institutional discourse not corresponding with actual practice, many unofficial practices remaining unknown, unheard, unseen or ignored. The frustration is felt by this young black urban farmer in East Oakland, CA:

> Everyone underestimate us. They look at us and say about us –they don't care about themselves, they don't care about life, they care about nothing. So basically, they're not about to take off the time to build up healthy stores for people they don't think care about themselves (Yavonda Harris, Youth Staff)

East Oakland has 40,000 residents, 42 liquor stores and one grocery store. The neighborhood responded by organizing their own self-reliance network "People's Groceries" dedicated to social justice, community education and urban agriculture, serving 3500 customers and producing 1200 pounds of food, a 256% increase in food produced there in one year.[107]

Some architects may consider anything softer and shorter-lived than concrete, wood, steel or glass not their concern. Architectural students and practitioners alike will resist knowledge of agriculture and biology, or phenomena such as urban agriculture, and judge it as irrelevant to the kind of architecture high-paying clients is willing to pay for, but then again reconsider it favorably if high-paying clients demand it.

An important step is thus to understand who is the client and what are their motivations? In any field, including architecture, there are also people who seek productive, low-cost and socially inclusive solutions, trying to break the myth that "doing the right thing costs more."[108]

4.4.2 New relationships between stakeholders

EL challenges the conventional client-architect-contractor relationship, requiring more custom solutions respective of local cultural context and natural habitat. EL

[107] Kwame, Yao Anku (2006).
[108] NRDC (2006).

requires more up-front research and design than the conventional development, and more progressive implementation, since biological systems need time to grow. Research organizations and Academia in partnership with grassroots organizations can potentially play a positive role in conducting local research and linking expertise with local capacity-building. In any event, EL requires teams of various stakeholders working together.

Community-based approaches, participatory design and multi-stakeholder processes require determination, time and willingness to negotiate and come to compromises that are acceptable, especially in order to gain access to and recognition of urban growing as a valid strategy of under-used and open urban lands. This may indeed be a more pragmatic definition of sustainable design: an inclusive design process whereby the community participates to assure a permanent cultural and ecological diversity.

It is useful to separate the social aspects from technical considerations. Both are important. The critical link here is how to integrate neighborhood autonomy with urban revitalization and social development schemes. Technically, there are specific methods suited for growing edibles or raising livestock in small urban spaces, and other techniques for using plants for contaminated soil remediation, water filtration or storm-water retention. Such designs, valuing both urban revitalization, food security and functional services, as well as beautification, may need more oversight and maintenance with increased emphasis on monitoring and feedback loops to assure continuous improvement, where the community provide their input at every stage. Once the system can be self-sustaining within a community and the local ecology, the design has succeeded.

A well-designed ecological system will be income-producing, have a longer-life and require less maintenance and replacement cost than a conventional solution that exclude local environmental and cultural conditions.

All these extras cost money. Turnkey solutions are difficult or expensive, and client-participation is untried and potentially tricky. It takes an honest effort and local engagement. Each project has a learning curve. Learning curves also means innovation. Increasingly, individual owners and architects are making the leap deciding that all these extra costs and complexities are a small price to pay for people being empowered and taking charge of their own household economy and productive base, becoming environmental stewards of their own backyards and vicinities. It becomes a labor of love, and the struggle justifies its existence.

Innovation means more effective methods and continuous improvements, income and jobs. It is conceivable that EL becomes an urban growth industry, perfecting methods of growing food, raising livestock, filtrating city waters, and providing other social and ecological services.

However, private or public open and under-used lands, that could ideally be grown inexpensively, face issues of ownership; access, permits, management and zoning that may preclude agricultural use within city boundaries. Land contamination may pose a health risk for growing food. Growing food may not be a priority for urban development, or recognized as a viable scenario within official revitalization schemes. Animal raising may be banned altogether even though animal husbandry can improve the overall ecological design as a "living system" such as raising rabbits or fish farming. One important problem is thus to overcome institutional mandates and discourses, which may clash with household interests and observed practices, as is in the case in Cuba (see below).

Food insecurity may be a problem that official authorities think should be solved by other more conventional means, such as job-creation in traditional urban economic sectors, rather than growing your own food in cities. To paraphrase Bertrand Russell's irony about rich folks attitude to poor folks in *In Praise of Idleness:*

"What should poor people do with more leisure time?"[109]

> The poor continue to work perilously, not simply because of their ignorance of the risks and alternatives, but because they are often deprived of a safer and healthier way of making their living.[110]

Ecological designs may cater to a wealthier market segment for whom food quality rather than food security may be the main concern. Ecological housing, and buying organic has already become sort of a status symbol, showing a sensibility (and willingness to pay) for expensive produce, high-end green roofs, costly photovoltaic or geo-thermal systems.

There is a risk that "ecological" becomes a limited-ecology which does not consider the integration of living systems and also modify behaviors to live more in accordance with natural ecological principles, the goal being to restore ecosystems. Anything carrying a "eco-" label can become a matter of fashion and style, rather than considering ecological solutions that address *ecology*, the study of the relationships and interactions between living organisms and their natural or developed environment. Ecological solutions need to be kept low cost to reach a scale of mainstream application and value (regardless of income). However, since the architecture and planning professions are serving clients, and clients with money, ecological solutions may therefore favor expensive technologies before considering low-cost income-producing solutions that incorporate productive growing.

It may thus be useful to further distinguish EL solutions for the individual home versus EL solutions that can be developed as part of larger public-private partnerships, social housing, or as part of larger residential developments that seek a mixed audience with representation of different professions and income-levels, or mixed commercial and residential uses.

---

[109] Russell, Bertrand (1935).
[110] Mougeot, Luc (2005, p.13).

Cities are recognized as engines of growth for rural areas. On October 4, 2004 UN-Habitat, celebrated the World Habitat Day under the theme of "Cities—Engines of rural development."

> The better the links between cities and their hinterlands, the easier it is for rural people to get jobs in cities, and thus ease the problem of rural unemployment. It is important that cities absorb excess rural labour. But in the developing world, poor development in urban areas has restricted the options that would normally be open to rural people. A major hurdle to be overcome in developing countries is the fact that secondary and tertiary towns are undersupplied and under-developed. This can be remedied by improving the road, rail and other vital communications networks between them. Economic development in small owns can have a positive impact on the surrounding rural economies through a greater demand for rural produce from urban residents who normally have a higher purchasing power...In many poor countries, the scattered nature of rural settlements renders the provision of infrastructure and services to rural areas extremely costly. There is no doubt that a major cause of rural under-development is poor access to basic infrastructure and services such as roads, telecommunication, health care, education, credit, markets and information. Many of these can only be supplied and supported from within the more populous urban areas.[111]

In June of 2006, during the third World Urban Forum held in Vancouver, I had the chance to interact with Tanzanian national, Dr. Anna Kajumulo Tibaijuka, Agricultural Economist, educated at the University of Agricultural Sciences in Uppsala, Sweden, and currently the Under-Secretary-General and Executive Director of UN-Habitat. I asked her the question if she considered urban agriculture, as a means for urban farmers to supply themselves with food, a luxury or a necessity? Her answer reflected the UN official position on the question[112] which she summarized as: "Cities do not have enough land to grow their own food, but urban agriculture can provide a supplement."

---

[111] UN-Habitat (2004a, p.3).

[112] Unfortunately, I did not have the opportunity to show her our Edible Landscape (EL), showing large-scale and permanent agriculture in cities such as Rosario and Kampla where urban agriculture is being planned as part of human settlement. Neither did I have the chance to question whether her personal opinion differed or from the United Nations' official position, thinking that maybe that as a Tanzanian national she would have had the chance to observe urban agricultural practices first hand in her country of origin.

However, observed practices in the field provides evidence to the contrary, that Urban Agriculture as practiced by the informal sector escapes conventional methods of economic and industrial agricultural inputs and outputs. Informal practices uses and appropriate the urban landscape in new ways.

4.4.4. New Urbanism

New urbanism, focusing on creating *Livable Sustainable Communities*, "Giving more people more choices about how and where they want to live, while providing the solutions to global warming, climate change, and peak oil" and Transit Oriented Development:

> Transit Oriented Development is spreading across America in awareness, theory and in practice. More commonly known as TOD, it is the practice of creating vibrant, *walkable, mixed-use communities surrounding transit stations. The many benefits include a higher quality of life with better places to live, work, and play;* greater mobility with ease of moving around; increased transit ridership and decreased driving and congestion; reduced car accidents and injuries; *reduced household spending on transportation, resulting in more affordable housing*; healthier lifestyle with more walking, and less stress; higher, more stable property values; increased foot traffic and customers for area businesses; greatly reduced dependence on foreign oil; greatly reduced pollution and environmental destruction; reduced incentive to sprawl, increased incentive for compact development; less expensive than building roads and sprawl; and enhanced ability to maintain economic competitiveness (my italics). [113]

Architects—that last profession of generalists—are also getting on the bandwagon, though not through the mainstream. The Australian-born Bill Mollison, has contributed to the marriage between growing and design by his both at once philosophical and practical innovations in *permaculture,* meaning interchangeably "permanent culture" or "permanent agri-culture," thus setting a design standard for eliminating unsustainable practices most simply advocating that "the problem is the solution," emphasizing the design of systems serving

[113] New urbanism (2006, See http://www.newurbanism.org).

multiple functions. Paul Hawken in association with the Lovins', Armory and association with However, maybe the most telling development are happening in the popular sector and the grass-roots with phenomena such as community gardening, slow foods, urban agriculture, community-supported agriculture, and various collective forms of urban food security networks such as cooperatives, food banks and productive gardens.

3.4.5. The problems with agri-business

The use of pesticides, chemical fertilizers, and genetically modified organisms (GMO's), in agriculture pose many serious problems, making agriculture one of the most polluting businesses with unknown consequences for the health of future generations, including the depletion of top-soil and contamination of ground water, with some known and other as of yet unknown risks to human health. A rising consciousness about these environmental and health issues, and the closer connection between healthy nutrition and preventive health, is rapidly changing people's preferences towards cleaner alternatives.

In *Silent Sprint* (1965), Rachel Carson linked the use of pesticides used in agriculture to agents used for chemical warfare during WWII that were also effective insecticides, and the birth of new profitable business was born as a result of turning war technologies into agricultural applications. Carson helped to create a new awareness internationally about healthier alternatives, and her contribution helped bring about the end of TDT, at least in Western and North American agriculture.[114]

The use of GMO's I will here compare to the use of nuclear technologies in three respects: First, it is a similar form of irresponsible experimentation with human and ecosystem health, of which we do not know the long-term implications. In this experimentation, people are used as lab rats. Second, it contaminates other living organisms, including the crops of people who by choice have decided to

[114] Carson R (1965) *Silent Spring.* Penguin, Harmondsworth. pp 31-2

only grow or eat non-genetically modified breeds, local species or to cross-breed species in traditional ways. Allowing plants themselves to participate in the cross-breeding process and therefore rely on biological intelligence to do what it know best, rather than selectively inserting or modifying a gene here or there, maybe mixing genes from different types of life forms that would never mix in a natural state. Third, other than being a flawed process of top-down and centrally planned by a few scientists and executives, the use of GMO's in agriculture is driven by institutions with vested interests in obtaining ownership of patented "designer crops." The profit motive does not give room for scientific doubt, which is un-scientific. Genetic engineering as applied to commercial crops is thus a pseudo-science at the service of vested political and corporate interests. Even countries in the European Union that are opposed to this type of experimentation are lambasted in trade talks and blamed for unfair trade. The problem illustrates well how far our agricultural technologies and social organizations have been separated from human ecology.

[Nuclear energy] may be the greatest danger we know about today, because it contaminates, not only the bodies of living things, but the political systems that will eventually arise to control its terrible potential...But thousands of free-thinking individuals, taking thousands of small random steps forward, risking their savings and investing their spare time, will make only small mistakes on the way to accumulating a large aggregate success...And it is one way of regaining a very important measure of control over our lives—independently producing most of the energy required by our dwellings.
-Jean Yves Costeau[115]

Until we have an organic culture, we will never have an organic architecture.
-Frank Lloyd Wright

5. Ecology and Housing (examples)

Ecology is the desire to improve the general environmental situation, and an effort to reestablish a balanced relationship with nature. By the mid-1970, between two oil crises, a new category of autonomous or alternative energy houses had already been built in the US, of which Skarla and Naar (1976) list 39 examples. Most of these were suburban houses, while another group were houses in a rural setting. Only two houses, the Farralones Institute's *Integral House,* in Berkeley, California, and the 519th East 11h Street development in New York City, were specifically urban.

Each house was either built by owners from ground-up or adapted new solutions to existing buildings. What these projects have in common is the end-user participation and pioneering nature of each event. The cost and sophistication of techniques and design vary greatly, however: Both time-proven and unproven designs were employed to either save, generate or store energy on-site, using solar collectors, wind-power, and passive solar design allowing the trapping of the sun rays and thermal mass storage. The following, sometimes overlapping motivations can be distinguished:

[115] Skarla and Naar (1976, foreword).

(1) *As a direct response to the energy crisis* to reduce energy dependencies: "United States [is] the world's biggest energy consumer. With 6 percent of the world's population, this country consumes one-third of the world's energy... The energy used in the home accounts for about 33 percent of the nation's total energy consumption. In Sweden, where the standard of living is slightly higher [...] the average consumer uses *one-half* the amount of energy required by his American counterpart." This motivation did not always consider the cost of the initial investment, but would be more concerned of demonstrating the viability of the technologies employed in the hope that they could become affordable over time.

(2) *Getting back to nature*...[and] trying out a new lifestyle and a new way of living." Some of these houses tended to also adopt a radical design that matched the 'off-grid' motivation. These projects may also take on a political stance advocating self-sufficiency as a means to counter centralized power sources, in particular oil and nuclear power.[116] Most of these were short-lived.

(3) *Minimum cost materials,* methods and operations to reflect the limited budget of the end-user. Also reflecting an ecological and social ideal to cut waste and recycle. These projects would tend to be innovative in their material-use, such as using recycled materials (bottles, beer cans) or locally available materials, such as adobe or straw-bale, or even develop new building techniques. This group may demonstrate new construction techniques to facilitate replication.

(4) *Alternative or 'soft technologies'* for do-it-yourself or markets without access to sophisticated or 'high technology' solutions. A particular example of this category is—while intended as a temporary demonstration project—is The Minimum Cost Housing Group's *ECOL* house (1974) built in Montreal, Canada.[117] This demonstration house was built for a developing country's warmer climate and end-user needs. Chapter 6. Autonomy and Integration, will take a closer look at the discussion of technology choices and discuss the works of Armory Lovins (1973), Witold Rybczynski (1980) and others. These

[116] Skurka N and Naar J (1976, pp 14-15).
[117] Ortega A et al (1974)

projects would seek to contribute to reducing poverty in poorer nations by proposing "appropriate" solutions suitable for a development context (though the author is questioning the meaning of equating less sophistication with development, feeling that the concept of "leap-frogging" or the adoption of more sophisticated technologies may actually help developing countries catch up faster by benefiting from newer technologies);

(5) *Community participation*, solidarity, social and educational outreach, and awareness bout energy conservation were particularly important for the urban examples, stressing knowledge as a means to spur social activism;

(6) *Home-based and urban agriculture* for food production and as part of an on-site living system.

(7) *Ecological design:* Since even before the first energy crisis, an eclectic group of environmentalists, biologists, economists, inventors and designers had began to consider new means of building with Earth stewardship as their primary goal. This group includes Buckminster Fuller (1885-1983), E.F. Schumacher (1911-1977), and John and Nancy Jack Todd. In 1971 The Todds founded the Alchemy Institute and have since the focused on developing 'healing technologies' with applications for both housing, cities and bio-regions, seeking not only energy conservation but to restore natural environment by incorporating biological systems into their design of eco-cities or 'living machines.'

The following discussion will consider two examples of precursor projects focusing either on energy self-sufficiency, "autonomous housing" or a more holistic and productive model inserted in the urban milieu, "integral housing." Not only have motivations changed over time, but important differences exist in the execution of projects, depending on whether the initial impetus was autonomy or integration.

In addition to the oil crises and the Green movement of the 1970s, there are at least three significant social changes that directly is impacting the motivations behind self-help housing: (1) the global information economy; (2) international

cooperative frameworks for environmental protection, and; (2) the new forms of social organization at the NGO and community levels.

Today, a generation later, "back to nature" or "energy independency" has become "think globally, act locally," a change that also is reflected in the self-help building motivation.

Thus, the current green housing sector is predicated on a web of international multilateral agreements, national building standards, and a flurry of individualized approaches in the tradition of self-help and autonomous housing, which will serve as reference projects and benchmarks. How to measure and evaluate a project's performance based on these highly individualistic projects?

One way to approach this question is to consider to what extent the house is intended as a completely autonomous or self-sufficient house. Another criteria is to consider if the building is a pilot project or a demonstration project. The difference is critical. A demonstration project, such as the CHMC Healhty House must follow the rules of conventional building, and the demonstration project's purpose is to establish a new standard that the market, industry, entrepreneur and architect can accomplish given current market conditions and industry practices. However, a pilot project may not respond to the same externally-motivated rules, but may set its own criteria to demonstrate a new solution altogether or try to define a new market or cater to a new audience regardless of the up-front cost.

The pilot project is closer to an artistic or pioneering work in that it covers new terrain while the demonstration project is more like new product development in an entrepreneurial business sense.

5.1 Autonomy

The *New Autonomous House* can be read about on the web site of Wind and Sun, a UK company that sells technical solutions to homeowners who wish to become self-supplied in energy. Wind and Sun describes the project:

> On July 27th 1994 the first private UK grid connected PV system started to supply power to the grid. The house was designed and built by & for Brenda & Robert Vale along principles first outlined in their book 'The Autonomous House' first published in 1975. The building of this house is described in the recent book 'The New Autonomous House' which is available from Wind & Sun.
>
> The house is self sufficient in energy and water. The construction forms a highly insulated solid mass to eliminate heating needs by giving long term heat storage; a two storey conservatory provides passive solar heating; water is collected from the roof and filtered for drinking; sewage is composted; and electricity is generated by a 2.16kWp PV array. Due to the orientation of the house the PV array was designed to be mounted on a free-standing pergola in the garden.
>
> The PV System: The 2.16kWp Photovoltaic Array is made up of 36 Solarex MSX-60 60Wp modules connected in series strings of 6 modules. Output is fed to an SMA PV WR-1800 1.8kVA inverter and then to the house consumer unit.
>
> Generated power is first supplied to the house loads and any surplus exported to the grid. At night or when power requirements exceed power being produced, electricity is imported as normal from the local DNO, Powergen. Metering is performed by two standard mechanical meters. PV system design supply and installation was carried out by Wind & Sun. Careful planning meant installation took only two days and commissioning was immediate.
>
> The cost of the house including the PV system was ~£150,000, - typical for a house of this size & quality. The extra costs of technical features used in the house is compensated for by savings elsewhere, e.g. no fitted kitchen, showing that environmentally responsible building and living needn't cost the earth.[118]

Based on this marketing description, one gets a sense that the house aims above all to meet standard marketing criteria: it is self-sufficient in energy within the price-range of a "typical house." The description also mentions self-sufficiency in water. The average water costs for a UK residence is on average BPS 80-180[119] per year, while heating costs ranges from about BPS 1,100 per year for the most inefficient electrical heater to BPS 400 for a condensing boiler running on

---

[118] See http://www.windandsun.demon.co.uk/projects_autonomous.htm

[119] See http://www.water-guide.org.uk/rates/html

gas.[120] For an averagely priced energy consumption, the household adopting the Vales'strategy would be saving about BPS 880 (CAD 1,852.48) per year, which means about a 3% saving (or within a range of 1.5% - 4%) of an average salary of BPS 32,759 (2002).[121] Of course, there could be several people in the households to share the bills. Note also that British spending on housing, water and fuel went up by 18% since 1971 (indexed to 1970 dollars), the single spending category to go up over this period.[122] Is this sufficient of an incentive to switch to energy-saving technologies?

The Valkes' have published one book for each of their self-built houses: *The New Autonomous House (2000)* and *The Autonomous House: Design and Planning for Self-Sufficiency (1975).* The demonstrative and educational aspects of their housing also display the desire to teach and lead by example.

5.1.1 The Autonomous House (1972)

The definition given by Vale and Vale: "The autonomous house on its site is defined as a house operating independently of inputs except those of its immediate environment. The house is not linked to the mains services of gas, water, electricity or drainage, but instead uses the income-generating sources of sun, wind and rain to service itself and process its own wastes."

The house is also described in the following manner: "In some ways it resembles a land-based space station which is designed to provide an environment suitable for life but unconnected with the existing life-support structure of Earth. The autonomous house uses the life-giving properties of the Earth but in so doing provides an environment for the occupants without interfering with or altering the properties."[123]

---

[120] See http://www.energyefficiency.powergen.co.uk/advicecentre/category2/CompareCosts.htm
[121] See http://www.production.investis.com/egginvestor
[122] See http://www.esrc.ac.uk/ESRCInfoCentre/facts/UK/
[123] Vale and Vale (2000, p.7).

The 1972 house had the following characteristics:

- Designed for a family of four
- One-acre plot
- Highly insulated structure (skin and low ventilation rate)
- Form: south-facing surface clad with windows slanted in an angle allowing sunshine to enter rooms (passive solar) and indoor garden. North side has few windows and attic is closed off in winter
- Sun heat collector on roof (heat for domestic water and excess goes for space heating)
- 2kW windmill (lighting, refrigerator, radio, iron, pumps and fans, plus heat storage batteries for storing excess energy in the form of heat)
- Water recycling (rainwater for drinking, waste washing water re-used, heat of grey water used to heat methane digester)
- Gas for cooing produced on-site (methane gas from manure of livestock, vegetable waste and human wastes)
- Cost in 1972: same price per square meter as traditional brick-built house
- A pilot project, followed with publication and replication built for university students

The following points summarize the context in which it was created:

- Concept developed at the Technical Research Division (later called the Martin Centre) at the University of Cambridge School of Architecture. Original concept by Alexander Pike, lecturer. The examples and definitions of 'autonomous houses' has multiplied since. However, for Pike the concept was 'off grid' and exclusively relying on renewable fuel sources. The Solar Energy Society of Canada limits itself to identifying autonomous with minimizing energy and other resource demands.
- Presented at the United Nations Conference of the Environment in Stockholm, 1972.

5.1.2 The New Autonomous House (1994)

The New Autonomous House has the same definition as the earlier one, but with one significant exception: It is no longer an autonomous house that is seeking to be a prototype: "It is an autonomous house, not *the* autonomous house."[124] It has retained a similar program but solar photovoltaic panels have replaced the solar collectors. Also, the technical description and detail is focusing more on material embedded energy and ecological footprint. The new autonomous house is located in a tighter-nit community. The house's builders also committed themselves to alternative technologies and building processes:

- Minimum use of non-renewable resources
- Minimum environmental interference
- Regional or sub-regional self sufficiency, and the
- Elimination of alientation and exploitation of individuals

Further, an Autonomous House is further defined by:

- Must depend on the resources that can be collected on site
- Technologies must harvest on-site resources
- Technologies need to be simple, robust and controllable by the occupants

5.1.3 Discussion

As the result of the original Autonomous House "the term has been used to describe a number of projects... it became an ideal of sustainability." Its mission as both a pilot project that could educate and a demonstration project that could satisfy conventional construction costs can be considered a success.[125] The autonomous house can also be referred to as a "self-serviced house." It can be expanded to other objectives:

- Design and test in a short time
- Self-sufficiency in food
- Use of on-site materials
- Technology that can be operated and repaired without special training

[124] Vale and Vale (2000, pp.8-10).
[125] Idem(p.6).

In summary, what has changed? The more recent autonomous housing is grid-connected with a new productive capacity of selling home-produced excess electricity back to the utility company. This connectedness to the grid may be highly symbolic as the earlier "off grid" stance had political symbolism in a time of anti-nuclear activism. This criteria now seems somewhat relaxed with a certain acceptance of using available sources when it makes economic sense. The connectedness and relationship to natural and man-built surrounding thus seems to have changed both in real and figurative terms: The "new" autonomous house seems indeed more connected to the social fabric, with the hope of being a net energy-producing contributor. The economics has remained a fundamental factor driving motivations.

This rejoins the discussion of means versus ends, and welfare improvements versus material well-bieng as expressed by Armory Loving in *Soft Energy Paths: Toward a Durable Peace* (1977): "Preparedness: Soft vs. Hard strategies 'may lead us to the same place' but the difference is how we will be prepared to deal with new energy and environmental realities."

The autonomous house shows what one family can do by means of a demonstration project for a more energy-secure and self-sufficient future: "The autonomous house would only form a very small part of this total picture, but it is an object that can be grasped and realized in material terms at present." Also, the empowerment of the builder is both about saving and doing good. The 1972 precursor project had all the elements to which the second project needed to add very little. "No other future seems possible..." Thir choice of lifestyle and ways of dealing with the energy crisis: "If you take the step, decide that things will only become worse, and therefore decide to attempt self-sufficiency in food and energy, then the house provides a convenient starting point."[126]

[126] Vale B and Vale R (1975, pp.15-17).

5.2 The Integral Urban House (1973-1979)

An extremely well documented and descriptive "do-it-yourself" book by the same name was published in 1979 describing the project:[127]

> This book shows you how to achieve a high quality urban way of life using a fraction of the resources we are accustomed to, at lower cost, with less waste, pollution and ugliness... At the center of the concept is a vies that envisions a new connection between urban habitat and natural systems. Any of us can learn to live better an with more satisfaction by employing ecological principles in designing how we live.[128]

The Integral Urban House was a pilot project and a demonstration site. The main objective was to prove that it could be done. And they did run the project as an educational facility until funding ran out. It was a community-based and not a private project.

5.2.1 Context

The unique context of the Integrated Urban House, is that it is urban and focuses on food production. It is important to point out that the food production is not so unique once the concept of "integration" with the household economy, education and community outreach are understood. Food procuction is important, both in terms of calories and protein for human consumption and in terms of the biological functions, but maybe most importantly are the social ramifications of organizing and spreading knowledge about what they did as something meaningful. The Integral House became a net contributor to the neighborhood, initiating new awareness and programs, such as community recycling.

The main historical context of the project was:

- 1973: the big Energy Crisis: many discover "just how dependent our technology and economy had become on nonrenewable resources."

[127] Farallones Institute (1979).
[128] Idem (p.ix).

- 1973: Real incomes begin to fall in the US
- Decreasing marginal returns (more work for less):

> More and more energy—material and human—is used to maintain (present) wasteful habits and pay for their effects. More government to administer and regulate the complex effects of centralized technologies. More dollars to treat the social, and environmental diseases that result from the way we live, and more and more energy required to secure the usable energy needed to run our homes, businesses, transportation, agriculture—all the pieces that make up our society.

5.2.2 Participants

"Our group—established as the Farallones Institute—bought the Olkowskis' dream, and added to it and developed the Integral urban House in Berkeley as a Farallones Institute research and educational center to develop urban-scale appropriate technology." The following were part of the core team:

- Bill and Helga Oklowski (the urban focus was to their credit)
- Tom Javits,
- Jim Campe,
- Sim Van der Ryn (President and Founder)
- Don Rothernurg (Education Director, Consumers' Cooeratives of Berkeley, a consumer-owned chain)

5.2.3 Motivations and Achievements

They showed that it could be done: "high quality urban way of life, using a fraction of the resources we are accustomed to, at lower cost, with less waste, pollution and ugliness." Also, they established true multi-disciplinary, community-based and participatory teams made up of designers, builders, educators, urban farmers, students and volunteers. Other values promoted in the project:

- Local consumption, or at least cover most basic needs locally (less transport and more taking of responsibility, locally). This motivation was linked with a political anti-nuclear stance and desire to avoid depletion of nonrenewable resources.

- Cover basic food needs locally with emphasis on sufficient calories and balanced nutrition to support normal metabolic processes as well as to resist invasions by pathogens or assaults by toxicants. Note that in 1970, the leading causes of premature deat were: Heart Disease (38.2%), cancer (17.2%), stroke (10.8%) and respiratory illnesses (3.6%).

Basic needs were identified as:

- Food that provides us with sufficient calories or energy, and balanced nutrition
- Uncontaminated water to drink and clean air to breather;
- A method of managing our wastes so they do not create impairing conditions to health;
- Protection against the extremes of weather;
- Freedom from pests and pestilence

Why a house? –"It is the interface between body and the environment. The house… is the key social environment…the house structure itself, and the systems operating within it, are presently key consumers of energy resources and information."[129] An important point that distinguishes the Integral House its typology is not determined to technology applications only, but its form seeks to express a quality of life and ecology:

- Ecological features include passive solar and sunspaces, minimum cost and self-build green roofs
- Form that expresses ecology: "We began meeting with the aim of joining our professional skills to create dwellings that would translate into physical form the central principles of the emerging environmental movement."
- Multidisciplinary: "…feeling isolate by the narrow perspective of our specialties," seeking to integrate biology, food and energy production, design of living and community spaces, theoretical and philosophical learning and

[129] Idem (p.5).

practical experience from agriculture, architecture, building, engineering, and natural systems

- Test, document and publish the design of resource-conserving living systems.

Why a city? –The Integral urban House sought at the time to be something pioneering and unconventional by making it an urban project: "Many people of that time seemed to be giving up on cities."

- Freedom to reconnect to the earth (without having to move to a rural area)
- Cities are where people are. According to Bill and Helga Olkowski: "the challenge is to make cities ecologically stable and healthy places to be."
- A model for a life-support system:

> Clearly, certain worldwide patterns will not change radically in the immediate future. These include widespread social inequalities and continued population growth and their attendants: famine, poverty, disease and human conflict...Against this somber prophecy we propose that people need to feel that they have some control over their own lives in order to come together in constructive groups to reform their communities.

Modern man does not experience himself as part of nature
but as an outside force destined to dominate and conquer it.
- *E. F. Schumacher*

Architecture and urban planning — be it at macro or micro level, a private villa or an office block — must not only be a showpiece of design and technology, but also give expression to those democratic ideals of respect for human dignity, equality and freedom that are fostered in our society.
- Ralph Erskine (from "architecture the useful and universal art)"[130]

6. Autonomy and Integration (discussion)

This section will compare and contrast official discourses of sustainable development and centralized global market practices, with decentralized and informal household-based economies that seek to *maintain, improve and restore* local livelihoods. New as well as old actors and institutions frameworks have a role to play shaping a new society with radically new thoughts and practices.

The problem facing official discourse and practice is the characterization of the world as divided along lines of North—South, Rich—Poor, Urban—Rural. Formal discourses do not hear or see alternative explanatory models, and tend to actively undermine informal practices. A better understanding is needed of this dynamic. Both informal *and* formal economies will gain if diverse forms of social organizations and practices are encouraged to co-exist.

A new class struggle is emerging between formal and informal economies, especially in cities. Overall productivity will be looked at in terms of ecological footprint, knowledge and technology transfers between different social groups.

[130] In 1987 Ralph Erskine was awarded the RIBA Gold Medal for Architecture. In connection to the award ceremony Erskine held a speech that in many respects summarized his view on architecture and his own works.

Design as a form language can express these underlying forces in society, and can remedy social exclusion and restore household productivity.

6.1 International frameworks and informal practices

The term sustainability is here employed in the context of "sustainable development" as adopted by the Agenda 21 program. The 1995 World Summit on Social Development has further defined sustainability as *"the framework for our efforts to achieve a higher quality of life for all people,"* in which *"economic development, social development and environmental protection are interdependent and mutually reinforcing components"*, identifying the *"three overarching objectives of sustainable development"* to be:
(1) eradicating poverty,
(2) protecting natural resources, and
(3) changing unsustainable production and consumption patterns.[131]

This definition of sustainable development recognizes the main problem of sustainable development to be caused by patterns of poverty due to unequal distribution of wealth and the excessive use and concentration of natural resources in the hands of a few: "80 per cent of the world's gross domestic product belongs to the 1 billion people leaving in the developed world; the remaining 20 per cent is shared by the 5 billion people in developing countries."[132] It is the reference to "unsustainable production and consumption patterns" that begs further analysis.

However, the productive household economy seldom is considered part of the production and consumption measurements. As we have seen, domestic food production is not recognized for its economic contribution to food security or household autonomy. Production and consumption 'patterns' therefore usually refer to *formal* sector employment and in particular to the consumption as those

[131] Brundtland, G.H. (1987).
[132] United Nations (2005, p.1).

goods or services produced *outside* of the household economy. This official discourse serves to strengthen the dominant view that households are primarily consumers and not producers.

Even the 'pro-poor' views as those expressed by the UN and aid organizations therefore seek to solve a problem of poverty from within an existing paradigm rather than questioning the nature of social organization and consider alternative production and consumption patterns. However, alternative practices to exist that could serve to strengthen the productive potential of household economies. In addition to the macro institutional view, a better understanding of the micro-managed household economy is needed.

6.1.1. Addressing informal economies

In *The Inequality Predicament* (2005), UN General Secretary Kofi Annan, identifies four areas of national regional and international concern:

(1) Asymmetries resulting from globalization,

(2) Programs aimed at reducing poverty,

(3) Employment opportunities (*addressing informal economy*), and

(4) Social integration and cohesion.[133]

The important thing to notice is that "addressing informal economies"—to which the domestic and household economy is tied—means in general that informal economies are considered a *liability* rather than a potential *asset.* This may seem at first to be a problem of accountability since informal economies are not recognized or accounted for in GDP.

Additional underlying problems are identified as (lack of) secure land tenure, e.g. poor people being displaced to less productive lands; (lack of) credit, (lack of) participation in formal decision-making processes, e.g. social exclusion; and (difficulty of providing) universal services to the poor:

> Since land is the key input to the production function of the rural poor, land ownership patterns and the displacement of the poor to less productive lands undermine their productive capacity...

[133] United Nations (2005, p.1).

> Access to credit and other financial services is crucial, as it allows the poor to establish their own small or micro enterprises."
>
> People need to be empowered to voice their concern and participate more actively in decision-making processes."
>
> Principles of universality, solidarity, and social inclusion should continue to guide the delivery of social services."[134]

Principally, the problem could be reversed and one could propose that the problem is not the exclusion of poor from the official economy, but rather be the failure of recognizing the contribution of the third sector and the informal economies as effective forms of social organization. Informal employment "accounts for between one half and three quarters of non-agricultural employment in the majority of developing countries", of which: North Africa: 48%; Latin America: 51%; Asia 65%; Sub-Saharan Africa, excluding South Africa: 78%.[135]

In other words, a majority of households derive their livelihoods from the so-called informal sector, not accounting for self-provisioning of food, which means an even higher rate of autonomy observed amongst the poor.

Could it be that the informal sector is just more effective at what it does, and that their existence could be perceived as a 'defensive stance' whereby they have developed their own solidarity networks and survival strategies? Could secure land-tenure, access to credit and universal social services not be more effectively distributed? Households could strengthen their self-reliance and their social networks if development efforts were geared towards the strengthening of informal economies. Households could take a more active ownership in their means of production than formally recognized employed can offer them. Informal economies could be encouraged to strengthen existing social organizations and the productive base that is centered around the household economy.

---

[134] Idem (p.26).
[135] Idem (p.26).

This is where the work of the Grameen bank has been truly revolutionary: by simply recognizing what people do and how they work. The first and maybe most important contribution of the Grameen bank was to recognize the bonds that exist within and between individual households and how this social organization acts is an asset. The Grameen's back great innovation is to recognize this asset and to name it "social collateral." When hard currency is scarce, designers must recognize that there are other forms of cultural assets: natural capital, skills, and social assets. The most important question to ask one-self is how households are organized within and between themselves: What kind of household are these, or what kind of livelihood will people be making here?

"Feel their pain" is the current catch-phrase in new product and service development theory. However, the most revolutionary part of the Grameen Bank, is not to recognize that people need toilets or clean water. The second most important contribution was when Muhammad Yunus in the1970s recognized that women acted as heads of the household economy. He effectively set into motion a whole new wave of micro-lending programs to 'Women head of the household economies', as similar-minded programs are seeking to replicate his success.

However, the Grameen bank's success hinges on nothing more nor less than being an effective extension to the social organization of the household economy. It is productive and social organization made up of households that collaborate in trying to maintain, improve and restore their household productive base. Yunus' discovery is not revolutionary because of 'micro-lending' now figuring as an additional development tool within the practice of 'sustainable development. ' Rather, it is revolutionary with respect to the inclusion of Otherness:
(1) Yunus recognized the household economy as existing and as an *asset,* and
(2) As a result, he included Women.

However, I seriously doubt that this was motivated by any 'gender agenda' other than just recognizing who does what in the household division of labor and that women, as good managers, could be trusted with the household budget.

Since these social frameworks *already* exist, what is so revolutionary about recognizing them? First, you have to undo everything school taught you in terms of official discourse and practice (Yunus himself attended Vanderbilt University in Tennessee, a respected American research institution founded by the industrial magnate). Then you have to convince institutions that their methods and views stand to benefit from trying something new. Institutions and official discourses are very powerful things. Like any social structure they have been designed and built to last. The true revolutionary impact is when the fundamentals of working with Otherness is recognized.

6.1.2 The role of learning institutions

In September of 2002 I joined the Minimum Cost Housing Group (MCHG) at McGill University rather than another 'more conventional program.' Professor Vikram Bhatt did not pretend to have any solutions to the problem of poverty. This was a different approach from other institutions who claimed solutions in characteristic top-down way, attempting to solve problems with methodologies and theories that come out from our own reality, and not necessarily Theirs. The conventional approach is to impose the dominant view as true and non-dominant views, as false. A program seeking knowledge in a field riddled with apparently unsolvable problems, must therefore have the courage to seek new knowledge and consistently avoid theories and methods that could be very much part of the problem.

MCHG and Grameen Bank illustrate to me that the Institute or the Bank as social pillars can promote the advancement of knowledge. In other words, this is not an attempt to discredit official discourse but to make it more descriptively accurate and effective. The productive use of knowledge and money capital must find new

ways. They must flow into the hands of those who will know best what to do with it, and thus resist becoming overly 'Establishment" in our ways, channeling new opportunities into the hands of only the few. Innovation and entrepreneurship is not, *especially not,* the prerogative of those too comfortable or with vested interests in maintaining inequalities.

Active observation of how people actually organize, live and work has been initiated by many pioneers in many walks of life. In architecture, Witold Rybczynski, Carlos Barquin and Vikram Bhatt and their work, such as, *How the Other Half Builds (1984-1990)*, inspiring new ways of seeing and recording household activities and how neighborhoods are built by people, for people. Vikram Bhatt and Rune Kongshaug have looked for new ways human ecology can enter urban planning and housing design by means of urban agriculture, through *Making the Edible Landscape (2002-2006).* These projects span several years, hopefully impacting the future professional lives of many Architects and Planners. However, it is not sufficient any longer to limit new discoveries within one practice area. Increasingly the Institute and the Bank must include decision-makers from Business, Government and the Social Organizations, and Client Groups. Design seen this way, is itself not only an activity but a social organization, including a team of owners, facilitators and clients. Sometimes, when it affects all the team members' lives in meaningful ways, it hard to tell who is wearing whose hat. I guess this can be one measure of successful dissipation of Otherness, when team is void or rank, title and affiliation, but who you design *with* is equally important to the overall process.

It is the informal economies and their practices that are teaching us to better see and design based on patterns of collaboration and compromise. Official discourse have identified a large majority of poor as "informal", but have failed to account for their assets: their productive flows and their social capital. It is a classical example of "Us" versus "Them", placing the informal sector in a category of Otherness. The official discourse itself tends to exacerbate the very non-

inclusiveness and unsustainable practices they claim to fight, so they are fighting themselves. If there is a revolution to speak of, it is really one of perceiving and valuing what is already there and work with it. On one hand official discourse changes very little in that they continuously focus on separateness and pain. On the other hand, social evolution is advancing at a rapid pace due to the many individual events and actions that are anonymous. Official discourses can thus be understood as both describing actual change and also resisting change.

6.1.3 New Class-Struggles

The old class struggles of owners of capital and labor in cities, and land-owners and land-less in the countryside, are being replaced by new class struggles between open and built spaces in cities, information-rich and information-poor; sedentary and nomadic or tribal forms of appropriating the new urban space, has emerged. People's right to self-determination defies national borders, prompting new forms of social organization, than the nation-state now focused on cities. What is the nature and design of these social organizations? Can they better respond to peoples' aspirations? With class struggles, and the way we have rendered them mythological, we see the big boss and the salaried, the tycoon and the blue-collar, and this mythology is still being lived out by each protagonist and reinforced by the physical landscape, social discourses and practices that we perpetuate.

In Newsburgh, an "Artsy River Revival" is currently in the making: the Old Foundry at "Washington Park" has already been transformed into condos ranging from 400 SF to 1600 SF with a 2-Bedroom costing in the low $200,000, inclusive of parking:

> Single-family houses from the 1920s and '30s along Grand and Montgomery streets cost less that $500,000. Houses in the Heights section, on a bluff in the city's southeastern corner range from $200,000 to $400,000, as do Tudors in the Colonial Terraces neighborhood, which was built during World War I for shipyard workers. [One couple]

> sold their Harlem coop and bought a three-unit 1890 Victorian row house on Montgomery Street for $540.000. [136]

Two rental incomes and two salaries, enough to pay approximately a $2,500 mortgage and have some extra. What are these peoples' motivations? Making a livelihood while building up their capacity for a family, more mouths to feed, and raising costs... Self-reliance. Doing more with less. Owning and renting, the oldest form of household productivity.

> *Newburgh feels like a blank canvas,*
>
> Says [...] a Brooklyn sculptor and furniture maker who bought two commercial buildings on Lander Street for $30,000; he set up his studio and I building two apartments on the top floors:
>
> *This formerly glorious city has been down on its luck, which makes it a great opportunity for artists... I missed the boat in Williamsburg and Red Hook. Every time I was offered a deal, it was unaffordable. I am finally at the right place at the right time.*

Newburgh is a historical town that served as Washington's Revolutionary War headquarters on Liberty Street; Downing Park, a 35-acre oasis designed by Calvert Vaux and Frederick Law Olmsted. There is poverty, drugs, crime, a 28% high-school drop-out rate and "65 churches that handle the great demand for social services... Real estate prices have more than doubled in less than three years."[137]

Any *Newtown*, whether it is Manhattan, Williamsburgh, Brooklyn, Red Hook, or Newburgh there is a succession of peoples reviving places, this is an opportunity for all, and should not be simply scuffed at as *gentrification.* The outsiders with infusion of money bring much needed influx of capital and energy and provide more individual and personal touches than a centrally planned urban upgrading can achieve. However, planners and architects do have a role to play, when the opportunity comes to revitalize and make a more dignified living for all. Urban revitalization make cities livable and safe and help provide municipal services

[136] Traster T (2006, pp. 56-57).
[137] Idem.

with a more stable taxable base. To make it workable and affordable for various income-levels side by side and also, also serve as a means for sustainable urban development and a means for poverty reduction? There are more productive ways to structure the city and its balance between small, family-owned enterprises, effective and productive open land-use; large information and technology driven businesses, yes, but also smaller entities and a resurgence of the apprentice-system.

6.2 Knowledge and Technology

6.2.1 The Primacy of Knowledge

Knowledge has become a more important resource than labor, capital, and natural resources, in defining performance, productivity and prosperity. Workers can now own their own capital, and often carry it with them in their personal computer or personal information manager, but the primacy of knowledge creates new haves and have-nots.

Acquiring the skill both technical and organizational takes time and significant barriers exist for certain geographies and segments of society to either have the leisure or physical access to educate themselves. It may be people in informal economies that already have the survival and entrepreneurial skill to drive innovation and small business creation, rather than workers in the formal economy who may not possess the required skills.

6.2.1 Limits to Technology

Technologies developed for capturing renewable energy sources, such a photovoltaic panels, nearly without exception use non-renewable resources during their manufacture and shipping. The embedded energy [def] may thus initially add to the ecological footprint [def] of the house. Monetary and ecological "savings" must add up and "pay-back" the initial payback before the life-cycle of the technology is up. Even if the equation adds in favor of the pocket book and

the environment, technologies using depleteable resources may contribute to the overall ecology of a house, e.g. green roof bitumen-based membranes. The technology is therefore *strategic* in nature involving choice of direction with respect to technological *and* social innovation, in that technology serving ecological ends may, as alluded to above, transcend socio-economic and political boundaries and class distinction. The technological gradation vary from *high* (centrally controlled, expensive, sometimes wasteful and complex), *soft* (decentralized, flexible, accessible, and efficient because scaled to end-user needs)[138], or; *appropriate* ("good" or well-intentioned for the particular context of developing countries, cheap, simple, promoting self-reliance, or employed as part of a protest movement against external control)[139]; and finally; to what extent they seek to respond to current market demand or a budget constraint, usually trying to improve current practices (demonstration projects), or to be a market-maker thus supply the end-user inviting them to choose and adapt to something distinctly new which can either be intentionally minimum cost or more expensive, depending on the point that one wishes to make (pilot projects); and lastly, to what extent ecology is a primary or secondary consideration to the overall experience of the aesthetic and form (design priorities and form language). Therefore, whether a product of market-forces, a research project or a piece of art, to the designer the house is also a communication medium. The motivations driving each event is therefore of importance to match intent with outcome. The question to be answered thus becomes: What motivates green technology choices?

6.2.3. Contested Space

Henceforward, let us reject the North-South "divide" as just one crude generalization that masks actual reality. In richer cities, people tend to have more access to productive means, and have a much larger control over their own resources. In poor countries the elites are often stubbornly pro-rich, their wealth often linked to foreign capital and exploitation of their own. Many rich recognize

[138] Lovins A (1977, pp. 38-9).
[139] Rybczynski R (1980, pp. 111-12, 223).

that the creation of new markets will in part depend on extending markets to the poor and improving the general level of welfare. Poor people anywhere, generally are disenfranchised but find pride and self-worth in appropriating space and creating their own informal economies. However, they spend more time and money taking care of basics necessities, such as food, shelter and energy, and can thus spend less time and money educating themselves or their children, or towards leisure, *both* critical for innovation and creativity. Beauty, joy and dignity are also basic necessities. The informal sector is outperforming the formal sector in building neighborhoods that feel alive. Productivity and performance can be measured in many ways.

Poorer people appropriate spaces in richer cities, and richer people appropriate spaces in poorer countries, but these relationships are asymmetrical and while official wealth is highly visible, the value of the informal sectors are mostly ignored or rendered invisible by official discourse. What is the value of the third sector to overall productivity? Is there a way to render it "visible" and harness its power? The hypothesis is that a visible sector will be less frustrated by obstacles separating them from education and other obstacles that hamper them in reaching their productive potential, including leisure time, which further helps spur time for learning, creativity and innovation, and thus participate in the global knowledge-driven economy.

> Ecology is the scientific study of the distribution and abundance of living organisms, and how this distribution and abundance are affected by interactions between the organisms and their environment...The word is derived from the Greek οικος (*oikos, "household")* and λόγος (logos, "study"); therefore "ecology" means the "study of the household."[140]

7. The Power of Example (conclusion)

Self-builders and urban growers in the North and the South alike are setting examples worth emulating by city planners, architects and engineers. The examples they set are not only technical but social and informing new and dynamic social relationships and linkages that should be facilitated and allowed to co-exist with formal norms in their informal states.

This creates fundamental challenges for social and political structures as we know them. Resistant of change, dominant discourses actively seeks to undermine social activism or protect parochial interests, such as those of bio-engineering, agro-industry, or nuclear energy, whereby the entire human race and our natural capital is gambled with. However, an increasing number of people are questioning and finding alternatives means by which to feed, clothe and shelter ourselves in order to assure our long-term survival. These pioneers are uncomfortable with the notion of being part of a massive laboratory experiment, that seems to profit only a very few, in the very short term, with unpredictable and potentially irreversible long-term results. Will future generations have the capacities to manage the massive clean-up job they inherit?

While the oil crises of 1973 and 1979 spurred the development of autonomous housing that tended to be off-grid and striving for energy sufficiency, the motivation for ecological housing is evolving in the direction of increasingly

[140] Wikipedia, the free encyclopedia.

urban and integrated solutions. Also, the productivity of a house in terms of energy, food, water, air, material-use and recycling is increasingly incorporating the complexities of biological systems and human ecology housing design. These housing events are becoming more frequent and signal a new topography of social organization. Next generation pioneering ecological housing will increasingly emulate natural system complexity and productivity. We have seen how motivation and housing typology depends in large part to what degree autonomy, integration and diversity principles are incorporated to various degree. We have also seen how environmental stewardship increasingly means to *restore* the environment, and how productivity is linked to maximizing leisure time through constant innovation of ways of doing more with less. The house is both at the heart of individual stewardship and domestic home productivity.

There is a difference between humanitarianism and humanism. One values hand-me-downs as an emergency measure to assure survival, the other values empowerment to affect your own future and create a livelihood for yourself and your family. However, our history of dealing with poor or differences of race, religion or gender is to either ignore their potential, silence their voices or dictate the rules of engagement. Some entitlements are shared equally by all. These entitlements are summed up in ecological and social terms by Natural Capital and Human Rights. Our living environment has a natural capital, and even though the "ownership" of this natural capital may be concentrated in the hands of a few, the *primary productivity* of Nature in terms of soil, clean air and clean water, is what provides the foundation for all of human activity.

Depending on our ability to manage this common good, the natural capital available to all may either increase or decrease, and the flow of natural "services"[141] that we can derive from nature, depends on the health and overall productive capacity of natural capital, the health and diversity of ecosystems. There is no doubt that currently this natural capital is being mismanaged, in that

[141] Paul Hawken

the natural capital of both living ecologies *and* past ecologies in the form of stored fossil fuels and minerals, are being wiped out or depleted at a such a fast pace that know-one really knows how far before a breaking point, that is the point at which nature will not be able self-regulate and restore itself to an equilibrium.

Nature tends to build increasingly complex and inter-dependent relationships until reaching a steady state where everything is in constant flux, yet through complex feedback loops kept at an equilibrium. This equilibrium is an entitlement, of which all human aspirations depend. Mismanagement of natural capital has also been described as "the tragedy of the commons" where the common good sanctions self-restraint. Since the commons is shared, one shepherd will decide that adding one extra sheep to the herd will not make a much of a difference to the overall herd. The problem is that every shepherd thinks this way and sheep are being added until the commons is over-grazed and everyone loose. The answer is not private ownership, because even if all lands, oceans and airspaces are owned, there will still be a commons, as water, air and ecology does not know ownership. The other form of entitlement is Human Rights, another value-system that recognize equal entitlements across cultures. Together, Natural Capital and Human Rights recognize inter-dependencies and the value of cooperation as superior to unilateral action in solving conflict. Merging these two systems of cooperation, one may speak of productivity that maximizes *human ecology*, that is ecological *and* human diversity. These systems tend to value autonomy and integration, relationships and flows rather than short-term overspending of Natural Capital, and to be participatory, symmetrical and inclusive when negotiating rules of engagement over common goods. What are the incentives to work effectively within cooperative frameworks? How can productivity be maximized in terms of cultural and ecological diversity?

Dealing with *otherness* does not only mean to stop treating people who by birth are disenfranchised, or fight their efforts, not recognizing their appropriation of space, "ghettoize" them, ignore them, render them "invisible", or treat those

"visible minorities" as inferior, dumb, savages, archaic, primitive or uncivilized, etc. There are no lack of stereotypes, which has not served at one time to further strengthen the divide between formal and informal spaces, "Us" versus "Them." This of course changes when these same visible or invisible minorities, "others," organize and become a political force to be reckoned with, either using pacifist or violent means to make their frustration heard and felt by those who both enjoy education and access to productive means and leisure.

What is Ecology?—Keeping house, that is a productive house. The example of self-help builders is teaching the rest of us that this is a good place to start.

Epilogue

One morning in my mid-20s, I woke up on a Brooklyn rooftop where I had decided to spend the night under open sky because it was one of those just perfect warm and breezy summer nights. In front of me through the morning midst, slowly was appearing—as if it had landed on a cloud during my sleep!—what seemed like a massive alien ship or life form, like nothing a single human mind could ever phantom. While enormous and bluish-grey, now bathed in pink with a million of mirrors reflecting the sunrise, the midst dissipating, it seemed hard as steel and yet alive; inert but ready to burst at its seams with inside power, fueled by struggles and dreams of millions, a handful of generations constantly tearing down and rebuilding again and again that massive bulk of Manhattan, floating on that magic estuary and natural harbor where Hudson meets East river.

8. Bibliography

Abel, Chris (2000). Architecture and identity: responses to cultural and technological change. Foreword by Suha Ozkan. Architectural press, Oxford.

Abrams D (1996). The Spell of the Sensuous: Perception and Language in a More-Than-Human World. Vintage Books. New York, 1997. Random House. Toronto.

Alexander C (1965). "A City is not a Tree" Architectural Forum Vol. 122, No1, April 1965 (Part I). and Vol. 122, No 2, May 1965 (Part II). Also see: http://www.patternlanguage.com/archives/alexander1.htm.

Alexander C et al (1977). A Pattern Language: Towns, Buildings, Construction (Center for Environmental Structure Series). Oxford University Press Inc, USA. 1978.

Ausubel K and Harpignies J P (2004). Nature's Operating Instructions: The True Biotechnologies. Sierrea Club Books. San Francisco, CA.

Beim A, Larsen L and Mossin N (2002). Økologi og arkitektonisk kvalitet Arkitektskolens Forlag København.

Bhatt V (2005)."Making the Edible Landscape: Integrating Productive Growing in Urban Developments," Urban Agriculture- Multiple Functions of Urban Agriculture. December, 2005. No.15.

Bhatt V and Kongshaug R (2005), "Coalesce of Beauty and Utility for Better Cities." Union Internationale des Architectes (Conference), Istanbul. June 25 – July 2, 2005.

Bhatt Vand Kongshaug R (2004), "The role of green roofs in cost-effective city greening." Green Roofs for Healthy Cities (Conference), Oregon. June 2004.

Brand, Stewart and Baldwin J, Editors (1978). Soft Tech, Penguin (Non-Classics). The Whole Earth Catalog and CoEvolution Quarterly.

Brundtland, G.H. (ed.), (1987), Our common future: The World Commission on Environment and Development, Oxford, Oxford University Press.

Cantarelli, Fausto (2003) Why the University? The International Herald of Taste Issue n°39, March 2003. See http://www.slowfood.com/img_sito/riviste/slow/EN/39/universita.html)

Capra F (1983, pp. 37-41). The Turning Point. Fontana Flamingo series, London

Caradon et al, 1981. 'UN Security Council Resolution 242 - A Case Study in Diplomatic Ambiguity',

Caribbean Philosophical Association (2006). Shifting the Geography Reason: Aesthetics, Language and Science. Montreal, Canada. Third Annual Meeting. August 1-3, 2006.

Carson, Rachel (1962). Silent Spring Mariner Books, 2002

Castells, M (1999). Information Technology, Globalization and Social Development. United Nations Research Institute for Social Development (UNRISD) Discussion Paper No. 114, Geneva.

City of Birmingham (2004). Peer Review for European Sustainable Urban Development. Performance Assessment. (from section on Democratic Accountability and Community Engagement, p.20)

CMHC, Toronto Healthy Home. http://www.cmhc-schl.gc.ca/popup/hhtoronto/heat.htm

Cromley, Elizabeth C (1996). "Transforming the Food Axis: Houses, Tools, Modes of Analysis," Material History Review, Canada. Fall 1996, pp 8-22.

Cushman & Wakefield Healey & Baker (2006). London, Paris and Frankfurt remains Europe's favourite business cities. In City Mayors Economics [http://www.citymayors.com/business/euro_bizcities.html]

Deleuze, Gilles and Guattari, Felix (1980). A Thousand Plateaus: Capitalism and Schizophrenia (Paperback). Translation and Introduction by Massumi, Brian. University of Minnesota Press. 1987.

Descartes, René (1596-1650). Meditations on First Philosophy. First published in latin 1641. Translated by Cottingham, John. Cambridge University Press. Cottingham, Cambridge. 1996.

Diamond, Jarded (2006).Collapse: How Societies choose to fail or succeed. Penguin Books.

Diamond, Jared (1997). Guns, Germs and Steel: The Fates of Human Societies. W. W. Norton & Company, New York.

Drucker, Peter F (1909-2005). Management Challenges for the 21st Century. Butterworth-Heinemann Woburn, Mass. 1999.

Dubbeling, Marielle (2006), "Green and productive cities: municipalities contributing to the Millennium Development Goals through urban agriculture" (Conference) Vancouver, Canada. June 19-23, 2006.

Dubbeling, Marielle (2003), "Optimisation of Use of Vacant Land for Urban Agriculture in the Municipality of Rosario, Argentina", IPES/PGU-ALC/UNHABITAT, Quito, Ecuador.

Dubbeling, Marielle and Gunther Merzthal (2006), "Sustaining urban agriculture requires involvement of multiple stakeholders", In: R. van Veenhuizen (editor), Cities Farming for the Future: Urban Agriculture for Green and Productive Cities, RUAF Foundation/IDRC/IIRR, Philippines.

Dubbeling, Marielle and Henk de Zeeuw (2006), "Interactive policy formulation for sustainable urban agriculture development", Urban Agriculture Magazine: Formulation effective policies on urban agriculture (2006, No 16).

DuBois W E B (1899). The Philadephia Negro. Lippincott, New York.

DuBois W E B, (1868-1963). The Philadelphia Negro (1896)

Erskine, R (2005) Quoted in "Ralph Erkskine", Times Online, 2005.0319.

Exedra Architects (1997). "Environmentally Friendly Houses: The Reality." Architectural Design Magazine. In Architecture Design Profile No 125: The Architecture of Ecology. John Viley & Son, NY.

Food and Agriculture Organization of the United Nations (FAO) (1996). Our land and our future. Land and Water Development Division of the FAO in association with the United Nations Environment Programme (UNEP). Sims D and Thomas G (ed.) Rome, FAO.

Fort Motor Compan y. Ford River Rouge Factory. http://www.ford.com/en/goodWorks/environment/cleanerManufacturing/rougeRenovation.htm

Grindley, W C (1972). "Owner-Builders: Survivors with a Future" In Freedom to Build: Dweller Control of the Housing Process (Part One). Turner J F C. and Fichter R (Eds). The Macmillan Company. New York.

Hawken P, Lovins A and Lovins H (1999). Natural Capitalism: Creating the Next Industrial Revolution, Little, Brown and Company.

Hawken P, Lovins A and Lovins H (1999). Natural Capitalism: the next Industrial Revolution. Earthscan, 1999. See: www.earthscan.co.uk/books/461_0.html.

Hemenway T (2001). Gaia's Garden: A Guide to Home-Scale Permaculture. Todd J (Foreword). Chelsea Green Publishing.

Holmgren, David. Permaculture: Principles and Pathways Beyond SustainabilityFarallones Institute (1979). The Integral Urban House. Introduction by sim Van der Run. Sierra Club Books. San Francisco.

Horwitz, Jamie and Paulette Singley eds. Eating Architecture. - Horwitz, Jamie and Paulette Singley, eds. Revised Edition - Calloway, Stephen; Cromley, Elizabeth, eds.

Islam, S M. "Nomads and Minorities" rhizomes.03 fall 2001. See www.rhizomes.net/issue3/islam.htm

Jacobs J (1970) The Economy of Cities. Vintage Books, New York.

Khaldûn, Ibn (1377), The Muqaddimah, trans. Franz Rosenthal, Routledge and Kegan Paul, London. 1967.

Kongshaug R (2003). The Acadian "Salle Commune:" a locus for social organization and adaptability. The Vernacular Architecture Forum (Conference). Saint Pierre-Miquelon, France.

Kongshaug, R (1994). "Norway and EC Membership," Hemispheres. Tufts University. Medford, Mass. 1994.

Kubler G (1962). The shape of time: remarks on the history of things. Yale University Press. New Haven, Connecticut.

Kwame, Yao Anku (2006). People's Grocery VIDEO by [available at: http://www.treehugger.com/files/2006/05/walmart_is_goin_1.php]

Lappé, F.M. and Collins, J. (1982) Food First: Beyond the Myth of Scarcity, Abacus, London.

LeGates R T and Stout F (2000) The City Reader. Routledge, New York. [2nd ed.] pp. 210-211)

Lovins A (1977). Soft Energy Paths: Toward A Durable Peace." Friends of the Earth International. Ballinger Publishing, Cambridge, Mass. pp 38-9.

Lovins, A. and Lovins, H. (1982) Brittle Power: Energy Strategy for National Security, Brick House Publishing, MA (re-released in 2001).

Lucarelli M (1995). Lewis Mumford and the Ecological Region: The Politics of Planning. The Guilford Press, New York,

McDonough K (2002). Cradle to Cradle: Remaking the Way We Make Things. North Point Press.

Meadow, A M. "Participating in Urban Gardening, or "City Farming." Results of an Online Survey conducted by City Farmer "(Graduate Student Paper).

Department of Anthropology/Resilience and Adaptation Program University of Alaska Fairbanks

Miller M (1997). The Leisure Theory of Value. Quackgrass Press.
Minimum Cost Housing Group (2004). EL1 Making the Edible Landscape: A Study of Urban Agriculture in Montreal. Bhatt V and Kongshaug R (Eds). McGill University. Montreal. 2004.

Mollison B (1988). PERMACULTURE: A Designers' Manual.Tagari.

Mougeot, Luc J.A.(2005). *Agropolis : the social, political and environmental dimensions of urban agriculture,* Pub. Ottawa, Canada : International Development Research Centre ; London ; Sterling, VA : Earthscan.

Mumford L (1927). The Golden Day: A Study in American Literature and Culture,

Mumford L (1970.) The Myth of the Machine: The Pentagon of Power. Harcourt Brace Jovanovich, New York.

Myrdal, Gunnar (1970). The Challenge of World Poverty. Random House Trade Paperbacks.

Næss A (1973). The Shallow and the Deep: Long-range Ecology Movement. A summary. In Inquirty. 1973, 16, pp.95-9.

Natural Resource and Defense Council (NRDC) (2006). Mixed Greens. The Multiple Faces of Sustainability. NRDC TV [as appeared on http://www.treehugger.com/files/2006/08/nrdc_tv_sxsw.php]

OECD (1998). Sustainable Building Project.

OECD (2003). Environmentally sustainable buildings: challenges and policies

Ortega A et al (1974). The Ecol Operation: Ecology + Building + Common Sense. MCHG McGill University. Montreal, Canada.

Pérez-Gómez , Alberto (1983). Architecture and the Crisis of Modern Science. The MIT Press. Cambridge, Mass.

Peters T (2002). Everything Is Design. Video with Tom Peters
Presented by ChartHouse Learning, 2002

Ricardo, David (1772-1823). On the principles of political economy, and taxation. John Murria, London. 1817.

Rockefeller Foundation (2006). Opportunities for and Challenges to Plant Biotechnology Adoption in Developing Countries. [By GARY TOENNIESSEN] National Agricultural Biotechnology Council, New York, NY, p1.

RPAA, the Report of the New York State Commission of Housing and Regional Planning (1926)

Russell, Bertrand (1935) In Praise of Idleness. George Allen and Unwin Ltd. London.

Rybczynski Witold (1980). Paper Heroes: A review of appropriate technologies. Anchor Books. Gaden City, NY.

Rybczynski, Witold (1999). A Clearing in the Distance: Frederick Law Olmsted and America in the Nineteenth Century. New York: Scribner.

Sassen S (1994) Cities in a World Economy. Fine Forge Press. Thousand Oaks, CA

Schlender, Brent (2004). Peter Drucker Sets Us Straight The 94-year-old guru says that most people are thinking all wrong about jobs, debt, globalization, and recession. Fortune Magazine 01.12.04.

Schumpeter, J A. (1942). "Creative Destruction" From Capitalism, Socialism and Democracy. Harper, New York. 1975, pp. 82-85:

Skurka N and Naar J (1976). Design for a Limited Planet. Living with Natural Energy. Ballantine Books, NY, pp 14-15

Suranovic, Steven (1997). The Theory of Comparative Advantage – Overview, http://internationalecon.com/v1.0/ch40/40c000.html. (2007).

Todd J (2004) Living Technologies: Wedding human ingenuity to the Wisdom of the Wild

Todd, Nancy Jack and John Todd (1994): From Eco-Cities to Living Machines: Principles of Ecological Design North Atlantic Books; 2nd edition (April 1994)

Traster T (2006). Take me to the River News article from New York Post, August 24, 2006 pp 56-57

UN-Habitat (2004). Urban-Rural linkages: An annotated bibliography 1994-2004. United Nations Human Settlement Program [ISBN: 92-1-131713-4, HS/ 729/04] P. 3.

United Nations (2005). The Inequality Predicament: Report on the World Social Situation. United Nations, New York, p, 1

United Nations (2005). The Inequality Predicament: Report on the World Social Situation. United Nations, New York, p. 1

United Nations Center for Human Settlements (Habitat) (2001): Cities in a globalizing world - global report on human settlements 2001. Nairobi: Habitat 2001.

United Nations Centre for Human Settlements (Habitat) (2001). The State of the world cities. Nairobi: Habitat, 2001.

University of Virigina (1996). Definition of Body without Organs. Deuleuze and Guattari List (Blog). http://webpages.ursinus.edu/rrichter/bwodefinition.html.

Vale B and Vale R (1975). The Autonomous House: Design and Planning for self-sufficiency. Thames and Hudson, London.1975. p 7.

Vale B and Vale R (1991). 'Purpose, architectue and the survival of the plantet', in Green Architecture: Design for a Sustainable Future, Thames & Hudson Ltd., London. Pp. 15-42

Vale B and Vale R (2000). The New Autonomous House. Perlin J (preface). Thames & Hudson, New York. 2000.

Vale B and Vale R (2000). The New Autonomous House. Perlin, J. (preface). Thames & Hudson, New York. 2000.

Vale B and Vale R. (1975): The Autonomous House: Design and planning for self-sufficiency. Thames and Hudson. London.

Vale, B. and Vale R. (2000). The New Autonomous House. Perlin, J. (preface). Thames & Hudson, New York. 2000. Also see: http://www.windandsun.demon.co.uk/projects_autonomous.htm (2006).

Vandana S (1988). Staying Alive: Women, Ecology and Development. Zed Books, Ltd.

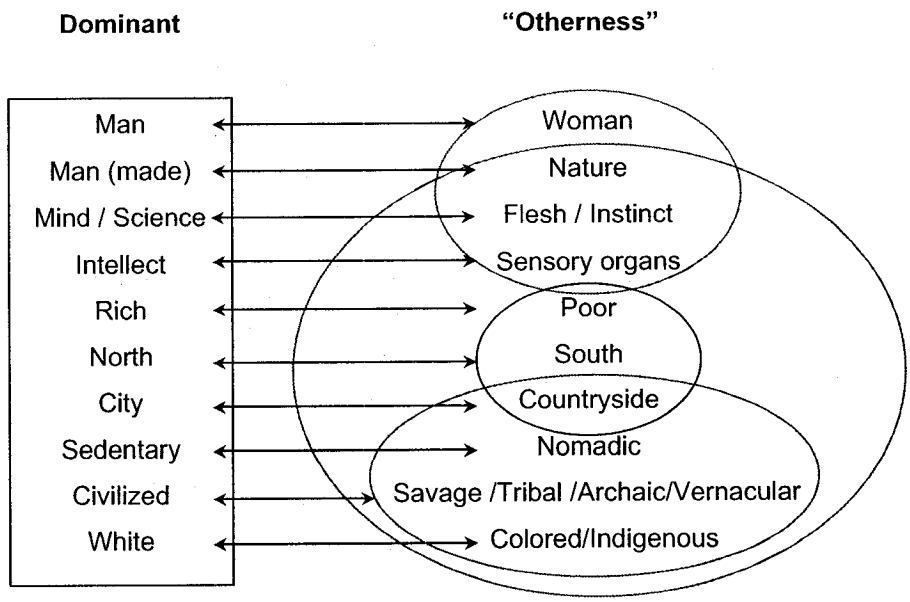
Veblen T (1899). Theory of the Leisure Class. Penguin Classics; Reprint edition (February 1, 1994)

World Commission on Dams (1999). Indigenous Peoples and Ethnic Minorities – final Report, December 1999.

Yoder, Don (1972). Folk Cookery In Folklore and Folklife: an introduction. [Dorson R M, Ed.]. The University of Chicago Press, Chicago. Pp. 295-324.

9. Table of Illustrations

Illustration 1. *Dichotomies of Dominant and Other Realms*



	Formal Domain (accounted for)	Informal and Domestic Domains (not accounted for)
$ Wealth		
GDP	80%	20%
People		
Large Cites		
Ownership		
Technologies		
Agriculture:		
-subsistence		
-agribusiness		
Other riches:		
Self-Help		
Ecology		
Biomass		
Diversity		
Knowledge		

Data largely unavailble...

How to account for world productivity?

Note: for illustration only..."the world formal performance ledger"

Illustration 2. *Philadelphia's Seventh Ward: From Dubois's "the Philadelphia Negro" (1889): Neighborhood analysis*

It was at this time that there arose to prominence and power as remarkable a trade guild as ever ruled in a mediaeval city. It took complete leadership of the bewildered group of Negroes, and led them steadily on to a degree of affluence, culture and respect such as has probably never been surpassed in the history of the Negro in America. This was the guild of the caterers, and its masters include names which have been household words in the city for fifty years: Bogle, Augustin, Prosser, Dorsey, Jones and Mintou. To realize just the character of this new economic development we must not forget the economic history of the slaves. At first they were wholly house servants or field hands. As city life in the colony became more important, some of the slaves acquired trades, and thus there arose a class of Negro artisans. (from Chapter 4.)

The cause of this excess is easy to explain. Frorn the beginning the industrial opportunities of Negro women in cities have been far greater than those of men, through their large employment in domestic service. (from Chapter 5.)

The Seventh Ward starts from the historic centre of Negro settlement in the city, South Seventh street and Lombard, and includes the long narrow strip, beginning at South Seventh and extending west, with South and Spruce streets as boundaries, as far as the Schuylkill River. The colored population of this ward numbered 3621 in 1860, 4616 in 1870, and 8861 in 1890. It is a thickly populated district of varying character; north of it is the residence and business section of the city; south of it a middle class and workingmen's residence section; at the east end it joins Negro, Italian and Jewish slums; at the west end, the wharves of the river and an industrial section separating it from the grounds of the University of Pennsylvania and the residence section of West Philadelphia. (Idem)

Starting at Seventh street and walking along Lombard, let us glance at the general character of the ward. Pausing a moment at the corner of Seventh and Lombard, we can at a glance view the worst Negro slums of the city. The houses are mostly brick, some wood, not very old, and in general uncared for rather than dilapidated. The blocks between Eighth, Pine, Sixth and South have for many decades been the centre of Negro population. Here the riots of the thirties took place, and here once was a depth of poverty and degradation almost unbelievable. Even to-day there are many evidences of degradation, (Idem)

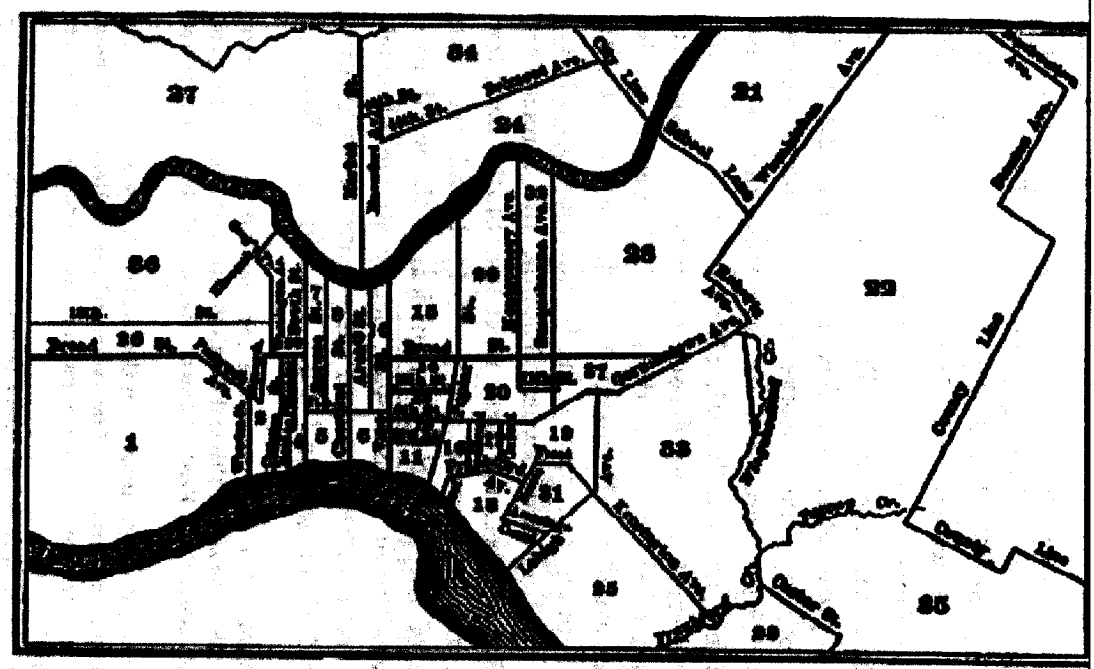
although the signs of idleness, shiftlessness, dissoluteness and crime are more conspicuous than those of poverty. The alleys7 near, as Ratcliffe street, Middle alley, Brown's court, Barclay street, etc., are haunts of noted criminals, male and female, of gamblers and prostitutes, and at the same time of many poverty-stricken people, decent but not energetic. There is an abundance of political clubs, and nearly all the houses are practically lodging houses, with a miscellaneous and shifting population. The corners, night and day, are filled with Negro loafers--able-bodied young men and women, all cheerful, some with goodnatured, open faces, some with traces of crime and excess, a few pinched with poverty. They are mostly gamblers, thieves and prostitutes, and few have fixed and steady occupation of any kind. Some are stevedores, porters, laborers and laundresses. On its face this slum is noisy and dissipated, but not brutal, although now and then highway robberies and murderous assaults in other parts of the city are traced to its denizens. Nevertheless the stranger can usually walk about here day and night with little fear of being molested, if he be not too inquisitive.

Passing up Lombard, beyond Eighth, the atmosphere suddenly changes, because these next two blocks have few alleys aud the residences are good-sized and pleasant. Here some of the best Negro families of the ward live. Some are wealthy in a small way, nearly all are Plliladelphia born, and they represent an early wave of emigration from the old slum section. (Idem)

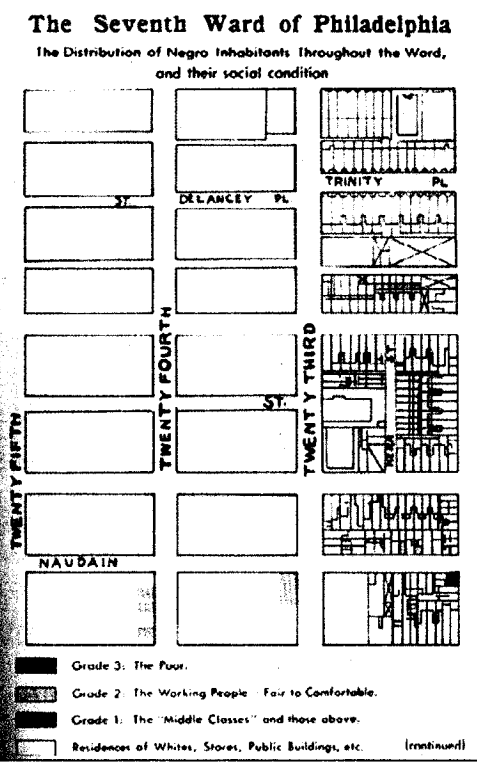
From his earliest advent the Negro, as was natural, has figured largely in the criminal annals of Philadelphia. Only such superficial study of the American Negro as dates his beginning with 1863 can neglect this past record of crime in studying the present. Crime is a phenomenon of organized social life, and is the open rebellion of an individual against his social environment. (From Chapter 13

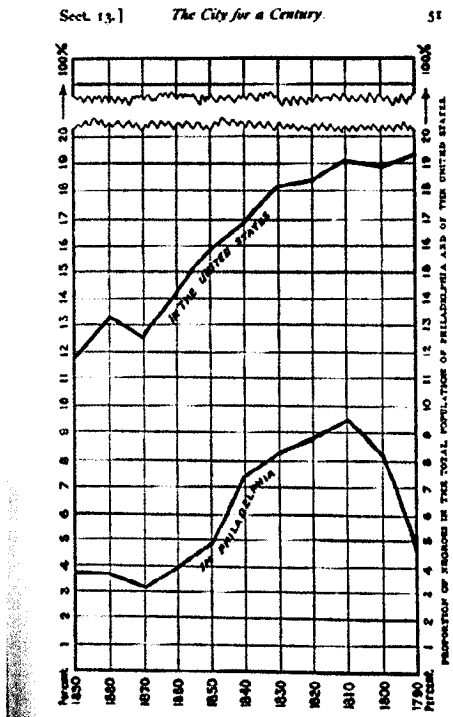
WEB Dubois' at the time new methods of sociological analysis shows neighborhood composition and a complex network of social and cultural tissues within the Black population.

Illustration 2. *Philadelphia's Seventh Ward: From Dubois's "the Philadelphia Negro" (1889): Neighborhood analysis* (continued)



WARDS OF PHILADELPHIA, WITH NEGRO POPULATION, 1890.





Note: Sample neighborhood analysis

Illustration 2b. *Consequences of Otherness.* From Debois's "the Philadelphia Negro" (1889): Chapter XVI. *The contact of the Races:*

Incidentally throughout this study the prejudice against the Negro has been again and again mentioned. It is time now to reduce this somewhat indefinite term to something tangible. Everybody speaks of the matter, everybody knows that it exists, but in just what form it shows itself or how influential it is few agree. In the Negro's mind, color prejudice in Philadelphia is that widespread feeling of dislike for his blood, which keeps him and his children out of decent employment, from certain public conveniences and amusements, from hiring houses in many sections, and in general, from being recognized as a man. Negroes regard this prejudice as the chief cause of their present unfortunate condition. On the other hand most white people are quite unconscious of any such powerful and vindictive feeling; they regard color prejudice as the easily explicable feeling that intimate social intercourse with a lower race is not only undesirable but impracticable if our present standards of culture are to be maintained; and although they are aware that some people feel the aversion more intensely than others, they cannot see how such a feeling has much influence on the real situation or alters the social condition of the mass of Negroes.

As a matter of fact, color prejudice in this city is something between these two extreme views: it is not to-day responsible for all, or perhaps the greater part of the Negro problems, or of the disabilities under which the race labors; on the other hand it is a far more powerful social force than most Philadelphians realize. The practical results of the attitude of most of the inhabitants of Philadelphia toward persons of Negro descent are as follows:

1. As to getting work:
No matter how well trained a Negro may be, or how fitted for work of any kind, he cannot in the ordinary course of competition hope to be much more than a menial servant.

- He cannot get clerical or supervisory work to do save in exceptional cases.
- He cannot teach save in a few of the remaining Negro schools.
- He cannot become a mechanic except for small tr

A Negro woman has but three careers open to her in this city: domestic service, sewing, or married life.

2. As to keeping work:
The Negro suffers in competition more severely than white men.
Change in fashion is causing him to be replaced by whites in the better paid positions of domestic service.
Whim and accident will cause him to lose a hard-earned place more quickly than the same things would affect a white man.
Being few in number compared with the whites the crime or carelessness of a few of his race is easily imputed to all, and the reputation of the good, industrious and reliable suffer thereby.
Because Negro workmen may not often work side by side with white workmen, the individual black workman is rated not by his own efficiency, but by the efficiency of a whole group of black fellow workmen which may often be low.

Because of these difficulties which virtually increase competition in his case, he is forced to take lower wages for the same work than white workmen.

3. As to entering new lines of work:
Men are used to seeing Negroes in inferior positions; when, therefore, by any chance a Negro gets in a better position, most men immediately conclude that he is not fitted for it, even before he has a chance to show his fitness.

- If, therefore, he set up a store, men will not patronize him.
- If he is put into public position men will complain.
- If he gain a position in the commercial world, men will quietly secure his dismissal or see that a white man succeeds him.

4. As to his expenditure:
The comparative smallness of the patronage of the Negro, and the dislike of other customers makes it usual to increase the charges or difficulties in certain directions in which a Negro must spend money.
He must pay more house-rent for worse houses than most white people pay.
He is sometimes liable to insult or reluctant service in some restaurants, hotels and stores, at public resorts, theatres and places of recreation; and at nearly all barber shops.

5. As to his children:
The Negro finds it extremely difficult to rear children in such an atmosphere and not have them either cringing or impudent: if he impresses upon them patience with their lot, they may grow up satisfied with their condition; if he inspires them with ambition to rise, they may grow to despise their own people, hate the whites and become embittered with the world.

His children are discriminated against, often in public schools. They are advised when seeking employment to become waiters and maids.
They are liable to species of insult and temptation peculiarly trying to children.

6. As to social intercourse:
In all walks of life the Negro is liable to meet some objection to his presence or some discourteous treatment; and the ties of friendship or memory seldom are strong enough to hold across the color line.

If an invitation is issued to the public for any occasion, the Negro can never know whether he would be welcomed or not; if he goes he is liable to have his feelings hurt and get into unpleasant altercation; if he stays away, he is blamed for indifference.
If he meet a lifelong white friend on the street, he is in a dilemma; if he does not greet the friend he is put down as boorish and impolite; if he does greet the friend he is liable to be flatly snubbed.

If by chance he is introduced to a white woman or man, he expects to be ignored on the next meeting, and usually is. White friends may call on him, but he is scarcely expected to call on them, save for strictly business matters. If he gain the affections of a white woman and marry her he may invariably expect that slurs will be thrown on her reputation and on his, and that both his and her race will shun their company. When he dies he cannot be buried beside white corpses.

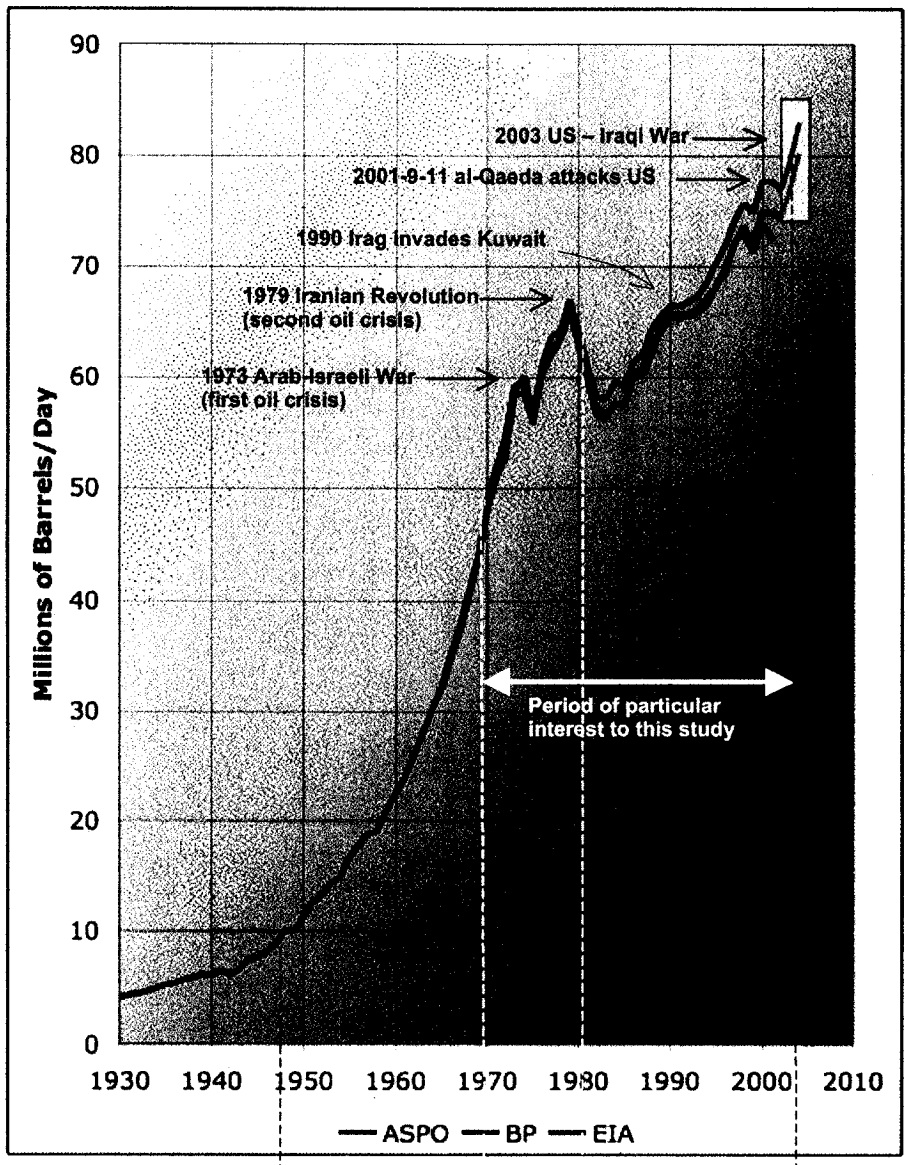
7. The result:
Any one of these things happening now and then would not be remarkable or call for especial comment; but when one group of people suffer all these little differences of treatment and discriminations and insults continually, the result is either discouragement, or bitterness, or over-sensitiveness, or recklessness. And a people feeling thus cannot do their best.

Presumably the first impulse of the average Philadelphian would be emphatically to deny any such marked and blighting discrimination as the above against a group of citizens in this metropolis. Every one knows that in ansient jobs, and cannot join a trades union. the past color prejudice in the city was deep and passionate; living men can remember when a Negro could not sit in a street car or walk many streets in peace. These times have passed, however, and many imagine that active discrimination against the Negro has passed with them. Careful inquiry will convince any such one of his error. To be sure a colored man to-day can walk the streets of Philadelphia without personal insult; he can go to theatres, parks and some places of amusement without meeting more than stares and discourtesy; he can be accommodated at most hotels and restaurants, although his treatment in some would not be pleasant. All this is a vast advance and augurs much for the future. And yet all that has been said of the remaining discrimination is but too true.

During the investigation of 1896 there was collected a number of actual cases, which may illustrate the discriminations spoken of. So far as possible these have been sifted and only those which seem undoubtedly true have been selected

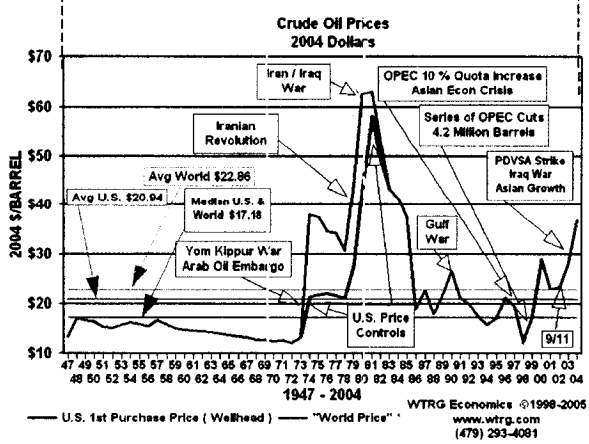
Illustration 4. *Oil extraction, prices, and armed conflict*

a) Oil extraction (millions of barrels per day) and international conflicts.



Source: (Staniford, 2006)

b) Oil prices (2004 prices of crude oil) and international conflicts.



Source: (Williams, 2005)

c) Chronology and US reactions

2006: armed conflict between Hezbollah and Israel. President Bush says one can only imagine how much more dangerous such a conflict would be if Iran possessed nuclear weapons (Boston 2006-8-15)
President Bush says: "Leaving [Iraq] before we complete our mission would create a terrorist state in the heart of the Middle East, a country with huge oil reserves that the terrorist network would be willing to use to extract economic pain from those of us who believe in freedom" (Speech, Lancaster 2006-8-17)
2003-2006: US-led invasion of Iraq. "Operation Iraqi Freedom" began on March 20. The United States, the United Kingdom and Poland supplied the vast majority of the invading forces. They co-operated with Kurdish forces.
2001-9-11: al-Qaeda attacks the US
1990: Iraq invades Kuwait
The 1979 second oil crisis. President Jimmy Carter made symbolic efforts to encourage energy conservation, such as urging citizens in a famous July 15, 1979, 'malaise' speech to turn down their thermostats. He also installed solar power panels on the roof of the White House and a wood-burning stove in the living quarters. However, his successor Ronald Reagan, ordered the solar panels removed and the wood stove dismantled. Carter's fire-side speech argued the oil crisis was "the moral equivalent of war." More importantly, Carter, as part of his administration's efforts at deregulation, proposed removing price controls that had been imposed in the administration of Richard Nixon during the 1973 crisis. Congress agreed to remove price controls in phases; they were finally dismantled in 1981 under Reagan (Wikipedia, 2006).
The 1973 oil crisis began in earnest on October 17, 1973, when the members of Organization of Arab Petroleum Exporting Countries (OAPEC, consisting of the Arab members of OPEC plus Egypt and Syria) announced, as a result of the ongoing Yom Kippur War, that they would no longer ship petroleum to nations that had supported Israel in its conflict with Syria and Egypt (i.e., to the United States and its allies in Western Europe) (Wikipedia, 2006)

d) Note on world prices of oil
*World Price - The only very long term price series that exists is the U.S. average wellhead or first purchase price of crude. When discussing long-term price behavior this presents a problem since the U.S. imposed price controls on domestic production from late 1973 to January 1981. In order to present a consistent series and also reflect the difference between international prices and U.S. prices we created a world oil price series that was consistent with the U.S. wellhead price adjusting the wellhead price by adding the difference between the refiners acquisition price of imported crude and the refiners average acquisition price of domestic crude. (Williams, 2005)

References:
News24.com: http://www.news24.com/
Staniford S (2006) Plateau background. [Post June 14, 2006 at 9:49 AM EST.] The Oil Drum: Discussions about energy and our future. http://www.theoildrum.com/story/2006/6/14/25151/9885
Wikipedia. http://en.wikipedia.org/wiki/
Williams J L (2005). Oil Price History and Analysis. WTRG Economics. London, Arkansas [72847Phone: (479) 293-4081, http://www.wtrg.com/prices.htm]

Illustration 4b. *King Hubbard's controversial "peak theory"*

a) Peak and estimated reserves (1956): Year 2000

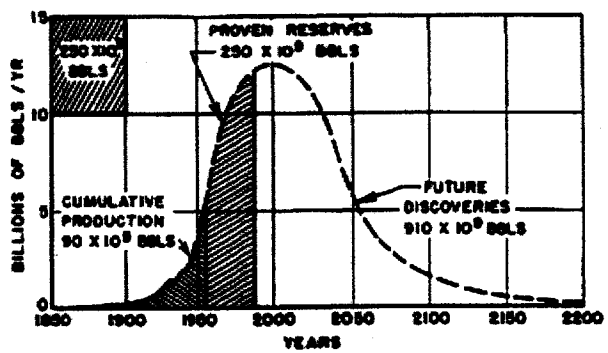
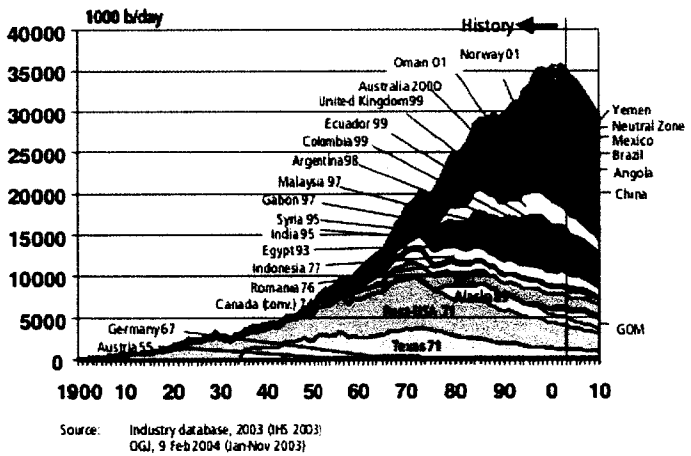


Figure 20 - Ultimate world crude-oil production based upon initial reserves of 1250 billion barrels.

(King Hubbert, 1956, p. 34)

b) Peak and estimated reserves (2004): Year 2030-2050

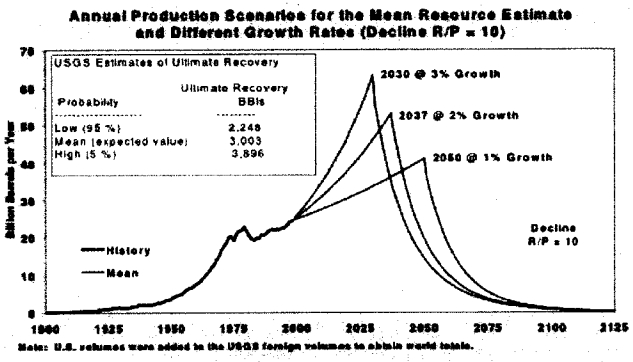


Source: Industry database, 2003 (IHS 2003)
OGJ, 9 Feb 2004 (Jan-Nov 2003)

Figure represents Oil production of countries outside OPEC and FSU (former Soviet Union)

(Zittel W et al., 2004, p 4.)

c) Projected extraction based on high and low reserves and pricing projections:



(Zittel W et al., 2004, p. 15)

d) Optimism vs. Pessimism, Realism vs. Belief

According to the doctrine of the "optimists" (mostly pronounced by economists), rising prices will induce a fast increase of oil exploration and production, which in turn will lead to a relaxation in the oil market in the near future. In contrast, the "pessimists" (mostly influenced by geological considerations) expect that it will become increasingly difficult to balance the increase in demand by a sufficient rise in supply. As a consequence production will not be able to follow demand and, after a short phase of stagnation, will decline inescapably… But it would be much more appropriate to leave these misleading categories behind and to speak in future only about "realistic" and "unrealistic" views. This topic is not a matter of belief anymore… Recent developments are in obvious contrast to the assertions of the optimists, which don't foresee any problems in the availability of oil for the next 20-30 years. But they now acknowledge that price increases might be possible.

(Zittel W et al., 2004, pp. 1-15)

References:

King Hubbert M (1956). *Nuclear Energy and Fossil Fuels.* Shell Development Company. Houston, TX.

Zittel W et al (2004). The Countdown for the Peak of Oil Production has Begun – but what are the Views of the Most Important International Energy Agencies. [http://www.odac-info.org/links/documents/LBST_Countdown_2004-10-12.pdf]

Illsutration 5. *International energy-related events and cooperative frameworks: 1967 – 2006*

Precursor events / Pioneering initiatives (1960's and 1970's)

- The Manabe and Wetherland Sudy (1967):[142] Concern of raising temperatures due to increasing levels of CO2 in the atmosphere begin to be studied and reported in textbooks on climatology.
- United Nations Conference on the Human Environment (Stockholm, 1972)

Note that the original concept of "autonomous" house was first proposed by Alexander Pike, lecturer at the University of Cambridge School of Architecture, leading up to the UN Conference. Hope of curtailing urban growth with attention on both rural and urban settlement problems.

- YUM KIPUR WAR & OPEC embargo (1973): First energy crisis.
- IRANIAN REVOLUTION & Hostage Crisis and Energy Crisis (1979): Second energy crisis.

Contemporary Developments (80s until present)

- Our Common Future (Brundtland Rapport, 1987) by the World Commission on Environment and Development: General propagation of the concept of sustainable development.
- The Montreal Protocol On Substances That Deplete the Ozone Layer (1987- 1989). Has received widespread adoption.
- Agenda 21 (1992): The major outcome of the Earth Summit held in Rio:

"Because so many of the problems addressed by Agenda 21 have their roots in local activities, the participation and co-operation of local authorities will be a determining factor in fulfilling its objectives... As the level of governance closest to the people, they play a vital role in education, mobilizing and responding to the public to promote sustainable development."

- Patterns of production — particularly the production of toxic components, such as lead in gasoline, or poisonous waste — are being scrutinized in a systematic manner by the UN and Governments alike;
- Alternative sources of energy are being sought to replace the use of fossil fuels which are linked to global climate change;
- New reliance on public transportation systems is being emphasized in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog;
- There is much greater awareness of and concern over the growing scarcity of water (Girardet, AD, p9).[143]

- ISO 14000 is a series of international standards on environmental management. It provides a voluntary framework for the development of an environmental management system and the supporting audit programme. The main thrust for its development came as a result of the Rio Summit on the Environment held in 1992.
- Habitat II (Istanbul, 1996). The UN City Summit. 180 countries signed the *Habitat Agenda* 'as a tool for improving living conditions in the world's cities, and for reducing their impact on the global environment.'[144] Habitat II built on the Habitat I experience but focused on the urbanization process, itself.
- The Kyoto Protocol (1997): to the United Nations Framework Convention on Climate Change is an amendment to the international treaty on climate change, assigning mandatory targets for the reduction of greenhouse gas emissions to signatory nations (Canada ratified the Kyoto Protocol In December 2002)

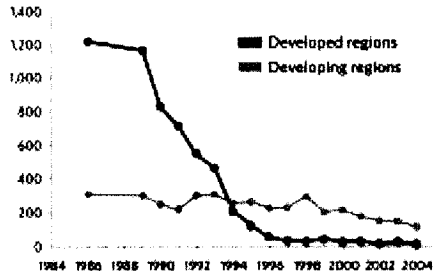
The recent surge in biofuel production has been spurred by several developments. In the United States, ethanol is being blended with gasoline so that MTBE, a toxic additive, can be phased out.10In Europe, Canada, and Japan, biofuels are seen as a key way to comply with the Kyoto Protocol. (Worldwatch institute, page 40)[145]

- The Rotterdam Convention (2004) on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, provides a framework by which the world can monitor and control the trade in pesticides as well as other hazardous chemicals. In September 2005, delegates finalized arrangements for a secretariat and discussed how to integrate the implementation processes of this treaty, the Basel Convention on the Control of Transboundary Hazardous Waste, and the Stockholm Convention on Persistent Organic Pollutants.24 To date, 106 countries have ratified the Rotterdam convention, including France and Germany.25The United States is also a signatory, but it has not yet ratified the treaty. (Worldwatch institute, page 28)
- Habitat III (Vancouver, 2006): World Urban Forum. That most of the world population will be living in cities is accepted, thus attention was placed on not only observing and understanding the urbanizing process, but on putting 'ideas into action.' While the UN official agenda states urban agriculture as at best a "supplement", several initiatives challenged conventional division of labor between country-side as producer of food and cities as consumers of food, asking city officials, architect and designer to consider increased self-sufficiency in the urban realm (see description of Edible Landscapes project and design methodology). Cities (1997) take up only 2% of the world's urban surface yet they use over 75% of the world's resources (Girardet, 1997, AD, p9)

Illsutration 5. *International energy-related events and cooperative frameworks: 1967 – 2006*

Decisive and concerted action results in drastic reductions of ozone-depleting substances

Consumption of all ozone-depleting substances, 1986-2004 (Thousands of metric tons of ozone-depleting potential)

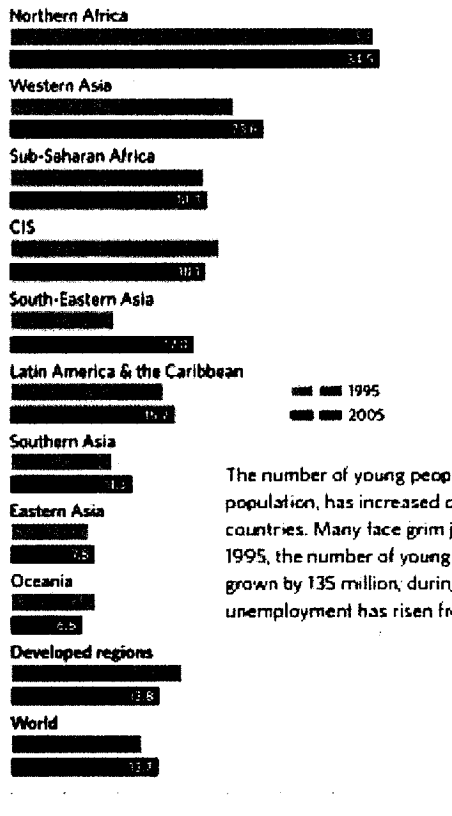


Protection of the ozone layer is a global success story. The 1987 Montreal Protocol catalysed global action to reduce use of chemicals damaging to the ozone layer that shields the earth from ultraviolet radiation. Since that agreement, developed countries have virtually eliminated ozone-depleting substances, and the developing world is not far behind. Without these reductions, ozone depletion would have increased tenfold by 2050 compared to current levels, resulting in millions more cases of melanoma, other cancers and eye cataracts.

(UN, 2006, p.19)

Job prospects for youth have declined in most regions

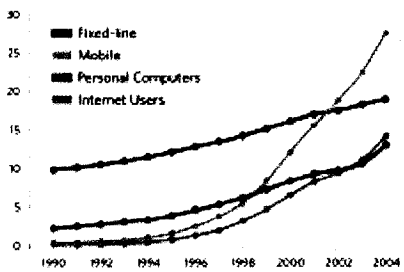
Youth unemployment rates, 1995 and 2005 (Percentage)



The number of young people, and their share in the population, has increased dramatically in developing countries. Many face grim job prospects. Since 1995, the number of young people worldwide has grown by 135 million; during that same period, youth unemployment has risen from 72.8 to 85.7 million.

Access to information and communication technologies grows steadily, but 'digital divide' persists

Proportion of world population with telephone subscriptions, personal computers and internet connections, 1990-2004 (Percentage)



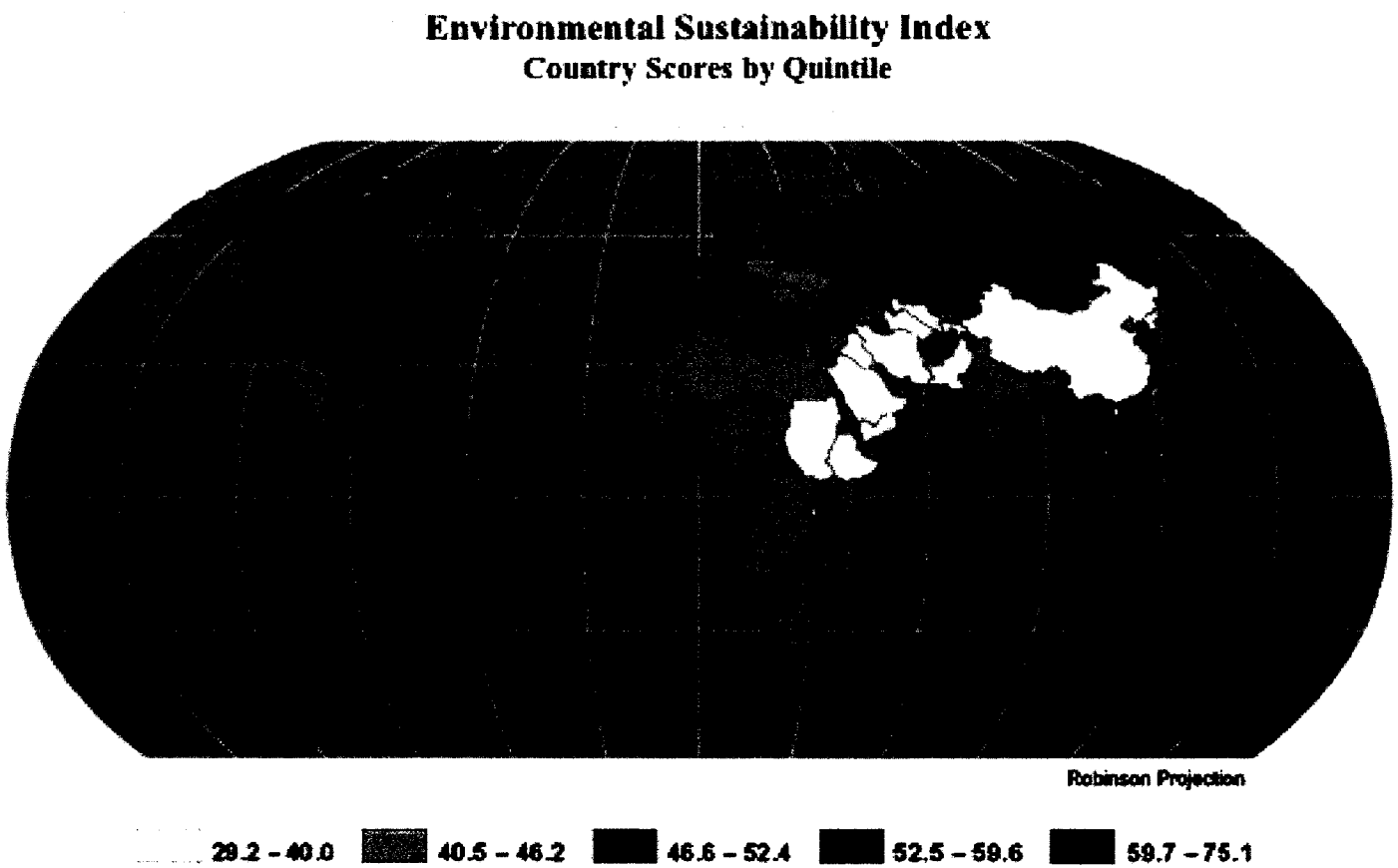
Access to information and communication technologies continues to outpace global economic growth. The number of subscribers to fixed and mobile telephones rose from 530 million in 1990 to almost 3 billion (about half of the world's population) in 2004. Growth has been especially rapid in the mobile sector, which offers access to telecommunications in regions where there is a limited number of fixed lines. In 2004, Africa added some 15 million new mobile phone subscribers. This figure is equivalent to the total number of fixed and mobile telephone subscribers on the continent in 1996.

By the end of 2004, 14 per cent of the world's population were using the Internet, with a large digital divide separating developed and developing regions. Over half the population in developed regions had access to the Internet, compared to 7 per cent in developing regions and less than 1 per cent in the 50 least developed countries.

(UN, 2006, p. 27)

United Nations (2006). The Millennium Development Goals Report.

Illustration 6. *The 2005 National Environmental Stewardship Index (ESI)*



Yale Center for Environmental Law and Policy and Columbia University (2005). 2005 Environmental Sustainability Index: Benchmarking National Environmental Stewardship (ESI). http://sedac.ciesin.columbia.edu/es/esi/index.html

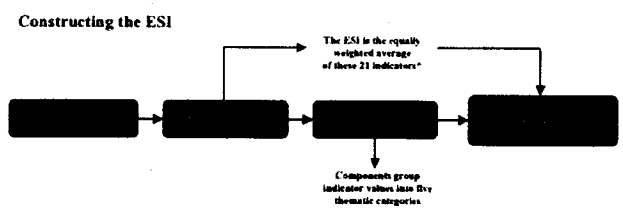
"While absolute measures of sustainability remain elusive, many aspects of environmental sustainability can be measured on a relative basis with results that provide a context for policy evaluations and judgments. Such comparisons are especially important in the new context of worldwide efforts to advance the environment related aspects of the Millennium Development Goals.

Higher ESI scores suggest better environmental stewardship. The five highest-ranking countries are Finland, Norway, Uruguay, Sweden, and Iceland –all countries that have substantial natural resource endowments, low population density, and have managed the challenges of development with some success. The lowest ranking countries are North Korea, Iraq, Taiwan, Turkmenistan, and Uzbekistan. These countries face numerous issues, both natural and manmade, and have not managed their policy choices well."

Ranking:
Finland 1
Norway 2
Canada: 6
Argentina 9
Denmark 26
Japan 30
France 36
United States 45
Cuba 53
Uganda 57
UK 65
Sri Lanka 79
China 133

Illustration 6b. *Calculation of the 2005 National Environmental Stewardship Index (ESI)*

5 Components	21 Indicators (76 variables)
Environmental systems	Water Quality
	Water Quantity
	Biodiversity
	Land
Global Stewardship	Participation in International Collaborative Efforts
	Greenhouse Gas Emissions
	Reducing Transboundary Environmental Pressures
Reducing Environmental Stresses	Reducing Air Pollution
	Reducing Ecosystem Stress
	Reducing Population Pressure
	Reducing Waste & Consumption Pressures
	Reducing Water Stress
	Natural Resource Management
Reducing Human Vulnerabilities	Environmental Health
	Basic Human Sustenance
	Basic Human Sustenance
	Reducing Environment-Related Natural Disaster Vulnerability
Social and Institutional Capacity	Environmental Governance
	Eco-efficiency
	Science and Technology
	Private Sector Responsiveness

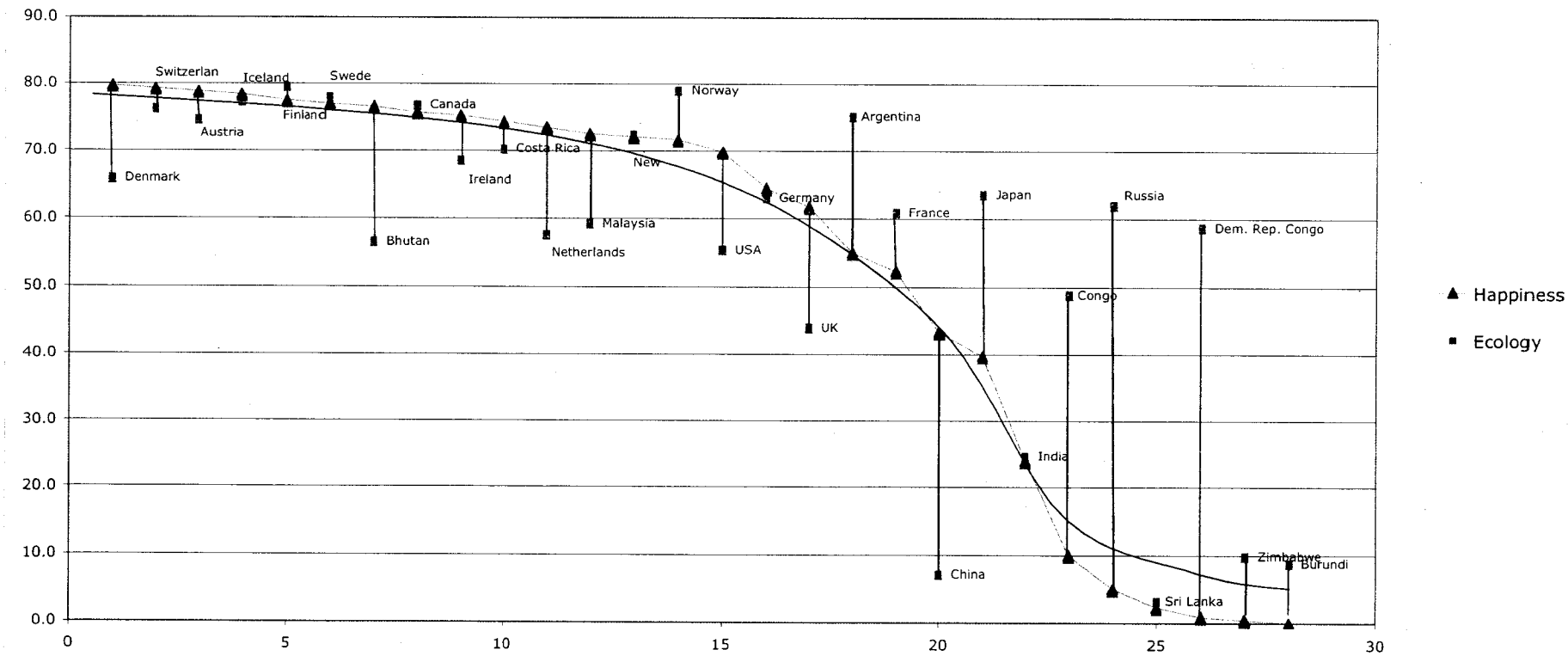


Yale Center for Environmental Law and Policy and Columbia University (2005). 2005 Environmental Sustainability Index: Benchmarking National Environmental Stewardship (ESI). http://sedac.ciesin.columbia.edu/es/esi/index.html

REFERENCES USED IN THE CALCULATION:

Carbon Dioxide Information Analysis Center (CDIAC), plus country data.
Center for Environmental System Research, Kassel University.
Center for International Earth Science Information Network (CIESIN), Columbia University.
Consultative Group on Sustainable Development Indicators (CGSDI).
Convention on Biological Diversity.
Dow Jones SAM Sustainability Group.
Europe Meteorological Synthesizing Centre West and International Institute for Applied Systems Analysis.
Freedom House.
Global Environmental Facility (GEF) and Organisation for Economic Co-operation and Development (OECD).
Innovest Strategic Value Advisors.
International Council for Local Environmental Initiatives (ICLEI).
International Council of Chemical Associations (ICCA).
International Telecommunication Union (ITU).
IUCN-The World Conservation Union Species Survival Commission, Conservation International-Center for Applied Biodiversity Science, and NatureServe.
IUCN-The World Conservation Union.
Organisation for Economic Co-operation and Development (OECD) and United Nations Human Settlement Programme (UNHABITAT), plus country data.
Organisation for Economic Co-operation and Development (OECD), United Nations Human Settlement Programme (UNHABITAT), World Health Organization, European Environment Agency, and World Resources Institute, plus country data.
Organisation for Economic Co-operation and Development (OECD), World Trade Organization, and European Commission's Directorate General Agriculture.
Polity IV Project, University of Maryland.
Population Reference Bureau (PRB).
Redefining Progress, plus country data.
Reinhard Peglau, Federal Environmental Agency, Germany.
South Pacific Applied Geoscience Commission (SOPAC).
Stockholm Environment Institute at York.
The Forest Stewardship Council, and Pan-European Forest Certification Council.
The Nature Conservancy and World Wildlife Fund.
The World Bank.
Union of International Associations.
United Nations Commodity Trade Statistics database (COMTRADE).
United Nations Development Programme (UNDP) Bureau for Crisis Prevention and Recovery.
United Nations Educational, Scientific and Cultural Organization (UNESCO), plus country data.
United Nations Environment Program - World Conservation Monitoring Centre (UNEP-WCMC), plus country data.
United Nations Environment Programme (UNEP) plus country data.
United Nations Food and Agricultural Organization (FAO), plus country data.
United Nations Framework Convention on Climate Change (UNFCCC), Organization for Economic Cooperation and Development (OECD), and Intergovernmental Panel on Climate Change (IPCC), plus country data.
United Nations Framework Convention on Climate Change (UNFCCC), Vienna Convention on the Protection of the Ozone Layer, Convention on the Trade in Endangered Species (CITES), Basel Convention on the Transboundary Movement of Hazardous Waste, United Nation
United Nations Statistics Division (UNSD) plus country data.
United Nations Statistics Division, Millennium Indicator Database.
United States Energy Information Agency, plus country data.
US Energy Information Agency (EIA).
US Energy Information Agency.
World Bank, plus country data.
World Economic Forum (WEF).
World Health Organization (WHO) and United Nations Children's Fund (UNICEF), plus country data.
Yale Center for Environmental Law and Policy (YCELP) Knowledge Divide Project, plus country data.

Illustration 7. *Correlating the World Happiness with Environmental Stewardship: 28 Nations*



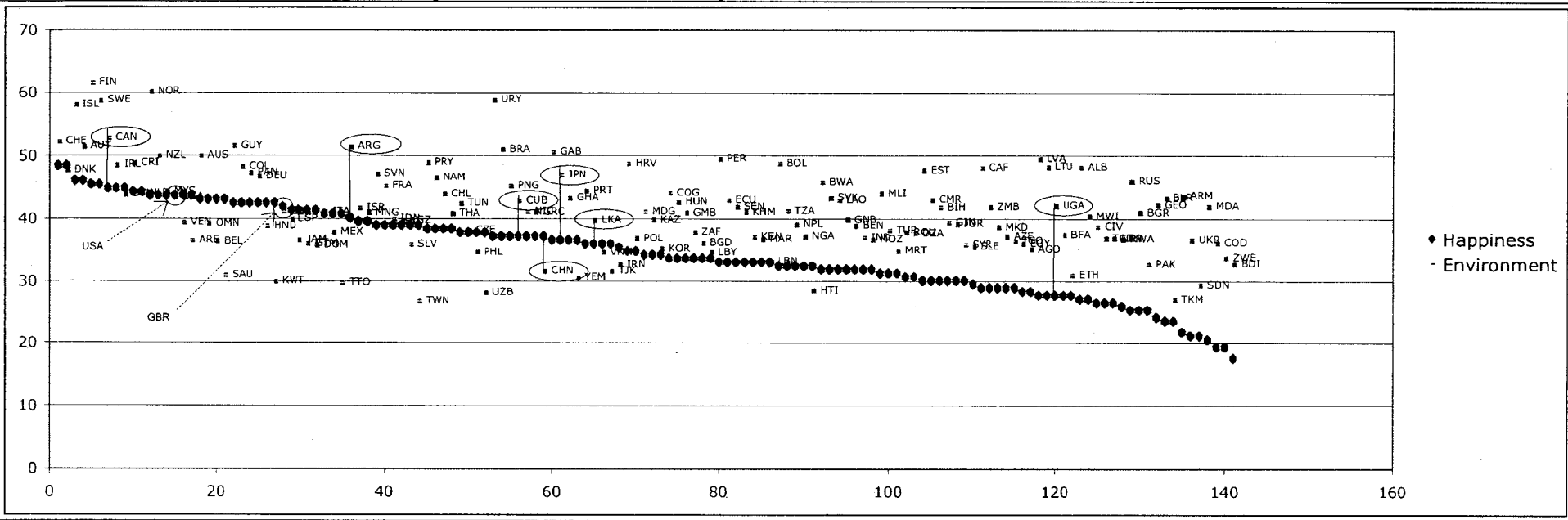
10 "happiest nations" | 15 special cases | 3 sad nations

Sample = 28 **Correlation (Ecology, Happiness) = 0.71** **Standard Deviation = 26.8**

Note: the two benchmark indices have been weighted to adjust for differences in sizes of sample and standard deviations.

Sources: Rune Kongshaug (Graphics and Correlation)
Yale Center for Environmental Law and Policy and Columbia University (2005). 2005 Environmental Sustainability Index: Benchmarking National Environmental Stewardship (ESI). http://sedac.ciesin.columbia.edu/es/esi/index.html
World Happiness Map (2006) University of Leicester, UK: http://www2.le.ac.uk/ebulletin/news/press-releases/2000-2009/2006/07/nparticle.2006-07-28.2448323827 and http://forum.skyscraperpage.com/showthread.php?t=111826&page=2

Illustration 7b: *Correlating World Happiness Map with Environmental Stewardship: 141 Nations*



Sample = 141 **Correlation (Happiness, Environment) = 0.37** **Standard Deviation = 7.5**

Note: the two benchmark indices have been weighted to adjust for differences in sizes of sample and standard deviations.

CODE	Country (alphabetical order)
ALB	Albania
DZA	Algeria
AGO	Angola
ARG	Argentina
ARM	Armenia
AUS	Australia
AUT	Austria
AZE	Azerbaijan
BGD	Bangladesh
BLR	Belarus
BEL	Belgium
BEN	Benin
BTN	Bhutan
BOL	Bolivia
BIH	Bosnia and Herze.
BWA	Botswana
BRA	Brazil
BGR	Bulgaria
BFA	Burkina Faso
BDI	Burundi
KHM	Cambodia
CMR	Cameroon
CAN	Canada
CAF	Central Afr. Rep.
TCD	Chad
CHL	Chile
CHN	China
COL	Colombia
COG	Congo
CRI	Costa Rica
CIV	Côte d'Ivoire
HRV	Croatia
CUB	Cuba
CZE	Czech Rep.
COD	Dem. Rep. Congo
DNK	Denmark
DOM	Dominican Rep.
ECU	Ecuador
EGY	Egypt
SLV	El Salvador
EST	Estonia
ETH	Ethiopia
FIN	Finland
FRA	France
GAB	Gabon
GMB	Gambia
GEO	Georgia
DEU	Germany
GHA	Ghana
GRC	Greece
GTM	Guatemala
GIN	Guinea
GNB	Guinea-Bissau
GUY	Guyana
HTI	Haiti
HND	Honduras
HUN	Hungary
ISL	Iceland
IND	India
IDN	Indonesia
IRN	Iran
IRL	Ireland
ISR	Israel
ITA	Italy
JAM	Jamaica
JPN	Japan
JOR	Jordan
KAZ	Kazakhstan
KEN	Kenya
KWT	Kuwait
KGZ	Kyrgyzstan
LAO	Laos
LVA	Latvia
LBN	Lebanon
LBY	Libya
LTU	Lithuania
MKD	Macedonia
MDG	Madagascar
MWI	Malawi
MYS	Malaysia
MLI	Mali
MRT	Mauritania
MEX	Mexico
MDA	Moldova
MNG	Mongolia
MAR	Morocco
MOZ	Mozambique
NAM	Namibia
NPL	Nepal
NLD	Netherlands
NZL	New Zealand
NIC	Nicaragua
NER	Niger
NGA	Nigeria
NOR	Norway
OMN	Oman
PNG	P. N. Guinea
PAK	Pakistan
PAN	Panama
PRY	Paraguay
PER	Peru
PHL	Philippines
POL	Poland
PRT	Portugal
ROU	Romania
RUS	Russia
RWA	Rwanda
SAU	Saudi Arabia
SEN	Senegal
SLE	Sierra Leone
SVK	Slovakia
SVN	Slovenia
ZAF	South Africa
KOR	South Korea
ESP	Spain
LKA	Sri Lanka
SDN	Sudan
SWE	Sweden
CHE	Switzerland
SYR	Syria
TWN	Taiwan
TJK	Tajikistan
TZA	Tanzania
THA	Thailand
TGO	Togo
TTO	Trinidad & Tobago
TUN	Tunisia
TUR	Turkey
TKM	Turkmenistan
UGA	Uganda
UKR	Ukraine
ARE	United Arab Em.
GBR	United Kingdom
USA	United States
URY	Uruguay
UZB	Uzbekistan
VEN	Venezuela
VNM	Viet Nam
YEM	Yemen
ZMB	Zambia
ZWE	Zimbabwe

Illustration 8: Moonraker.

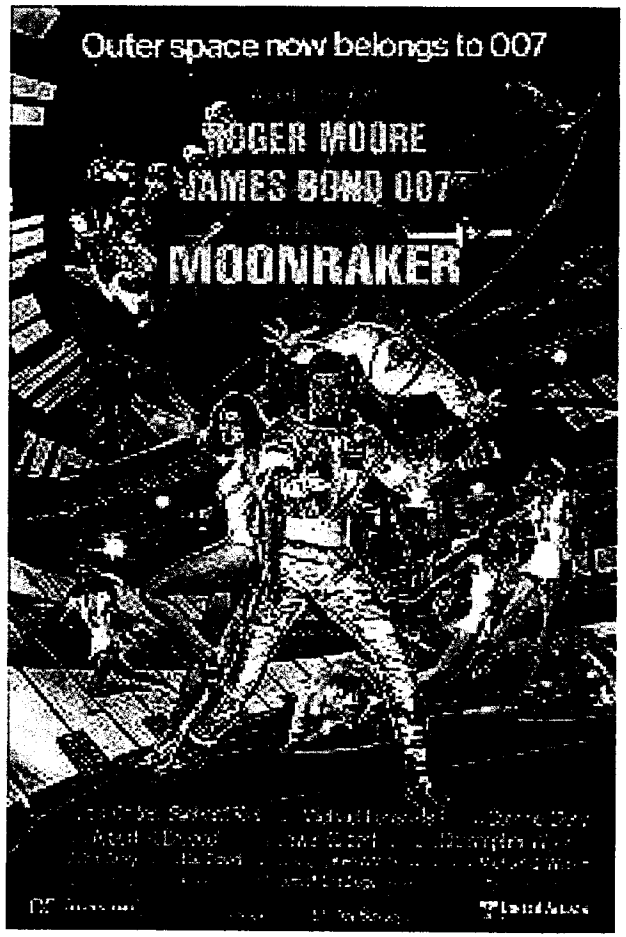


Illustration 9. Map of World Happiness