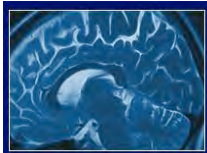


A Whole Life



An Integrated Approach to Sustainable Well-being

Donal MacCoon, Ph.D.



*The Waisman Laboratory
for Brain Imaging and Behavior*



Madison Psychiatric Associates

sustainable**wellbeing**.org

What are we integrating?

Mind, Body, Spirit
Self, Community, Planet
7 generations



To what end?

Resolving BIG problems through
Sustainable Well-being (SWB)

How?

Lifestyle change
Decreased emotional reactivity
Mindfulness as one way





Trading

- Requires decreased emotional reactivity
 - Ed Seykota group is all about emotion regulation
 - Dennis Richard's turtles all about systems that allow one to stay with the probabilities
 - Black Swans (Nassim Taleb)
- 10% entries & exits, 30% money management, & 60% personal psychology (Van Tharp)
- It's about a system not the individual ego

Where does business fit in
with sustainable well-being?

2 Types of Control



Coercive



Non-coercive

Capitalism is non-coercive control

- Why would we, as a society, want business to be able to do what it does?
- Because it's non-coercive & yet effective at maximizing the common good
 - Pursue self-interest & common good takes care of itself

Change is needed if...

- It fails to maximize the common good
 - Can occur when incentives are out of wack (e.g., true costs are not included)
- and/or becomes coercive
 - At what point does this occur?
 - When you have no health care?
 - No home?

Socially Responsible Business

- An oxymoron
- Why should we expect biz to be responsible to anyone other than shareholders/owners?
- Is change likely to come from business?
- It's not the job of business people to be socially responsible
- It's the job of human beings / citizens

One thesis

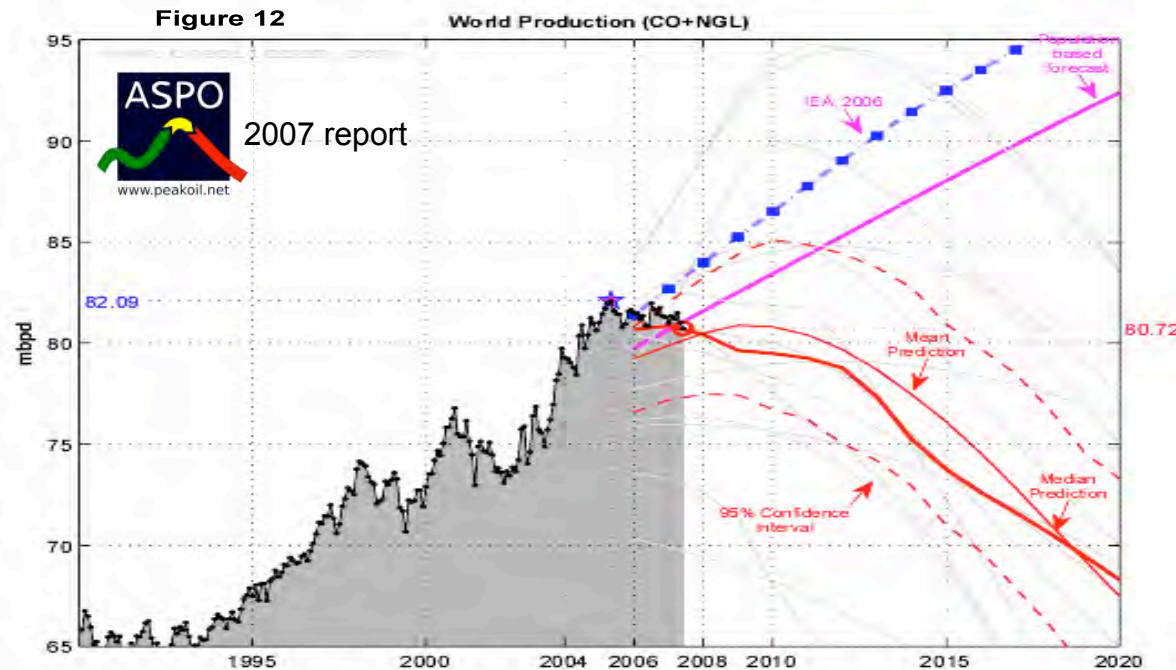
- Capitalism has become fairly coercive
- It is failing to maximize the common good
- WE need to change the incentives



2007 Nobel Prize
IPCC & Al Gore

- Water scarcity
 - 75-250 million by 2020 in Africa
 - Up to 50% decline in agriculture
- Ecosystem: 20-30% extinctions
- Food shortages
- Coasts: .4 - 1.4 m rise in sea level is best case stabilization scenario
- Health: malnutrition, disease, heat/floods/droughts
 - WHO estimate: 150k annual deaths (McMichael, 2001; McMichael et al., 2004)

Peak oil & natural gas



- Never run out
- Is cheap oil significant?
 - 400 g/yr to feed each American [1]
 - Work of 1 g of oil in agriculture = 120 hrs of human labor [2]
 - \$483,840/yr (\$10.08/hr, [3]) to maintain food production w/o oil

[1] Food, Land, Population and the U.S. Economy, Pimentel, David and Giampietro, Mario, Cornell University, College of Agriculture and Life Sciences, Carrying Capacity Network, 11/21/1994

[2] Food, Land, Population and the U.S. Economy, Pimentel, David and Giampietro, Mario, Cornell University, College of Agriculture and Life Sciences, Carrying Capacity Network, 11/21/1994

[3] United States Dept of Labor, Bureau of Labor Statistics, May 9, 2008



- Widespread use of human-made chemicals begins in 1950's (Vomsaal, 1996)

What we don't know about chemicals

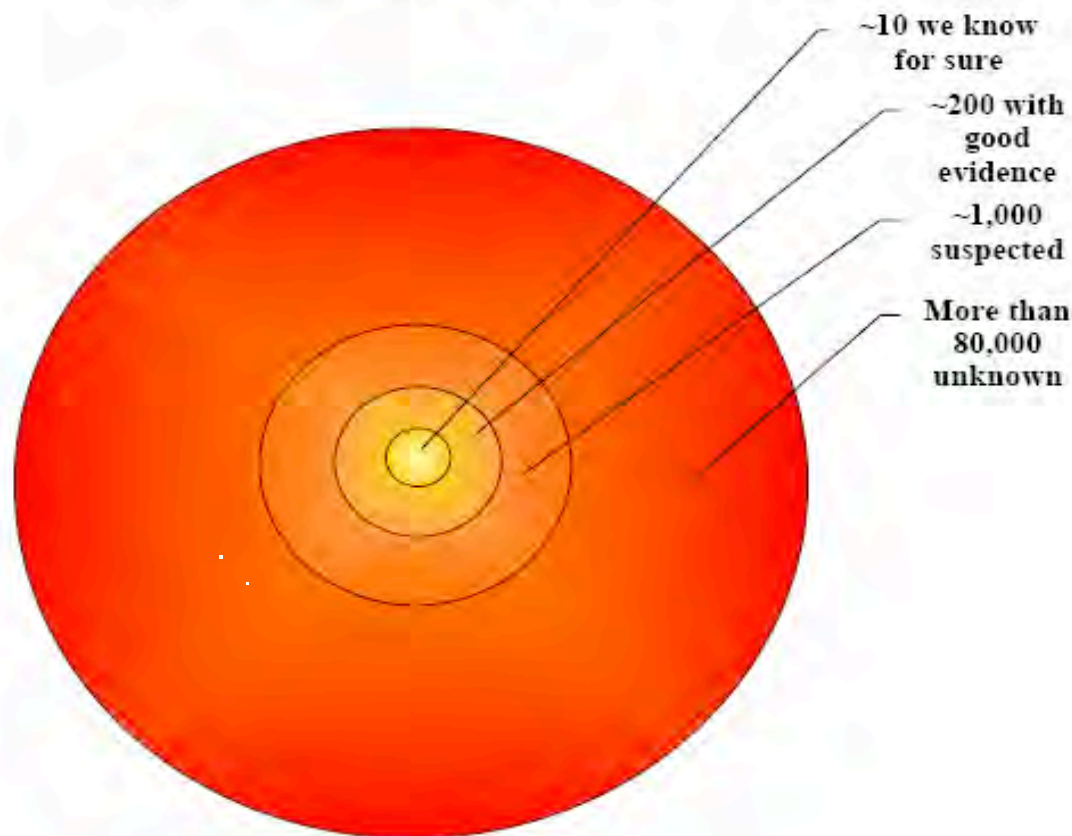


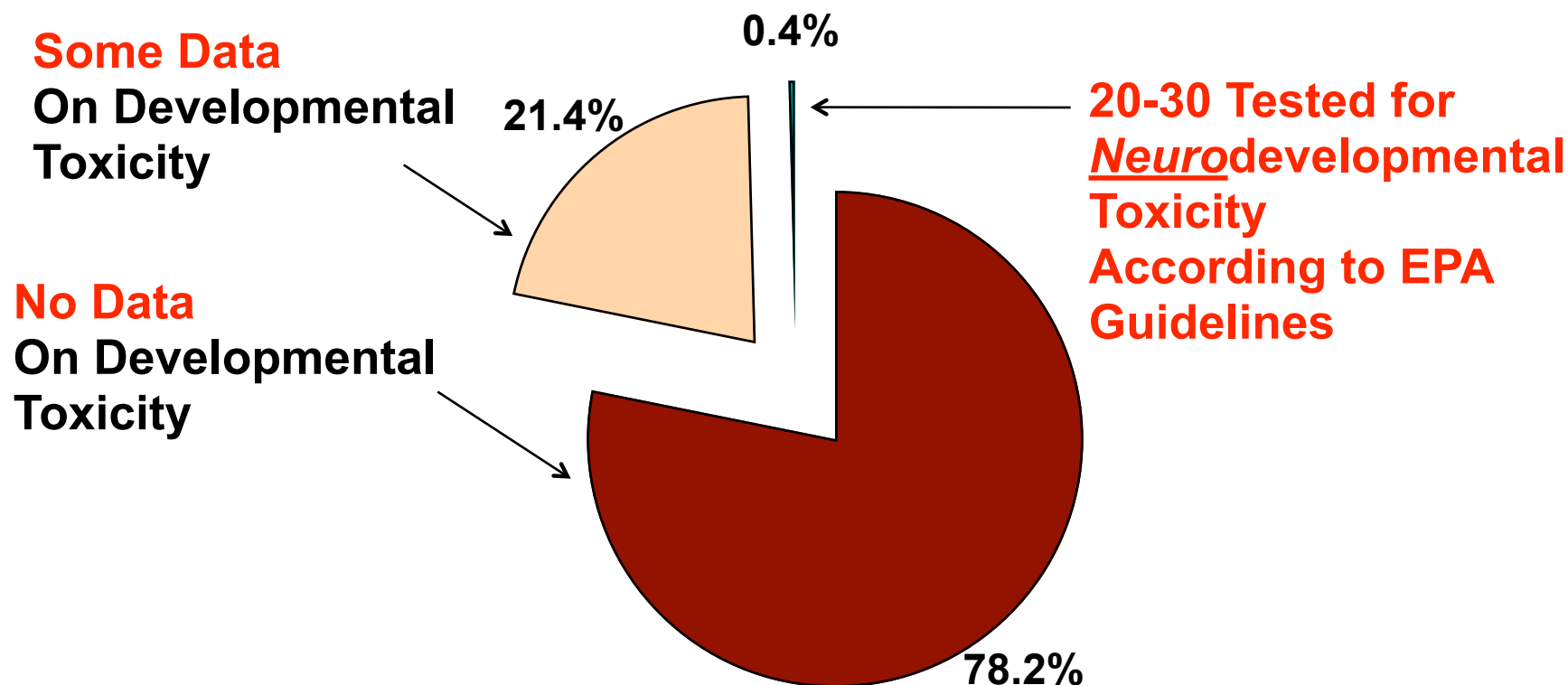
Figure 2.



The Collaborative on Health & the Environment (CHE)
Consensus Statement 2007

CHE info courtesy of Dr. Lucille Marchand, UW- Madison

Status of Developmental Toxicity Testing for the 2,863 Chemicals Produced *Above 1 million pounds/year*





BodyBurden **The Pollution in Newborns**

A benchmark investigation of industrial chemicals, pollutants, and pesticides in human umbilical cord blood

Body Burden: The Pollution in Newborns

A benchmark investigation of industrial chemicals, pollutants and pesticides in umbilical cord blood

*Environmental Working Group, July 14, 2005
10 newborns, \$10,000/baby for study*

287 chemicals detected:

- **180 cause cancer in humans or animals**
- **217 are toxic to the brain and nervous system**
- **208 cause birth defects or abnormal development in animal tests**

<http://www.ewg.org/reports/bodyburden2>

See also: Centers for Disease Control and Prevention. (2005) Third National Report on Human Exposure to Environmental Chemicals. Atlanta (GA): CDC Available at: <http://www.cdc.gov/exposurereport/report.htm>

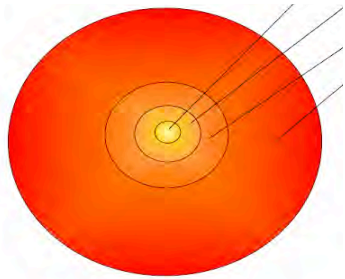
Slide courtesy of Dr. Martha Herbert, Harvard



Interactions & low doses

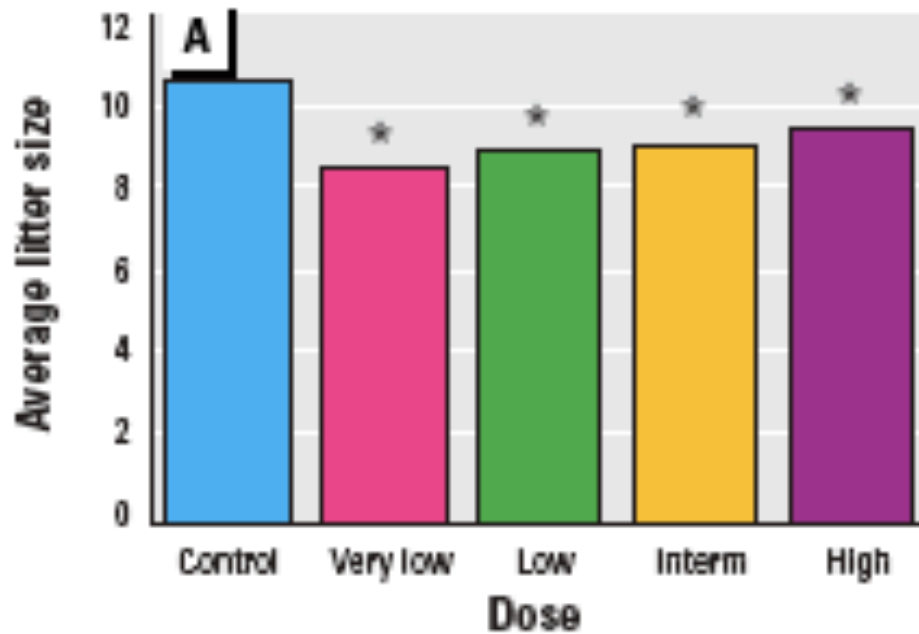
- aldicarb (insecticide), atrazine (herbicide), & nitrate (fertilizer)
 - Aggression
 - Thyroid
 - Immune

Porter, Jaeger, & Carlson (1999)



How many 2 & 3-way interactions from 80k chemicals?

- Over 85 trillion (85,303,200,000,000)
- 50,683 lifetimes just to count them
(at 2 per sec)



- Low doses can matter more (Cavieres, Jaeger, & Porter, 2002)

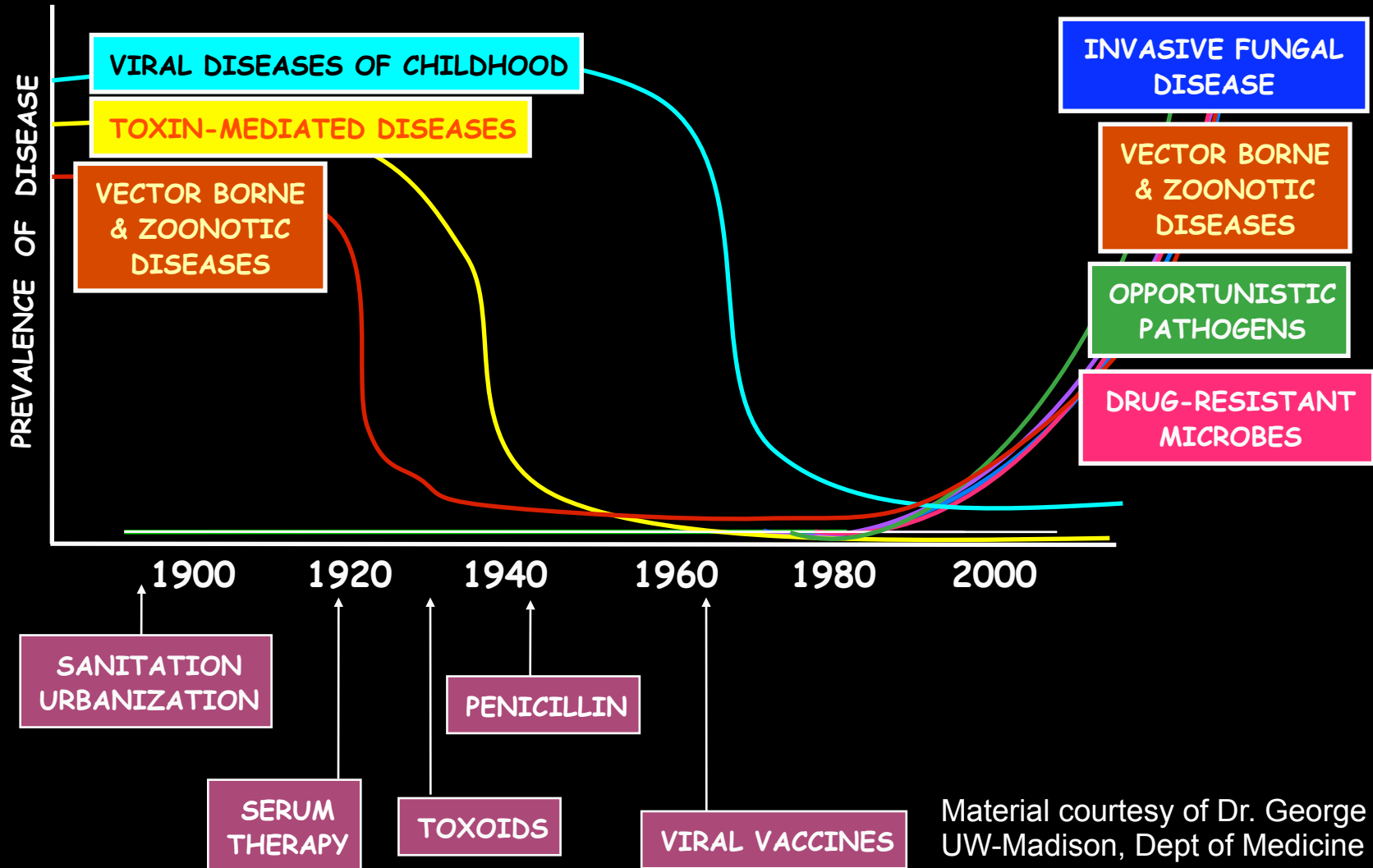
Last lifetime being infection free?

“One can think of the middle of the 20th century as the end of the most important social revolutions in history – the virtual elimination of infectious disease as a significant factor in social life.”

Sir M. Burnet, 1962
Nobel Laureate

Material courtesy of Dr. George Mejicano,
UW-Madison, Dept of Medicine

Emerging Infectious Diseases



Material courtesy of Dr. George Mejjano, UW-Madison, Dept of Medicine

DRUG-RESISTANT MICROBES

- Acinetobacter
- S. pneumoniae
- VRE
- MRSA, VISA, & VRSA
- MDR-TB, XDR-TB
 - Airborne
 - South Africa: 52 of 53 died (WHO, 2006)

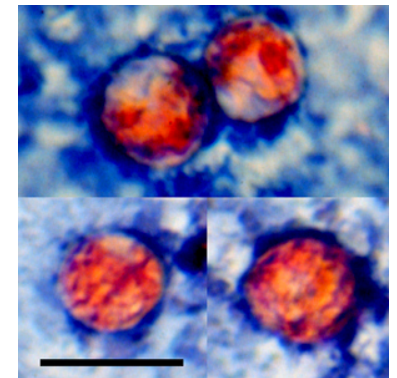
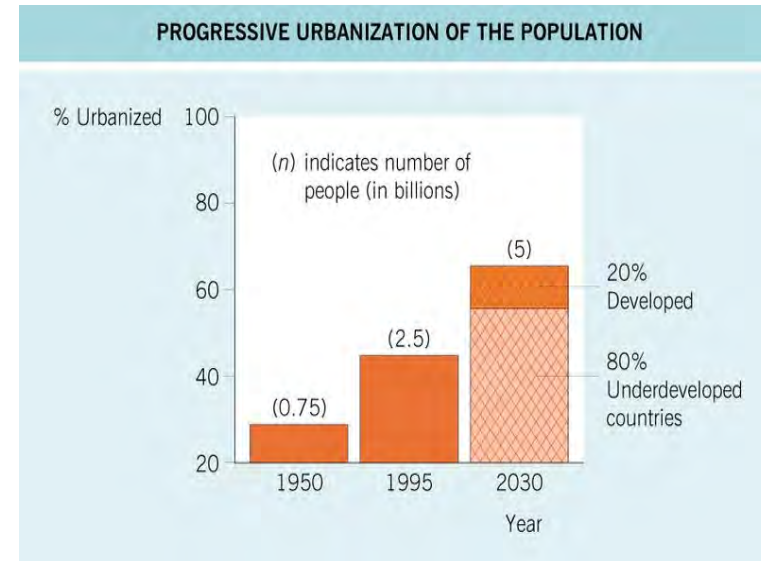
CDC, WHO

Photo courtesy of Dr. George Mejicano,
UW-Madison, Dept of Medicine



Major Factors Contributing to the Emergence of Infectious Diseases

- Human demographics and behavior
 - urbanization
- Industry and commerce
 - Over use of antibiotics in animals creates drug-resistant bacteria
 - Huge farms: animals close proximity
 - Non-local food: cyclospora parasite



Material courtesy of Dr. George Mejicano,
UW-Madison, Dept of Medicine



Courtesy Kellogg Schwab, Johns Hopkins

Swine Factory Creates Airborne MDR Bacteria

- Most antibiotics are not used to treat disease but to increase growth and feeding efficiency
- *Enterococcus* and other bacteria isolated from air sample at swine feeding facility
- 98% resistant to 2 or more antibiotics used in humans (and approved for use in swine feed)
- 0% resistant to vancomycin (not legal for swine feed)

Environ Health Perspect 113:137-142 (2005)



Major Factors Cont'd

- Economic development and land use
- International travel
- Microbial adaptation and change
- Breakdown of public health measures



Material courtesy of Dr. George Mejicano,
UW-Madison, Dept of Medicine

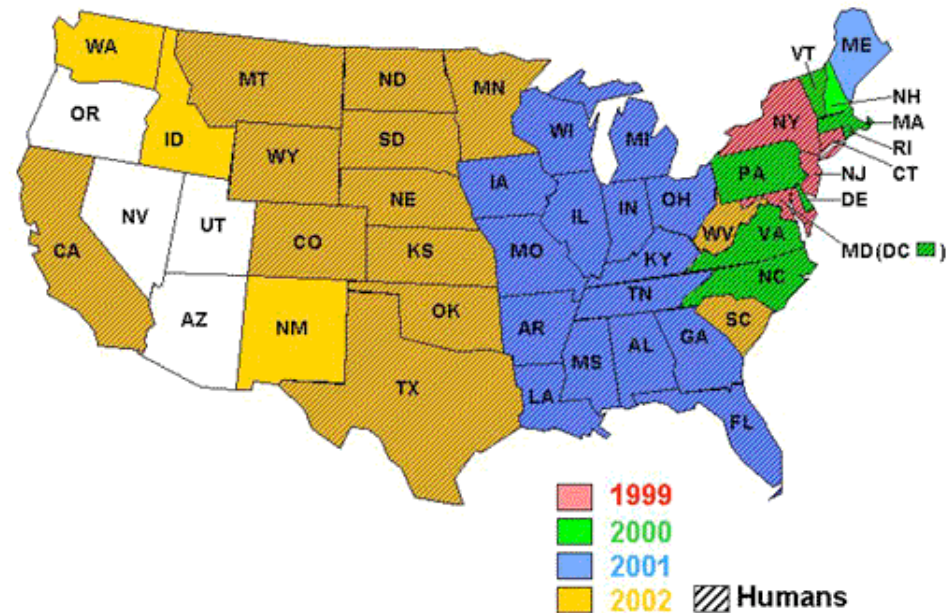


Infectious Disease



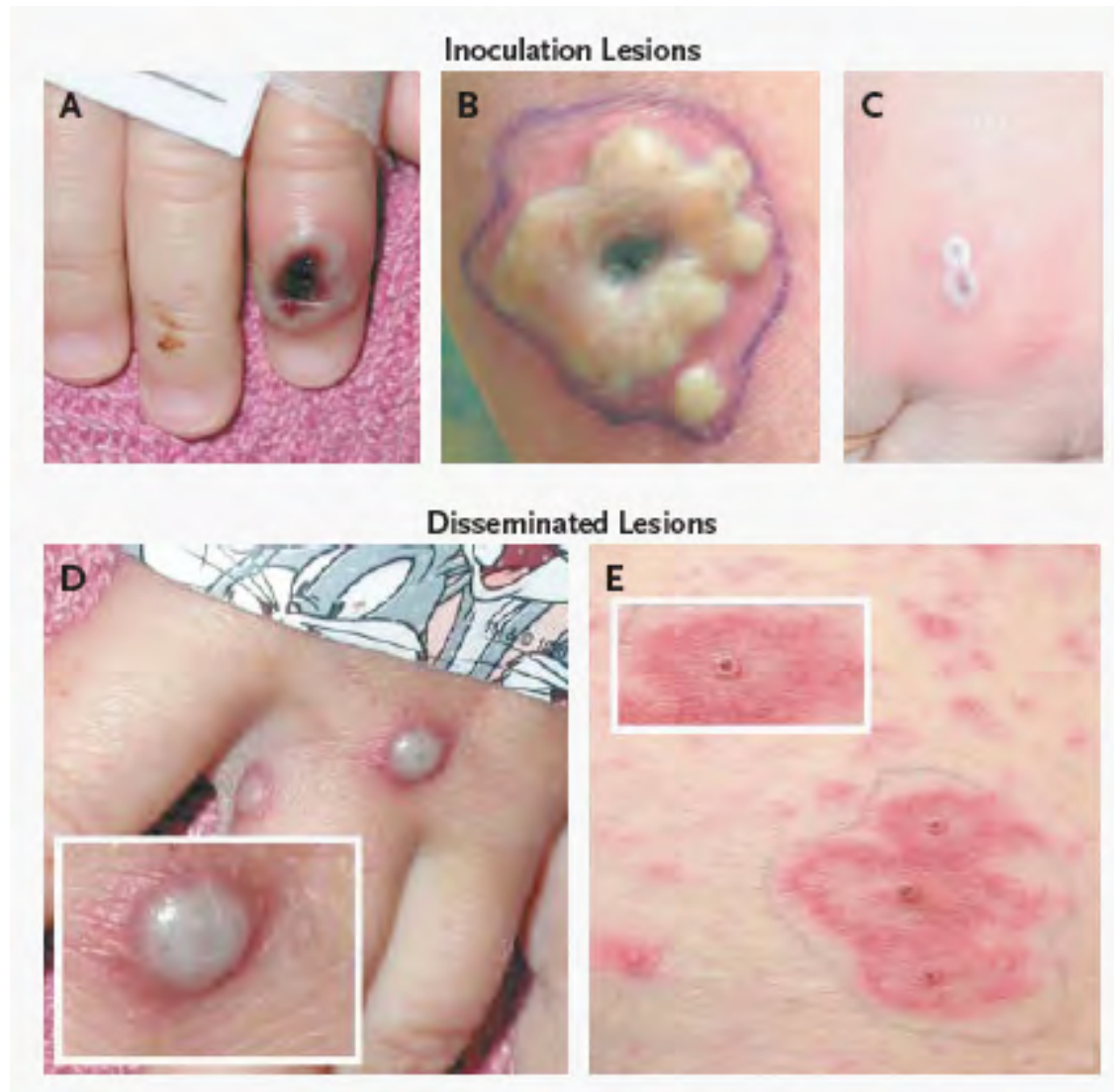
- Ship ballast water contains cholera
- West Nile Virus
 - Mosquito arrives by plane on an abnormally hot July in 1999
 - By 2002, birds have spread it across U.S.
- Climate change story
 - e.g., Malaria & mosquito incubation time (Patz & Olson, PNAS, 2006)

West Nile Virus in the United States, 1999 - 2002



Some material courtesy of Dr. George Mejicano, UW-Madison, Dept of Medicine

New infectious Disease in U.S. + Drug resistance?



[NEJM 2004; 350(4): 342-50]

Material courtesy of Dr. George Mejicano,
UW-Madison, Dept of Medicine



Spanish Flu (1918-1919)

- 20-100 million died, Samoa lost 25%
- Killed more people than WWI (8.5 m)
- Not if, but when
- 62 million deaths today



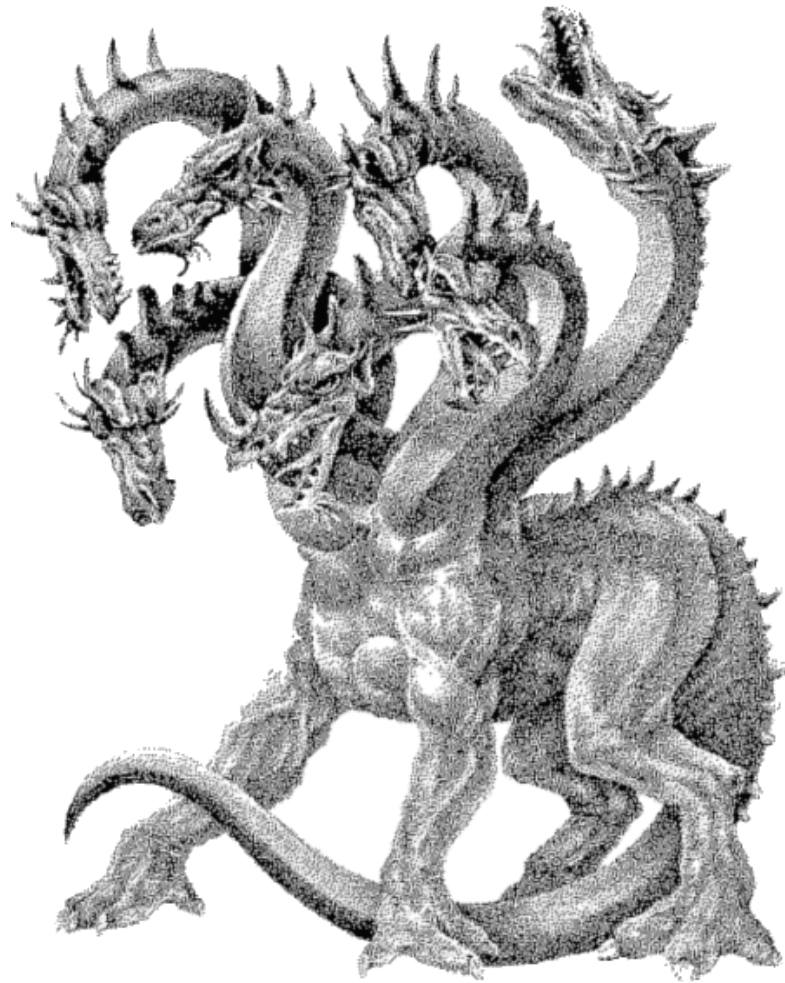
Mexico flu 'a potential pandemic'

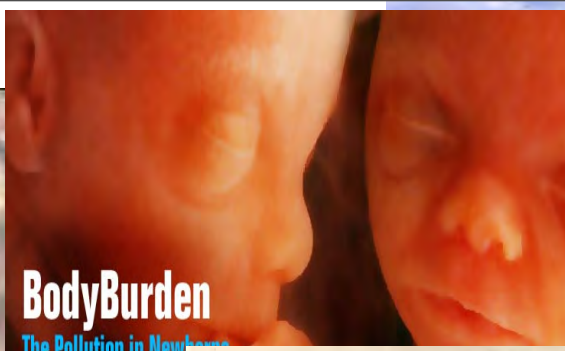
- A new flu virus suspected of killing at least 60 people in Mexico has the potential to become a pandemic, the World Health Organization's chief says.
- Margaret Chan said the outbreak was a "health emergency of international concern" and must be closely monitored.
- Health experts say tests so far seem to link the illnesses in Mexico with a swine flu virus in the southern US.
- Several people have also fallen ill in the US, and the authorities there are watching the situation.
- A top US health official said the strain of swine flu, designated H1N1, had spread widely and could not be contained.

4_25_09: <http://news.bbc.co.uk/2/hi/americas/8018356.stm>

Cancer is just a word



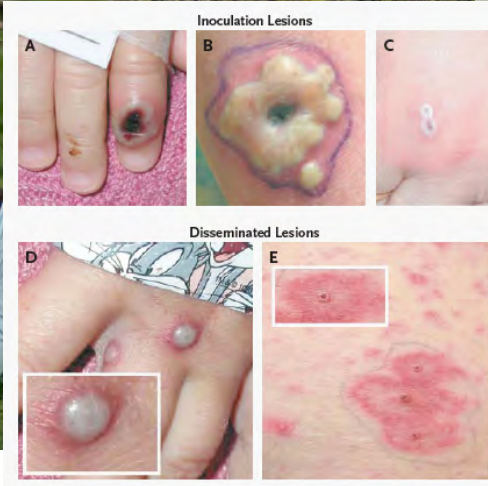
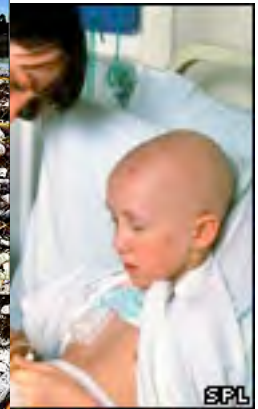




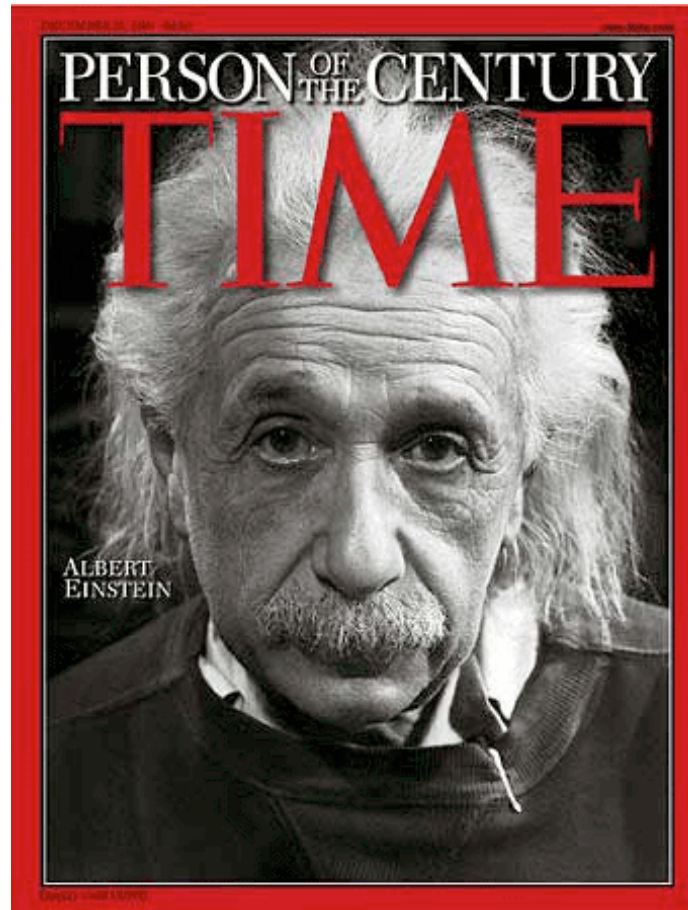
BodyBurden

The Pollution in Newborns

A benchmark investigation of chemicals, pollutants, and pesticides in newborns



Modern life is toxic



“One cannot alter a condition with the same mind set that created it in the first place.”

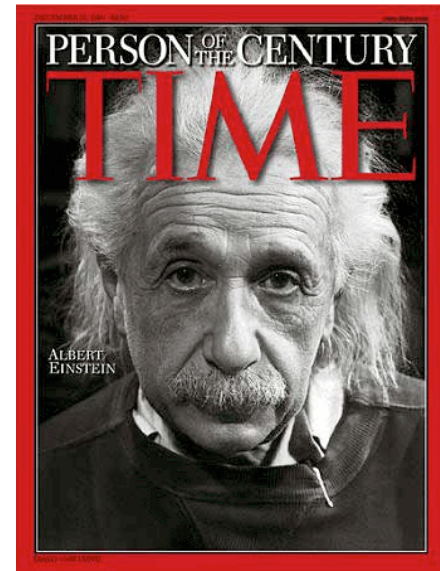
that mind-set is...

THEN

- One problem at a time
- Separate from nature
- Specialization
- Technology/reason/
knowledge will save us

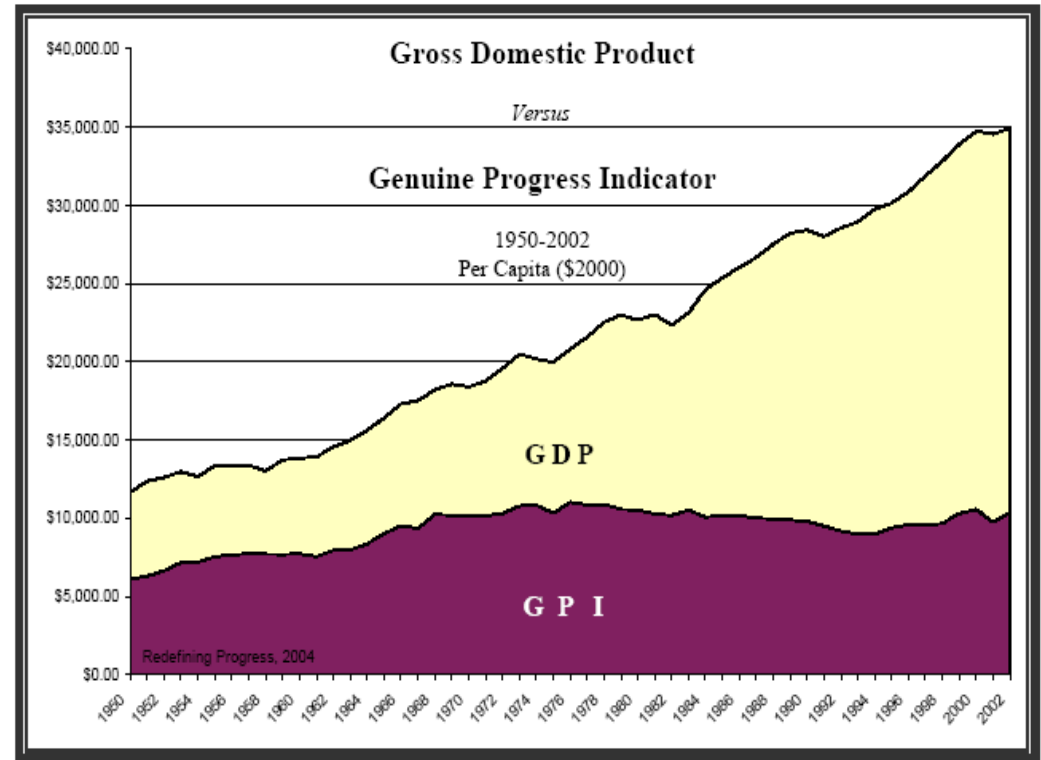
NOW

vs. solve by making it bigger
vs. part of
vs. integrating across fields
vs. importance of integrating
emotion for wisdom



GDP vs. other measures

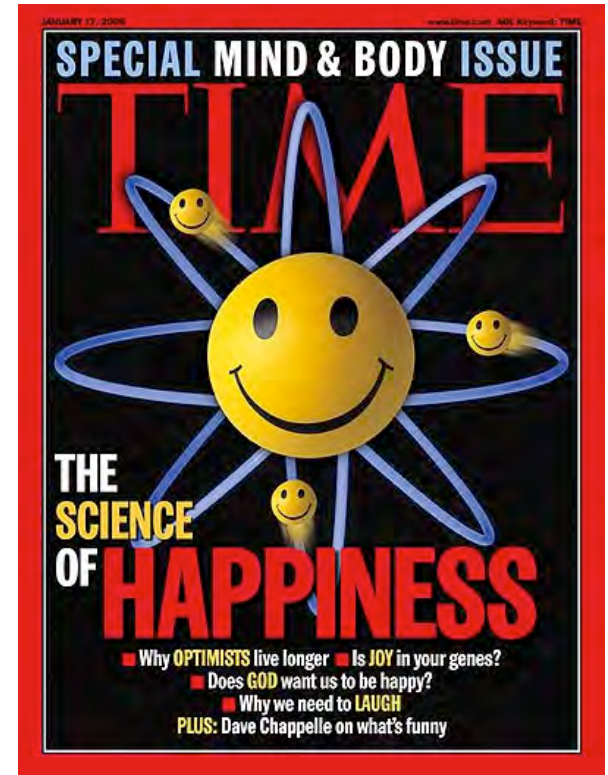
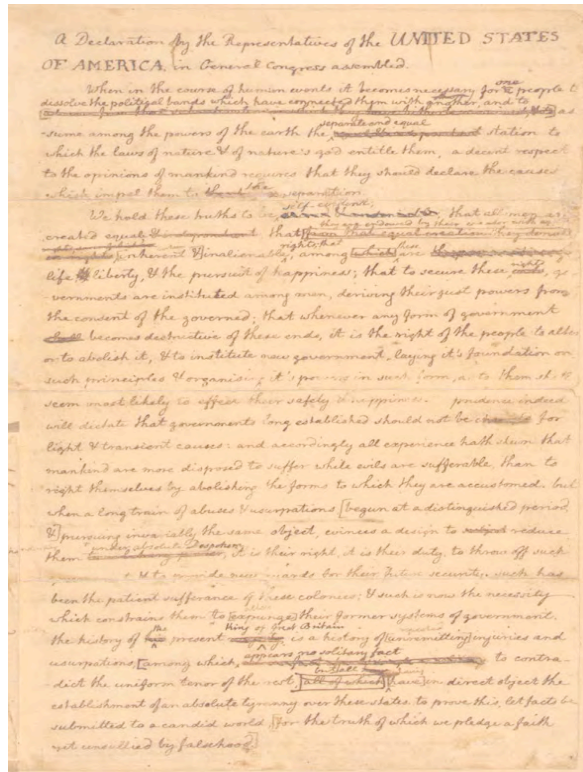
- GDP
 - Muggings & divorce good for GDP
 - Services with no \$ exchange don't count
- GPI
 - Destructive \$ subtracted not added: CO2, commuting, loss of leisure time, unfair income distribution
 - Volunteer & house work, etc. included



Gross Production vs. Genuine Progress, 1950 to 2002
(Redefining Progress, 2006)



“When the depression ended,
we stopped dancing” (Joe Bonus)



“Salud, amor, y pesetas, y tiempo para gozarlos”

It goes 7.4 miles!

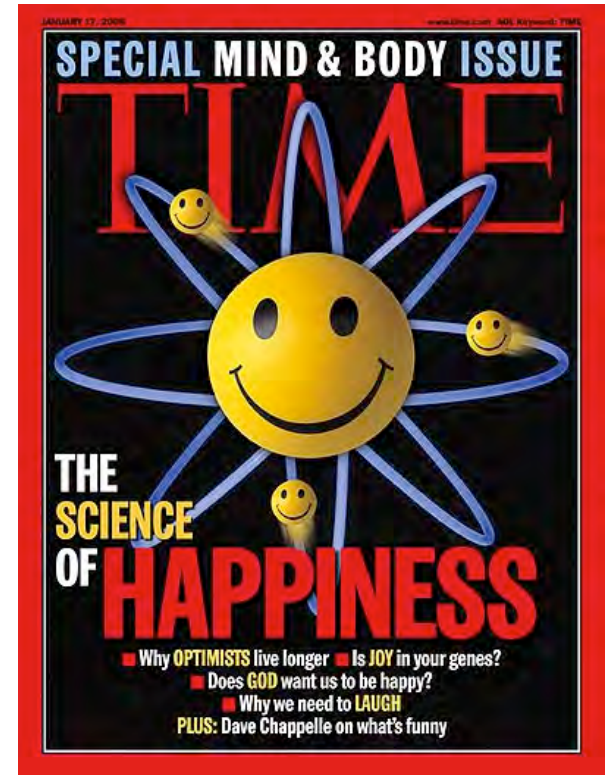


- Denominator
- per hour?
 - til it dies?
 - per gallon?

A Declaration by the Representatives of the UNITED STATES OF AMERICA, in General Congress assembled.

When in the course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that all men are created equal; that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed; that whenever any Form of Government becomes destructive of these ends, it is the right of the people to alter or to abolish it, & to institute new Government, laying its foundation on such principles & organizing it in such form, as to them shall seem most likely to effect their safety & happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light & transient causes; and accordingly all experience hath shewn that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses & usurpations (beginning at a distinguished period) pursuing invariably the same object, evinces a design to reduce them to absolute Despotism, it is their right, it is their duty, to throw off such Government, & to provide new Guards for their future security. Such has been the patient sufferance of these Colonies; & such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To prove this, let facts be submitted to a candid world. For the truth of which we pledge a faith not unswerving by falsehood.



Denominator?

Sustainable Well-Being

Well-being

Resources to get WB

Sustainable Well-Being

(Mental & Physical Health) * Longevity

Ecological Footprint





Externalities



- Socially responsible investing doesn't pay, does it?
- We don't pay the true cost of production (lives)
 - Increased asthma d/t tail-pipe emissions
 - Fish death d/t discharge in water
 - Climate change d/t carbon emissions
- To the extent you do, it's hard to compete
- True Cost (e.g., gas = \$10/gallon)

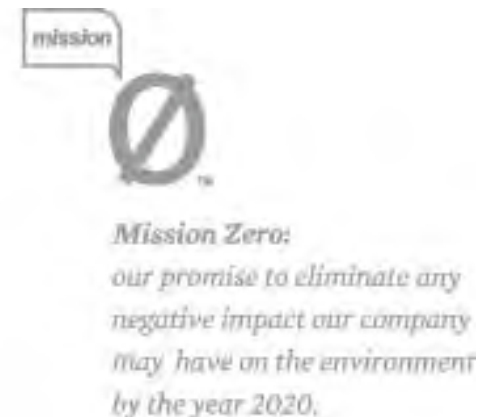




- Began by redesigning one furniture line to eliminate metals, persistent glues, and toxic dyes, reducing energy consumption and increasing material efficiency
- Applying company-wide to increase profits

Interface (U.S.)

- Largest commercial-flooring company
- 1st US company to adopt TNS
- Goal of CEO Ray Anderson: to produce zero waste and to "never take another drop of oil from the ground."
- Saved \$50 million
- Sales have grown \$200 million, topping \$1 billion, without increasing consumption of the earth's resources



- 9/10 Nike shoes now put together with water-based adhesives instead of petrochemical-based solvents
- Eliminates 1.2 million gallons of toxics
- Improves worker safety
- Saves Nike \$4.5 million





WAL★MART

Interview with CEO, H. Lee Scott

October, 2006: Goal is to transform Wal-Mart into a company that runs on 100 percent renewable energy and produces zero waste.

Q. “Were there bottom-line motives as well?”

A. “...It is clearly good for our business. We are taking costs out and finding we are doing things we just do not need to do, whether it be in packaging, or energy usage, or the kind of equipment we buy for refrigeration in our stores, that there are a number of decisions we can make that are great for sustainability and great for bottom-line profit.”

By Amanda Griscom Little

12 Apr 2006

<http://www.grist.org/news/maindish/2006/04/12/griscom-little/>



“But not everyone is happy with Costco's business strategy. Some Wall Street analysts assert that Mr. Sinegal is overly generous not only to Costco's customers but to its workers as well.

Costco's average pay, for example, is \$17 an hour, 42 percent higher than its fiercest rival, Sam's Club. And Costco's health plan makes those at many other retailers look Scroogish. One analyst, Bill Dreher of Deutsche Bank, complained last year that at Costco ‘it's better to be an employee or a customer than a shareholder.’ ”

http://reclaimdemocracy.org/walmart/costco_vs_sams.php

When will change occur on a large scale?



When living trees are worth more than
dead trees (Marty McBroom)

Sustainable Well-Being

(Mental & Physical Health) * Longevity

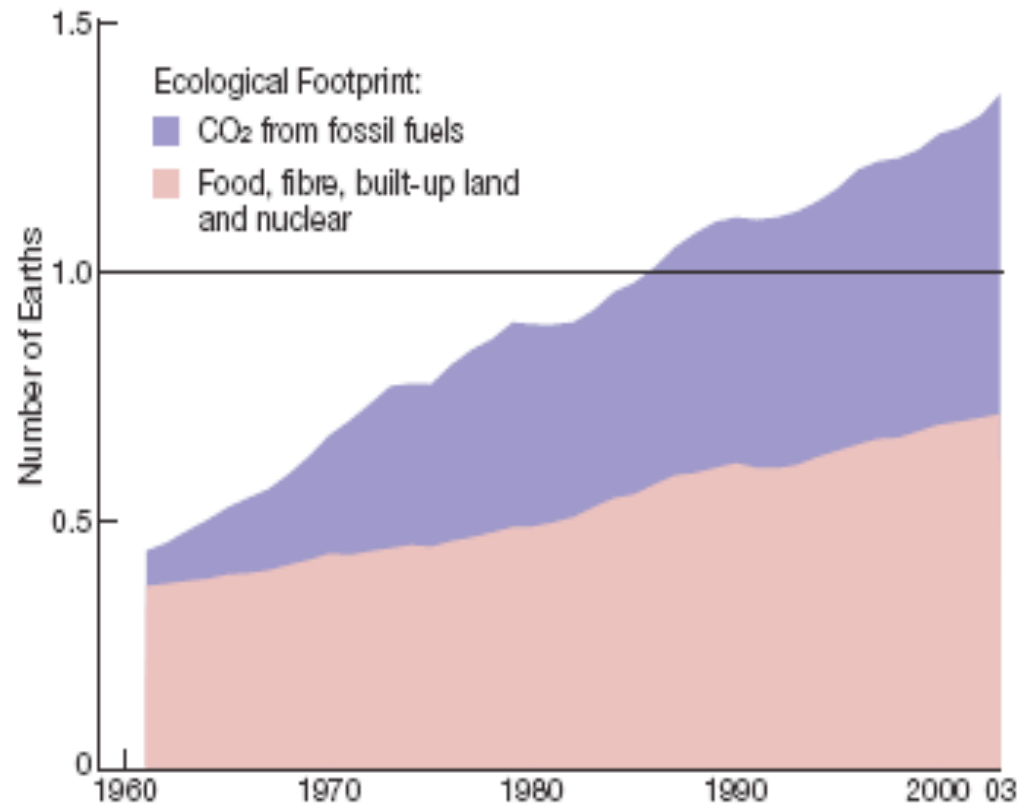
Ecological Footprint





How much of the Earth's resources does your lifestyle require?

Fig. 1: **HUMAN DEMAND ON THE BIOSPHERE, 1961–2003**



Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

How are we doing?

	Life Sat	Life Exp	EF	HPI	Rank
Vanuata	7.4	68.6	1.1	68.2	1
Costa Rica	7.5	78.2	2.1	66	3
Cuba	6.3	77.3	1.4	61.9	6
Switzerland	8.2	80.5	5.3	48.3	65
UK	7.1	78.4	5.4	40.3	108
Sweden	7.7	80.2	7	38.2	119
France	6.6	79.5	5.8	36.4	129
Lithuania	4.7	72.3	3.9	29.3	149
USA	7.4	77.4	9.5	28.8	150
UAE	7.4	78	9.9	28.2	154
Ukraine	3.6	66.1	3.3	22.2	174
Zimbabwe	3.3	36.9	1	16.6	178




"The UnHappy Planet Index"

Sustainable Well-Being

(Mental & Physical Health) * Longevity

Ecological Footprint





Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

Well-being: Physical Health

24th in world for disability adjusted life expectancy

"Basically, you die earlier and spend more time disabled if you're an American rather than a member of most other advanced countries"

Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

Q: Why?

- Some groups (e.g., Native Americans, inner city poor) have extremely poor health, more characteristic of a poor developing country rather than a rich industrialized one
- HIV kills or disables more in U.S. than in most other advanced countries
- U.S. a leader for cancers relating to tobacco
- A high coronary heart disease rate
- High levels of violence, especially of homicides, when compared to other industrial countries (Crime is up 300% from 1950-1980 & still above 1950 levels; Layard, 2005)

A: Social Justice & Lifestyle



Well-being: Mental Health

Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

Table 2. Twelve-Month Prevalence of World Mental Health Composite International Diagnostic Interview/Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*

Country	% (95% Confidence Interval)				
	Anxiety	Mood	Impulse-Control	Substance	Any
Americas					
Colombia	10.0 (8.4-11.7)	6.8 (6.0-7.7)	3.9 (3.2-4.7)	2.8 (2.0-3.7)	17.8 (16.1-19.5)
Mexico	6.8 (5.6-7.9)†	4.8 (4.0-5.8)	1.3 (0.9-1.8)‡	2.5 (1.8-3.3)	12.2 (10.5-13.8)‡
United States	18.2 (16.9-19.5)	9.6 (8.8-10.4)	6.8 (5.9-7.8)	3.8 (3.2-4.5)	28.4 (24.7-28.0)
Europe					
Belgium	6.9 (4.5-9.4)	6.2 (4.8-7.8)§	1.0 (0.3-1.8)‡	1.2 (0.6-1.9)‡‡	12.0 (9.6-14.3)
France	12.0 (9.8-14.2)	8.5 (6.4-10.6)§	1.4 (0.7-2.0)‡	0.7 (0.3-1.2)‡‡	18.4 (15.3-21.5)
Germany	6.2 (4.7-7.6)	3.6 (2.8-4.3)§	0.3 (0.1-0.6)‡	1.1 (0.4-1.7)‡‡	9.1 (7.3-10.8)
Italy	5.8 (4.5-7.1)	3.8 (3.1-4.5)§	0.3 (0.1-0.5)‡	0.1 (0.0-0.2)‡‡	8.2 (6.7-9.7)
Netherlands	8.8 (6.6-11.0)	6.9 (4.1-9.7)§	1.3 (0.4-2.2)‡	3.0 (0.7-5.2)‡‡	14.9 (12.2-17.6)
Spain	5.9 (4.5-7.3)	4.9 (4.0-5.8)§	0.5 (0.2-0.8)‡	0.3 (0.0-0.5)‡‡	9.2 (7.8-10.6)
Ukraine	7.1 (5.6-8.6)†‡	9.1 (7.3-10.9)§	3.2 (2.4-4.0)†‡‡	6.4 (4.8-8.1)‡‡	20.5 (17.7-23.2)
Middle East and Africa					
Lebanon	11.2 (8.9-13.5)	6.6 (4.9-8.2)	1.7 (0.8-2.8)†‡*	1.3 (0.0-2.8)	16.9 (13.6-20.2)
Nigeria	3.3 (2.4-4.2)	0.8 (0.5-1.0)	0.0 (0.0-0.1)†‡**	0.8 (0.3-1.2)	4.7 (3.6-5.8)
Asia					
Japan	5.3 (3.5-7.0)†	3.1 (2.2-4.1)	1.0 (0.4-1.5)†‡**††	1.7 (0.3-3.0)	8.8 (6.4-11.2)
People's Republic of China					
Beijing	3.2 (1.8-4.6)†				
Shanghai	2.4 (0.9-3.9)†				

Source: WHO World Mental Health Survey Consortium (2004), *JAMA*

Q: Why?

1. Glorification of the individual [1]
2. Degradation of the commons [1]
 - Decreased civic involvement (esp. U.S.), 1/2 of which attributed to urban sprawl, T.V. viewing, & time limitations [2, p. 18]
 - Time poverty [3]
 - U.S. works more than any other industrialized country
 - We work nearly 9 full weeks (350 hours) longer per year than our peers in Western Europe

Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

A: Lifestyle

[1] Seligman (1990); [2] State of the World, 2004; [3] <http://www.timeday.org/>

Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

Time Poverty

- **Self - Threatens our health**
 - Leads to fatigue, accidents and injuries
 - Reduces time for exercise
 - Encourages consumption of calorie-laden fast foods
 - Job stress and burnout costs the U.S. economy >\$300 b/yr
- **Community weakened**
 - **Threatens marriages, families & relationships** as we find less time for each other, less time to care for our children and elders, less time to hang out
 - Less time for voting or more involved citizenship
 - Less time to know neighbors, supervise children, & volunteer
- **Planet - Contributes to destruction of our environment:** Lack of time encourages use of convenience and throwaway items and reduces recycling

Sustainable Well-Being

Well-being

Resources to get WB



Resources Used

Life Sat	Life Exp	EF	HPI	Rank
7.4	77.4	9.5	28.8	150

- U.S. uses 6.8 planets worth of resources
- We use more energy/person than any other country (except UAE)
- U.S. & allies outspend all non-allies militarily
- “Providing adequate food, clean water, and basic education for the world’s poorest could all be achieved for less than people spend annually on...

makeup, ice cream, and pet food” (p.10, State of the World, 2004)



Sustainable Well-Being

(Mental & Physical Health) * Longevity

Ecological Footprint



Work more, achieve less, &
destroy the planet in the bargain

What are we integrating?

Mind, Body, Spirit
Self, Community, Planet
7 generations



To what end?

Sustainable Well-being = $\frac{\text{Well-being}}{\text{EF}}$

How?

Lifestyle change
Decreased emotional reactivity



Mindfulness effective for...

- **Anxiety, depression, stress, burnout** (e.g., Cohen-Katz, Wiley, et al., 2005; Ma & Teasdale, 2004; Teasdale, Segal, Williams, et al., 2000)
- **Chronic pain** (Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, & Burney, 1985)
- **Substance abuse** (Bowen, Witkiewitz, Dillworth, et al., 2006)
- **Arthritis** (Pradhan et al., 2007)
- **Diabetes** (Gregg, Callaghan, et al., 2007)
- **Fibromyalgia** (Sephton et al., 2007; Grossman, et al., 2007)
- **Psoriasis** (Kabat-Zinn et al., 1998)



Mindfulness effective for...

- Positive resting frontal alpha-asymmetry (Davidson, et al., 2003; Barnhofer et al., 2007)
- **Immune Function** (Davidson, Kabat-Zinn et al, 2003)



...and different types of people

- **Cancer patients** (Specia, Carlson, et al., 2000; Monti, Peterson, et al., 2005; Carlson, Specia, et al., 2007)
- **Health care professionals** (Shapiro, et al, 2005)
 - **Medical Students** (Shapiro, et al., 1998)
 - **Nurses** (Cohen-Katz, Wiley, et al ., 2005)
- **Women with heart disease** (Tacon, McComb, Caldera, Randolph, 2003)
- **Prisoners** (Bowen, Witkiewitz, Dillworth, et al., 2006)
- **Borderline Personality Disorder** (DBT, Linehan, 1993)



Cluttered Room: Attentional Blink

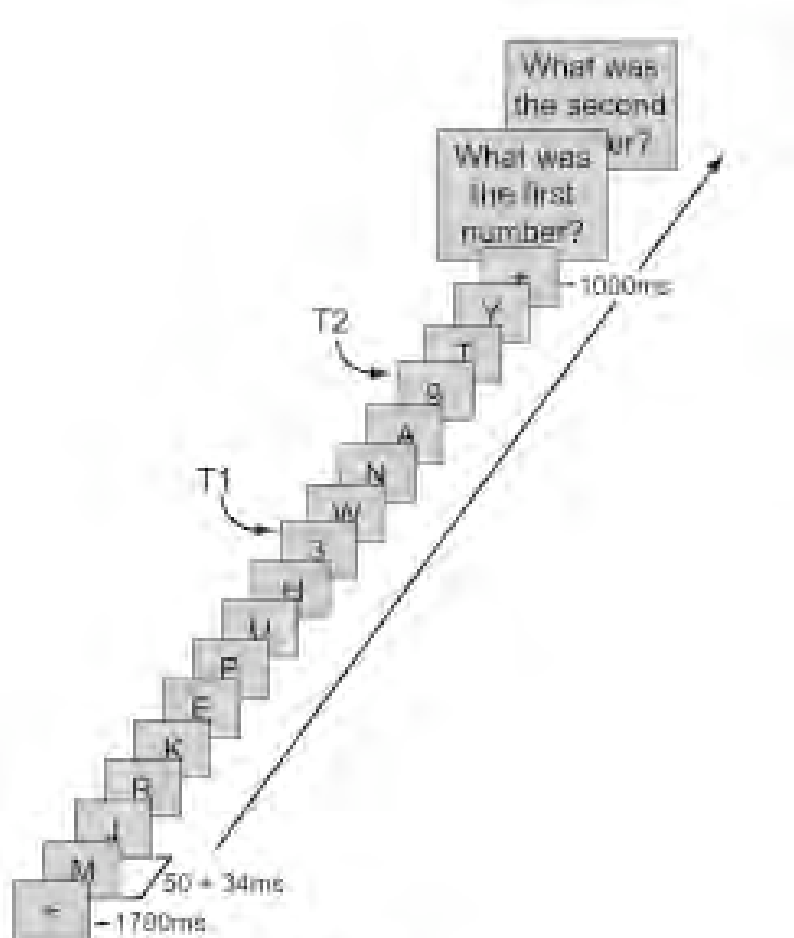


Figure 1. Attentional-Blink Task

- Attention capacity is limited
- Evidenced when 2nd of 2 close targets not seen (close means < 500 ms)

Slagter, Lutz, Greischar, et al. (2007; PLOS Biology)

- 17 experienced practitioners (Ps) vs. 23 novices (Ns)
- Pre-post 3 months (retreat for Ps)
- No diffs at time 1
- Training changes distribution of limited capacity attention
 - reduced blink (increased T2 accuracy)
 - reduced P3b amplitude at 400 ms
 - Greater reductions in P3b associated with better accuracy

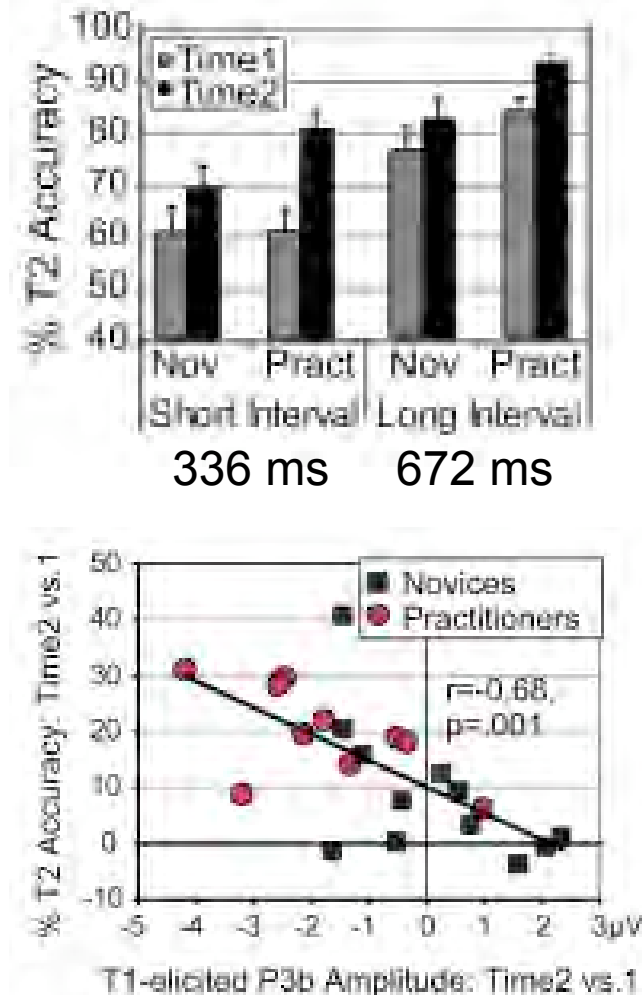


Figure 4. The Ability to Accurately Identify T2 Depends upon the Efficient Processing of T1

Slagter, Lutz, Greischar, et al. (2007; PLOS Biology)



Mindfulness

- Being aware is the act of integrating, remembering all parts of ourselves
- welcoming them into awareness without judgment





Integrating parts of ourselves

- Authenticity associated with less depression & anxiety, lower stress, greater subjective vitality, & lower physical Sxs (Ryan, LaGuardia, & Rawsthorne, 2005)
- More distinct one is across different roles, less well-being (Sheldon, Ryan, et al. JPSP, 1997)

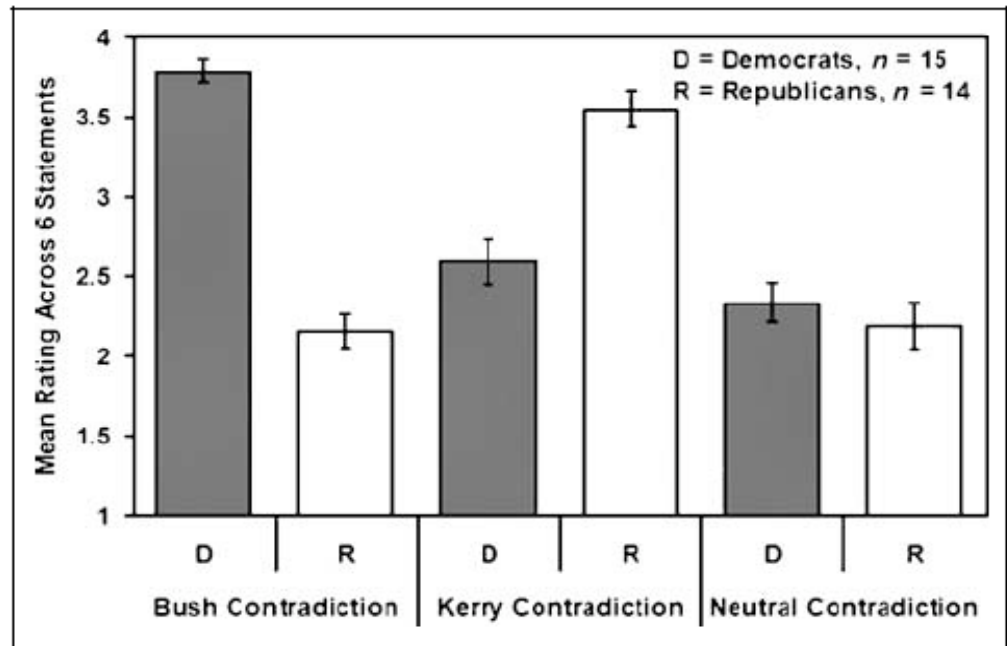


Reactivity as Barrier

- Repression
 - Report low anxiety but exhibit anxious physiology (Weinberger, et al., 1973, JAP)
- Defensive Deniers
 - higher (and medically significant) cardiovascular reactivity associated with higher distress relative to genuinely healthy individuals (Shedler, Mayman, et al., 1993)

Bounded rationality vs. Motivated reasoning

- All decisions are emotional
- Democrats & Republicans read statements about Bush, Kerry, or Tom Hanks (for ex)
- Consistently identified contradictions in “other” candidate but not own



- Negative emotion registered when contradiction was introduced
- With time to reach biased conclusion, negative affect gone
- “brain converges on solutions that minimize negative and maximize positive affect states” (Westin, et al., 2006, Jo of Cog Neuro, p. 1947)

Beyond Self



The Big Us

We are not separate from our context

- Depleting fishery (resource dilemma task)
- 10/30 words on sentence completion task either cooperation or neutral words
- Those primed subliminally for cooperation = those with conscious cooperation goal > neutral words for fish returned to common resource

Bargh, Gollwitzer et al. (2001, Expt 2)



Stanford Prison Experiment

- Participants randomly assigned to “prisoner” or “guard” roles in mock prison setting
- Study prematurely terminated “when it became apparent that many of the ‘prisoners’ were in serious distress and many of the ‘guards’ were behaving in ways which brutalized and degraded their fellow subjects”
- “Volunteer prisoners suffered physical and psychological abuse...while volunteer guards were exposed to the new self-knowledge that they enjoyed being powerful and had abused this power to make human beings suffer.”

Zimbardo (1973); Expt: Haney, Banks, & Zimbardo (1973)



“WE must be the change WE wish to see in the world.”

Permaculture

- “a set of techniques and principles for designing sustainable human settlements”
 - Permanent culture + permanent agriculture
 - Bill Mollison & David Holmgren (1970’s)
- “...vision is of people participating in and benefitting from an abundant, nurturing natural world”
- Focus on relationships -- interconnections -- among plants, animals, & buildings

Hemenway, Toby (2001). *Gaia's Garden: A Guide to Home-Scale Permaculture*. Vermont: Chelsea Green Publishing Company, p. 4.


An aerial photograph showing a diverse landscape. In the top left, there's a large, open field with some trees. To its right is a rectangular field, possibly a farm. Below the top-left field is a wooded area. In the bottom left, there's a large area divided into many small plots, likely a community garden. To the right of the garden is a residential development with several houses and a parking lot. The text labels are overlaid on the image in white boxes.


5-acre prairie
restoration

5-acre organic CSA farm

Community Gardens
5 acres (320 plots)

Troy Co-housing
30 units, mixed income

- 
- An aerial photograph of a residential development. The houses are arranged in a circular or semi-circular pattern around a central green area. Many of the houses have solar panels installed on their roofs. There are several parking lots with cars parked. The surrounding area is lush with green trees and grass. A white box with a black border is overlaid on the left side of the image, containing a list of features.
- Interpretive trail
 - Restored woodland
 - Hmong herb garden
 - Edible landscaping

- 
- An aerial photograph showing a rural landscape. In the upper left, there's a large green field with some trees. To the right, a residential neighborhood with houses and solar panels is visible. A large white arrow points from a text box in the upper left towards the residential area. The text box contains a list of proposed uses for the land.
- Sustainable Education Center
 - Non-profit offices
 - Common House
 - Integrative Clinic?

Troy Co-housing

- Lifespan design
- Universal design
- Green space
- Promote community
- Green built & energy star
- Low operating costs
- Affordable: 20 (of 30) units permanently at affordable housing rates
- 2007 Livable Community Award from AARP & NAHB





Thursday, April 30, 2009



Thursday, April 30, 2009



Thursday, April 30, 2009











GROWING TOGETHER



"In summer, me and
my friend Lonzo
planted some bright
orange carrots.
I hope there is always
a garden for all the
Vera Court kids."
Tesha Lynn Bell

troy gardens





Vision

Troy Gardens is a welcoming cohousing community where we cultivate sustainability and meaningful connections with one another and the land through celebration, cooperation, and open communication.



Thursday, April 30, 2009

- 
- An aerial photograph of a suburban neighborhood. The houses are arranged in a grid-like pattern with winding streets. The houses are mostly two-story, with varying colors like red, blue, and grey. Many have solar panels on their roofs. There are green lawns, some trees, and several parking lots with cars. A white box with a black border is overlaid on the left side of the image, containing a bulleted list.
- Children
 - Social
 - Digesting information

Ecovillage at Ithaca, NY



Song (30 houses)

Frog Common House

Frog (30 houses)



- 800, 1000, 1200, 1500 sq ft
- Resources = ~14 acres/person (EF 1.0)
- 25 acres = avg (EF 1.0; 56% of avg American)

Sharing...

- Meals
- Childcare
- Cars?
- Financing to increase renewables?
- Homes to increase density?
- Largest obstacles?
 - Intending to change
 - Emotional reactivity prevents getting along

Getting along requires that...

(A) Everyone do it our way

(B) We learn to be non-reactive so we can...

Getting along requires that...

(A) Everyone do it our way

(B) We learn to be non-reactive so we can...

- Pay attention to others by paying attention to ourselves

Getting along requires that...

(A) Everyone do it our way

(B) We learn to be non-reactive so we can...

- Pay attention to others by paying attention to ourselves
- Communicate well with people who annoy us, drive us crazy, etc.



Maximize sustainable well-being

- Be fully human right here, right now
- Lean in to a more sustainable lifestyle
- Health care
 - Suicidal clients with abusive spouse out of inpatient benefits
 - Drug addict can't afford treatment so goes to prison
 - Being paid so little that work loads increase & care decreases
- Work with others for lifestyle change
 - Living a lifestyle that allows us to charge reasonable fees



sustainable**wellbeing**.org

Thank you

- Greg Reeb
- Rizwan Ahmad