

The Sustainable Materials Management Webinar Series

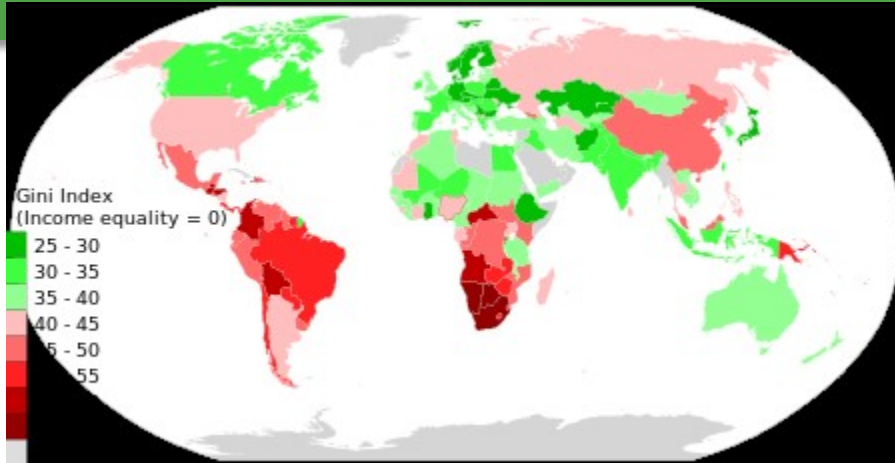
Environmental Justice Issues for Recycling Facility Development Projects

Tuesday December 20, 2016/ 1:30 – 2:45PM EDT

Presenter:

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Environmental Science and Community Affairs
Covanta Energy LLC





Environmental Justice Issues for Recycling Facility Development Projects by John G. Waffenschmidt, Covanta

Presented during
National Recycling Coalition
Webinar Series
December 20, 2016

Agenda

- What is Environmental Justice/Inequality
- Solid Waste Facility Impacts
- The Math
- Factors which Influence Inequality
- Additional Considerations
- Final Thoughts

What is Environmental Justice/Inequality

United States Environmental Protection Agency defines environmental justice as follows:

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies

Environmental Justice – Two Perspectives

- A social movement whose focus is on the fair distribution of environmental benefits and burdens
- An interdisciplinary body of social science literature that includes theories of the environment, theories of justice, environmental law and governance, environmental policy and planning, development, sustainability, and political ecology

Source: Wikipedia

What is Inequality?

inequality

noun in·equal·i·ty \,i-ni-'kwä-lə-tē\

- 1:** the quality of being unequal or uneven: as
- **a** : lack of evenness
 - **b** : social disparity
 - **c** : disparity of distribution or opportunity

Source: Merriam-Webster's Learner's Dictionary

Environmental Justice et al Inclusivity

- **Circular Economy** – while an occasional reference speaks to the social aspects of a circular economy, for the most part, these aspects are absent from the discussion.
- **Sustainability** – the National Research Council in their *Sustainability and the U.S. EPA* (2011) advocates a three-pillar format of Social, Environmental, and Economic. References to incorporating Environmental Justice are found primarily within the Social pillar. Of greatest relevance to the NRC's work is its advocacy for having all decisions consider all three pillars. <https://www.nap.edu/catalog/13152/sustainability-and-the-us-epa>

My Intellectual Evolution



Community and Environmental Justice Policy

- Early knowledge, meaningful involvement
- Seek first to understand, then to be understood
- Communicate early, clearly, and often with the intent to listen
- Deliver on your promises
- Leadership

Impacts from Solid Waste Facilities

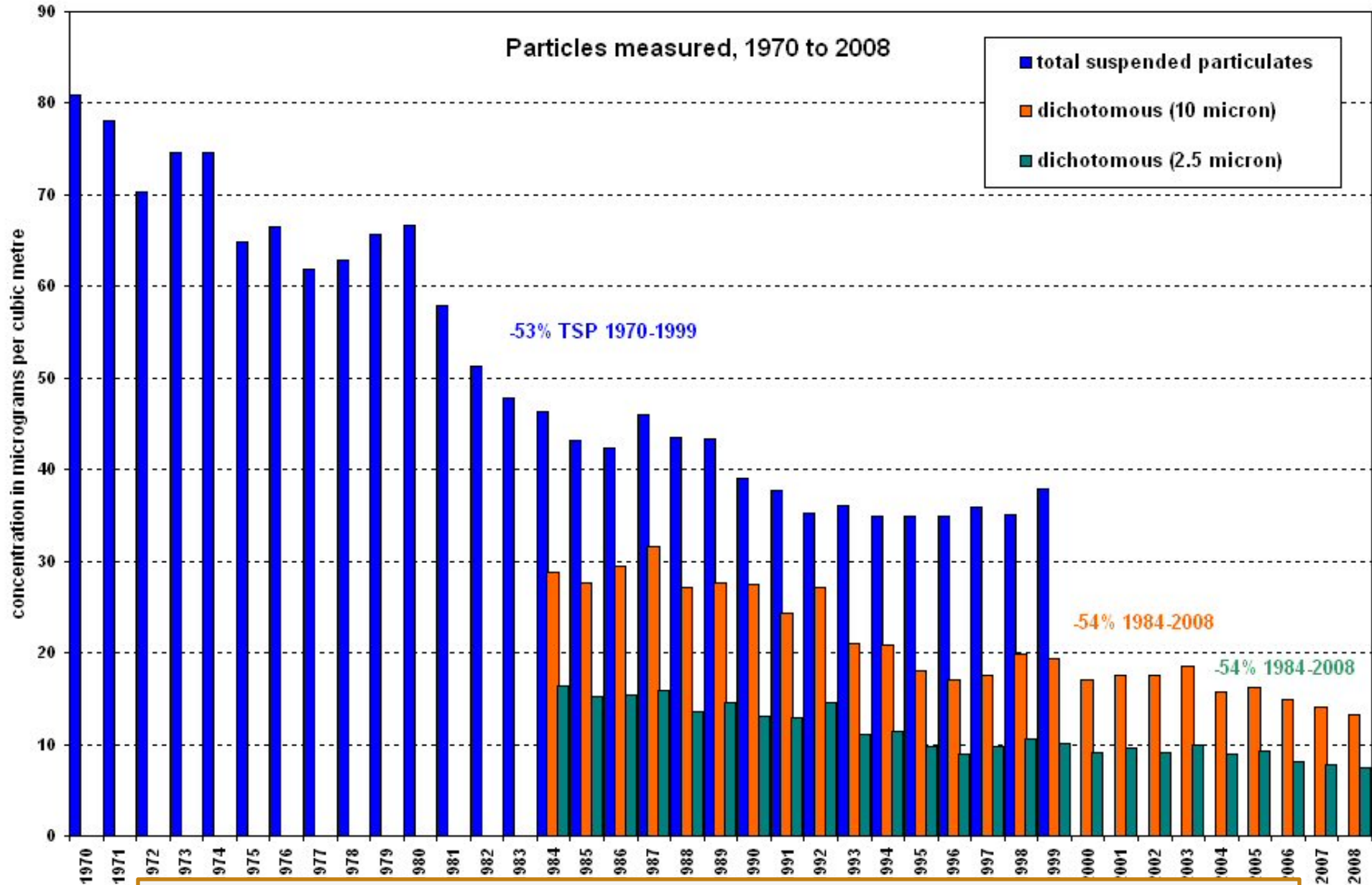
- Common Actual Impacts
 - Traffic
 - Noise
 - Odors
 - Visual/Intrusive
 - Common Perceived Impacts
 - Emissions
 - Health Risk
 - Asthma
- } On or offsite depending on facility type

Impact Sequence

- Zoning
- Site Selection
- Technology Selection
- Construction
- Operation

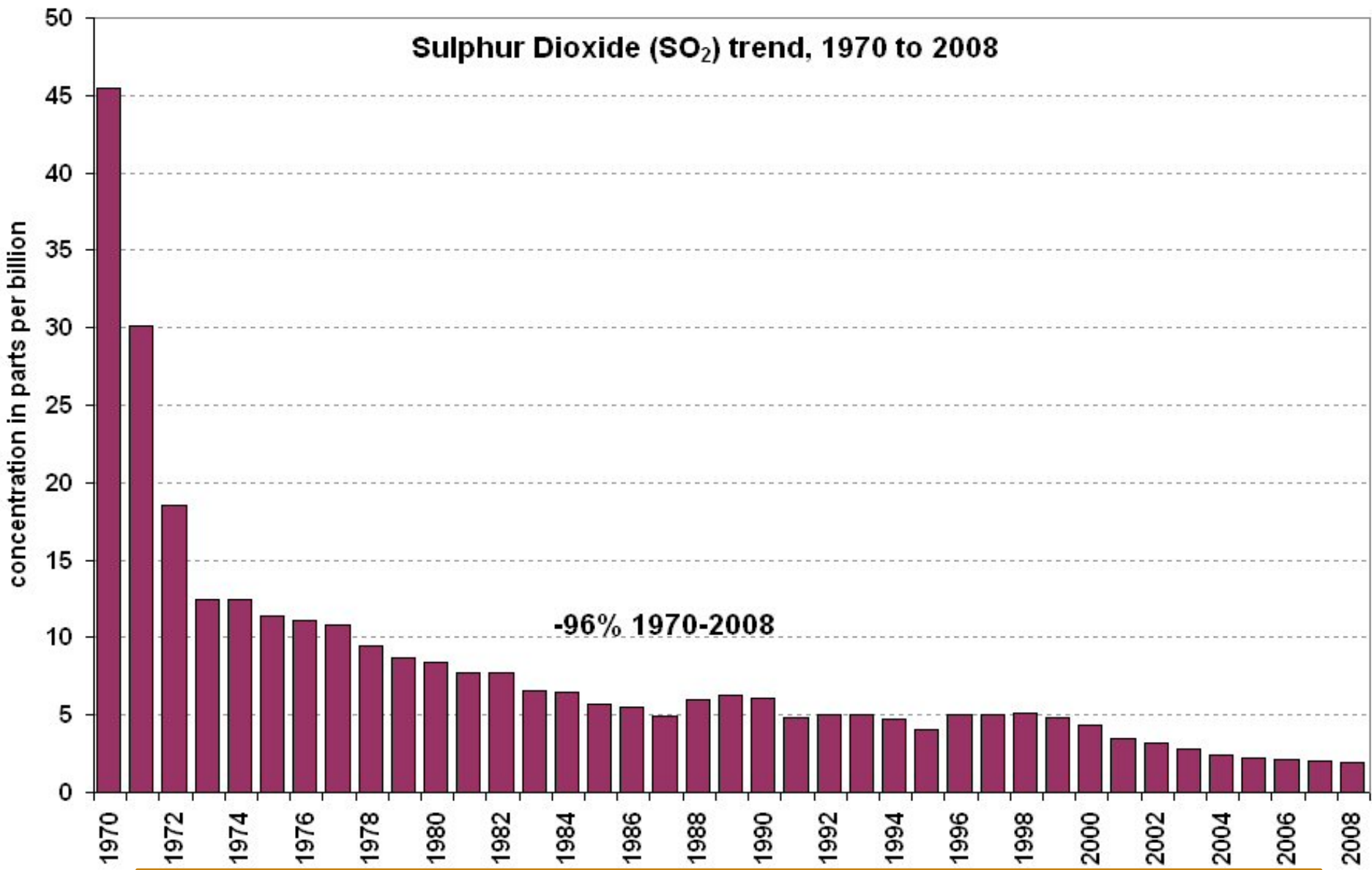
Environmental Assault or Economic Deprivation?

- EJ community issues tend to be characterized as environmentally related.
- New York Times Article, “Income Gap, Meet the Longevity Gap”, 3/16/14:
 - Evaluated Fairfax, Virginia (DC Suburb) and McDowell County, West Virginia (coal)
 - Median Household Income: \$107,000 vs. \$22,000
 - Life Expectancy Fairfax Men: 82 years
 - Life Expectancy Fairfax Women: 85 years
 - Life Expectancy McDowell Men: 64 years
 - Life Expectancy McDowell Women: 73 years { *akin to Iraq*
- Individuals with lower income have more stress and less access to the health care system.

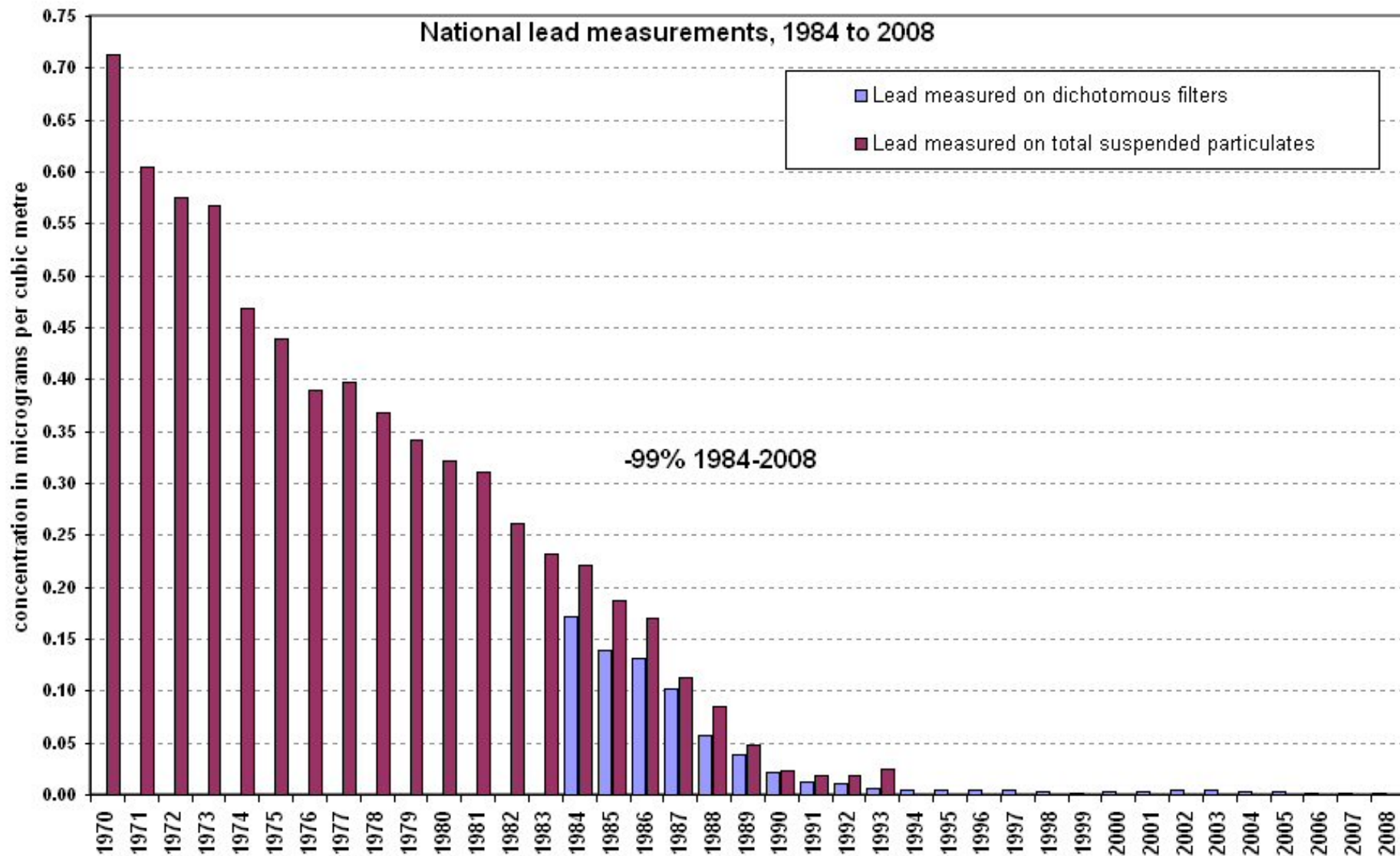


Source : Environment Canada www.ec.gc.ca

http://www.ec.gc.ca/rnsps-naps/5C0D33CF-B92B-41BF-BB74-0812341380A0/Particlegraph_historical.jpg



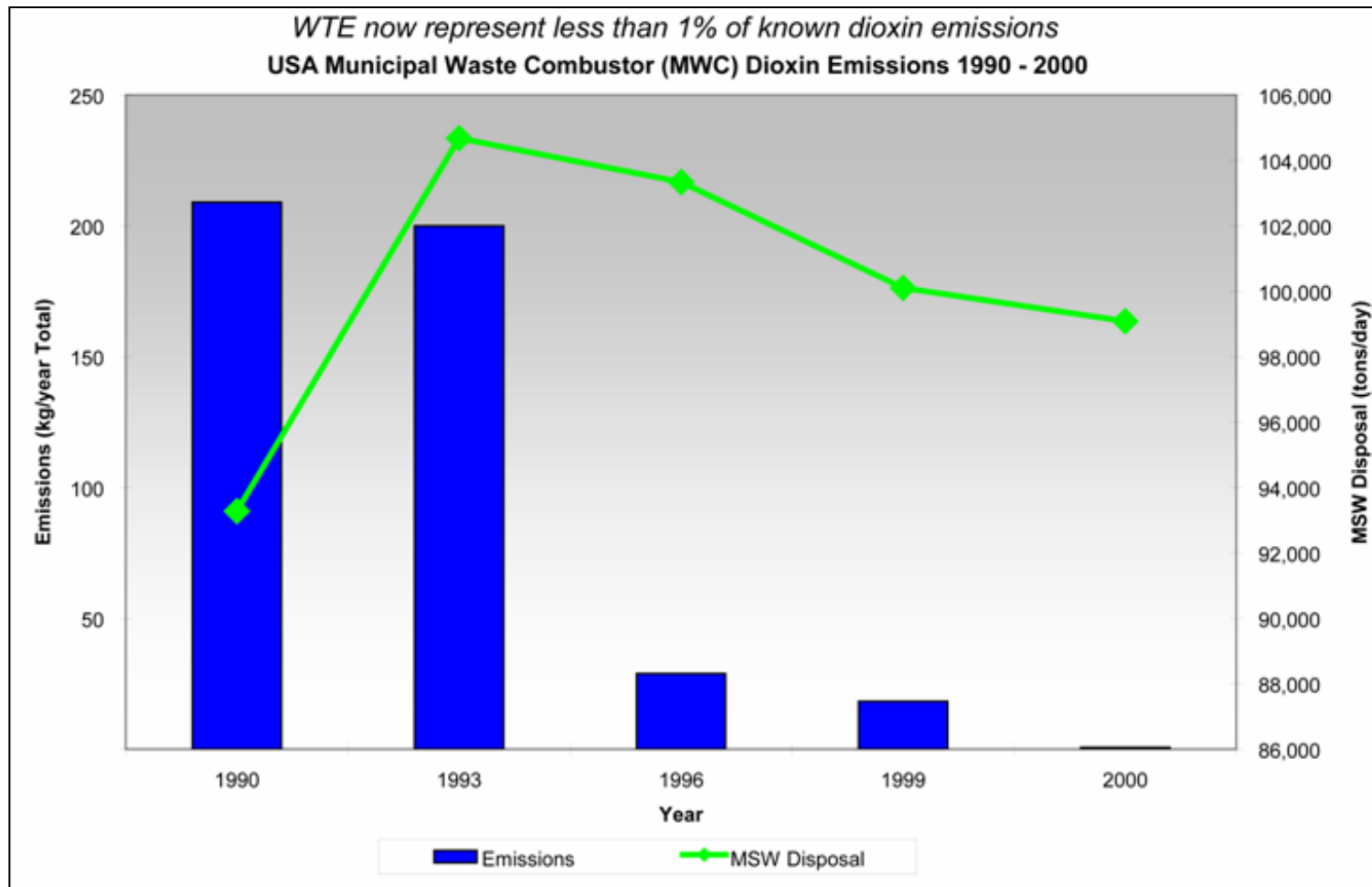
Source : Environment Canada www.ec.gc.ca
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Source : Environment Canada www.ec.gc.ca

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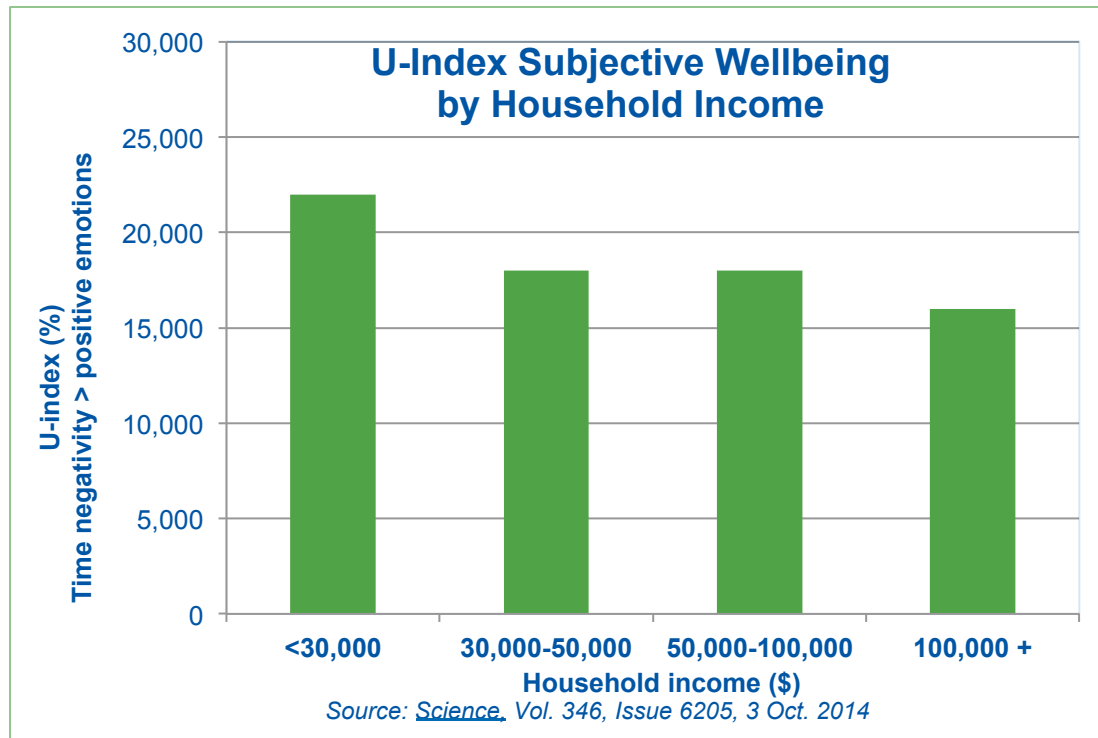
Air Emissions – Dioxins



Environmental Justice Communities – Remaining Work

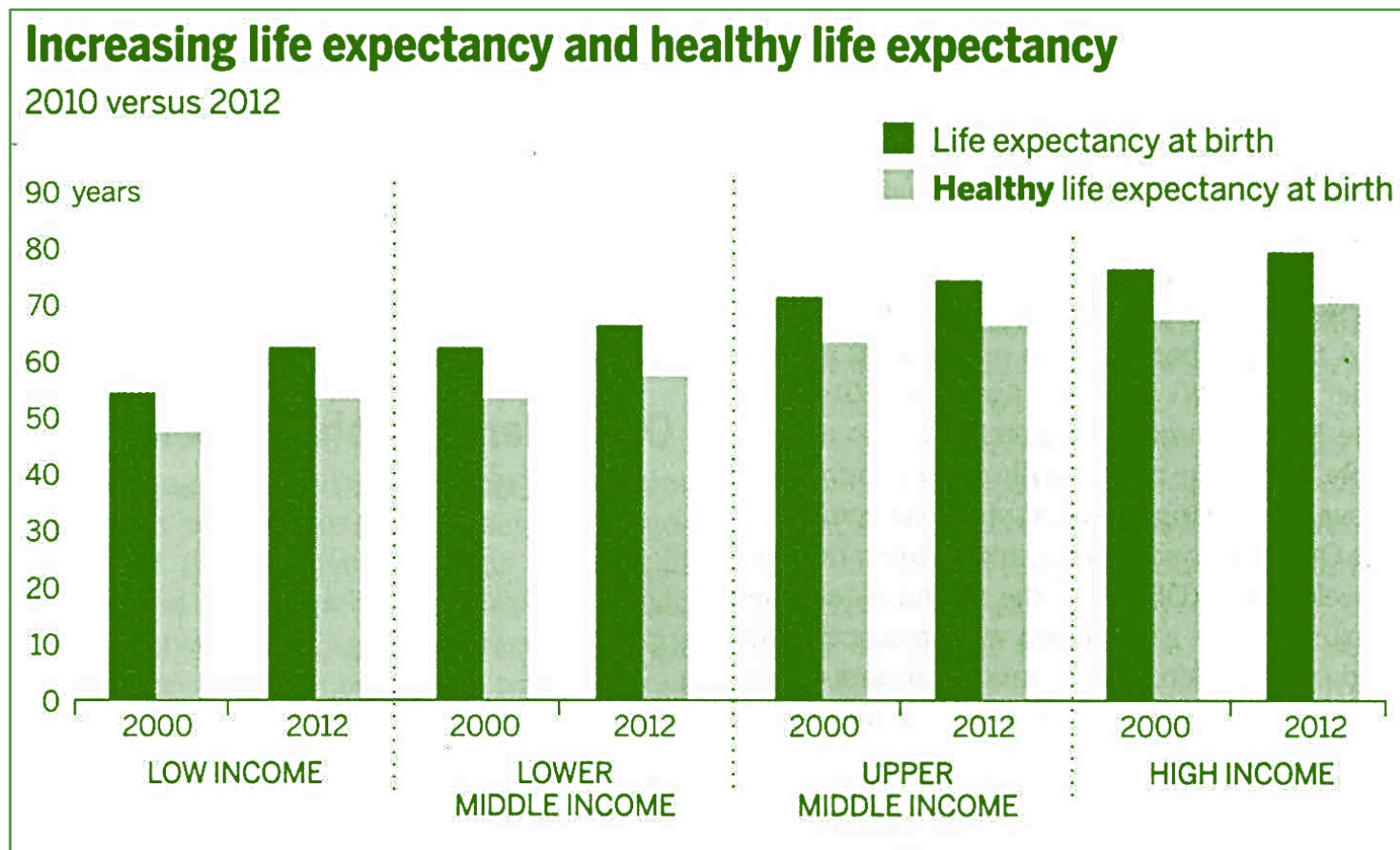
- Address public health risk $> 1 \times 10^{-5}$
- Address legacy issues including setback and “nuisance” issues
- Evolve to rationalization of where economics and individual metrics fit in

U-Index Subjective Wellbeing by Household Income



Note: Subjective wellbeing indices are an emerging analytical tool; hence, these data should be considered to be in beta mode.

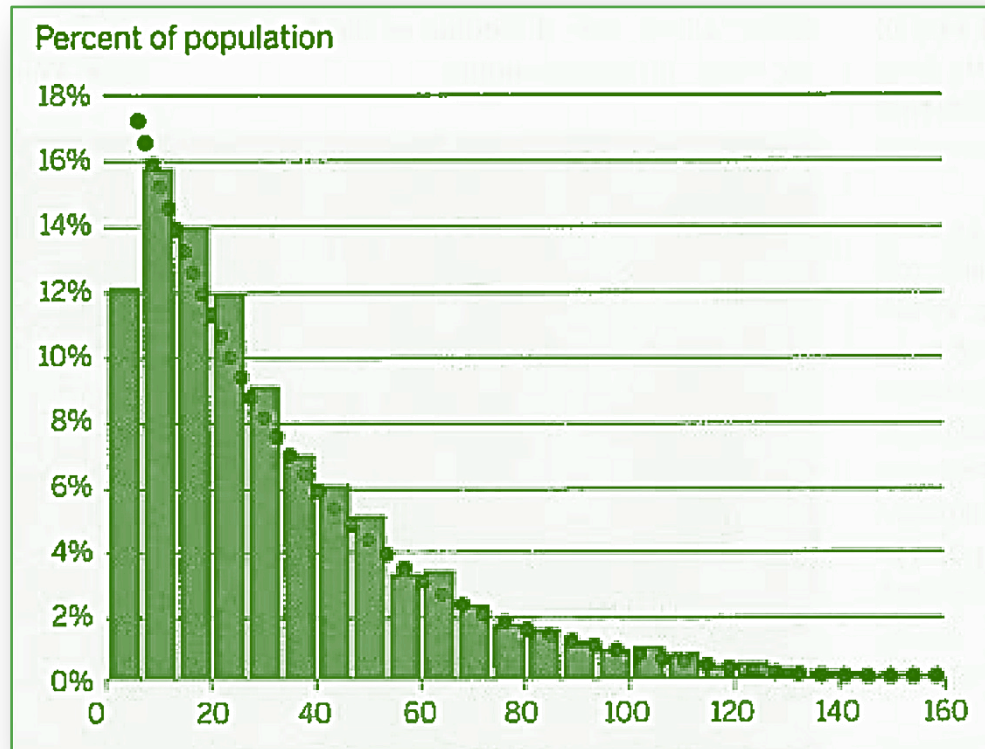
Life Expectancy by Income



Source: Life expectancy data by World Bank income group: World Health Organization, Global Health Observatory Data Repository (<http://apps.who.int/gho/data/view.main.700?lang=en>); *Science*, 31 Oct. 2014.

The Math of Inequality

Exponential Distribution of Income



U.S. Annual Income in 2013 (thousands of dollars)

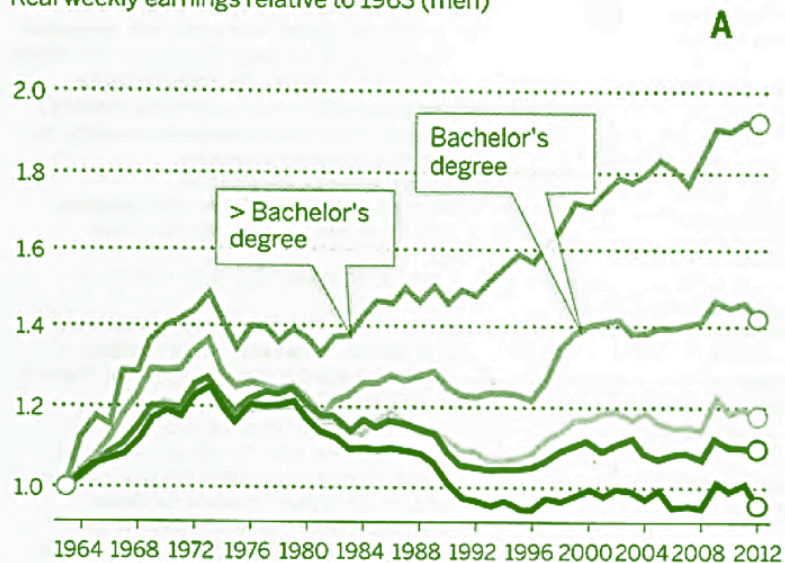
Data: U.S. Census Bureau, Survey of Income and Program Participation
Source: Scott Lawrence and Victor Yakovenko/U.Maryland

Source: *Cho, Adrian* [Science](#), May 23, 2014

Inequality, cont'd.

Changes in real wage levels of full-time U.S. workers by sex and education, 1963–2012

Real weekly earnings relative to 1963 (men)



Real weekly earnings relative to 1963 (women)

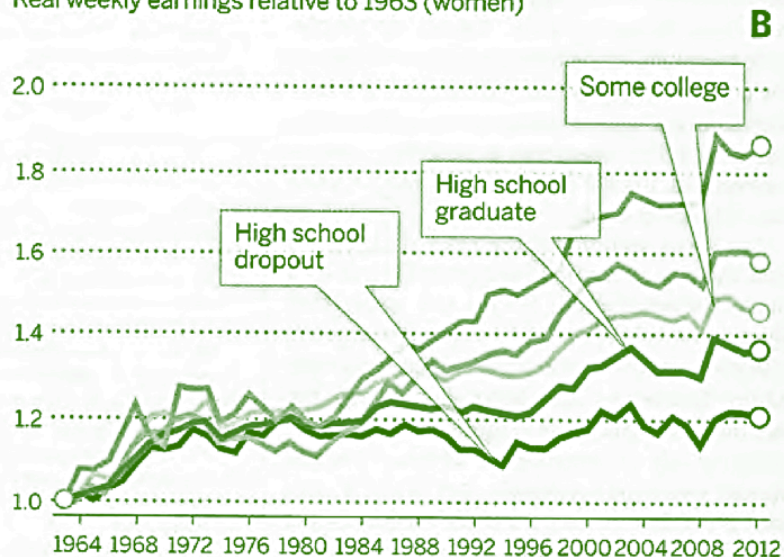
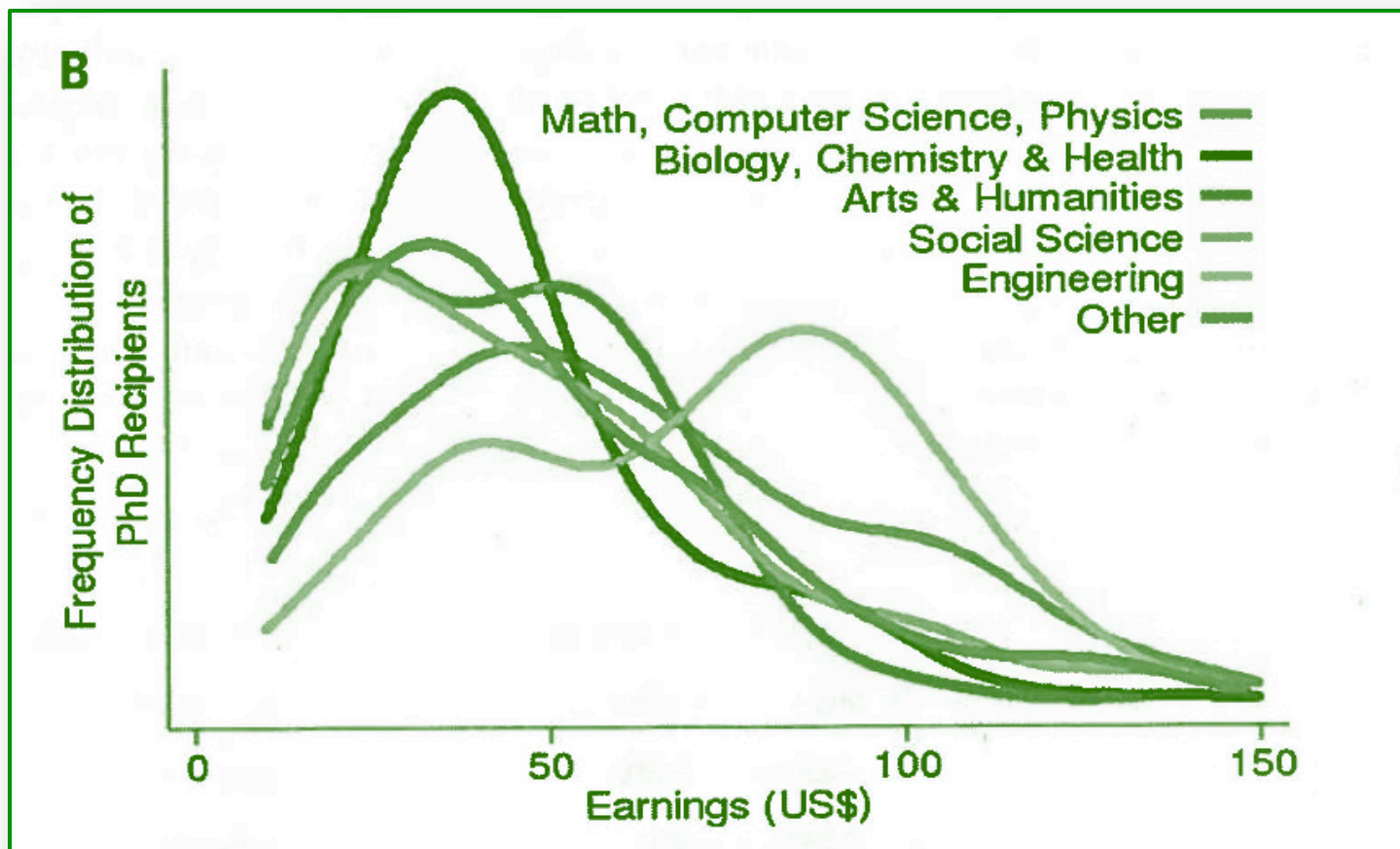


Fig. 6. Change in real wage levels of full-time workers by education, 1963–2012. (A) Male workers, (B) female workers. Data and sample construction are as in Fig. 3.

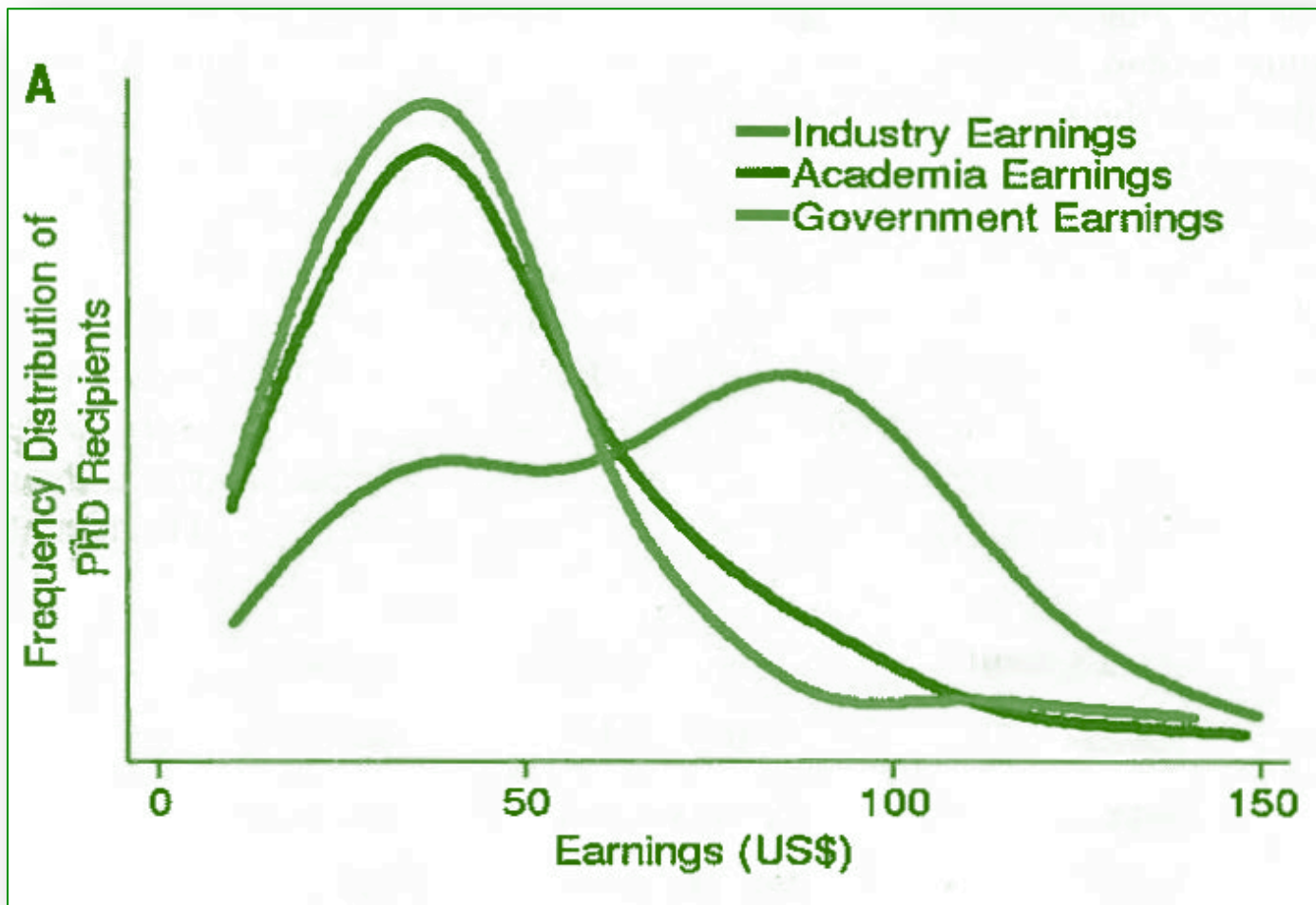
Source: Author, David H. *Science*, May 23, 2014

PhD Earnings Distribution



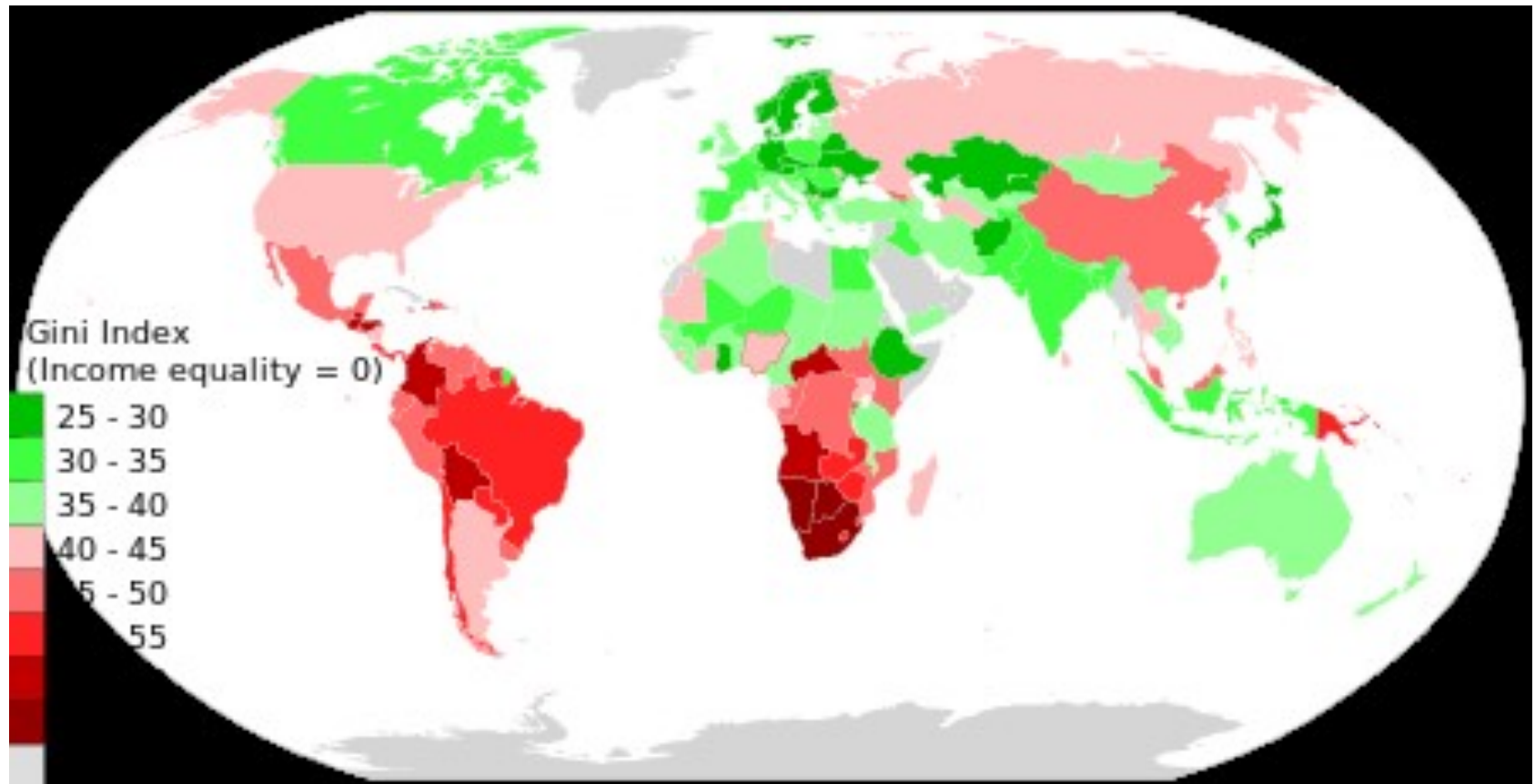
Source: Zolas, Nicolue et al, *Science*, Dec. 11, 2015

Earnings by Institution



Source: Zolas, Nicolue et al, *Science*, Dec. 11, 2015

Gini Index (world map chart)



Inequality Highlights

- By definition, capitalist-based systems result in more people at the bottom than the top, by an ***exponential*** quantity.
- Skill-based, economic reward is based on both the value of those skills and the market-based scarcity of those skills.
- Mobility between economic classes is fairly limited.
- Capital, by definition, outperforms labor as a function of time.

Factors Which Reduce Inequality

- War or other catastrophic event
- Social policies which redistribute wealth – health care, education assistance, basic living assistance, pensions
- Trade unions

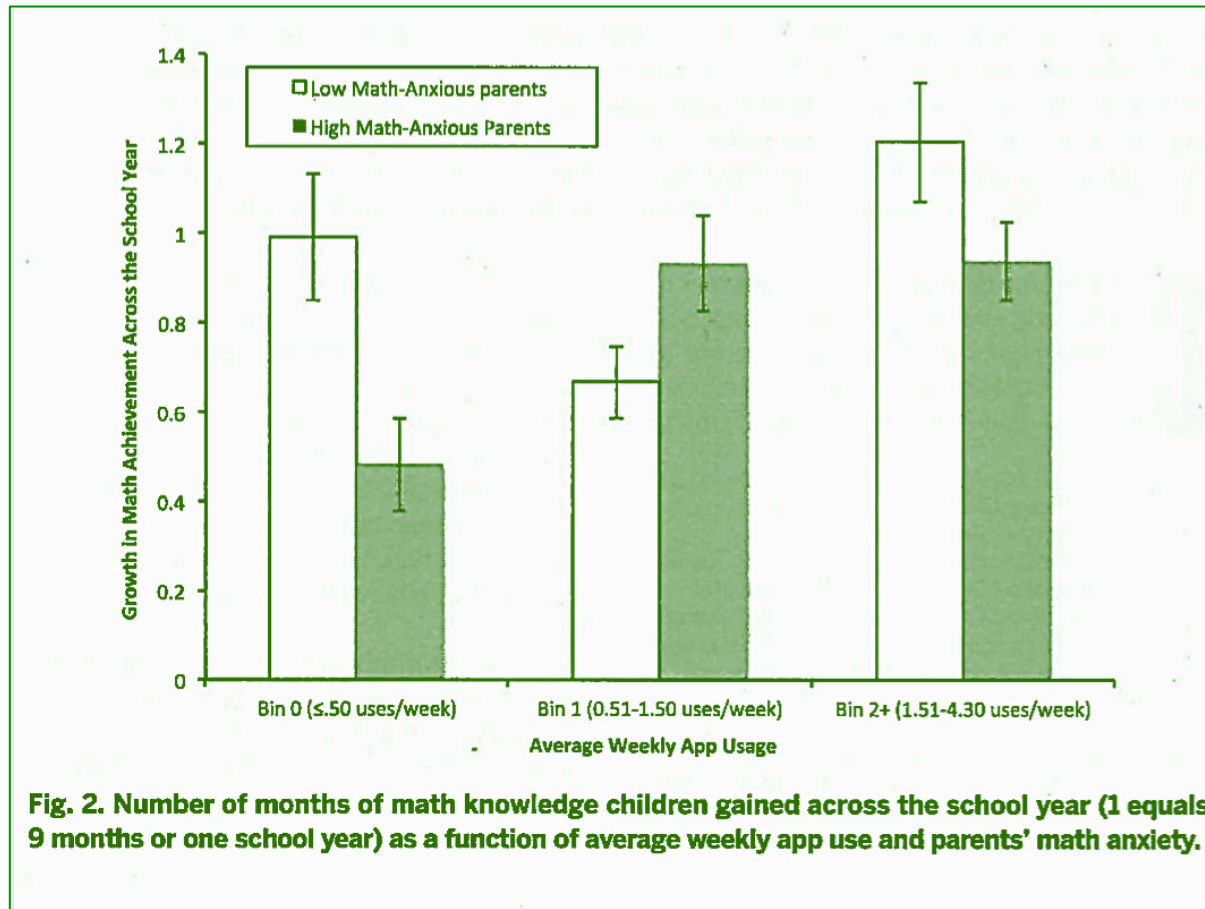
How Society Can Respond to Inequality

- Determine the extent of social policies which transfer wealth
- Establish a higher minimum wage; raise it consistent with inflation
- Provide universal Pre-K
- Have a PK-12 program which focuses on skill development, communication, personal financial management
- Provide excellent prenatal and natal care
- Provide excellent health care support mechanisms for PK-12 development
- Celebrate individual successes in the community

Educational Emphasis Considerations

- Communication Excellence
- Math – the basics plus
 - Compound interest rate formula
 - Statistics
- Science
- Coding/Logical Process

Mathematics Improvement with App-Induced Home Intervention



Source: Berkowitz, Talia et al, *Science*, Oct. 9, 2015

How Can Society Respond to Inequality via Specific Individual Health Criteria

- Continue seeking birth weight parity for all income classes¹
- Focus on a direct therapeutic understanding of early life influence on asthma development ^{2,3,4}; achieve parity in treatment response
- Seek parity and universal adoption of up-to-date immunization strategies based on the latest immunology science⁵

1 Alzer and Currie [Science](#) May 23, 2014

2 Gensollen et al [Science](#) April 29, 2016

3 Kaiser [Science](#) Sept. 4, 2015

4 CDC [Asthma Facts](#), July, 2013

5 Viboud and Epstein [Science](#) Nov. 11, 2016

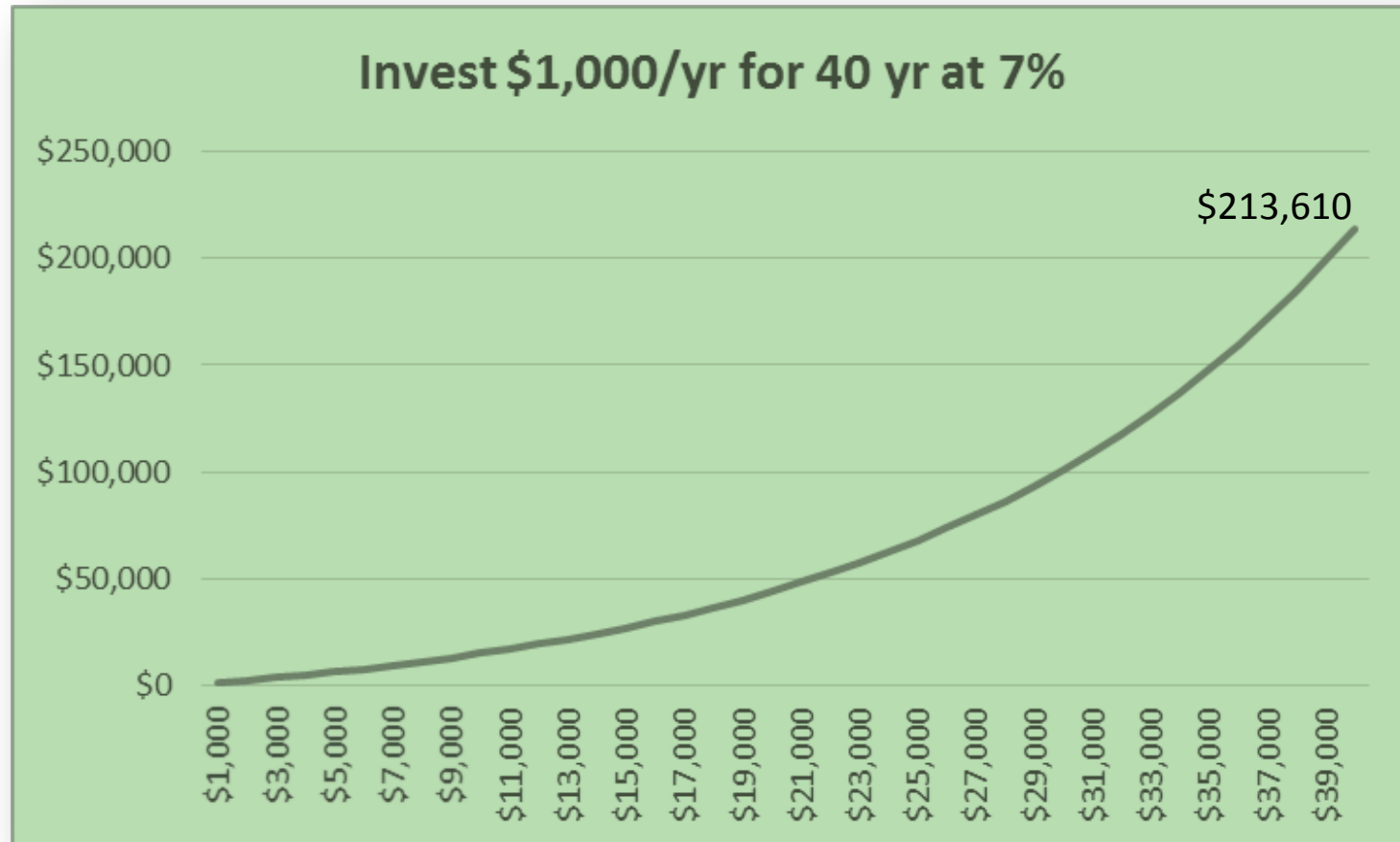
How Corporations/Institutions Can Respond to Inequality

- Have a fair hiring, wage, and progression system
- Adhere to your responsibilities inside and outside the fence line, whether emissions, discharges, ethics, etc.
- Have a fair host community/tax relationship with the community
- Have programs to assist with skill development in the community
- Have programs to address identified community needs

How Individuals and Families Can Respond to Being Low on the Economic Ladder

- Enhance skill development, communications capacity; adopt a “work hard” attitude
- Seek to “move up” to a “better” neighborhood
- Forgo some consumption (save money) to enable equity and non-equity investments, thereby participating in the enhanced return offered by capital investment
- Learn money management skills, inclusive of an understanding of the compound interest rate formula
- Pay attention to one’s physical and mental health

Graphic Depiction of Cumulative Investment of \$1,000/yr



Additional Considerations

- Warren Buffet's "The Giving Pledge"
- A greater redistribution of higher incomes would decrease the will for higher incomes
- Do you redistribute money or provide 0-18 basic health care, K-12 educational relative parity?
- Difficult to address relative frugality differential performance within a redistribution matrix

Final Thoughts

- Total equality exists in no society, nor will it.
- Pockets of inequality will likely exist in Environmental Justice/ disadvantaged communities.
- Society must decide and balance capitalist success drives with redistribution. There will always be, and should be, some redistribution.
- Social/societal institutions have evolved with changes in industrial and economic development. We should both learn from the past and not be bound by it. Social institutions will continue to evolve.
- To the extent we can use quantitative methods to evaluate policy and alter our course based on those methods, we will enhance our capability to walk into the future while addressing the needs of those on the bottom of the ladder.
- Consider age 0 to 18 relative health parity; PK-12 skill development parity.

**Have a nice day...
and a pleasant tomorrow**



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QUESTIONS?

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