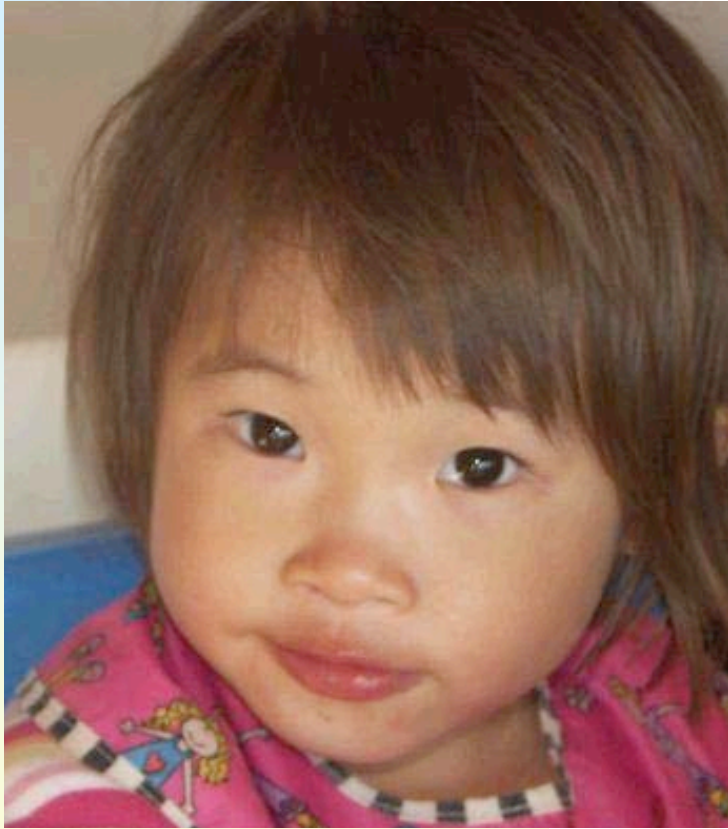




The Ingenious Economy

Using Social and Technical
Ingenuity to Make Markets Work
for Sustainable Development

What World Are We Giving Her?



Ai-Nuan Jiang

Age: 3

In her country:

- 6000 people/year die of air pollution
- Radium, Arsenic and Uranium leak into her water source
- 48 days this year too polluted for her to go outside
- 30 animal and plant species are extinct in her country, 11 now extinct from earth
- Hundreds species at risk, thousands of contaminated sites
- Water more expensive than gasoline

Where Does Ai-Nuan Live?



- My daughter, Maizie Elizabeth Ai-Nuan Solomon, lives in Toronto. Her birth country is worse.
- To ensure her high quality of life we must find ways to make the world sustainable
- Ingenuity Project: Making Markets work for Sustainable Development

- **Fritz Haber: 1868-1934**
- German chemist: received Nobel Prize in 1918 for developing of synthetic ammonia, important for fertilizer and explosives.
- “Turn stones into food”
- Feeds billions of people
- Father of chemical weapons and chlorine gas at Ypres on April 22, 1915.

- **Charles Saunders: 1867-1937**
- Canadian scientist: In 1904, as part of the Dominion Department of Agriculture at the Central Experimental Farm, Ottawa, Saunders invents Marquis wheat.
- Hybrid of early-ripening Indian wheat (Hard Red Calcutta) and Red Fife
- 1911 commercially established. Hardy, early maturing quality, makes Prairies a breadbasket.
- 1920: Marquis makes up at least 90% of the spring wheat in western Canada and over 60% in the US.

Tragedy of the Commons


- Fundamental flaw in our market system
- First coined by William Forster Lloyd, 1833, then made popular by Garrett Hardin, 1968
- Receive full benefits of product/pollution but do not pay full social cost
- Self interest triumphs over public good. Cod stocks. Air pollution. Soil depletion.
- Days of reckoning coming
- Need to find ingenious solutions

What Is Ingenuity?

- Tad Homer-Dixon: Ingenuity
- A set of instructions to help us arrange our world and achieve our goals
- Technical Ingenuity: computers, inventions, medicines
- Social Ingenuity: markets, courts, parliaments, business models
- Ingenuity gap

What Affects I-Gap?

- Managing Scarcity: water, soil, energy (Hoover Dam vs. cod stocks)
- Avoiding Unanticipated Consequences of our Ingenuity (Nitrogen, Soil contamination and Remediation)
- Consensus Trance: Our Ability to Adapt: Wade Davis on being Less Tolerant to Change. Peak periods are moments of danger

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- Unknown Unknowns, Non-Linear, Threshold Events or the 3 “Gs”: Germs. Guns. God. (From Avian flu, Malaria and AIDS to Taiwan)
 - Disparity between Rich and Poor: Do 500 million Chinese want a piece of the pie?
 - Quality of Life Aspiration: If everyone on the planet consumed energy like Canadian we would need 6 more planets. But you can't tell people to want less.

Can People Change?

- Triggers for Behaviour Change:
- Moral: What we are doing is wrong, Only a small number of people act by this as it is trumped by other concerns. Early adopters vs. Rest of world
- Compulsion: Threshold Event (hurricane or war). Oil crisis. Have a way of implementing sudden but not lasting change after corrections. 1973 oil shock.
- Economic: Price mechanisms kick in, new efficiencies are found.
- Ideology does NOT help anymore. Pragmatism new religion.



Profits vs. Sustainability

- Is a sustainable economy opposed to corporate bottom line? Not if markets can be made to work.
- Pressures:
- Risks assessments of a non-sustainable world. Costs of instability.
- Saying ahead of regulations and turning them into opportunity
- Shift in consumer demand
- Brand image
- Making productivity more efficient
- Social and Technical Ingenuity answers

SI: Measuring It

- From GNP to Full Cost Accounting. Using fiscal policy to internalize market distorting externalities, which leads to higher efficiency and sustainable wealth creation.
- Change how we value products. Black sweater.
- True cost of commodities. I.e. Energy. True cost sparks innovation and alternative competitive products.
- Make industry internalize the cost of their negative externalities. Pay for the clean water use they dump their waste into. Polluter pays (property rights. Cod again. Would privatizing the Grand Banks have helped or regulation)
- Triple Bottom Line: Economic, Social and Environmental. Stakeholders matter. Mackenzie pipeline. Urban planning in cities. Brownfield.
- Monetizing Natural Capital: Carbon

SI: Cap and Trade

- The Carbon Case:
- From 1973 US on lead in gas to 1990 acid rain when USA puts cap on sulphur dioxide (now \$7 billion trade)
- EU agreement on GHG permits
- EU Emission Trading Scheme
- 10 000 sites in 25 countries in EU.
- Price of CO₂ soaring. Wealth goes from polluters to non polluters. Incentive to innovate.

SI: Litigation

- Climate change litigation: Inspired by 1998 Master Settlement Agreement against Big Tobacco.
- 500 international and regional agreements, from ozone protection to ocean conservation.
- Enforce national environmental laws.
- Friends of Earth and Greenpeace filed climate change lawsuits last year charging two U.S. gov't agencies with failing to comply with National Environmental Policy Act requirements to assess the environmental impact of projects they financed over the past decade.

SI: Tax Shifting

A fiscal policy which lowers the taxes on “goods” (income like wages and profit) and raises taxes on “bads” (unsustainable consumption of non-renewable resources.)

- Lower payroll and income taxes and increase carbon tax on fossil fuels, on extraction and use of mineral, energy and forestry, products; on effluents, and hazardous wastes.
- Make it fiscally neutral

SI: Feebates

- Anthony Lovins: Additional fees on less sustainable products — such as SUV — are pooled to fund rebates on more sustainable alternatives like hybrids. Full cost accounting.
- Germany did this in 1999 and 2002 on electricity and petroleum. Renewables not taxed. Total tax burden remains constant.

SI: Property Rights

- Shifting to “bads” can mean moving from Regulation (hard to enforce and can favour big companies with lobby clout)
- Property Rights: Gov’t raise revenue to fund public spending
- Nature Conservancy;
- Tax Land Use not How Use Land: Fighting sprawl through tax shifting: Don’t tax based on what is being built (commercial vs private use) tax on how much land is being used. Malls pay low taxes and should pay higher tax. Tax to enforce density and efficiency, not to engineer industry.
- Downside: Hard to privatize air; protect species that don’t have market value like owl; regulation is needed



SI: Gain Sharing

- New ways to configure buyer/seller market
- LTV
- Deeper relationships
- Flip the dynamic between B2B and B2C
- Ford and PPG



Technical Ingenuity

Energy:

- Hydrogen
- Clean coal
- Geothermal
- Wind
- Nano-technology in solar
- Soil Remediation Technology



Keepers of the Why

- Tech can deliver information not inspiration and perspective. We need to tell better stories about Why we need change
- Redesigning the our world, not Reinventing it
- Future is about being pragmatic and moving towards the William McDonough's Cradle to Cradle. Inviting. Creative. Opportunity. Not fear based.
- If you give people a why they will create and endure any how.