

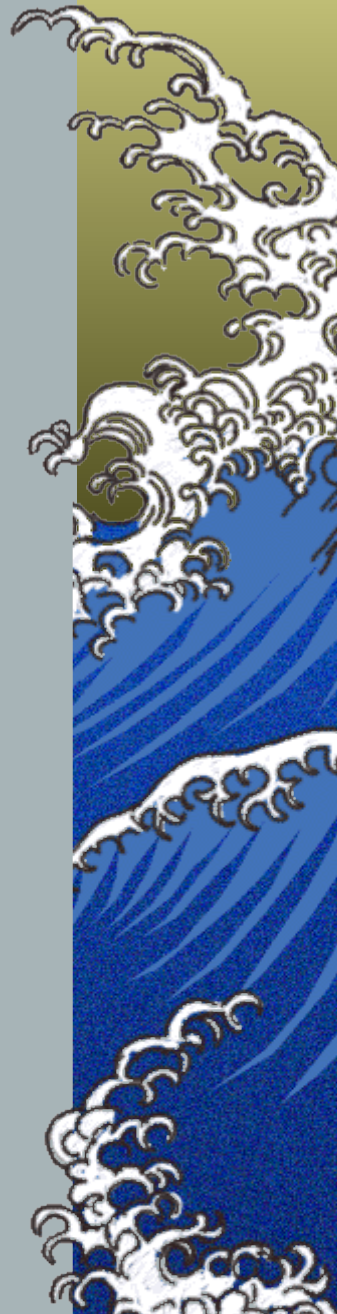
# The Earth has a Rising Fever: Is Carbon Trading the Right Medicine?

*D3SJ meeting*

*Richard Sanders*

*Ecological Economist*

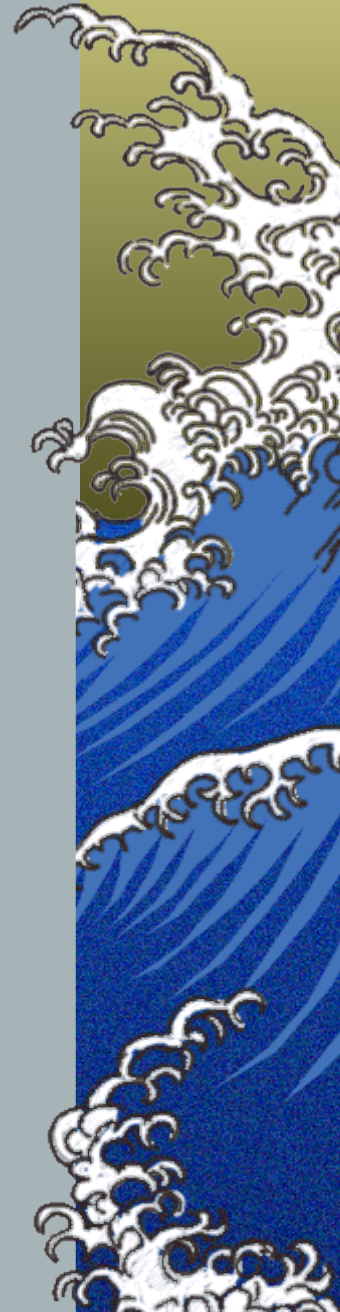
*17 June 2009*



# Planetary Emergency

- ▶ **climate change (likely dangerous);**
- ▶ **sea level rise (possibly metres this century);**
- ▶ **ocean acidification;**
- ▶ **sixth major extinction event;**
- ▶ **ecological life support systems are going down;**
- ▶ **peaking of global oil production;**
- ▶ **peaking of global food production;**
- ▶ **loss of soils, fresh water, forests and fisheries;**
- ▶ **poverty and inequity (widening gaps);**
- ▶ **impending financial collapse.**

**A 'Perfect Storm'!**



# Systemic Root of Emergency

- ▲ Exponential Economic Growth
- ▲ Humanity is Consuming the Planet to Death
- ▲ In 1980 Humanity Exceeded Carrying Capacity
- ▲ Now a 1.3 Planet Global Economy
- ▲ Systemic Root is a Debt-based Financial System
- ▲ Drives Exponential Economic Growth
- ▲ Virtual Wealth Must Grow Exponentially
- ▲ Economy Turns Real Wealth into Virtual Wealth
- ▲ Turn 1c into Universe of Gold in just 2 Millennia!
- ▲ Liquidating Planet's Natural Capital into \$\$\$s

**'One Planet' Steady State  
Economic System**



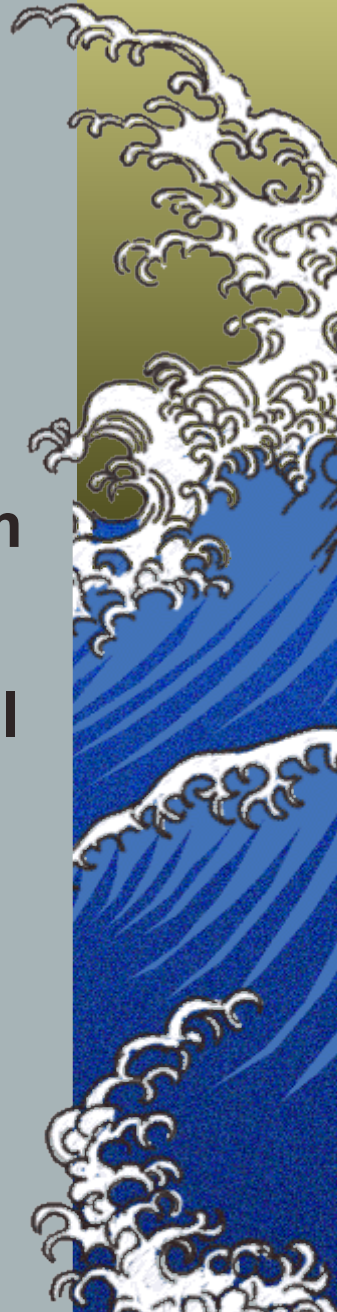
# Climate Change Science

- ▲ Greenhouse 'Blanket' Keeps Planet 33°C Warmer
- ▲ Greenhouse Gases: H<sub>2</sub>O, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>, FCs
- ▲ Aerosols have Small Cooling Effect
- ▲ Pre-Industrial CO<sub>2</sub> Level ~ 280ppm
- ▲ Current CO<sub>2</sub> Level ~ 387ppm
- ▲ Current Kyoto Gases ~ 455ppm CO<sub>2</sub> e (equivalent)
- ▲ Garnaut Targets: 450ppm CO<sub>2</sub> e & 550ppm CO<sub>2</sub> e
- ▲ 450ppm Trajectory: 25% by 2020; 90% by 2050
- ▲ 550ppm Trajectory: 10% by 2020; 80% by 2050
- ▲ Copenhagen 2009 Failure to Agree: 5% by 2020



# Dangerous Climate Change

- ▲ Current Warming 0.8°C (warming minus cooling)
- ▲ Targets: 450ppm ~ 2°C; 550ppm ~ 3°C (est.)
- ▲ 1990 IPCC 1 said 60-80% cuts to stabilise at 350
- ▲ 1994 CSIRO said 100% cuts to stabilise at 350ppm
- ▲ 1997 Kyoto only 5% cuts by 2012
- ▲ 2000 UK Royal Com. 550e needs 60% of 1998 level
- ▲ 2006 Stern said 99% chance 550e would > 2°C
- ▲ So 450ppm CO<sub>2</sub> e became associated with 2°C
- ▲ Potsdam Inst. 400ppm CO<sub>2</sub> e = 85% prob < 2°C
- ▲ Hadley Centre 400ppm CO<sub>2</sub> e = 33% prob > 2°C



Remember current level is 455ppm CO<sub>2</sub> e

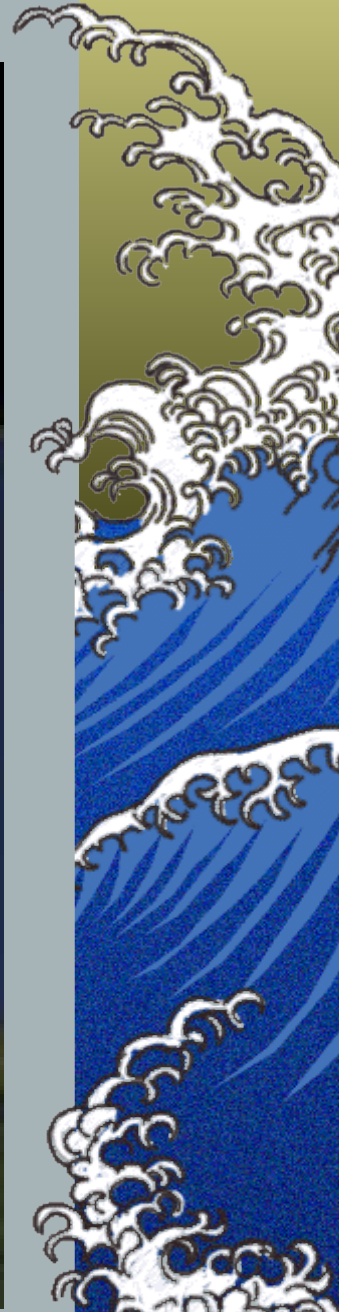
# What Does 0.8°C Mean?

- ▲ Ice is melting everywhere and accelerating!
- ▲ It will keep melting unless it gets cooler!
- ▲ Positive Feedback loops will come into play
- ▲ James Hansen briefing to the House Select Committee on Energy Independence & Global Warming, 23 June 2008:

“The disturbing conclusion, documented in a paper I have written with several of the world’s leading climate experts, is that the safe level of atmospheric carbon dioxide is no more than 350ppm and it may be less. Carbon dioxide amount is already 385ppm and rising about 2ppm per year. Stunning corollary: the oft-stated goal to keep global warming less than two degrees Celsius is a recipe for global disaster not salvation ”



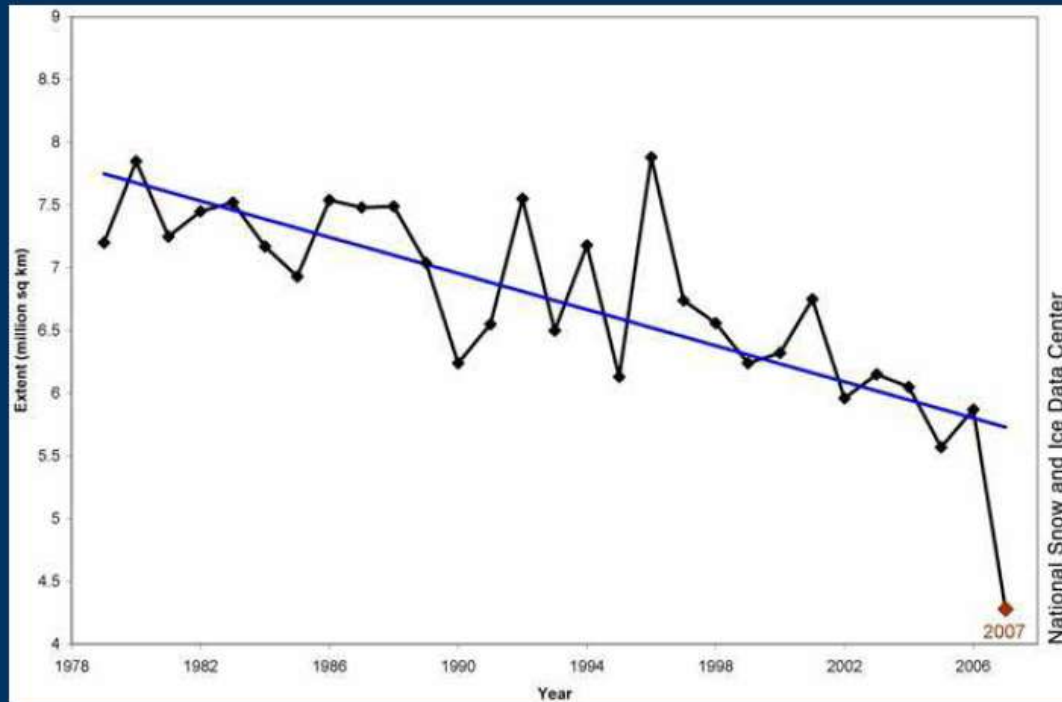
# The Big Melt



# The Big Melt

## *2007 Sea ice conditions in context*

### September Sea Ice Extent (1979–2007)



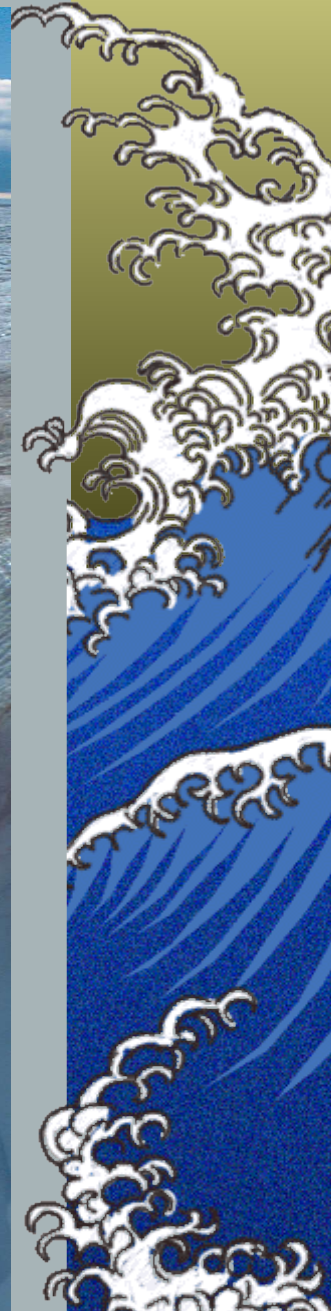
September 2007  
4.28 million km<sup>2</sup>





# The Big Melt

Melt descending into a moulin, a vertical shaft carrying water to ice sheet base.



*Source: Roger Braithwaite,  
University of Manchester (UK)*

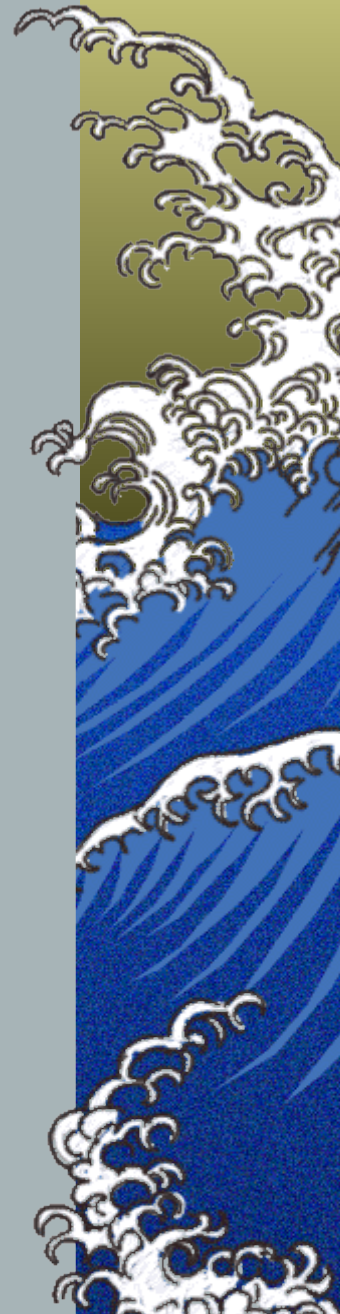
# Hansen's Prescription

## *Assessment of Target CO<sub>2</sub>*

### Phenomenon

### Target CO<sub>2</sub> (ppm)

- |                                     |                |
|-------------------------------------|----------------|
| <b>1. Arctic Sea Ice</b>            | <b>300-325</b> |
| <b>2. Ice Sheets/Sea Level</b>      | <b>300-350</b> |
| <b>3. Shifting Climatic Zones</b>   | <b>300-350</b> |
| <b>4. Alpine Water Supplies</b>     | <b>300-350</b> |
| <b>5. Avoid Ocean Acidification</b> | <b>300-350</b> |



# Is Carbon Trading the Answer?

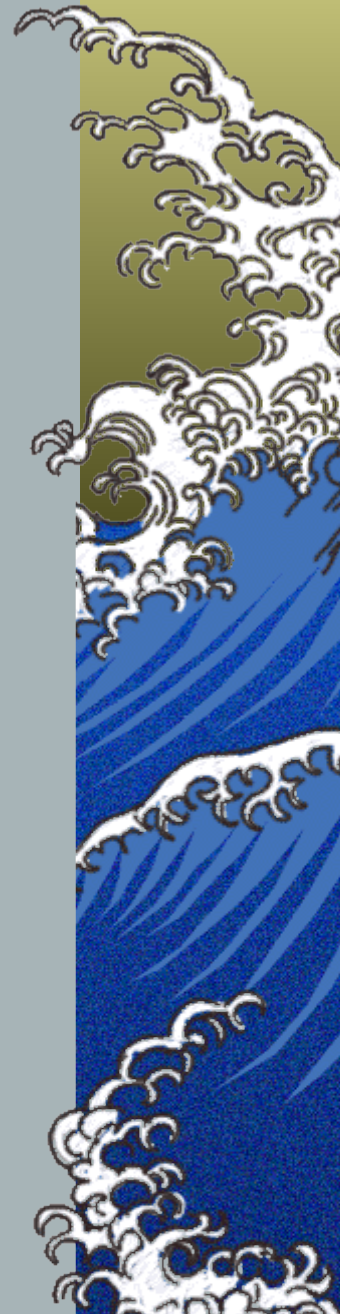
## 2 Market Based Approaches

- ▶ Tax – where price sets a quantity
- ▶ Cap and Trade – where quantity sets a price
  
- ▶ The Imperative is to get Planet back inside its Safe Operating Limits be it 350, 400, 450, 550 or 650ppm
  
- ▶ So in Theory Cap and Trade is the Right Approach



# Some Drawbacks

- ▲ **Dangers of Creative Accounting**
- ▲ **Profiteering from Trading in Pollution Rights**
- ▲ **Export of Emissions to Less Developed Countries**
- ▲ **Too many Permits given away in EU led to massive profits for polluters and setback the scheme**
- ▲ **Caps too loose and not applying to everyone**
- ▲ **Garnaut's \$20/t price cap 2010 - 2012 a joke = 5c/litre**
- ▲ **Caps must be watertight and rapidly contracting**
- ▲ **Planet must be gotten back in Safe Operating Limits!**
- ▲ **Inaction over past 2 decades means no choice but to pay the price and its much higher now!**



# *Climate Code Red:*

## *the Case for a Sustainability Emergency*

- ▶ Humanity passed climate tipping points for major ice sheet and species loss when we exceeded 300–350ppm CO<sub>2</sub> decades ago (Hansen, NASA, Dec. 2007);
- ▶ The actions the science demands we take to avoid dangerous global warming are simply incompatible with the prevailing political and economic imperatives and “realities”;
- ▶ ‘Business as usual’ is simply not going to work and there is a need to declare a “climate and sustainability emergency” to reframe the situation into one where necessary action can be taken; and
- ▶ Experience in the Second World War of the rapid change from producing consumer commodities to military equipment suggests that the transition to a post-carbon



# Climate Change Emergency

**Ban Ki-Moon – “This is an emergency and for emergency situations we need emergency action.”  
Antarctica, 10 November 2007**

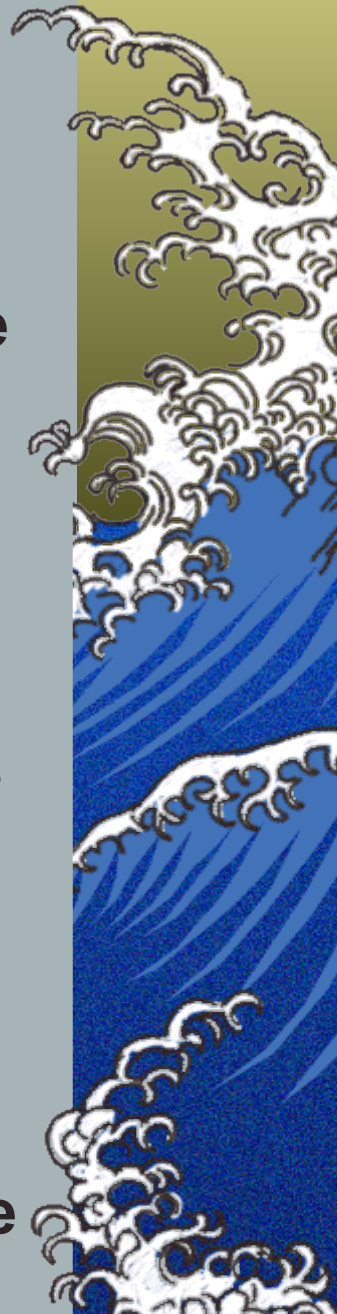
**Al Gore – “We, the human species, face a planetary emergency.”  
Bali, 13 December 2007**

**Ross Garnaut – “If we fail, on a balance of probabilities, the failure of our generation will haunt humanity until the end of time.”  
30 September 2008**



# ***Survival Demands Rapid Transition***

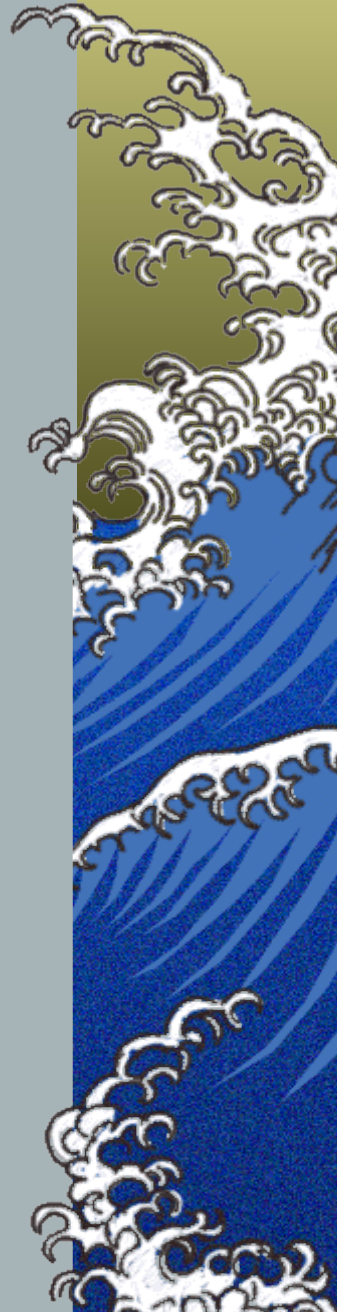
- ▲ **Garnaut: “The international community is too late with effective mitigation to avoid significant damage from climate change.” p.xxiv**
- ▲ **To place Profits before Planet is a nonsense**
- ▲ **We can always Rebuild an Economy eg. Germany**
- ▲ **Cannot restore Planet if it crosses Tipping Points**
- ▲ **The Design of the Economy and the Financial System Locked us into this Planetary Emergency**
- ▲ **Short-term need to go into Emergency Response and Rapidly Cut Emissions**
- ▲ **Longer-term Redesign a ‘One Planet’ Steady State Economic System**



# ***Rapid Transition Benefits***

- ▲ **More Meaningful, Healthier and Purposeful Life**
- ▲ **Less time At Work, More Leisure Time**
- ▲ **More Vibrant, Creative and Convivial Society**
- ▲ **A New Society where Economy is Servant**
- ▲ **A New Economy that Meets the Needs of All**
- ▲ **Opportunities for Human Civilisation to Flourish**
- ▲ **Challenge of Designing a ‘One Planet’ Steady State Economic System**
- ▲ **Surviving the Emergency**

**A Future for Our Children and Grandchildren**

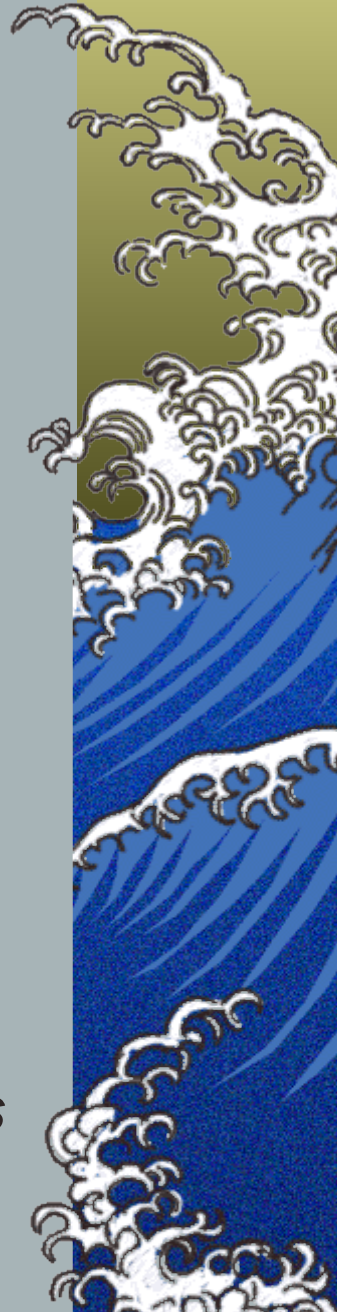




# Making Democracy Work!

- ▶ *The problem is a Collective Action problem*
- ▶ *Only Governments can Deal with These*
- ▶ *Markets Cannot! (We have forgotten this!)*
- ▶ *Gov'ts must place Survival before Prosperity*
- ▶ *Gov'ts Must Direct People and Corporations in the Common Interest*
- ▶ *They will not do it Unless 'We the People' Demand it or Give Permission for it*
- ▶ *We Must Petition Governments to Declare a Planetary Emergency and Take Emergency Actions*

*The Ship is Sinking!*



**Contact Your Politician Now!**

*Thank You*

*Richard Sanders*

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