Ecological Economics for Sustainable Wellbeing

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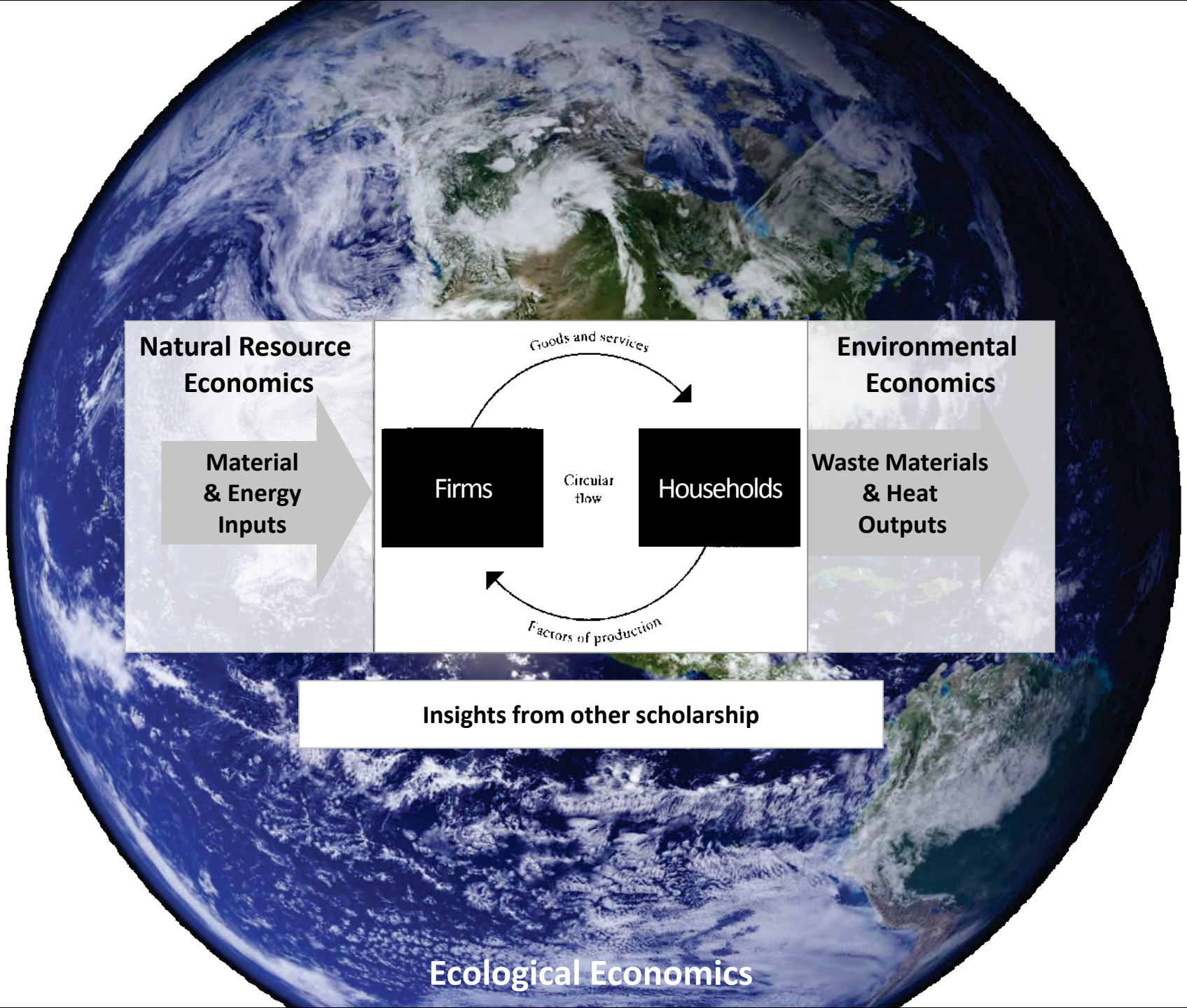
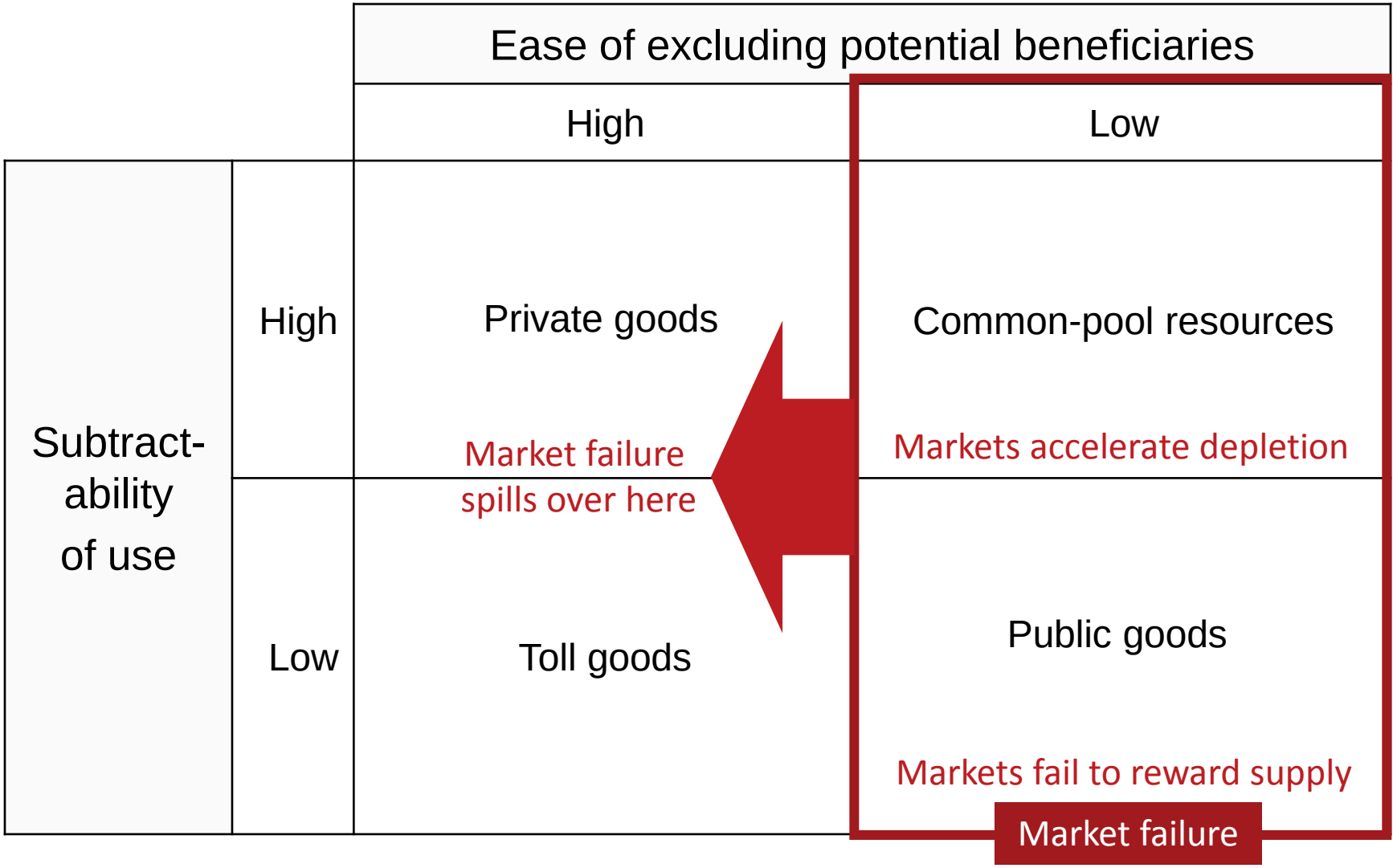

Natural Resource Economics
Material & Energy Inputs
Goods and services
Firms
Circular flow
Households
Factors of production
Environmental Economics
Waste Materials & Heat Outputs
Insights from other scholarship
Ecological Economics

sustainability

distribution

efficiency

how well can markets deliver efficient outcomes?



Adapted from Ostrom (2005: 24)

what should we do to manage market failure?

how is nature a factor of economic production?

ecosystem
goods

ecosystem
services

**Built Capital
and
Human Capital**

**Human
wellbeing**

	Economic benefits	Market value	Non-Market value	Biophysical supply
ecosystem *goods*	Food	$$		
	Building materials	$$		
	Fuel	$$		
ecosystem *services*	Local water quantity regulation	0	$$ / time	## / time
	Local water filtration	0	$$ / time	## / time
	Regional aesthetic enjoyment	0	$$ / time	## / time
	Global GHG sequestration	0	$$ / time	## / time
	Continental wildlife benefits	0	$$ / time	## / time
	(Plus others)			

GDP ESV

Measure and manage Integrate Sustain

how much natural capital needs to be conserved?

ecosystem *goods*

ecosystem *services*

Built Capital and Human Capital

Biophysically Sustainable **Human wellbeing**

Biocapacity (supply) | Ecological Footprint (biocapacity demanded)

If supply > demand: sufficient natural capital to sustain current demand

If supply < demand: insufficient natural capital to sustain current demand

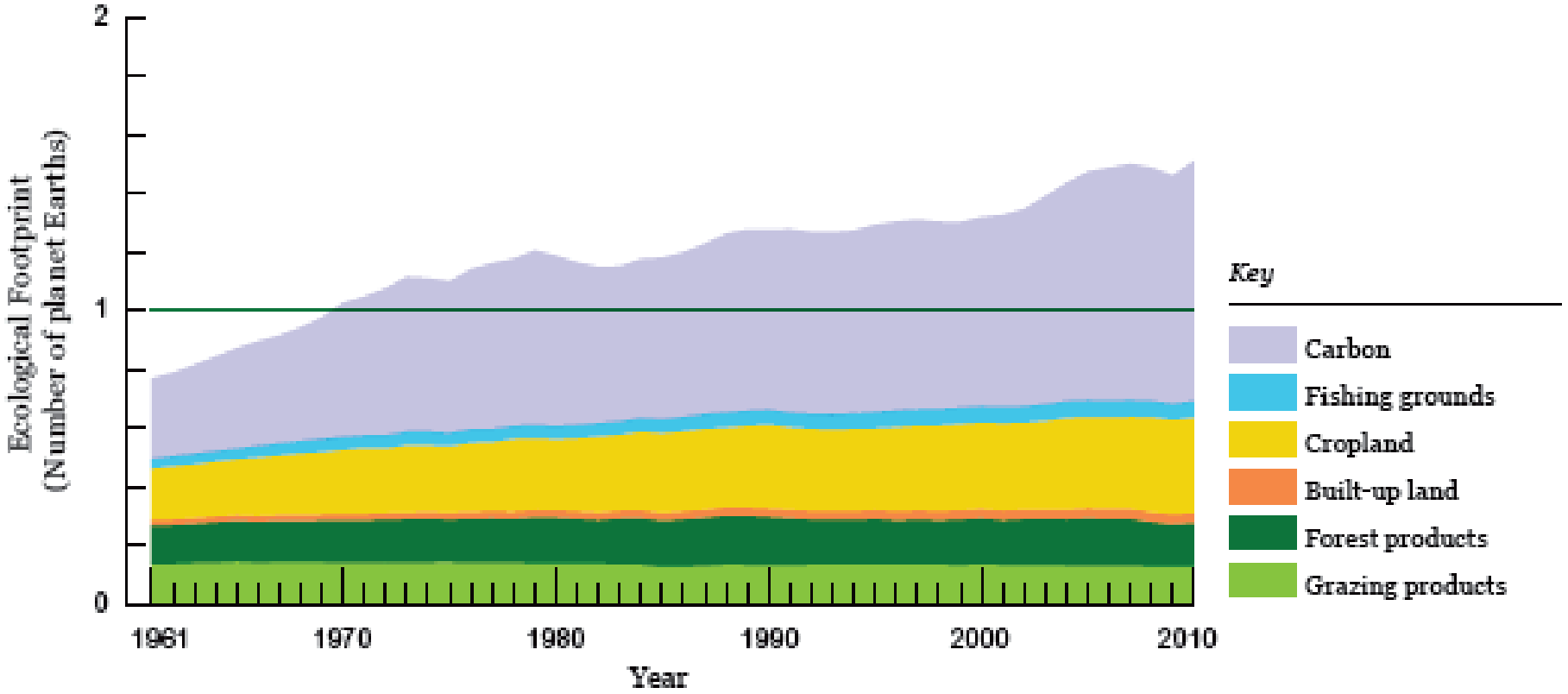
Global Footprint Network®
Advancing the Science of Sustainability

The Footprint and Biocapacity of Ontario, Canada: Comparing Results for 2005 and 2010

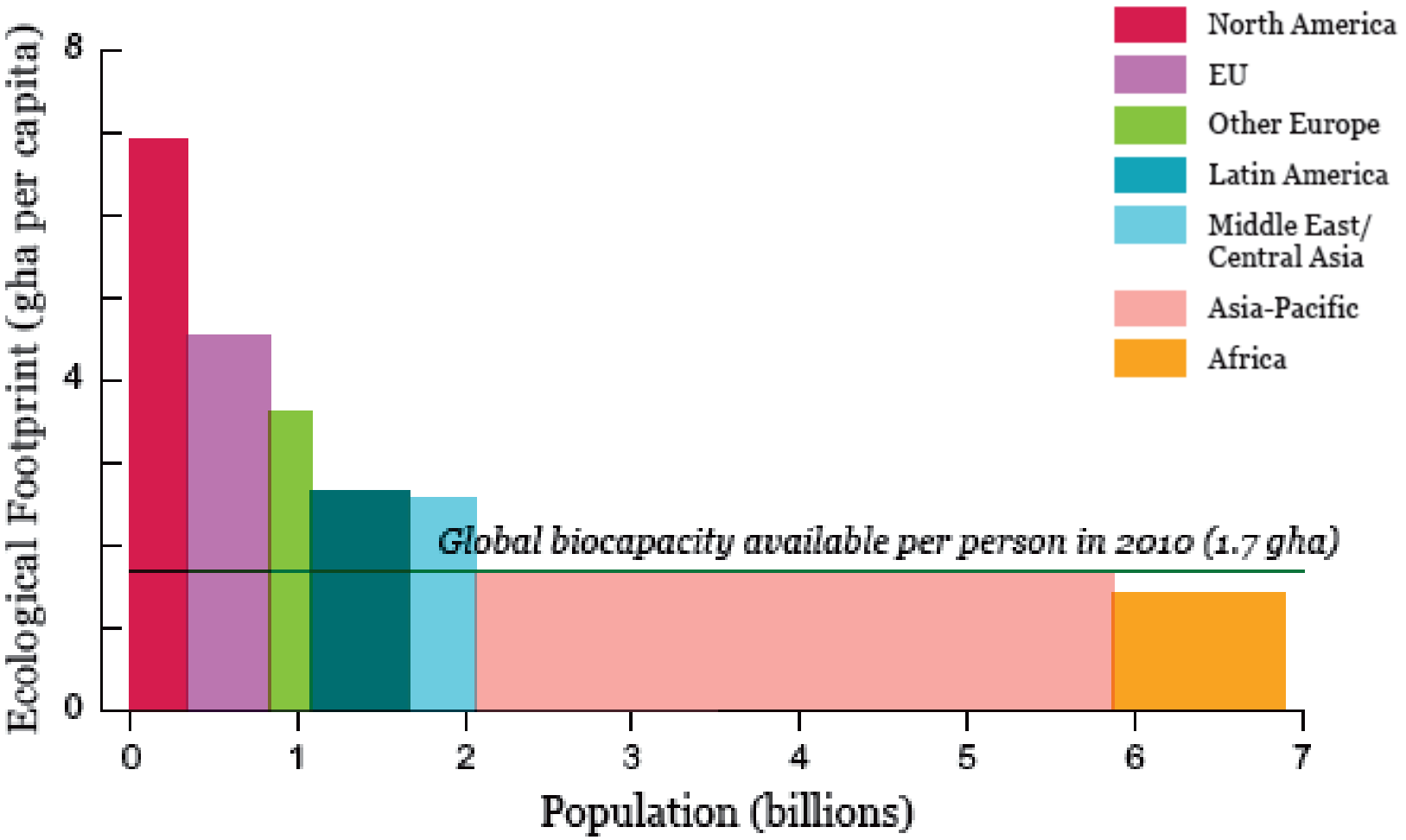
March 2015

www.footprintnetwork.org

Produced for the Ontario Ministry of Natural Resources and Forestry



Extracted from WWF Living Planet Report (2014)



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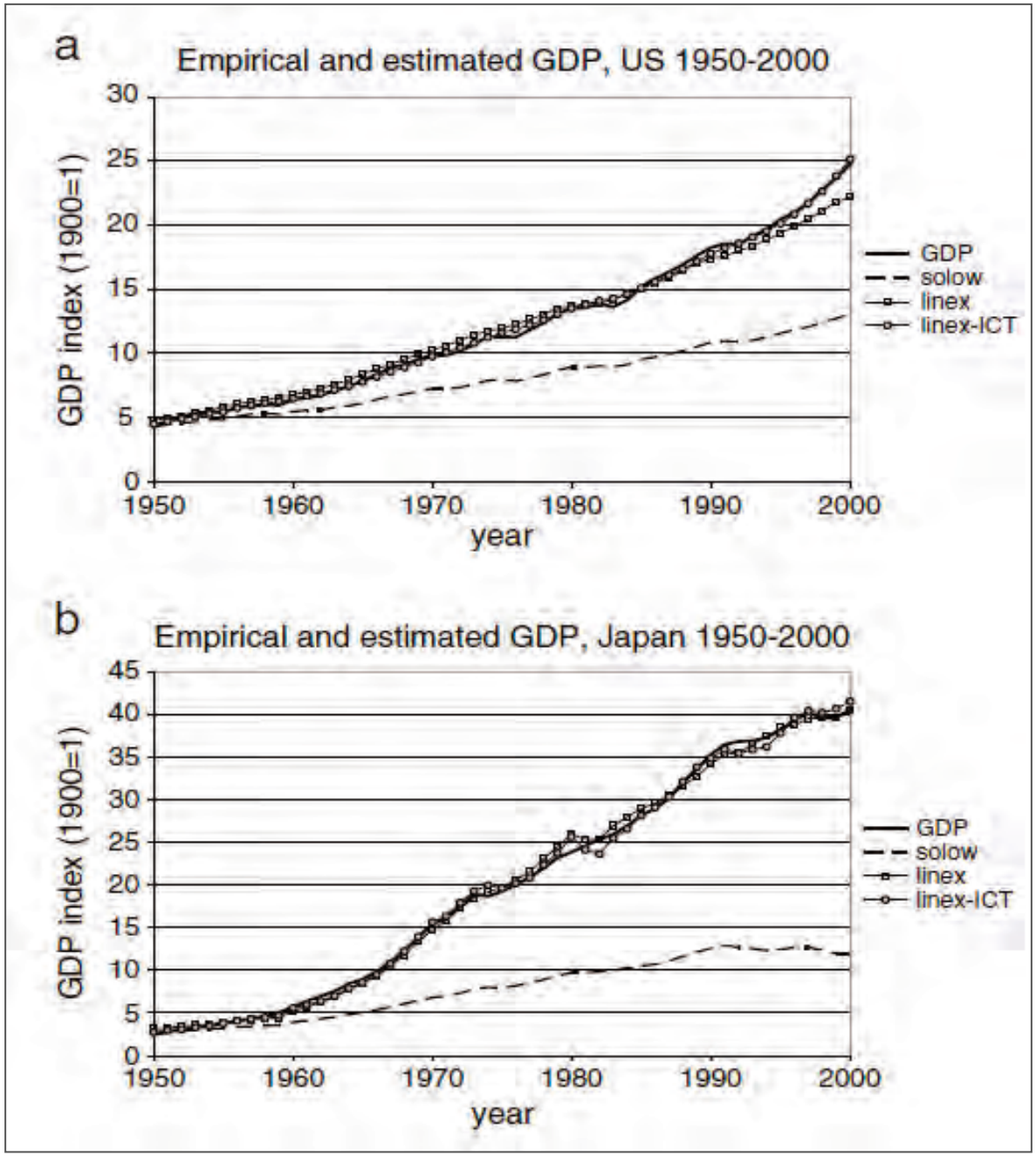
how should we model environment-economy interactions?

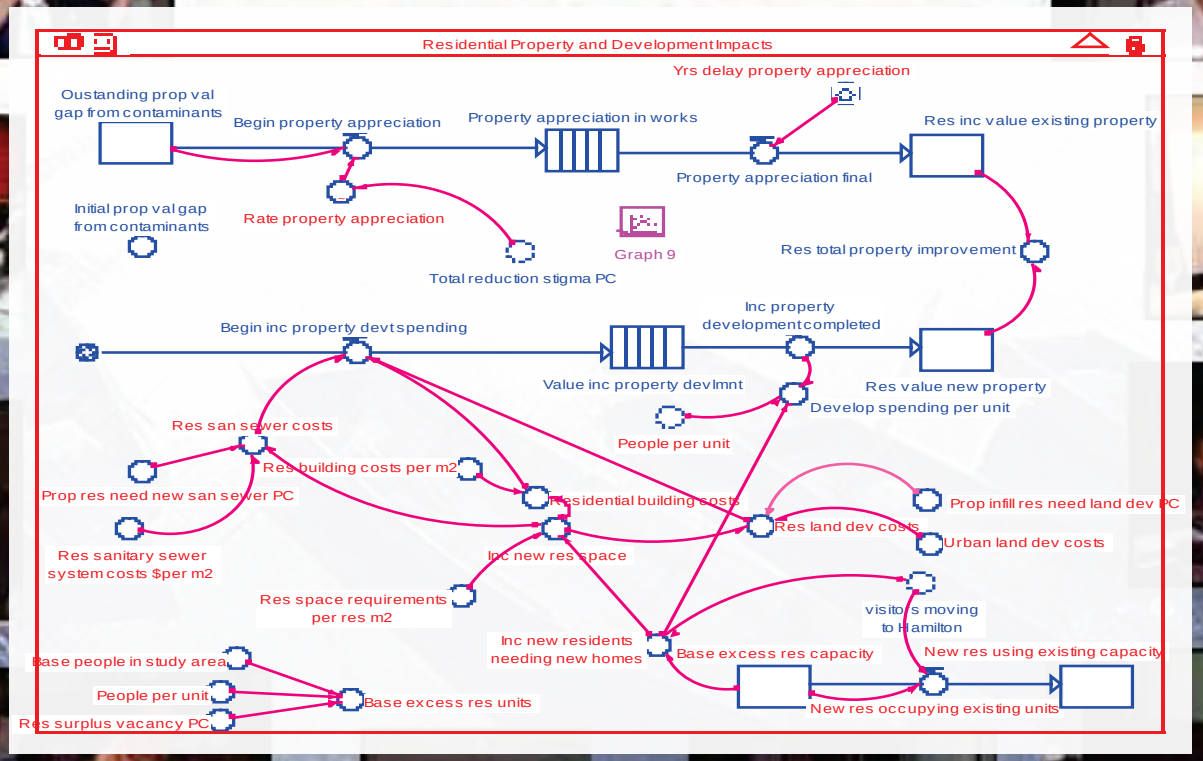


Extracted from Warr and Ayres (2012)

Environmentally-extended Input-Output Analysis

		Sales to…						
		Intermediate Demand		Final Demand	Total Output	Environmental pollution		
	Purchases from…	Sector 1..	…Sector *n*			GHG	PM_{10}	NO_x
	Sector 1							
	…							
	Sector *n*							
Primary inputs	Labour: wages and salaries							
	Other factor payments							
	Total Inputs							
Environmental inputs	Ecosystem Service *X*							
	Water							
	(etc)							

Mediated Modelling



how should we consider the present value of future environmental values?

what overall goal should we have in mind for economic policy in the 21st century?

max (Gross Domestic Production)

$$\max\left(\frac{\text{Human wellbeing}}{\text{Human appropriation of planetary resources}}\right)$$

subject to biocapacity

$$\max\left(\frac{\text{SelfReported Life Satisfaction}}{\text{Ecological Footprint}}\right)$$

subject to biocapacity

Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you.

On which step of the ladder would you say you personally feel you stand at this time?

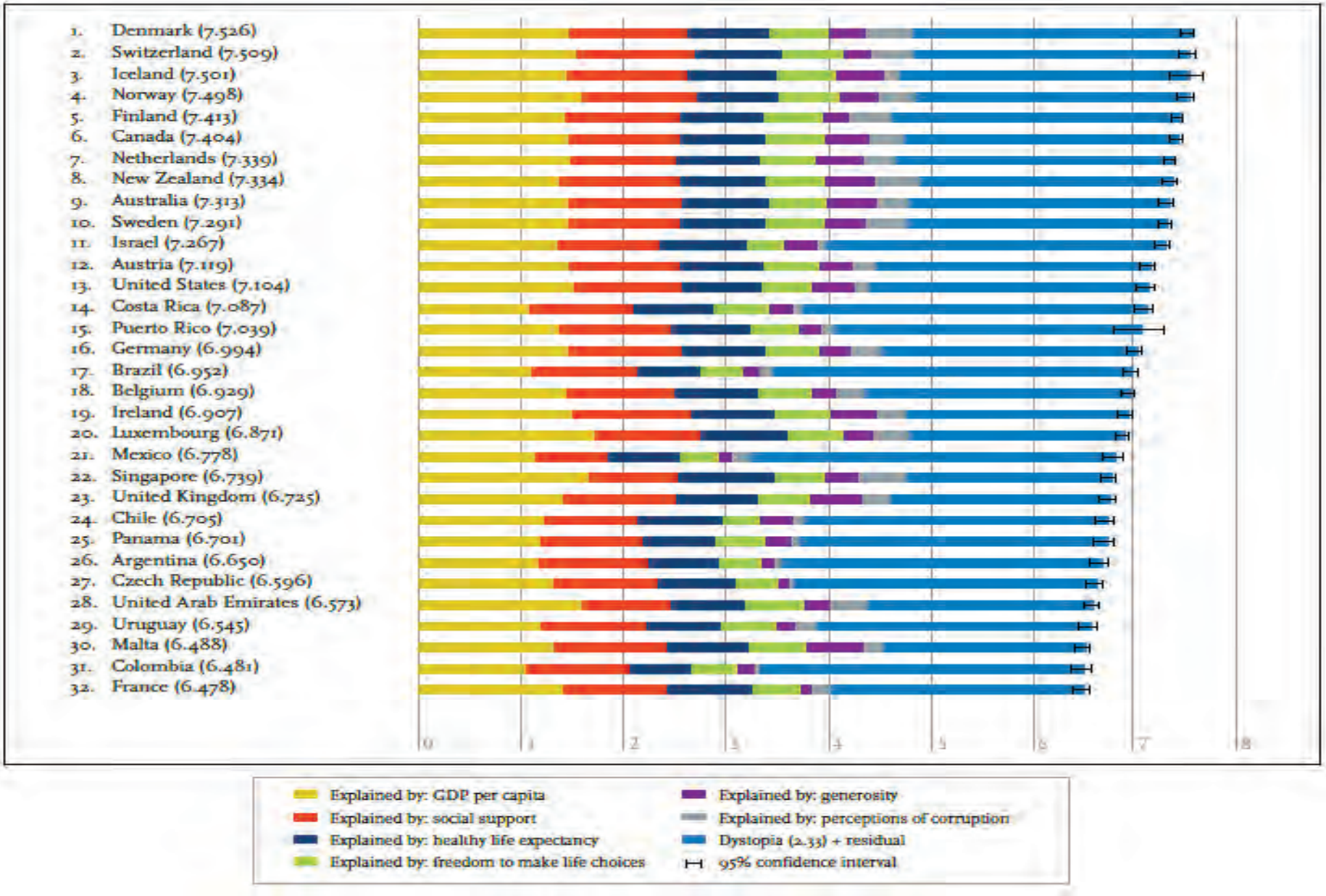
- Average in Canada from 2013-2015: 7.404

Compared to the period 2005-2007:

- Average life satisfaction fell 0.041
- Standard deviation grew by 0.017

(Data from Helliwell et al, 2016)

Explaining national average life satisfaction from 2013-2015



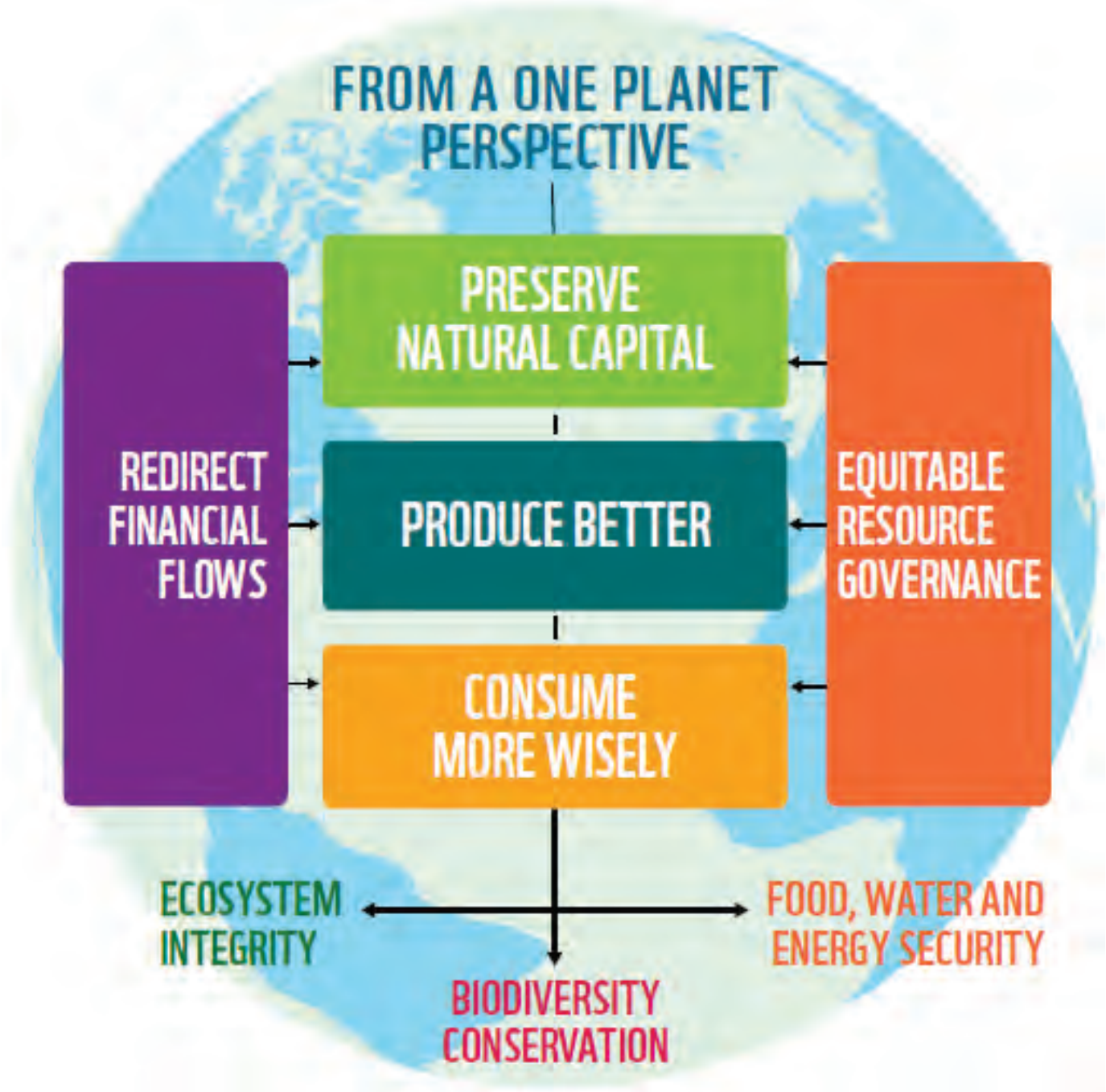
Extracted from Helliwell et al (2016: p. 20)

what are some synergies with other heterodox economics?

20th century economics	Ecological Economics
Homo economicus	*Homo reciprocans*
Markets (and a bit of government)	Markets, households, institutions, nature
Economic value = market value	= market + nonmarket value
Governments balance budgets (Budgets as cash-flow statements)	Governments balance the economy (Budgets with balance sheets)
Globalization through “Free Trade”	Globalization of Fair Trade
Quantity of jobs	Quality of work and life

what are some tensions with other forms of heterodox economics?

20th century economics	Ecological Economics
GDP growth = “Economic growth”	GDP growth may or may not be economic
Promote market expansion	Solve market failures
Prices inform sustainability goals	Sustainability goals inform prices
Technological optimism: improve intensity to reduce impacts	Technological realism: impacts = fn(scale, intensity)



Extracted from WWF Living Planet Report (2014)

Canadian Society
for Ecological Economics
www.cansee.org

as a chapter of the

International Society
for Ecological Economics
www.ecoeco.org

Ontario Network on Ecosystem Services
www.ONEcosystemServices.ca

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Images collaged on slide 2 are derived from Google Images search.