Green New Deal for China's Low Carbon Development

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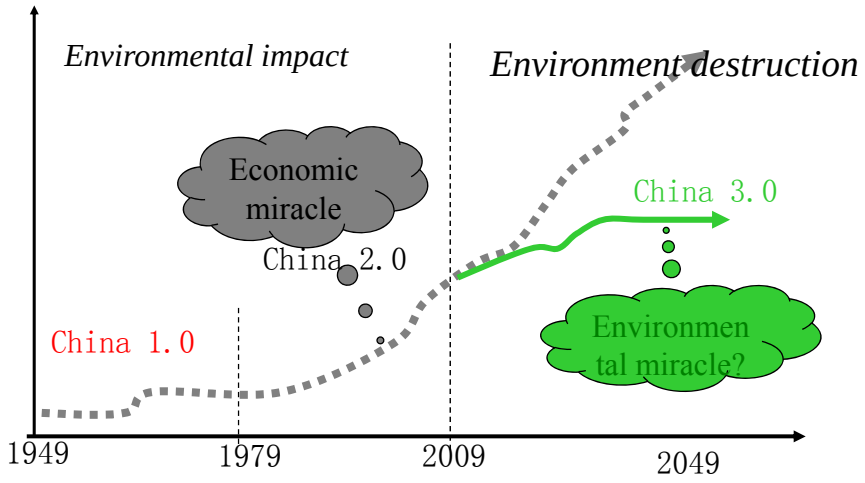
Three points and messages

- Why: China’s development needs green new deal
- What: The key elements of green new deal
- How: Towards low carbon development through green new deal

1.Why：China’s development needs green new deal



1949-2049:Three stages of China’s development

- China 1.0: 1949-1979
  - Political China (red China)
- China 2.0: 1979-2009
  - Economic China (brown China)
- China 3.0: 2009-2049
  - Harmonious China (green China)?

Where will China go in terms of metabolic rates?

Environment Impact of Economic Growth

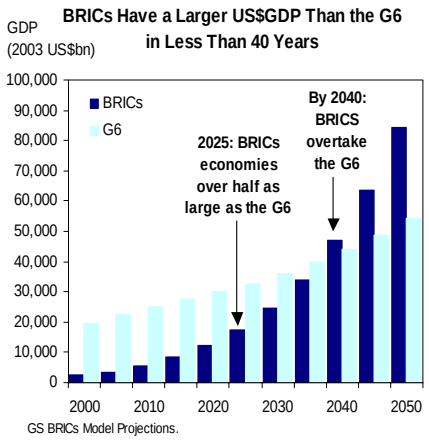
$I = PAT$

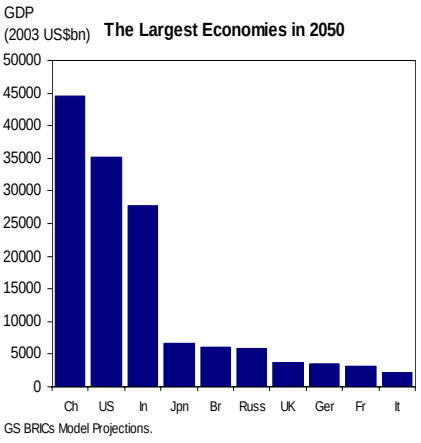
- I=Impact: resource consumption and pollution impact of development
- P=Population:How many people will we have ?
- A=Affluence:What's the consumption level?
- T=Technology and Management: How fast and big do we consume the resource and environment ?

Economic Growth in terms of GDP per capita

- Beginning of Reforming and Opening: $250 per person
- 1981-1990: $500 per capita
- 1991-2000: $800 per capita
- 2001-2010: $4000 per capita
- *2001-2020: $8000 per person (about 10 times of the year 2000)*
- *2021-2050: above $20000 per person (about 25 times of the year 2000)*

Economic Size of China in 2050





How big is environment impact in the next 10 years?

(According to the formula: I=PAT,when T=1)

Year	Population (billion)	Affluence (GDP per capita)	Environment impact (how many times)
2000	1.3(1.0)	800(1.0)	1.0
2020	1.4(1.1)	8000(8)	8.8
2050	1.5(1.15)	20000(25)	28.0

To call for an alternative development model

- Traditional approach （high economic growth and high environmental impact)
  - The resource and environment in China are not available to provide a growing population with higher standards in a Western lifestyle of consumption.
- Alternative approach （acceptable economic growth and low environmental impact ）
  - The challenge for China is to create an alternative to Western development modes which would meet the needs for development while maintaining and even improving the health of ecosystem.

China's advantages for green leapfrogging

	US	Europe/Japan	China
Stock of goods	Developed	Developed	Developing
Government initiative	Weak	Strong	Strongest
Green Culture	Weak	Strong	Developing

Green stimulus packages at 2008-2009

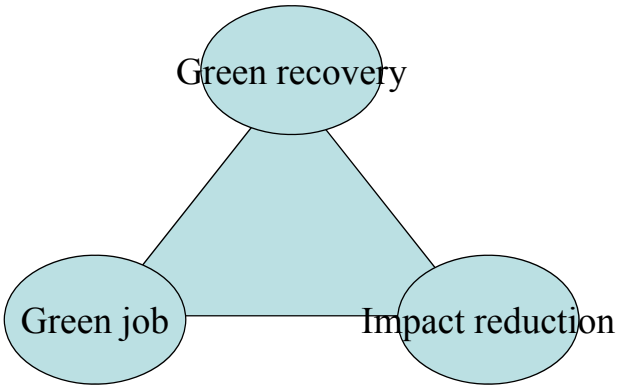
Country	Stimulus USbn	Stimulus as % of GDP/GNI	Green Fund USbn	% of Green stimulus	Green stimulus as % of GDP
Australia	**26.7**	**2.49**	**2.5**	**9%**	**0.2**
China	**586.1**	**13.88**	**221.3**	**38%**	**5.2**
Japan	**485.9**	**10.03**	**12.4**	**3%**	**0.3**
Korea, Rep	**38.1**	**4.44**	**30.7**	**81%**	**3.6**
France	**33.7**	**1.12**	**7.1**	**21%**	**0.2**
Germany	**104.8**	**2.74**	**13.8**	**13%**	**0.4**
UK	**30.4**	**1.09**	**2.1**	**7%**	**0.1**
US ARRA	**787**	**5.27**	**94.1**	**12%**	**0.6**
US EESA	**185**	**1.29**	**18.2**	**10%**	**0.1**
Canada	**31.8**	**2.03**	**2.6**	**8%**	**0.2**

source: HSCB 2009, CIA factbook

2.What: Key elements of Green New deal

Global Green New Deal Report	Policy Context: ·*Multiple crises* ·*Climate Change* ·*Poverty* ·*Core policy principles underlying a Green Economy*		Renewable Energy	Clean technology and material efficiency	Buildings
	Transport	Sustainable cities	Waste	Ecosystems and ecological infrastructure	Water
	Forest	Agriculture	Enabling Conditions (domestic and int'l)	Policy recommendations	Impact assessment

2.1Three pillars of green new deal



Key elements of Global Green New Deal

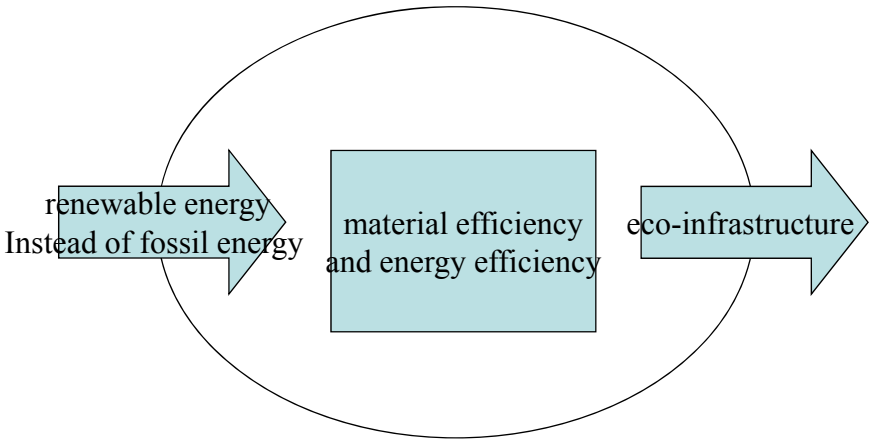
1 **Revive the world economy, create new and decent jobs, and protect the vulnerable**

2 **Reduce carbon dependency, ecosystem degradation, and water scarcity**

3 **Eliminate persistent poverty by 2015…. achieve the MDG's**

From : Edward B. Barbier, "A Global Green New Deal",UNEP, Feb 2009

2.2 Main investing fields of GND



Categories of green investment

- Input:
  - Renewable energy: Solar, Wind, Biomass etc
- Throughput:
  - Clean tech : materials & energy efficiency
  - Green buildings
  - Sustainable transport: Railways, city subways
- Output:
  - Waste management & mitigation
  - Ecological infrastructure: forest, water, agriculture etc

2.3 Comparison: green sectors at 2008-2009

	Total (Eura Bn)	Green Funds		Green Sectors (EuraBn)						
		(EuraBn)	%	RE	Grid	Bldg	Veh	Rail	W/W	CCS
EU	30.0	17.6	58.7	0.5	3.8	2.2	1.5			9.7
Total Europe	490.1	41.9	8.5	2.7	7.0	11.4	6.1	4.5	0.7	9.7
US	751.2	86.8	11.6	25.3	9.2	23.5	3.7	7.7	12.0	9.9
Total Americas	778.8	88.8	11.4	25.3	9.8	24.0	3.7	8.0	12.1	5.9
China	452.9	171.0	37.8		54.1		1.2	76.2	39.5	
Japan	375.5	9.6	2.6			9.6				
Total Asia	891.7	206.3	23.1	1.4	54.1	16.3	2.6	81.7	50.2	
World	2160.6	336.9	15.6	29.4	70.9	51.6	12.3	94.1	63.1	15.1

Source:Worldwatch Institute,2009

Green Jobs of main fields

Country	Renewable Energy	Building Retrofits	Transport	Sust. Agr	Ecological Infrast
Australia		160,000			
China	1 million				
Colombia				170,000	
EU	1 to 2 m		900,000		
Nigeria				700,000-1 m	
S. Korea	3.5 m	334,000			350,000
Thailand		182,000			
UK	160.000				
USA	2 million		367, 000		

Basic needs for individual and collective

Basic needs: individual

- clothes：warm, comfortable, decent
  - Fiber requirement；
- food：nutrition, health
  - Calories intake；
- shelter：space, quality
  - M2/c；room temperature,water supply and drainage, etc.
- transport：convenient, comfortable
  - Cars/c?；
- Other materials：
  - Electric appliances；
- Other services
  - Safety, security, health；

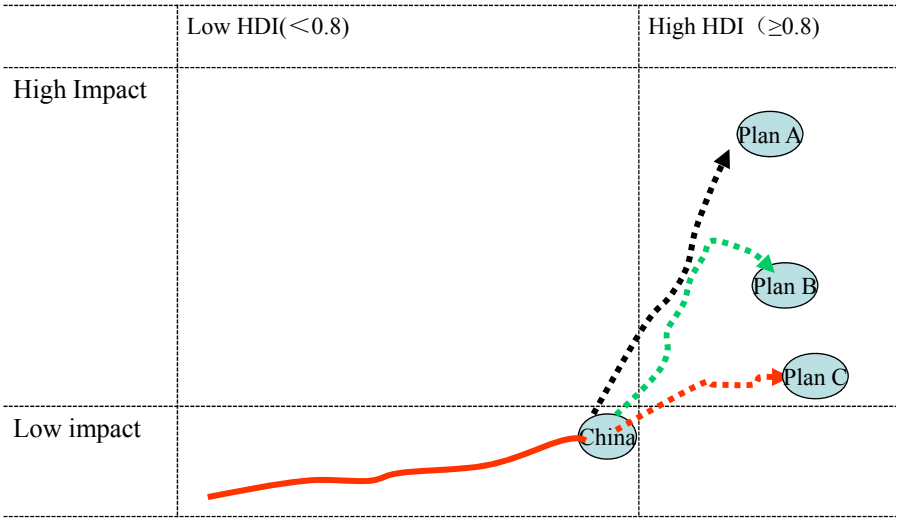
Basic needs: collective

- Urban infrastructure
  - Water, electricity, road, water water treatment, municipal waste；
- Regional infrastructure
  - Road, railway, airport, etc
  - Energy, communication；
- Rural infrastructure
  - Water, electricity, road, etc. ；
- Public services
  - Government, education, science & technology, culture, health care, commerce, etc.
- Adaptation infrastructure
  - Dykes, dams；

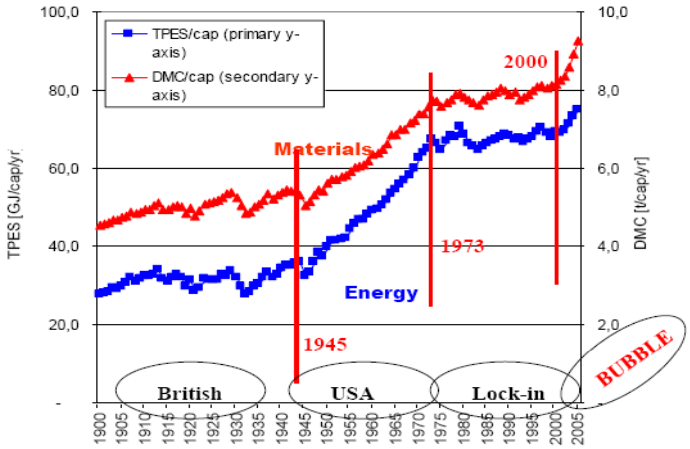
3.How：To enable GND into low carbon development

- Strategy： from immediate measure to median-long-term target
- Institution： from government investment to institutional arrangements
- Technology： from partly efforts to integrated system innovation

3.1 Transition#1: from Emergency measures to long-term objective

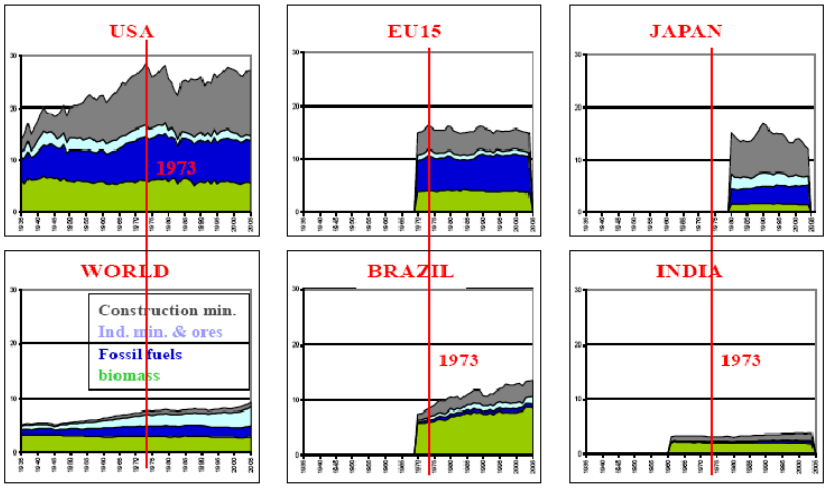


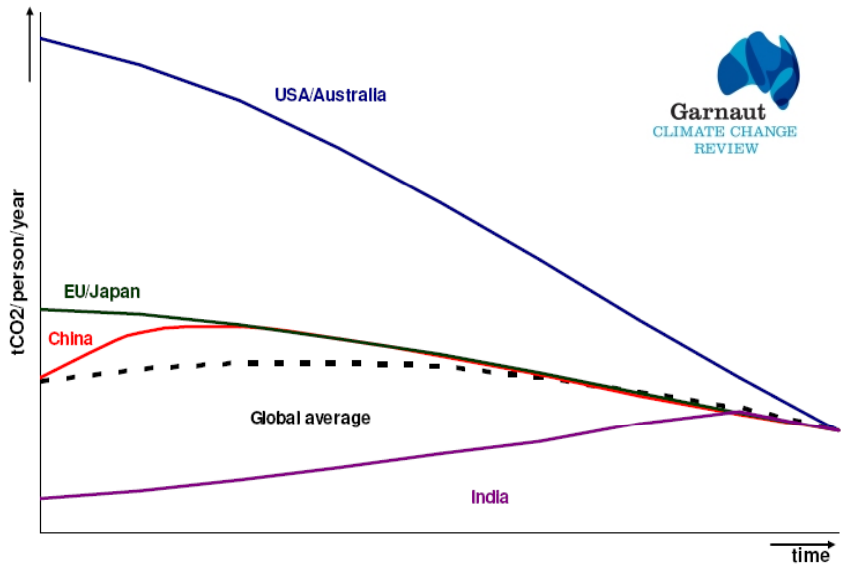
Metabolic rates and metabolic phases: global material and energy use per capita



Marina ,2009,World Resource Forum

National trends: material metabolic rates (resource use in tons / capita) 1935 - 2005

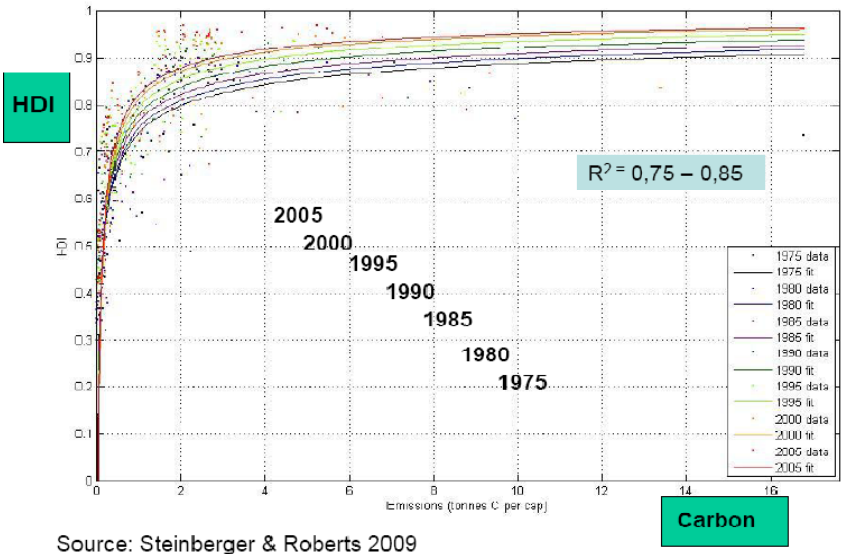




Contraction and convergence for different countries with 'head room' for the rapidly developing economies: a stylised, illustrative scenario

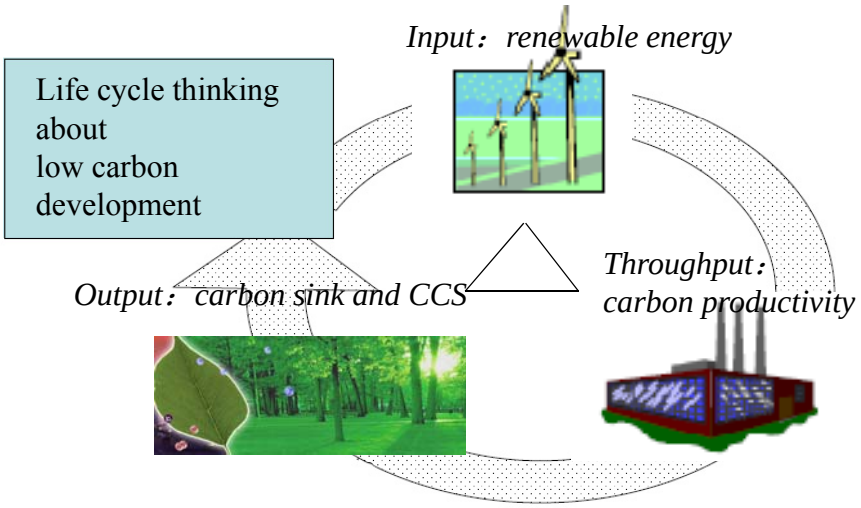
Source: Garnaut Interim Report (2008)

Results: HDI vs. Carbon

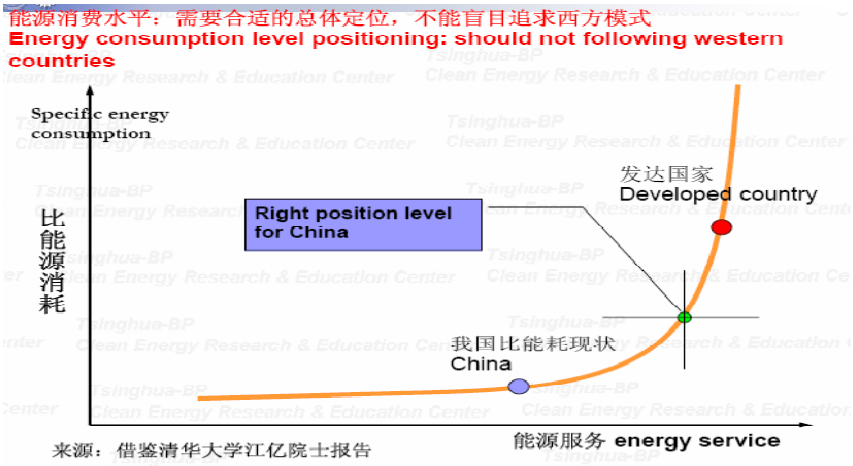


Source: Steinberger & Roberts 2009

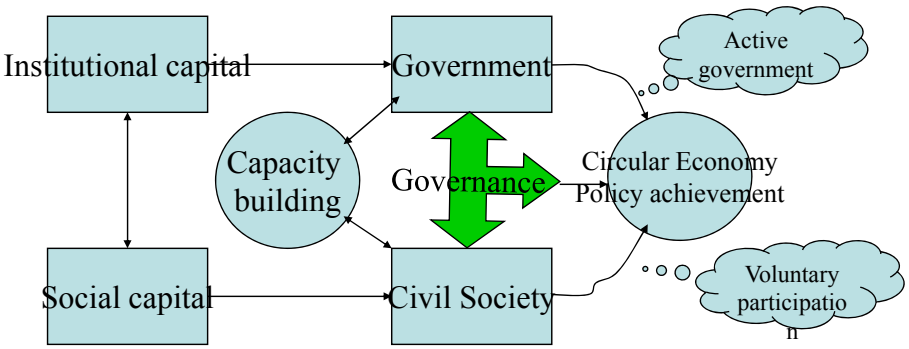
3.2 Transition#2: System innovation for carbon productivity



Radical increasing of carbon productivity



3.3 Transition#3: Good governance for low carbon development



Active government and stakeholder involvement

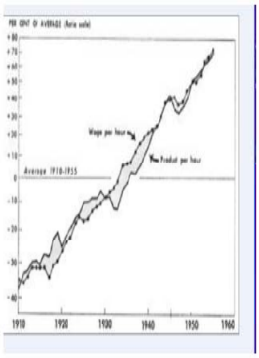
government	company	citizen
you are concerned about maintaining a sound economy and a healthy environment for all…	you think about environmentally benign ways of your business and products…	you want to improve your quality of life without adversely affecting the environment…

Green Economy: an institution integration

Government promotes more sustainable production and consumption patters.	Companies provide a service in lieu of tangible products.	Consumers buy a service to fulfill their needs instead of buying a product.

Carbon Tax for Carbon Resource Productivity

Labour productivity rose in parallel with labour costs



Moreover, high energy prices need not hurt the economy at all. Japan blossomed during the 15 years of highest energy prices.