



FLACK+KURTZ



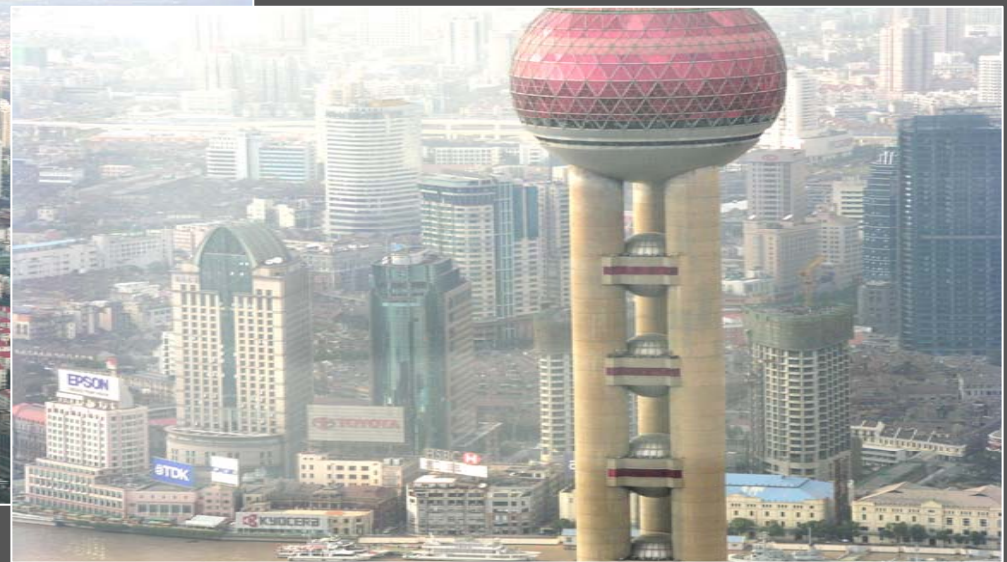
**The Asian Century –
Current Economic Development
and Its Impact on Global Energy**

Asia is a HUGE contradiction – tremendously exciting,
but with potential enormous consequences.



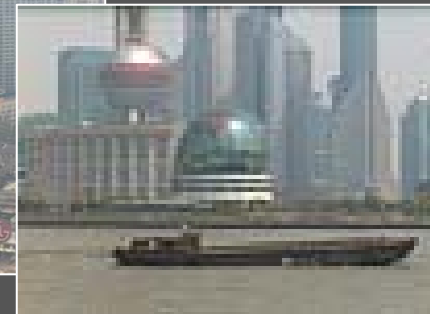
If current trends remain, Asia coupled with current developed country traits, may bring the world to an environmental brink.

Its seemingly an "impending reality".



Asian countries (led by China and India) want to be world leaders. Their energy and work ethic are second to none. Their cost structure is remarkable and labor is seemingly inexhaustible.

If it wants to happen, IT WILL - AND QUICKLY



The scale of Asia cannot be explained – it has to be experienced.



Asia is very large and the definition varies of what it includes:

- China (PRC)
- Japan
- India
- South Korea
- Indonesia
- China (Taiwan)
- Iran
- Thailand
- Philippines
- Pakistan

**Top Ten Asian Economies –
GDP (PPP)**

- CIA 2005 and World Bank 2006

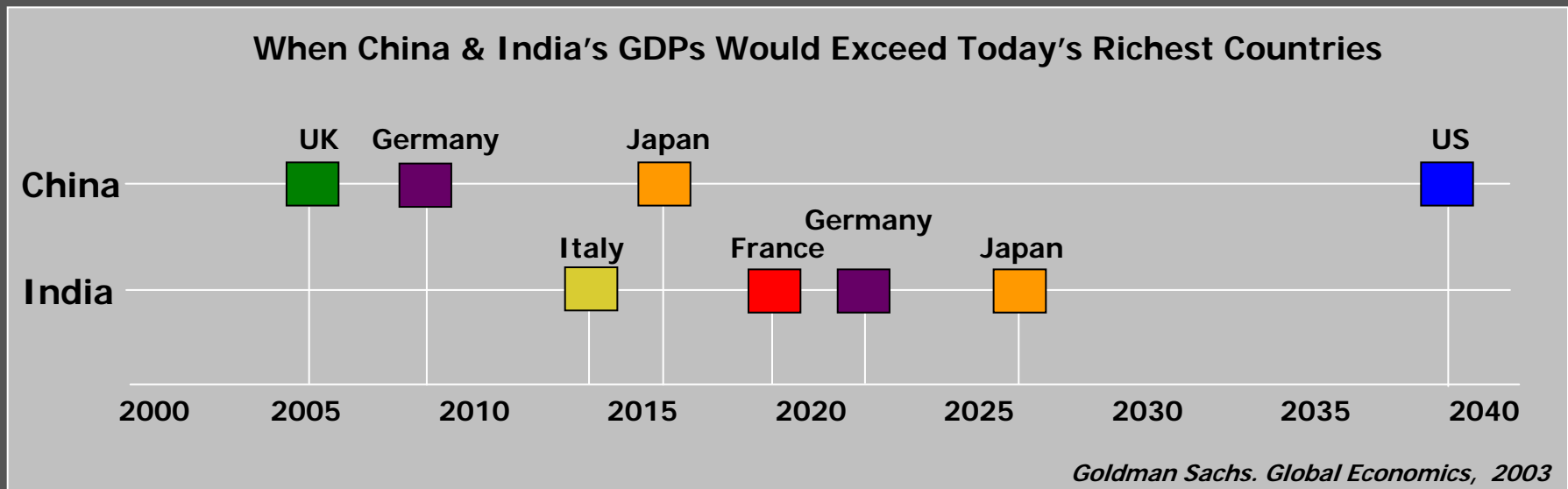
- **PLUS MORE THAN 40 OTHER
COUNTRIES**

However, there is no question that the developing Asian countries are led by China and India – they have an overwhelming impact on the region and are dominant players in the world's future.

China and India –
The One/Two Punch



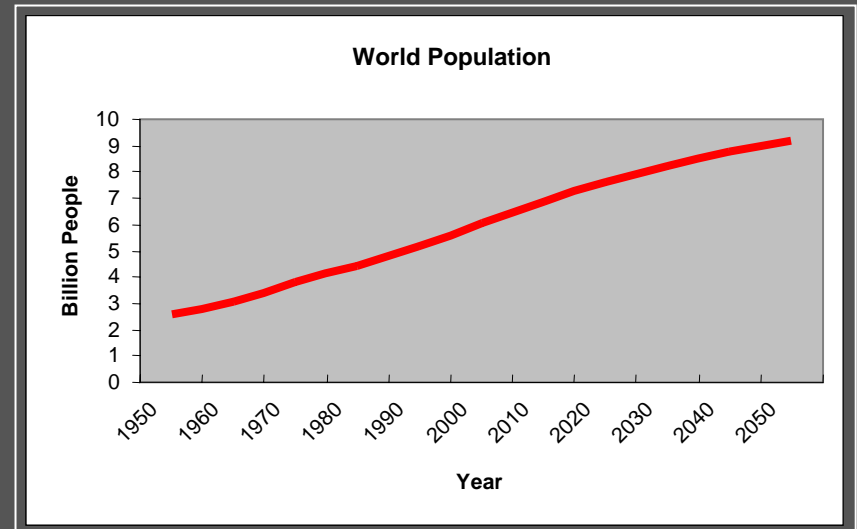
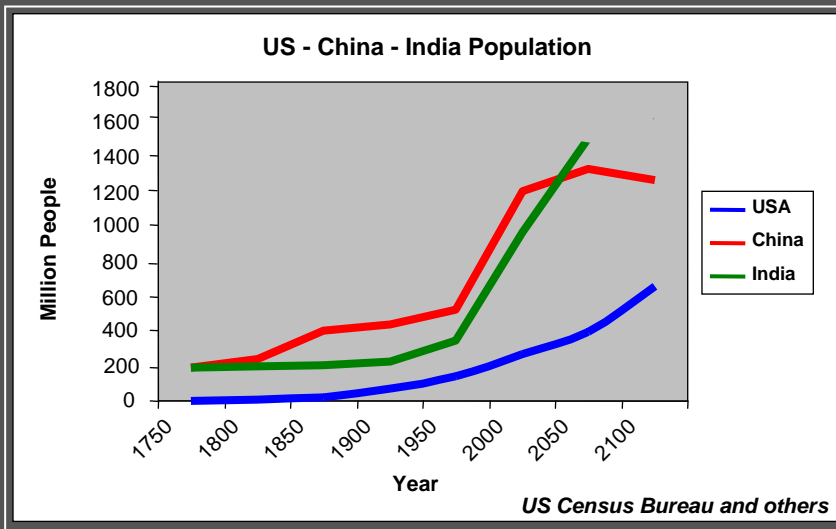
These two countries are expected to become world leaders:



"China, India, and other developing countries are set to give the world economy the biggest boost in the whole of history"

- *The Economist, 2006*

World Population



Current World Population
(Population in Billion People)

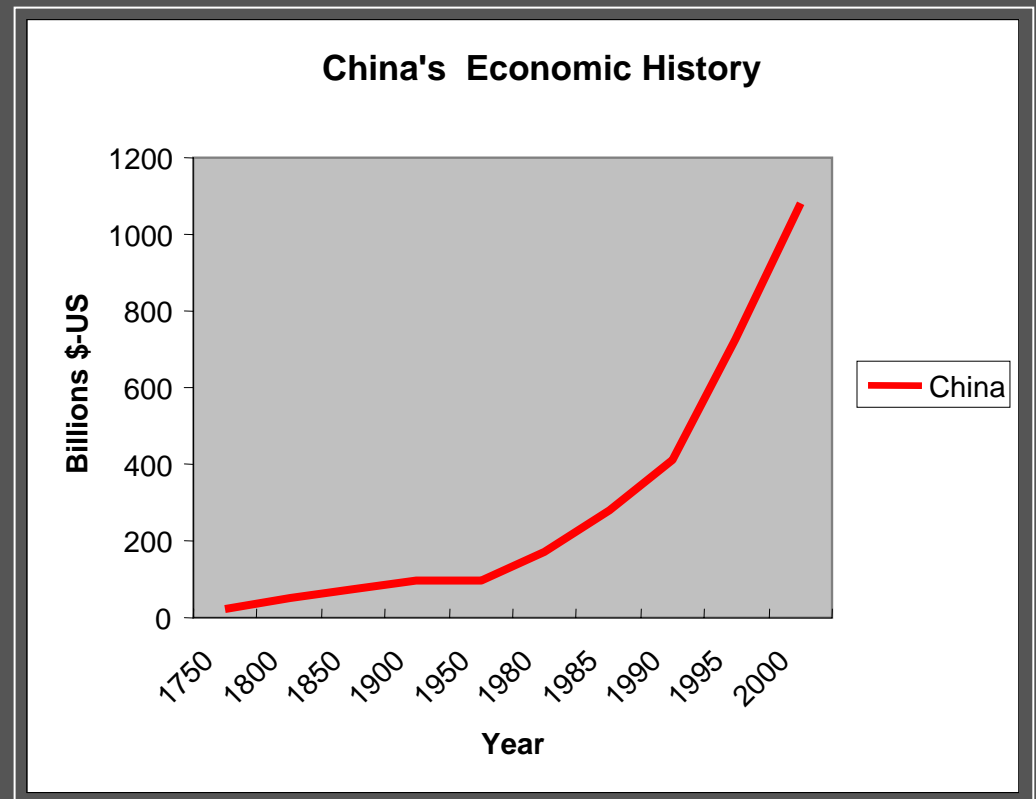
	China	India	USA	World
Current Population	1.3	1.1	0.3	6.5
World Rank	1	2	3	

China and India alone have 2.4 billion people (35%) of world population
Asia has more than 4 billion people (60%) of world population

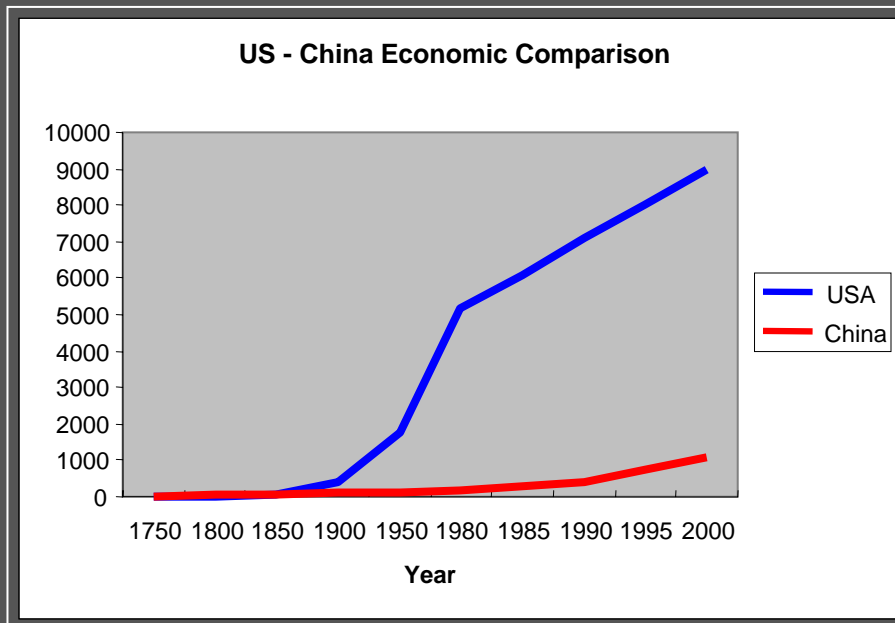
CIA, 2005

Asian Economic Growth

The last 25 years have seen remarkable growth in Asian economies.



Remarkable – but one needs to compare



	US	China	India
GDP (PPP) (1)	12,360	8,859	3,611
% World GDP (PPP)	20%	15%	6%
% World Population	5%	20%	17%
Per capita GDP (PPP)	41,415	6,742	3,297
World GDP (PPP) Rank	1	2	4

(1) – 2005 data, Billion dollars (US)

CIA, 2005-2006

The total Asian GDP (PPP) is approximately 50% greater than the US, but on a per capita basis is about a tenth that of the US.

Asia has three of the four largest world economies – GDP (PPP)

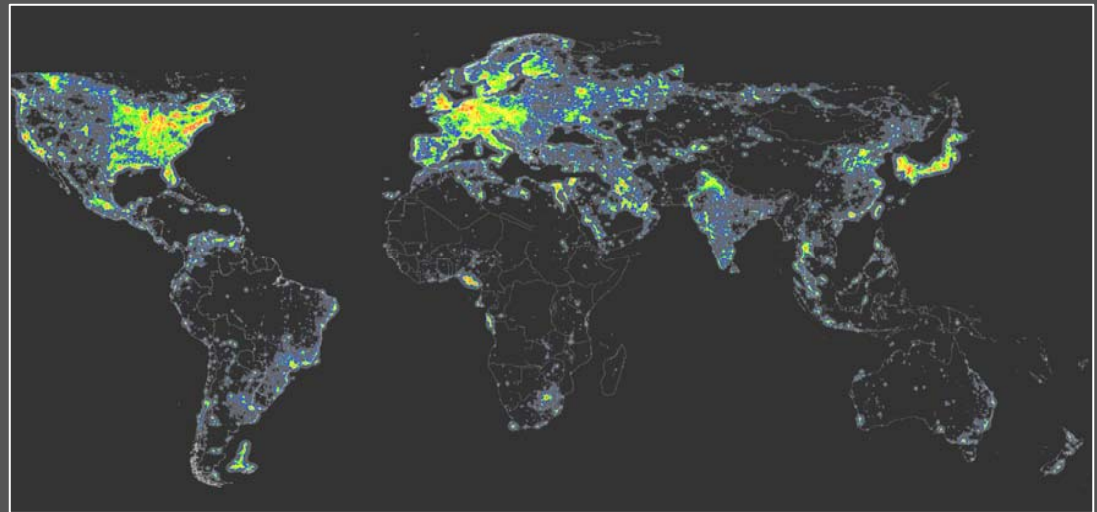
- CIA, 2005

US – Energy Baseline

US has 5% of world population and uses approximately a quarter of world energy

- 40% of world oil use
- 23% of natural gas use
- 23% of coal use

– USGS

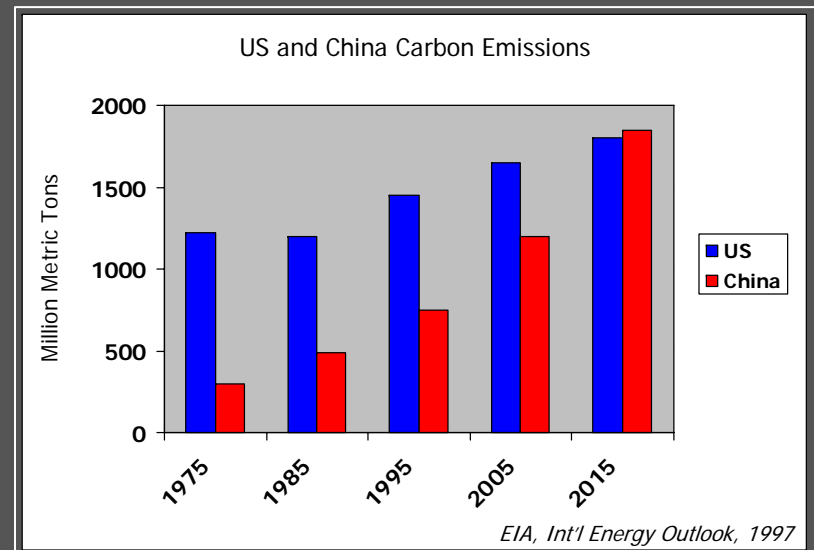


China – Energy Baseline

China has 21% of world population and uses 10% of world energy use.

China is the second largest consumer of oil and is the source of 40% of world usage growth over the past few years.

China is estimated to have 13% of today's world greenhouse gas emissions.



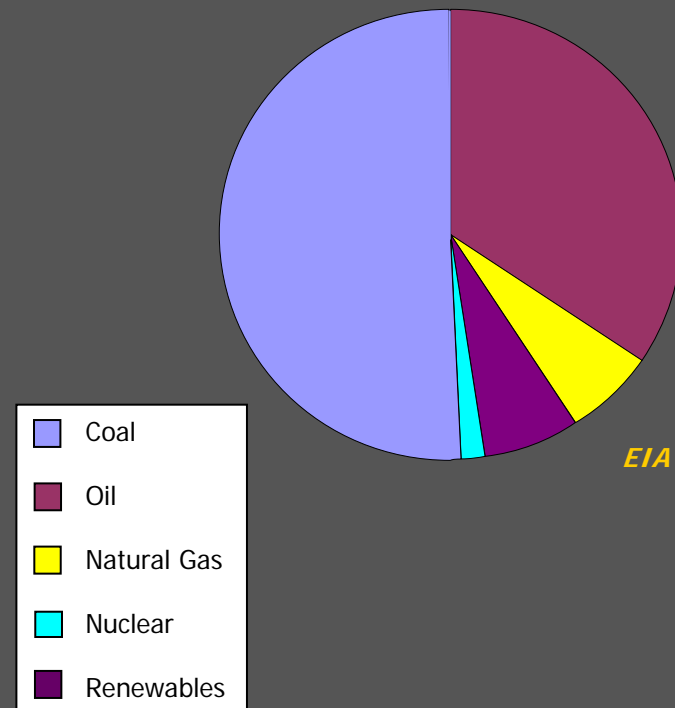
India – Energy Baseline

India has 17% of world population and uses less than 4% of world energy use.

India is the third largest producer and consumer of coal in the world.

India ranks fifth in world greenhouse gas emissions (2001).

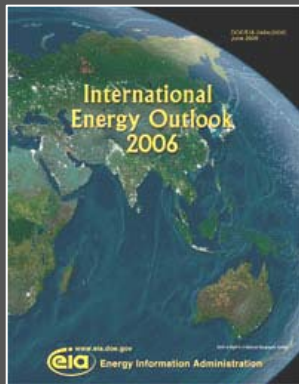
India's Fuel Share of Energy Consumption, 2001 (Btu)



Asia – Energy Baseline

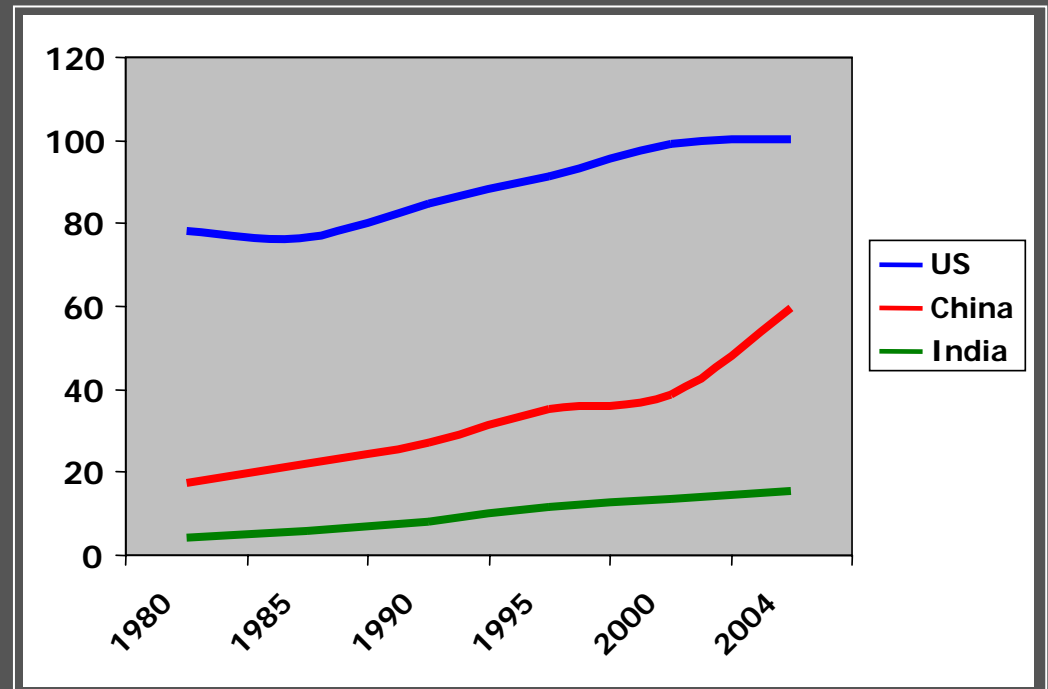
China is currently the second largest energy consumer in the world, following the United States.

India is the world's sixth greatest energy consumer.



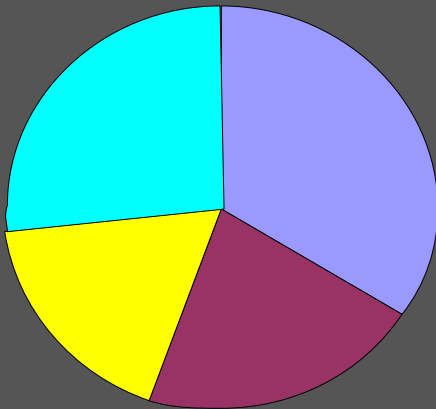
- EIA / Department of Energy

World Primary Energy Consumption (Quadrillion Btu)

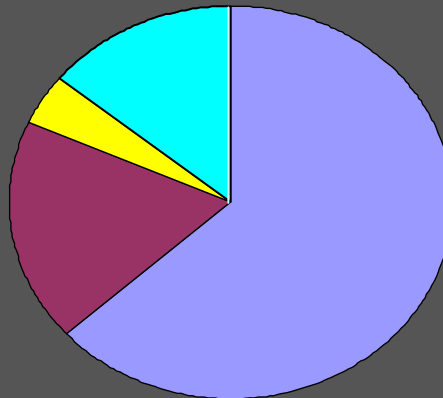


Comparative – Energy Baseline

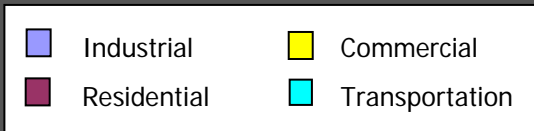
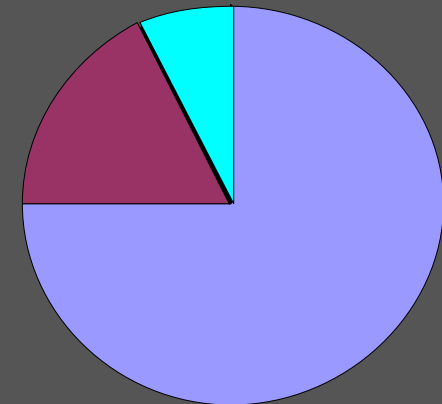
US - Breakdown



India - Breakdown



China - Breakdown



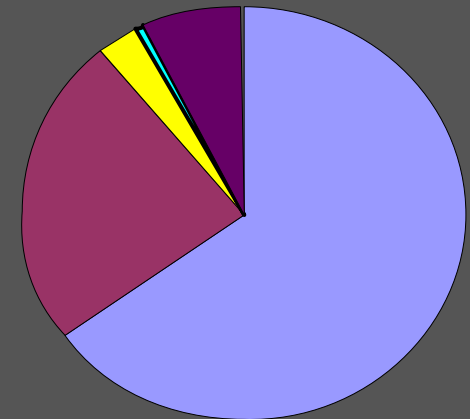
Coal – The Once and Future King

China leads the world in terms of coal production and consumption. Coal fuels almost 75% of China's electric power plants.

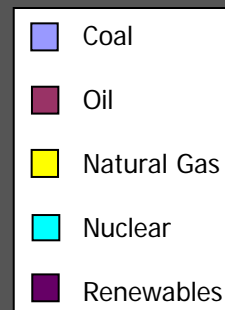
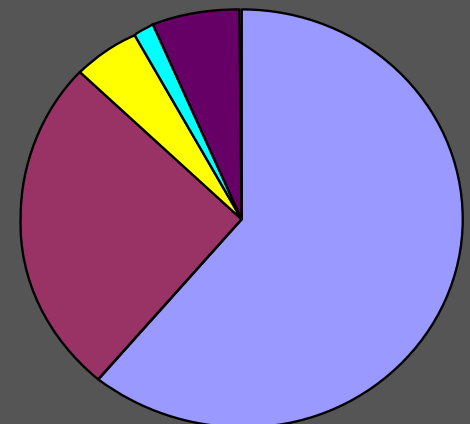
It is a shortage of coal...reflecting continued rapid growth in demand for electricity...outstripping the ability of the coal sector to respond.

- *China's Energy Future, 2005*

2002



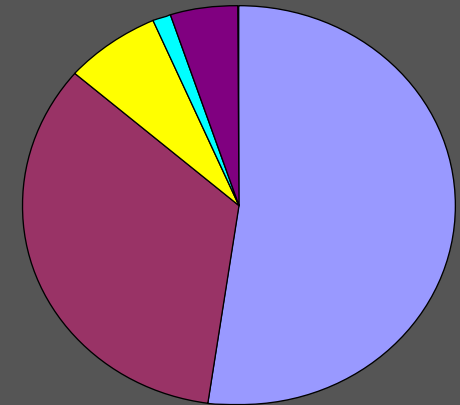
2020



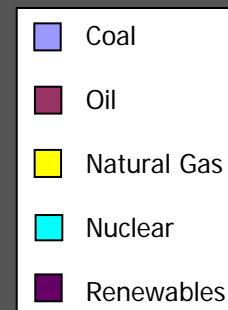
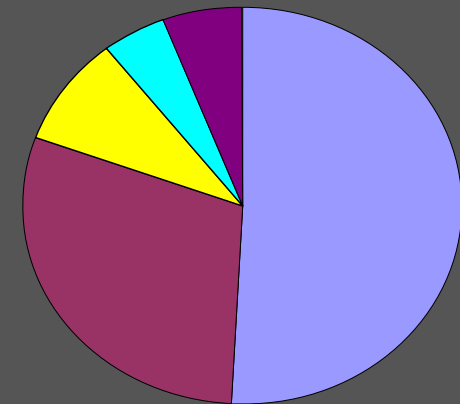
Coal – The Once and Future King

India has enough coal for 200 years at the present rate of consumption.

2003



2020



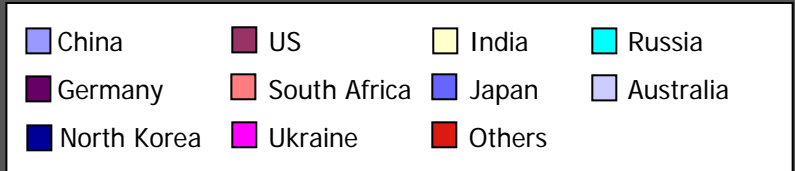
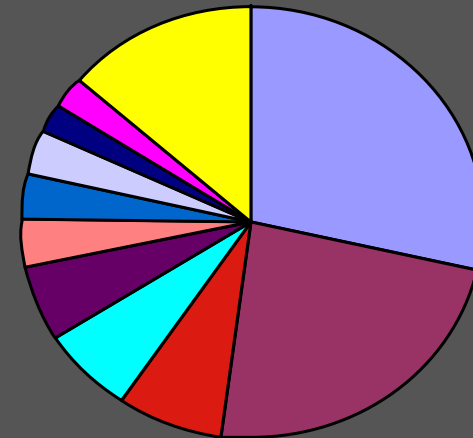
Coal – The Once and Future King

The burning of coal has (at least) three major environmental impacts:

- Carbon dioxide (global warming)
- Oxides of sulfur (regional acid rain)
- Black carbon/soot (local air quality, haze)

– Asian Economic Policy Review, 2005

World Coal Use – 10 Largest Consuming Countries

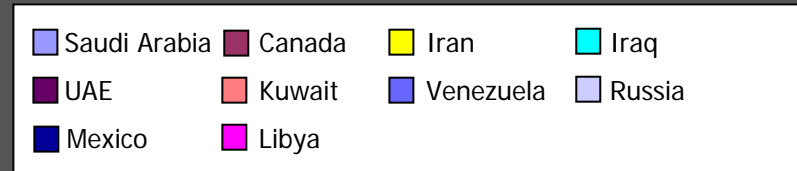
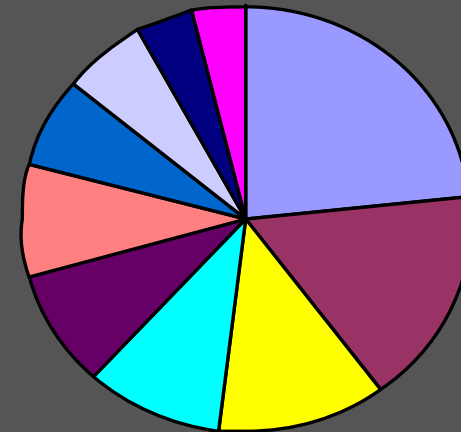
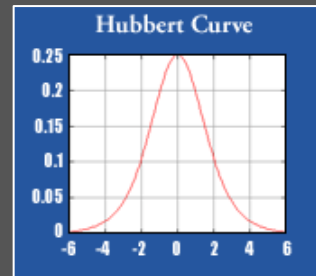


CIA/DOE

Oil – Competition for a Rapidly Declining Resource

- “Chinese Oil Firm Bids for Unocal”
- *LA Times 2005*
- “Putin in China to Talk Oil and Weapons”
- *Asia News 2004*
- “China’s Oil Sands Role Tests US”
- *Globe and Mail 2004*

World Oil Reserves – 10 Largest Countries



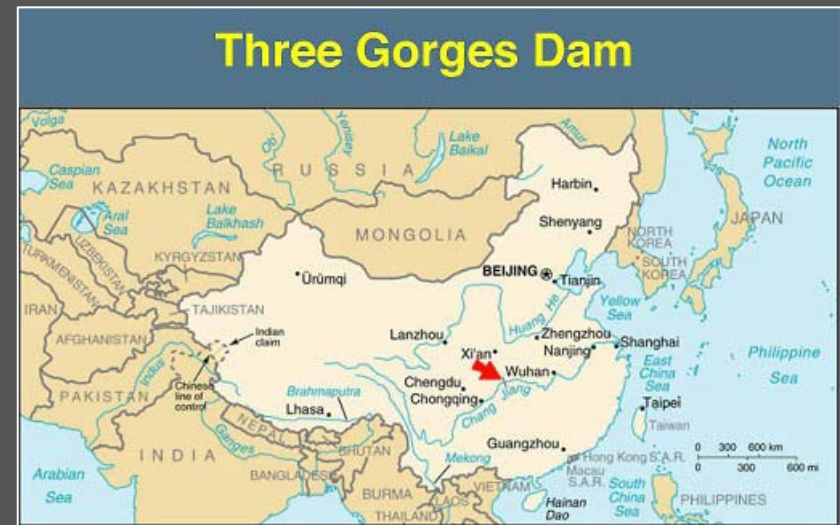
Other Energy Sources – Nuclear and Natural Gas

- Current planning for 41 more nuclear plants in developing Asia countries (currently 14 are operating)
- Indo-U.S. Energy Dialogue, joint conferences on topics such as energy efficiency and natural gas



Other Energy Sources - Renewables

- China has the greatest hydroelectric capacity in the world (Three Gorges plant will be the world's largest power plant, complete in 2009, >18GW)
- India has one of the largest decentralized photovoltaic power systems in the world. It includes more than 700,000 systems generating 44 MW.



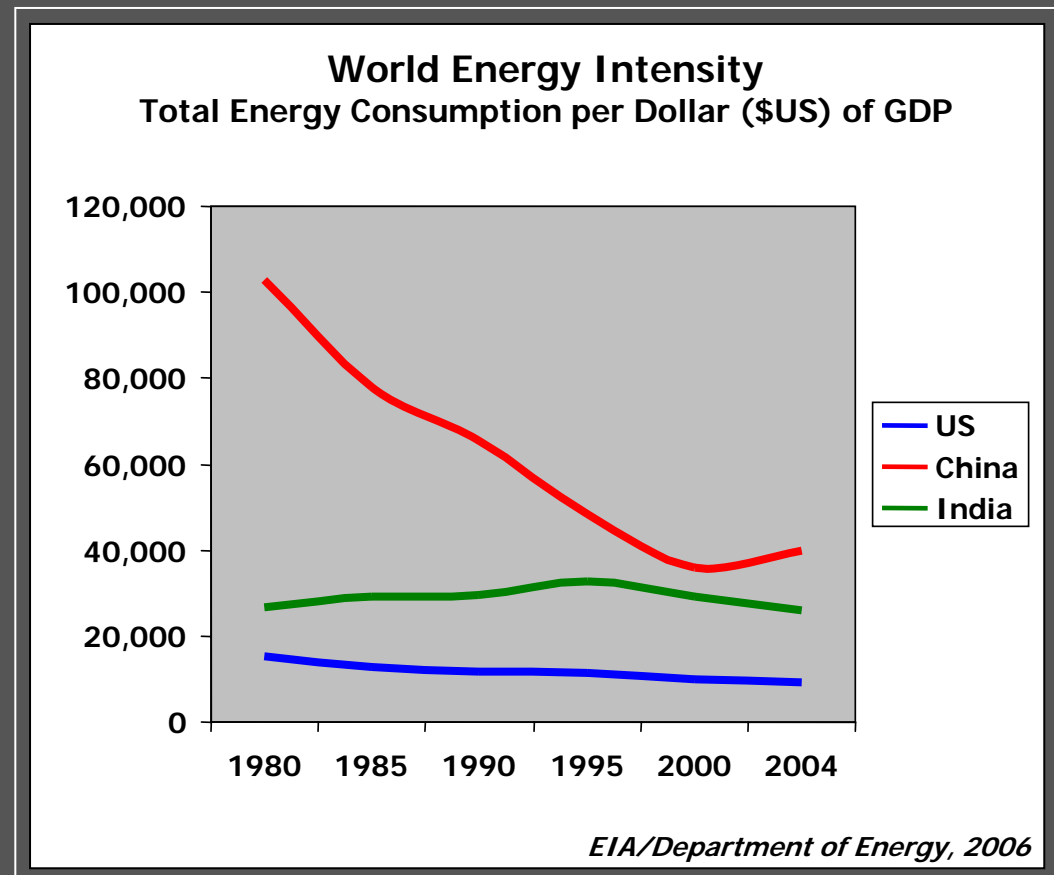
Asia – Energy (In)efficiency

“China uses six times more energy than Japan and 3.5 times more energy than the US to produce one unit of GDP.”

- *Shanghai Daily, 2006*

“China has one of the most energy-intensive economies in the world”

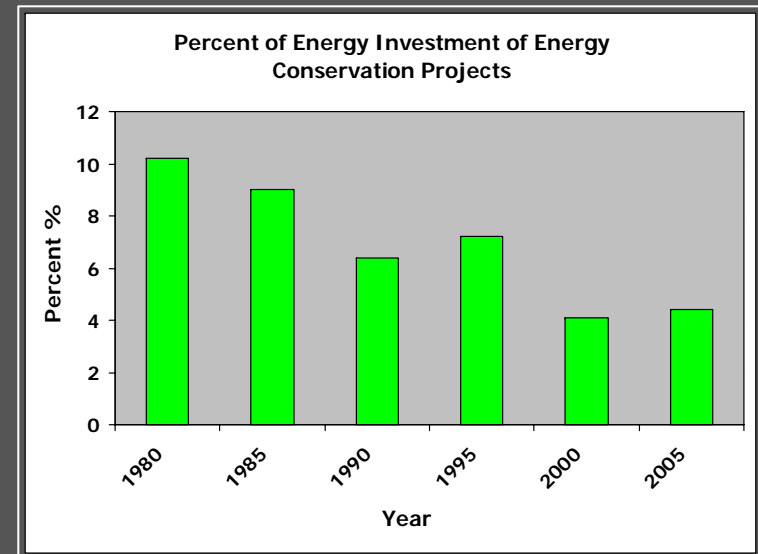
- *US Department of Energy*



Asia – Energy Efficiency

“Energy efficiency investment represents roughly 0.15% of China’s total spending on electricity in 2003. In comparison, public benefit spending is about 1.5% of utility revenue in California for the last few years.”

- Lawrence Berkeley Laboratory, 2005

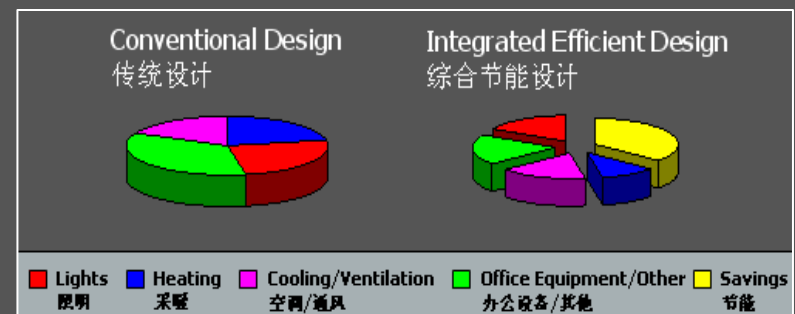
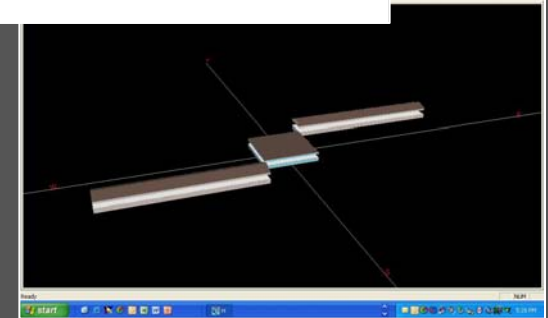
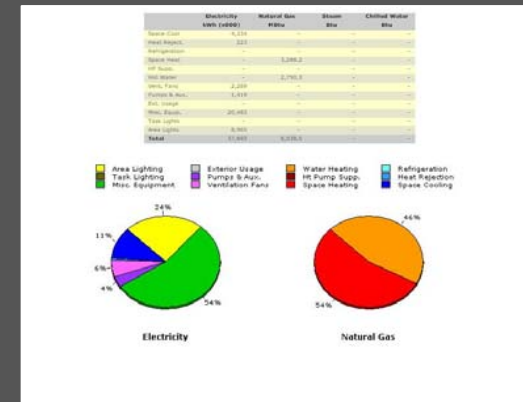


Asia – Energy Efficiency

“Cutting energy waste is the cheapest, easiest, fastest way to solve many energy problems, improve the environment and enhance both energy security and economic development”

What we must develop further are systems to tap huge potential energy savings through thousands of small projects ...”

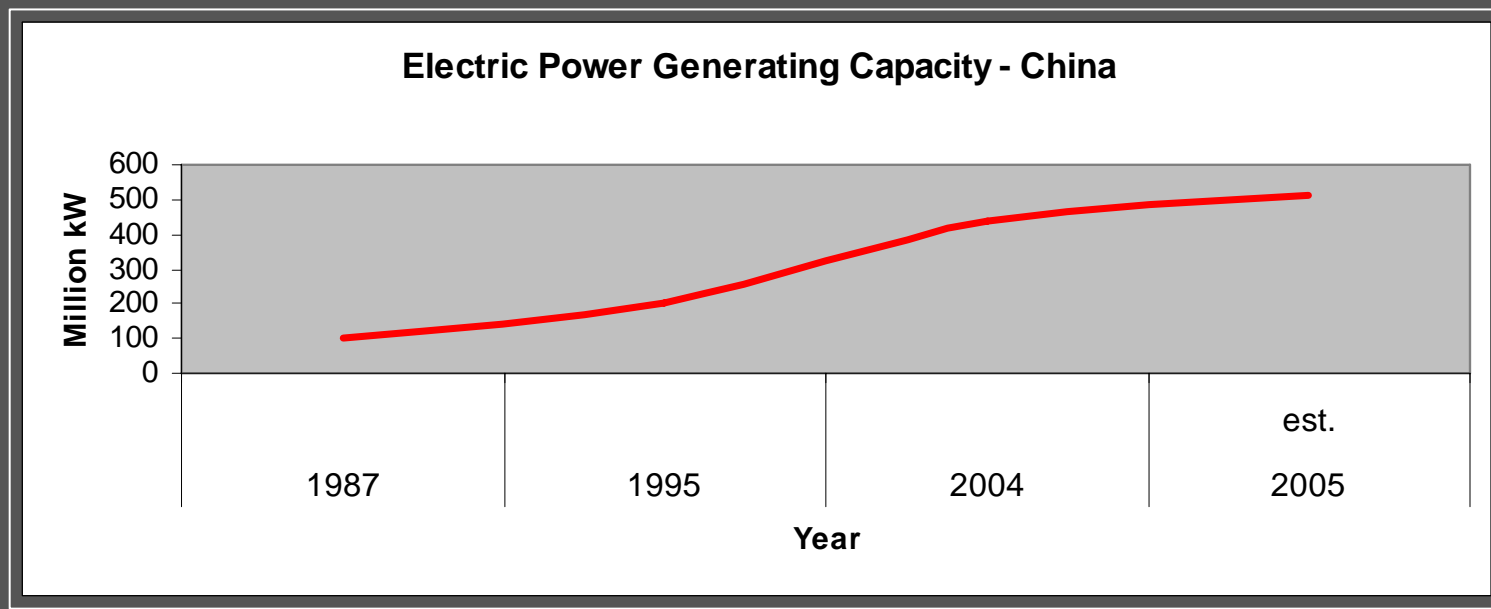
- *3 Country Energy Efficiency Project, World Bank / UNEP, 2006*



Asia – 2004

“China added the entire (electrical) generating capacity of California or Spain in a single year. In contrast, investment in energy conservation projects has weakened considerably ...”

- Lawrence Berkeley Laboratory, 2005

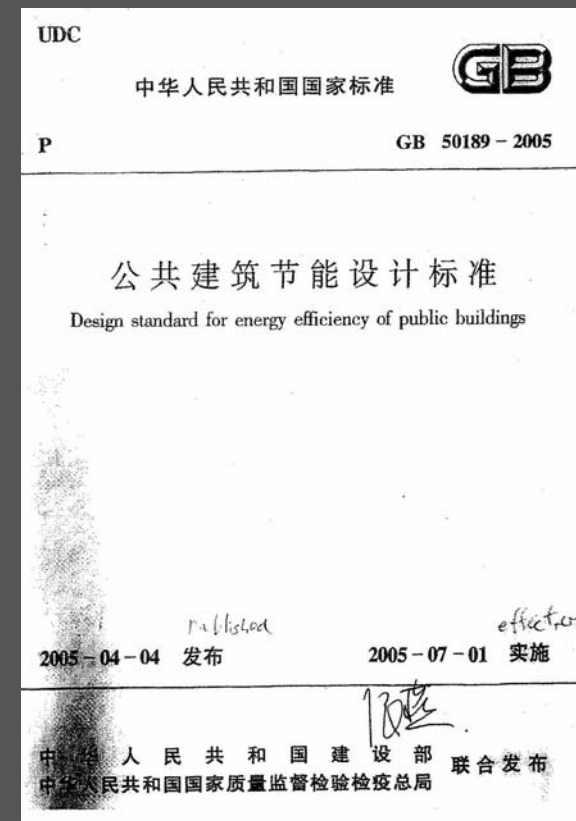


Asia - 2005

China enacted its first national energy code for non-residential buildings just last year – it is relatively well structured and intentioned.

In application it is poorly understood and certainly not integrated into the design process.

- Personal Observation



Asia - 2005

- China became the fourth largest world economy in 2005 (US, Japan, and Germany are larger)
- China's trade surplus triples in one year to \$102 billion
- China was the third largest world trader (US and Germany are larger)



Asia's Economy – Today

“China said that its economy grew 11.3% last quarter, the fastest pace of growth in about a dozen years, raising the fear of a runaway economy ...”

- *New York Times, July 2006*

“China's gross domestic product (GDP) grew by 10.4% in the third quarter of 2006 ... ”

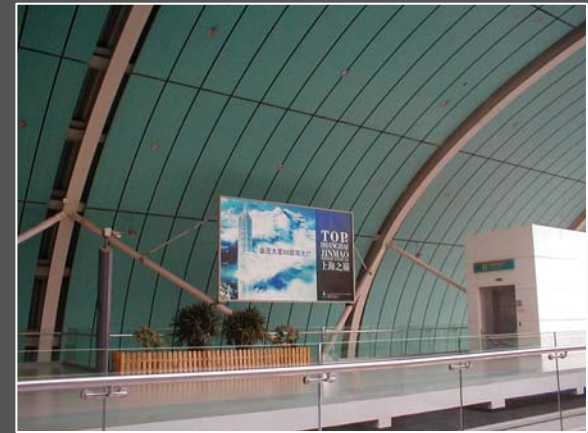
- *People's Daily Online, October 19, 2006*



Asia's Economy – Today

"China said Wednesday that its trade surplus with the rest of the world skyrocketed to a record \$23.8 billion in October in the latest sign of this country's phenomenal rise."

- *New York Times, November 8, 2006*



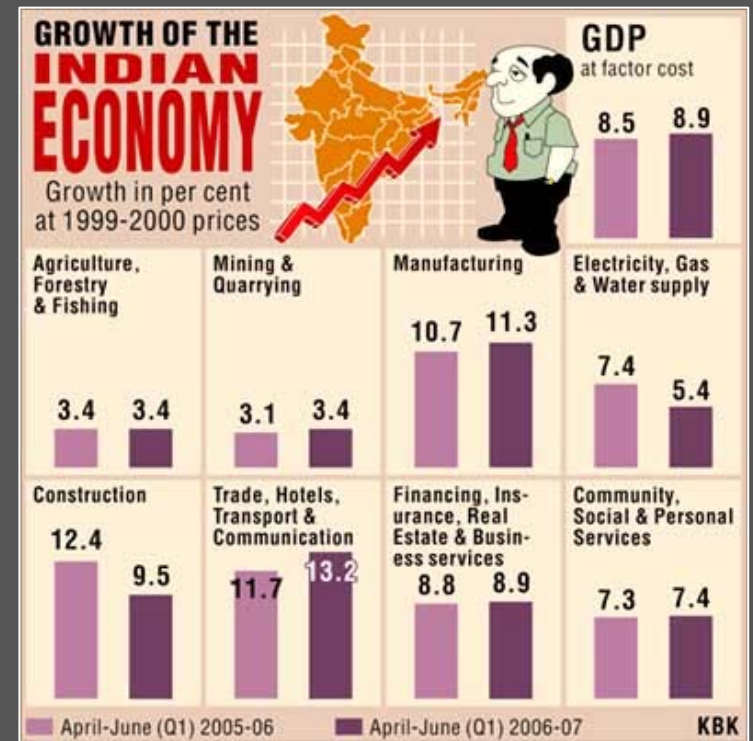
Asia's Economy – Today

"India reported real GDP growth in FY 2006 of 8.4%, up from 7.7% growth in the previous year."

- U.S. Department of State,
October 2006

"(The) Indian economy registered this decade's highest first quarter growth during the current financial year at 8.9 percent on impressive showing by manufacturing and services sectors."

- REDIFF India,
September 2006



Asia's Economy – Today

“It is clear the conflict between economic growth and environmental protection is coming to a head.”

*- China State EPA (SEPA),
as reported by New York Times,
September 2006*

“Emissions of sulfur dioxide, the building block of acid rain, rose by 27 percent between 2000 and 2005; government projections had called for a 20% reduction.”

- New York Times, 2006



What Can Derail Asia's Growth?

- Water – supply shortages, inefficiencies of use, and greater pollution
- Aging population
- Massive labor migration
- Energy consumption and prices in a world marketplace
- Agricultural shortages

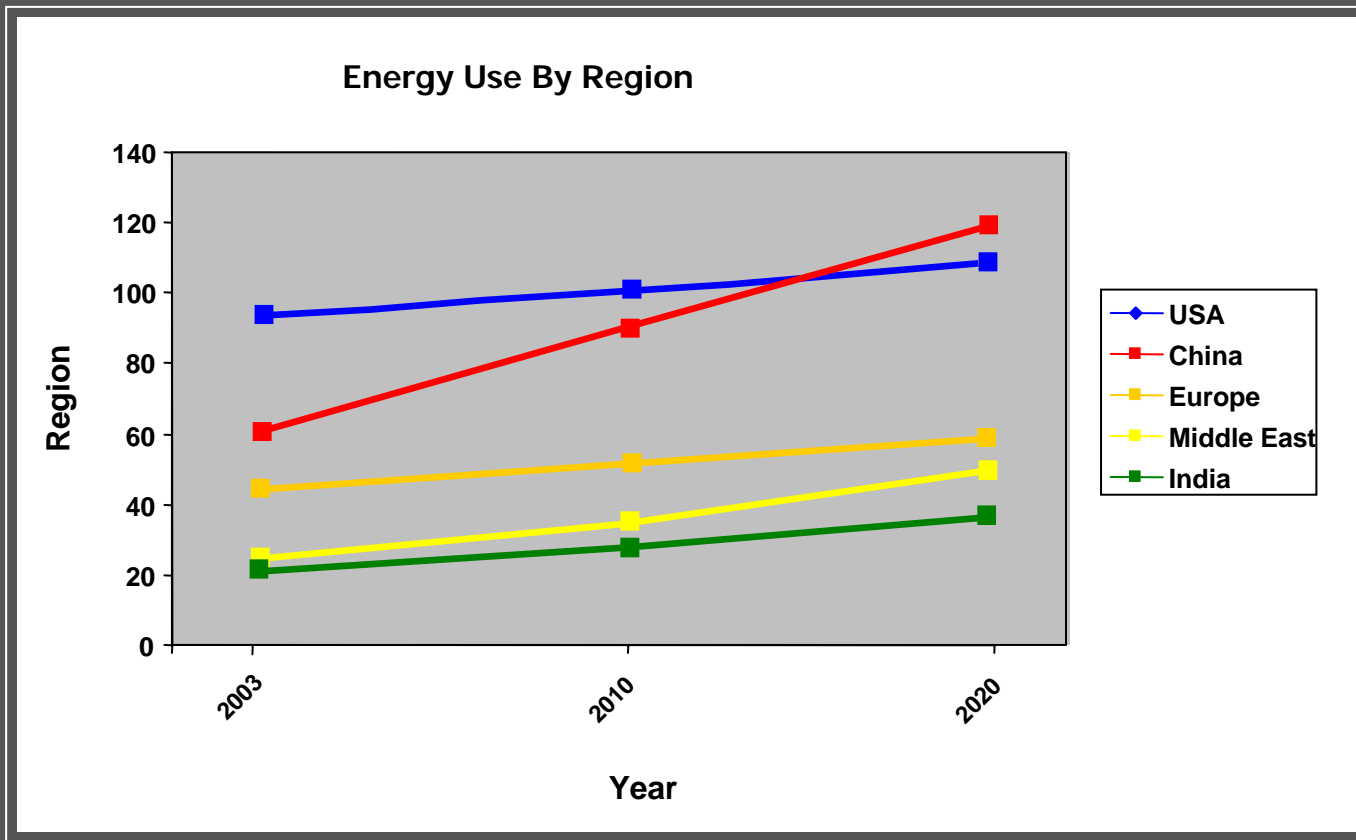


What Can Derail Asia's Growth?

- Fragility of the financial system and state-owned enterprises
- Economic effects of corruption
- Possible shrinkage of foreign direct investment
- HIV/AIDS and epidemic diseases
- Unemployment, poverty, social unrest, individual entitlements, educational prerogatives for employment, rural poverty
- Military conflicts



Hungry For Power



McKinsey Global Institute, as reported by New York Times - December 2006

Conclusions:

“The world of 2020 is likely to be one in which Asia is the main engine of the world economy, where China and India are major powers.”

*- Mapping the Global Future –
National Intelligence Council,
2005*



Conclusions:

"The global economy is now so large that society can no longer safely pretend it operates in a limitless ecosystem. Developing an economy that can be sustained within the finite biosphere requires new ways of thinking."

- *Scientific American, 2005*



Conclusions:

"We are living beyond our means, and the choices each of us makes today will shape the possibilities for the generations which follow us. "

- World Wildlife Fund – Living Planet Report, 2006



Conclusions:

"China is exporting air pollution and carbon emissions, but we (US) export our lifestyle.

And China is one of our best customers."

- PBS/NOVA, 2004



Conclusions:

It is not a question of if,
but when...

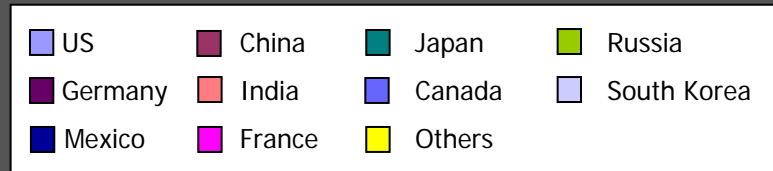
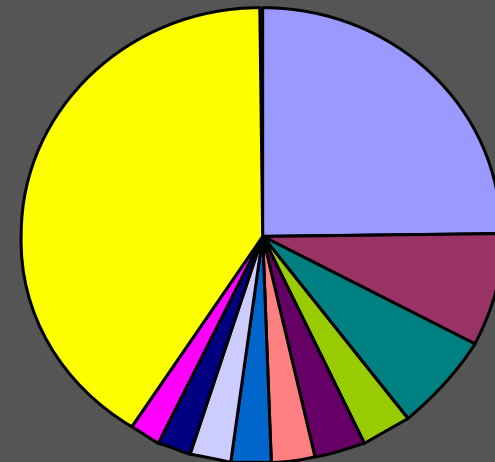
(and what happens in between)



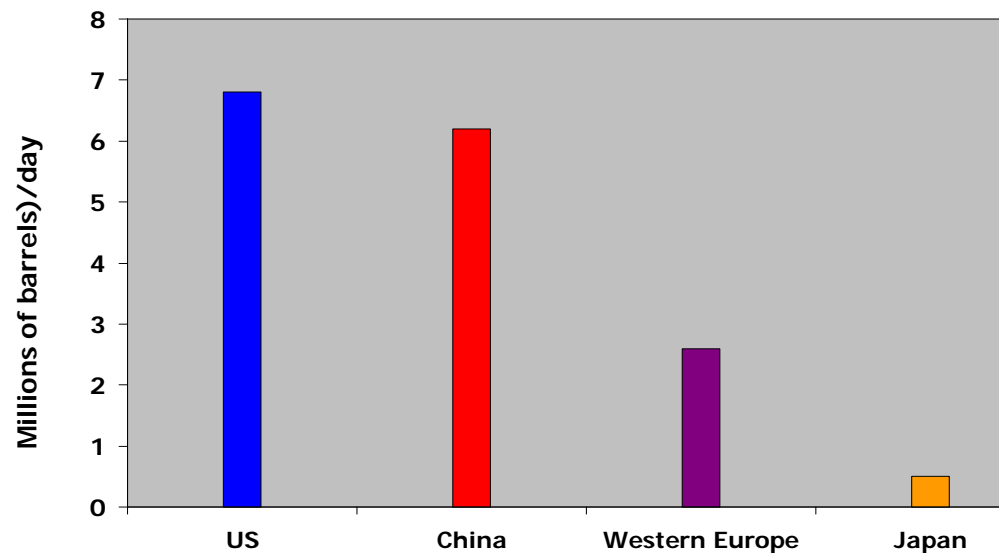
Discussion:

1. Are we content to do nothing about our (collective) future?

World Oil Use
10 Largest Consuming Countries



Growth in Demand for Oil, 2000-2020



Discussion:

2. How do we “spread the message” and to whom do we talk?



Discussion:

3. The United States has been the recent world leader and sets an example for others in the world to follow.

What do we responsibly need to do to help form a better example?



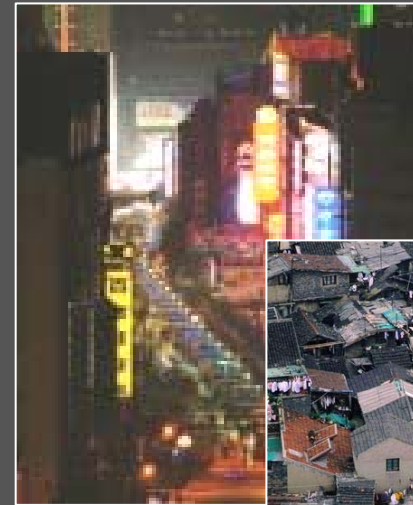
Discussion:

4. What can we do in an international arena?



The 'Asian Century' is a term used to describe the belief that the 21st century will be dominated by Asian economies, culture, and politics. This is similar to how the 20th century is sometimes referred to as the 'American Century'.

This phase was first used in the late-1980s between Deng Xiaoping (China) and Rajiv Gandhi (India). It was also used by the US Senate Committee on Foreign Relations in 1985. With time it has become a popular term in the media.





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**The Asian Century –
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