

Andrew Leung

International Consultants Ltd

Awakening, Adaptation and Transformation:

*How universal embrace of Minimalism and the Golden Mean
holds the Key to Human Survival*

**A presentation to the
China Economic Association (UK/Europe) Parallel Conference 2011**

Andrew K P Leung, SBS, FRSA

At the City University of Hong Kong

Friday, 9 September, 2011

Time to re-think outside the box?

- *UN Population Forecast* 3.05.11 – revised from 9 to 10 b by end century (15.8 billion if highest fertility regions average ½ child more)
- *Hot, Flat and Crowded*, Thomas Friedman, Penguin, November 2009
- *China's Five Year Plan (2015-11)* still needs 10 m extra jobs a year. *Massive urbanization* demands huge resources to be acquired worldwide, against increasing scarcity including food and water, Climate Change, competition and geopolitical rivalry
- Sustainable for whole world to embrace the American Dream all at once as in *Three Billion Capitalists*, Clyde Prestowitz, Basic Books, 2005 ?
- Human survival begs the need for different mindset and lifestyles - *Ecological Civilization* (Pan Yue, Vice Minister of Environmental Protection) - Minimalism, Less is More, Golden Mean is the New Normal?



Environmental Constraints

- *100 yrs* of industrialization/pollution into a few decades
- *National Assessment Report on Climate Change* (Dec 2006) + 1.3 - 2.1 degrees C by 2020. Glaciers Qinghai-Tibet Plateau dwindling 131.4 sq km p.a. (by 27.2% by 2050.) Extreme weather conditions - floods and droughts – water + food scarcity + diseases.
- 10 NPC, March 2007, Premier Wen - '*unstable, unbalanced, uncoordinated, and unsustainable*'. Five Imbalances - Rural/Urban; Growth v Environment; Economic v Social; National v Local; Inward v Outward
- UN Report *Cost of Pollution in China*, Feb 2007 – 3.8% GDP; World Bank – 5.8%; others – 8 – 12% or even higher
- China threatening the world – '*When a Billion Chinese Jump*', Jonathan Watts, Faber and Faber, July 2010
- Endless ecological degradation and disasters – *quick profits, greed, vested interests and corruption* – uphill battle for the Ministry of Environmental Protection



Water Crisis

- **Water availability** severely limited – 1/3 world average @, uneven **36% (80%)** South/North distribution; all **7 main rivers and 25/27 largest lakes** polluted; **300 m** drinking water unsafe; **25% desertification** rate; **Yellow River running dry** (*When the Rivers Run Dry*, Fred Pearce, Random House, 2006)
- World Bank '*Addressing China's Water Scarcity*', 2009, Agriculture = 65% usage, but lowest water **productivity** – only 45% used on crops; Industry 24% usage but only 40% recycled v 75-85% in the West
- **Water pollution** severe – only 46% municipal sewage treated; 2/3 rural population no piped water; northern aquifers sucked dry – lowering water tables, drying lakes and wetlands, increasing urban subsidence
- UN Report *Cost of Pollution in China* (ibid.) **water crisis costing 2.3% GDP (1.3% = scarcity, 1% = water pollution)**
- **South-to-North Water Diversion Project** – concerns about volume, quality and ecology. Delayed since Beijing Olympics – now Eastern route 2013; Middle route 2014, Western route (> 10,000 – 13,000 ft-high Tibetan Plateau, judged too difficult)
- Proposed diversion from **Tibet's Yarlung Zangbo River** to the Yellow River feared to spell disaster for downstream Brahmaputra River affecting 500 m people in India, Bangladesh, Nepal, Bhutan and Myanmar.
- State Council 19 May 2011 admitted problems of resettlement, ecology and seismic geology with the **Three Gorges project**



Figure 1: Map of "South-North Water Diversion Project"

Energy and other resource constraints

- IEA July 2010, China > US as *largest energy consumer*; but @ *personal consumption* = 1/15 American, 1/5 Japanese, but 2x Indian; *energy intensity* 50% > industrialized countries; efficiency much lower than Japan, UK and US
- Labour and energy intensive industries *50% reliant on external proprietary technologies and brands* (Japan and US each 5% reliant); only 3% manufacturers own proprietary technologies; only *15% value-added in being biggest IT exporter*; \$1 dollar net profit from a *DVD player* and only 1.65% value captured of an *iPod*. (How much to buy a Boeing 747 or an Airbus?)
- *40% GDP* directly and indirectly *reliant on export* (US11%)
- Standard and Poor's June *2010 report - lion's share of global demand for resources* - copper (39%), aluminium (43%), steel (42%), iron ore (60%), and coking coal (52%) – urbanization, transportation, Middle-Class lifestyles
- Vulnerable to *external crisis, energy prices, competition, rivalry, geopolitics, and increasing scarcity*.



Urbanization & Rising Middle Class

- McKinsey Global Institute, *Preparing for China's Urban Billion*, March 2009 : by 2025, 350 m more urbanites, 221 new cities @ > 1m v 35 in Europe; 5 b more sq. m of roads, 170 extra MTRs, , 40 b sq. m office space, 5 m new buildings, 50,000 skyscrapers (= 10 NYCs); 1 b urbanites by 2030, 75% urbanization rate by 2050
- McKinsey Quarterly, *The Value of China's Emerging Middle Class*, 2006 – 77.3% < RMB 25,000 p.a to drop to 9.7% by 2015, when 79.2% lower and upper middle class up to RMB 100,000 p.a. (ppp = US\$ 40,000 p.a.) 11% mass affluent with RMB100,000 – RMB200,000 and global affluent > RMB200,000. Mass affluent to to 36.4% by 2025.
- McKinsey Quarterly, *Understanding China's Wealthy*, July 2009 - \$36,500 p.a. (ppp = \$100,000) – 30% in Shanghai, Beijing, Guangzhou, and Shenzhen—50% in top 10 cities. 2008 –2015, growth in Tier-1 cities 25%, in Tier-2 cities 32% and in Tier-3 cities 43%. 80 % 45 years of age, v 30 % in US and 19 % in Japan.
- **2015**, China become a leading consumer market, annual turnover RMB 20 trillion, *about the size of Japan's market today*



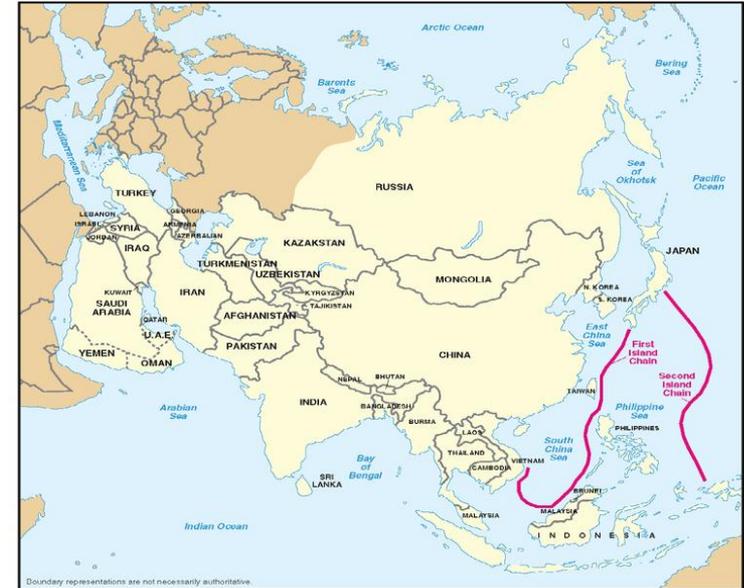
Rapid Mobility

- *In 30 years*, 2 trillion yuan, China to build 3,000 km roads p.a., to create a **'7-9-18' network of 85,000 km national expressways**, > *US interstate by 10,000 km*. 7 major arteries to radiate from Beijing: 9 north to south and 18 east to west.
- *Car ownership 50 @1,000* in June 2011 < *world average of 131.64*. Already = ¼ of global growth (*Worldwide Passenger Cars*, The World Bank Group, March, 2011) To jump *to 267 @1,000 by 2030*.
- ½ *finished the world's longest high-speed rail (HSR) network* with the *world's fastest trains*. Test runs some over 400 km/h (249 mph), a world record. In the interest of better safety, 300 km/h to reach 350 km/h in due course.
- Grand plan - *a global 'HSR revolution'* e.g. Beijing-London in 2 days in a *17-country China-Europe network*. To extend to *India, Pakistan and the Middle East*, south to *Singapore* and northeast into *Mongolia and Russia*. Survey work in Europe undertaken. Central and eastern European countries keen to start. Construction for the *Southeast Asia link* commenced. *Myanmar* to begin building its portion of the link. China said to *prefer funding the whole project in exchange for natural resources*. Whole *to complete in 10 years*.



Energy Security

- *Need to grow reasonably fast* before onset of aging profile in a few decades
- **94% energy self sufficiency** (OECD average 70%) of which **Coal 77%**.
- **Oil for urbanization. 8% of world crude oil demand** (US 25%) but 1/3 of global demand growth.
- **40% dependent on oil import** (hope to reduce to 12-15% eventually) v Japan almost 100%, India – 60% - 70%
- Choke points of **Hormuz** (Iran) and **Malacca Strait** (7th Fleet)
- Vice Premier ZengPeiyan, China needs **strategic reserve** equivalent to 90 days consumption (e.g. Zhenhai, 160 km S of Shanghai + Qingdao)
- **ME** – Saudi Arabia 17% China's imports; Iran - \$70 billion deal in November 2004 to develop the Yadavaran; OPEC President visited Beijing in late December 2005 to discuss oil price modalities
- **Central Asia** – 1,200 km pipeline Kazakhstan to North Xinjiang completed, 10 million barrels of crude oil a year; SCO – China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Observers – Iran, India, Pakistan, Afghanistan and Turkey.
- **Africa** – 1/3 China's oil import, mainly from unstable and problematic countries like Angola and Sudan
- **South America** – Oil from America-bashing Venezuela and soybeans from Brazil, both in the US backyard
- **Russia** – trans-Siberia pipeline bypassing China except a southern link to Xinjiang but still much potential for energy cooperation with China
- **Australia** – a major minerals and gas supplier to China but contracted with Osaka Gas to supply 1.5 m tonnes LNG for 25 years from huge Gorgon field off NW coast of Australia, operated jointly by Chevron, Royal Dutch Shell and ExxonMobil. 2.5 m tonnes separately for US West Coast annually for 20 years.



Geopolitics and Geo-economics

- China's Rise - *Security Dilemma, Realpolitik, Zero-Sum Game* - Robert D Kaplan, *Monsoon- The Indian Ocean and the Future of American Power*, Random House, 2010; Gideon Rachman, *Zero-Sum World*, Atlantic Books, 2010, and Niall Ferguson, *Civilization: The West and the Rest*, Penguin Press, Nov 2011
- *US shifts* from Iraq and Afghanistan *to Asia-Pacific*
- US Pacific Fleet capitalizing on '*1st and 2nd island chains*' + *South China Sea* territorial disputes, and '*alliance of democracies*' of India, Australia and Japan v China's response of '*String of Pearls*', *military access-denial capabilities* plus *alternate land routes* through Central Asia and Pakistan to break the "island chains"
- Energy geopolitics and geo-economics re-defining China's *relations with Central Asia, Africa, Latin America, Iran, Australia and Russia*
- Energy and food security - *Africa's newfound dynamism*
- *Energy security top of US and Europe's political agendas*
- Global warming may change the balance of the world's economic gravity dramatically towards *the Arctic* within this century (Trausti Valsson, *How the world will change with Global Warming*, University of Iceland Press, 2006)



Food Security

- With Climate Change unchecked, China's production of *wheat, rice and corn to decrease by 37% by latter half of 21st century* (March 2007 Joint government report)
- **Population growth, global industrialization and urbanization, use of arable land for bio-fuels**
- China only **7% of world's arable land** to feed 20% of world population, not helped by **water scarcity and pollution**. Western agriculture heavily subsidized US-50%, EU 60% and Japan 76.7% against 1.23% in China. **In face of Western imports, 20 million farmers have left their land** to seek alternative livelihood.
- **Results of Five Year Plan (2005-2010) 'Building a Socialist Countryside'** – (Morris Goldstein and Nicholas Lardy, *The Future of China's Exchange Rate Policy*, The Petersen Institute, Washington D.C., July 2009, pp.36-37)
 - (a) Partial reimbursement (about 30%) of healthcare costs - 20-fold increase by 2007, covering 730 m people, quadruple the number covered in 2005;
 - (b) Better health insurance (2009-2011) to cover 90% of population by 2011. (Government pays half or more, up from 16% in 2001);
 - (c) Old Age Pensions averaged RMB 1,173 in January 2009 (higher than national average wage, although still well below going wage in cities);
 - (d) Minimum living standard guarantee program with dramatically-increased monthly payments from RMB50 in 2002 to RMB140 by 2008.
- **Oil-rich but food-poor countries to invest in agricultural and livestock projects** overseas. Saudi Arabia. Libya talked to Ukraine on growing wheat.
- **Chinese companies** acquiring farm land in Africa, Brazil and Argentina



China's quiet Green Revolution

- China formulated '*Agenda 21 – A White Paper on Population, Environment and Development in the 21st Century*' following UN Conference on Environment and Development in 1992 - '*common but differentiated responsibilities*' for mitigation and adaptation measures adopted at the United Nations Framework Convention on Climate Change (UNFCCC).
- According to IEA, *China's per capita CO2 emissions improved to 3.65 tons in 2004 = 87% of world average* and 33% of OECD levels. *Emission intensity also fell from 5.47KgCO2/\$ in 1990 to 2.76KgCO2/\$ in 2004, a reduction of 49.5%* v world average reduction of 12.6% and OECD's average of 16.1%.
- June 2007, NDRC *National Climate Change Program for the coming decades up to 2050*.
- *World Energy Council* - China, highest energy intensity in 1980, strongest improvement in energy productivity - around 7.5% p.a. between 1990 and 2000. This trend has since drastically declined to only 1% p.a. *China's energy intensity is now slightly above world average v 80% higher in 1990*.
- In industry and businesses, China's *energy efficiency @GDP* very low: *146 % less efficient than Japan, 73% less efficient than the US, and even 47% less efficient than India* (*Primary Energy Intensity, World Map by Country (2009) - Trends in Global Energy Efficiency 2011: An Analysis of Industry and Utilities*, researched and written by Enerdata and the Economist intelligence Unit, under the aegis of The ABB Group, headquartered in Switzerland)



Five Year Plans

- ***Five Year Plan (2006-10)*** narrowly delivered reduction of energy input @GDP by 20% and CO2 emission by 10%.
- ***Five Year Plan (2011-15)*** - non-fossil fuel to rise to 11.4% of total primary energy consumption, energy intensity to reduce by 16%, and CO2 emission by 17%.
- ***IEA*** - China investing \$2.3 trillion in energy development 2001-30. \$200 billion for renewable energy within next 15 years, ***to grow*** from 7% to 10% annually by 2010 and ***20% annually by 2020.***
- National Development Reform Commission - ***15% renewable energy by 2020.*** Government said to be ***planning to boost renewable energies target to 20%*** of China's total energy needs.



Solar Energy

- **World's largest solar-panel manufacturer**, 70 % global solar-energy market, capacity of 18 GW in 2010.
- NYSE-listed **Suntech founder China's 4th richest** > \$1.4 b
- **Worldwatch Institute**, Washington DC - China has **30 m solar households**, **60% of world's installed capacity**
- **New generation of energy-efficient buildings** incorporating solar energies for application nationwide.
- China now **a leader in advanced solar technology**. 2009, US Applied Materials Inc., one of world's largest photovoltaic equipment suppliers, established solar technology centre in Xi'an, Shaanxi, one of the world's biggest and most-advanced private solar energy R&D facilities.
- **2/3 of China's land area receives > 2,000 hrs sunlight annually**, > many other regions of similar latitude, including Europe and Japan - a **potential solar energy reserve = 1,700 b tons of coal**.
- China's single time-zone covers 3 time zones. When **electricity is at peak in early evening in eastern areas**, **west China can still supply solar energy** available in the daytime.
- **Grid parity in China by 2018**,, two years ahead of US.
- Current installed capacity < 1 GW. **To double target capacity from 5 GW to 10 GW by 2015 and 50 GW by 2020.**



Wind Energy

- CHINA > America as the *world leader in wind energy in 2010*, Global Wind Energy Council.
- China's installed wind capacity increased exponentially from 0.3GW in 2000 to **42.3GW in 2009**, now **22% of world's total**.
- *In 2010, more turbines were installed in China than America* (*The Economist*, 3 February 2011)
- Wind power, much in Gansu, Xinjiang and Inner Mongolia, expected *to grow from 1 GW to 30 GW, to power some 13-30 million households by 2020*.



Hydroelectric Power

- China's hydropower generating capacity reached **200GW as of 2010 > 20% of total power-generation capacity**, revising target of 380GW to **430 GW by 2020**
- **Three Gorges Dam** to increase hydroelectric power from 108 GW to 290 GW by 2020.
- **12th Five-Year Plan (2011-15)** to increase conventional hydropower plants by 1/3 to 83GW and **to raise pumped-storage hydro-capacity by 60% to 80GW**. (Pumped-storage uses low-cost, off-peak electric power, released during peak demands when prices are higher.) New projects mainly in **mountainous south-western provinces** such as Yunnan and Sichuan
- Hydropower capacity ranks as the world's biggest. However, **utilization rate still lags behind** other countries.
- **On-grid tariff** charged by power producers to grids for hydropower lower than energy produced by coal-fired plants. Parity is a long-term aim.



Nuclear Energy

- Installed capacity **10.08 GW in 2010, 14 reactors in operation, > 25 under construction**, nearly ½ total under construction worldwide
- **2 new plants annually for next 15 years**. Reactors planned include world's most advanced, **for > ten-fold increase to 80 GW by 2020, 200 GW by 2030, and 400 GW by 2050**.
- Aiming to **become self-sufficient in reactor design and construction**, plus other aspects of fuel cycle.
- **Total investment** (China National Nuclear Corporation (CNNC) controlling stake) will reach **\$75 billion by 2015**. Subsidiary, CNNC Nuclear Power Co Ltd expected to list in 2011.
- Following **Japan's Fukushima nuclear fiasco** in March 2011, **China first country to call a halt** to review safety standards. Program likely **to resume after new safety measures put in place**. This could include safer fuel like thorium.



Making coal energy cleaner

- Proportion in primary energy consumption *dropped from 72.2 % in 1980 to 69.4% in 2007.*
- In **2004**, China's coal industry > 35 % of world's production , *80% of coal-mining deaths*. Stands to benefit hugely from cleaner, safer, and more affordable coal extraction and liquefaction technologies.
- *Closure of small, inefficient, and often unsafe coal-fired facilities* < 10m KW completed by 2007. Next those with capacity < 50m KW. 70 GW of obsolete capacity phased out 2006 – 2010. 8 GW more to be scrapped in 2011.
- South Africa's **SASOL to build Coal to Liquid (CTL) plants** in Ningxia and Shaanxi at a total cost of \$10 billion. The target will rise from 10 m tonnes of crude oil in 2010 to 30 m tonnes by 2020, equivalent to about 16% of China's overall crude oil output (now pending review as SASOL shifts emphasis to Gas to Liquid technologies).
- **World Bank's** International Finance Corp has signed an *equity-and-loan deal with Xinao Group to convert coal into dimethyl ether*, a cleaner gas used for cooking and heating or as a substitute for diesel fuel.



Bio-fuels

- 2005 China was world's *third largest biofuel producer*. 2006, NDRC set *a target of meeting 15% of transportation energy needs with biofuels by 2020*
- 2009, *China's ethanol projects* had a *total capacity of 2.2 m metric tons or some 47,000 barrels per day* in Heilongjiang, Jilin, Henan, Anhui, Guangxi, and Chongqing. China the world's third largest ethanol producer, generating 1 b gallons annually .
- *Gasohol*, a mixture of petrol and ethanol, has been made *mandatory. in Heilongjiang, Jilin, Liaoning, Ahhui, and Henan.*
- China has a large and *growing biodiesel producing capacity*. 2009 - 2.1 million tons, or 41,000 barrels per day. 2005 biodiesel output capacity was 300,000 metric tons, almost double 2004, from almost zero in 2000.
- December 2007, *economic incentives to encourage bio-fuel production by non-food agricultural products* e.g. biomass, sweet sorghum and cassava.
- Since 2007, 26 million households have switched to *methane gas generated by human and animal waste.*



Forests

- Forests a *powerful carbon sink*. Since 1978 a forestation belt of 4,480 km, the *Green Great Wall*, the world's largest single ecological project, is *absorbing 1 billion tons* or *20% of China's carbon dioxide emissions by 2010*.
- Afforestation *needed to counteract 2.6 m sq km desertification* threatening the livelihood of some 400m people in China.
- China's forest *coverage reached 20.36 % or 195 m hectares by end 2008*, beating a goal of creating 20 % coverage by 2010.
- *Five Year Plan (2011-15)* - forest coverage to rise to 21.66 % and forest stock to increase by 600 m cubic meters.
- China has been cracking down hard on *illegal logging and illegal trade of timbers*.



Emerging green civil society

- Both *local and international* environmental NGOs.
- *Greenpeace* invited by the Chinese government to contribute suggestions for China's Renewable Energy Law, enacted on 1 January, 2006. It has also delivered a climate change project for the past years.
- *WWF* active in China since 1980, invited by the Chinese government as the first international NGO to work on nature conservation. More than 120 staff on broad range of conservation programmes including species, freshwater, forest, marine, climate change and energy, the green economy and footprint.
- Govt sponsored - *All China Environmental Federation*
- *Burgeoning grass-root groups* e.g. Friends of Nature (founded 1994), Green Earth Volunteers, since founded 2002, Xinxiang Environmental Protection Volunteers has collected >70 tons of waste batteries
- China Green NGOs *doubled in 3 yrs* by 2008.



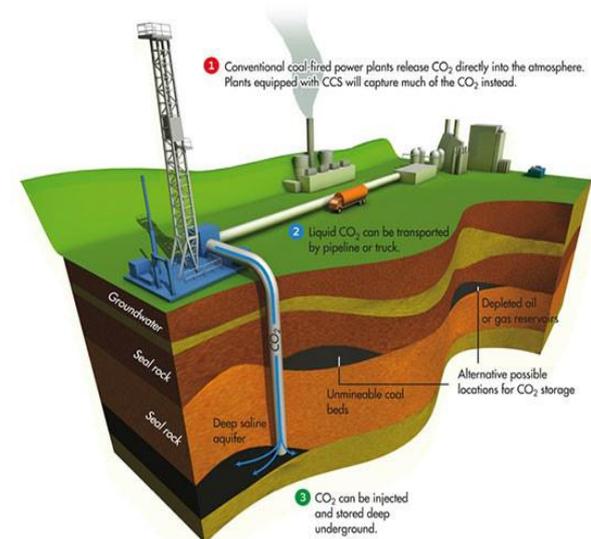
Blueprint 2006-10

- *State Council , October 2008*
- *‘Less input, consumption, and emission and High efficiency’*, - energy optimization, conservation and eco-preservation.
- *Science and technology and international cooperation* - *‘Common but differentiated responsibilities’*.
- *Expand renewable energy by 10% and extraction of coal-bed gas* by 10 b c meters.
- *Build water-conserving society*, anti-flood systems and drought resistance of farmlands.
- *Expand service sector value-added GDP contribution by 3%*
- *Expand proportion of hi-tech industries by 5%* - IT, bio-engineering, aeronautics, space aviation, new energy, new materials, and marine industries
- *Promote energy efficiency, conservation, and emission reduction* in production, projects and buildings, including clean coal, poly-generation and CO2 sequestration; and restrict energy-and-emission intensive industries.
- *Renewable energies* including biomass, marsh gas, solid and liquid bio-fuels, hydroelectric, solar , wind, and nuclear power
- *Recycling Economy.* - *‘Circular Economy Promotion Law’* August 2008 - all stages of utilization, consumption and reuse of resources including water, building and materials



Green innovations

- **'Project 863'** March 1986, - alternative vehicles - electric, hybrid, compressed natural gas (CNG), + hydrogen fuel-cell cars. (330 million cars by 2030) ***Cars of the Future – Winning the Oil Endgame***, Rocky Mountain Institute, 2004
- **GM** invested \$1 b in hydrogen-fuel-cell-electric cars ***to revive global leadership in car industry***. Agreement with Shanghai to develop a prototype and supporting urban infrastructure. ***Electric cars with a reach of 120 miles and a speed of 80 mph*** being manufactured in Tianjin
- A **'Low Carbon Eco-city Strategy'** launched by Chinese Society for Urban Studies in October 2009. Despite ***Dongtan***, concept is now catching on nationwide.
- **'Earth : The Sequel'** Fred Krupp, President of ***Environmental Defense Fund*** with Miriam Horn in 2008 - thin photovoltaic films, solar thermal technology with computerized concentrators, leveraging hydrology to store solar energy (possible application to the Three Gorges), algae bio-fuels, yeast and enzymes as agents for cellulosic biomass transformation , geothermal and tidal technologies, underground coal gasification., green cement , green buildings, interconnected 'smart power grids', Nuclear Fusion



International cooperation & investments

- *US-China Clean Energy Cooperation Agreement* signed on 17 November, 2009 including –
 - *US-China Clean Energy Research Center* with World Resources Institute, supported by \$150 m combined public-private funding from US and China.
 - *Joint research and development* in advanced coal research, carbon dioxide capture and storage, building energy efficiency, and clean vehicle technology.
 - *A US-China Electric Vehicle Initiative, a US-China Energy Efficiency Action Plan, a US-China Renewable Energy Partnership, a ‘21st Century Coal’ project* on Carbon Capture and Storage and *a US-China Energy Cooperation Program* for renewable energy, smart grid, clean transportation, green building, clean coal, combined heat and power, and energy efficiency.
- The possibilities for technological *cooperation with other countries are limitless, including EU, Japan, and Brazil*
- *Green investments* – ‘Biggest job and wealth creation opportunity in 21st Century ‘ (*The Economist*, Nov 2006)
- China’s *CIC could partner with ME Sovereign Wealth Funds* (good for image of both China and ME – ‘*A Eastern Alchemy for Global Harmony*’)



CO2 reduction scenarios by 2030

- McKinsey Quarterly, **China's Green Opportunity**, May 2009
- **Green House Gas (GHG) emissions in 2005 - 6.8 metric gigatons of CO2 equivalents (GtC).**
- **Unrestrained -growth with 'frozen'-technology scenario** would push this to **22.9 GtC by 2030.**
- Reductions to be achieved through **new policies (8.4 GtC)** and **full technological abatement (6.7 GtC)** respectively.
- Therefore **Comprehensive abatement** measures would put this back to **7.8 GtC**
- To cover **Green Power, Green Transport, Green Industry, Green Buildings,** and Green Ecosystems, including **land management** techniques and **sustainable agriculture.**



Ecological Civilization & Minimalism

- *GMO's Jeremy Graham* - 'a disaster of biblical proportions'
- No way for both China and India to replicate the American Dream @energy and resource
- *The Revenge of Gaia*, James Lovelock, Allen Lane, 2006
- Is *Beijing Consensus* > *Washington Consensus* ?
- Should Adam Smith's *Invisible Hand* be guided by his long-forgotten *Theory of Moral Sentiments*?
- Pan Yue, Vice Minister of Environmental Protection – from “*Industrial Civilization*” to “*Ecological Civilization*”
- Should Confucianism 's *Balance*, 持衡保泰, *The Golden Mean* 中庸之道, and *Harmony between Man and Nature* 天人合一 replace a zero-sum game?
- A certain chic in Minimalism not only in design and décor but as an innovative and green everyday lifestyle. Tang Dynasty poem 'Ode to Humble Abode' 陋室铭
- Should development pay more attention to 'Gross National Happiness Index' (as in Bhutan) than sheer GDP growth?



Vital questions for the 21st century

- It is timely, if not already overdue, to ask whether our planet and its ecosystem can sustain continuing mindless exploitation of her *finite resources*?
- Will this be the *epoch of revolutionary change* when the internal combustion engine is finally moving to the museums as the whole world embraces high-speed trains linking eco-cities and electric cars fuelled by green power grids?
- Should the world seek *Minimalism over surfeit* - conservation, moderation and frugality over waste, excess and vanity?
- Do we need another war or a civilization collapse in this century to remind us that there may be *another way of life for all to share in this global village*?
- When will we finally grasp that on the same planet, all our fates are linked and our survival lies in a new awakening and *a new direction to embrace an innovative low-carbon future*?
- > preferred lifestyles and philosophical debate, but *a matter of national and global survival* - Jared Diamond, *Collapse: How Societies Choose to Fail or Survive*, Penguin, Jan 2006.



Thank you

Andrew K P Leung, SBS, FRSA

www.andrewleunginternationalconsultants.com