



ICT impacts for Green Growth

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**MIIT – ITU SEMINAR
ICT AS AN ENABLER FOR CREATIVE AND GREEN ECONOMY
SEP 2, 2011, BEIJING, CHINA**

CONCEPT

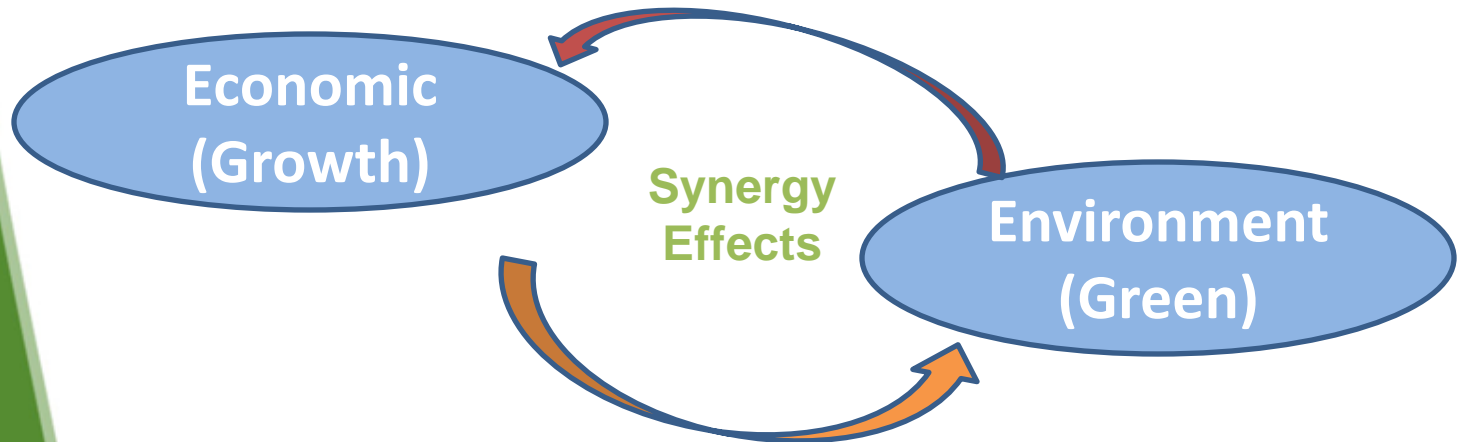


1. What is the Green Growth and Green ICTs?
2. Environmental impact of ICT
3. ICTs impacts for Green IT
4. Global Benchmarking for Green ICT
5. Green ICT in Mongolia
6. Conclusion

WHAT IS THE GREEN GROWTH?

A New path for Growth: Achieving sustainable growth by reducing greenhouse gas emission and environmental degradation.

Economic growth that enhances, not degrades environment



Economic development model that seeks impetus for growth from environmental protection

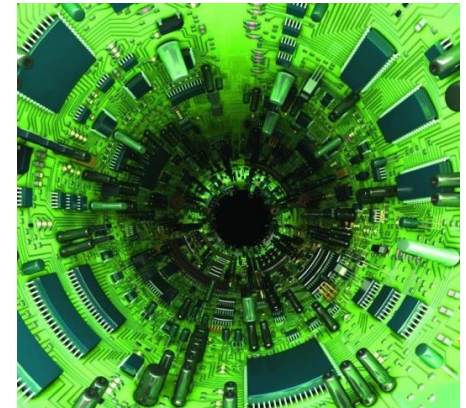
WHAT IS THE GREEN ICT?

- ICT is in a “**sweet spot**” because it both decreases operating costs and carbon emissions.
- ICT s are a key enabler of “**green growth**” in all sectors of the economy.



BUT... THERE ARE 2 OPPOSITE POINTS...HOWEVER....

- **NEGATIVE:** Environmental impact of ICT manufacturing and usage of goods, network and services.



- **POSITIVE:** ICTs have a fundamental role to play in reducing greenhouse gas emissions.

...HOWEVER....

.....the IT industry has pointed out that it can more than offset the negative consequences of its own growth in emissions by enabling other industries to reduce their emissions.

.....ICT equipment and services could drive down global carbon emissions by 15% by 2020 – five times their own footprint.

Benefits....15%

...amount ICT could reduce global emissions by

= 5x

...it's own footprint



ENVIRONMENTAL IMPACT OF ICT CAN BE REDUCED

PCs:

- > Efficiency gains and longer product life.
- > Shift from desktops to laptops
- > Shift from CRT to LCD screens
- > Potential breakthroughs – solid state hard drives, new LCD screens, new battery technology, quantum and optical computing

Data Centres:

- > Higher rates of virtualisation; more efficient virtualisation architectures
- > Low energy cooling
- > “Utility”/“cloud” computing, Software as a service

REDUCING ICT SECTOR EMISSIONS

Telecoms Devices :

- > “Smart” chargers
- > 1W or lower standby devices
- > Broadband routers and IPTV boxes’ footprint increases over timeframe due to higher penetration from small base today

Telecoms Infrastructure:

- > New network management tools
- > Network optimisation packages
- > Solar-powered base stations
- > Potential breakthroughs – night battery operation, natural ventilation, “network sharing”

ICT IMPACTS FOR GREEN GROWTH

Systemic impacts:

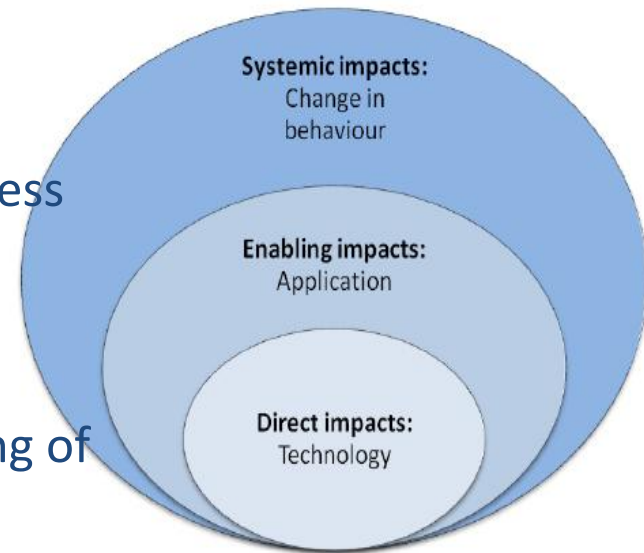
- By changing behavior
- By transforming the way we live and work.

Enabling impact:

- By cutting emissions and raising energy efficiency in existing process in other sectors
- By reducing another product's environment impacts
- By enabling consistent monitoring of energy use and carbon emissions based on ICTs;

Direct impact:

- By driving down emissions in the ICT sector itself
- By manufacturing energy efficient ICT equipments and innovation

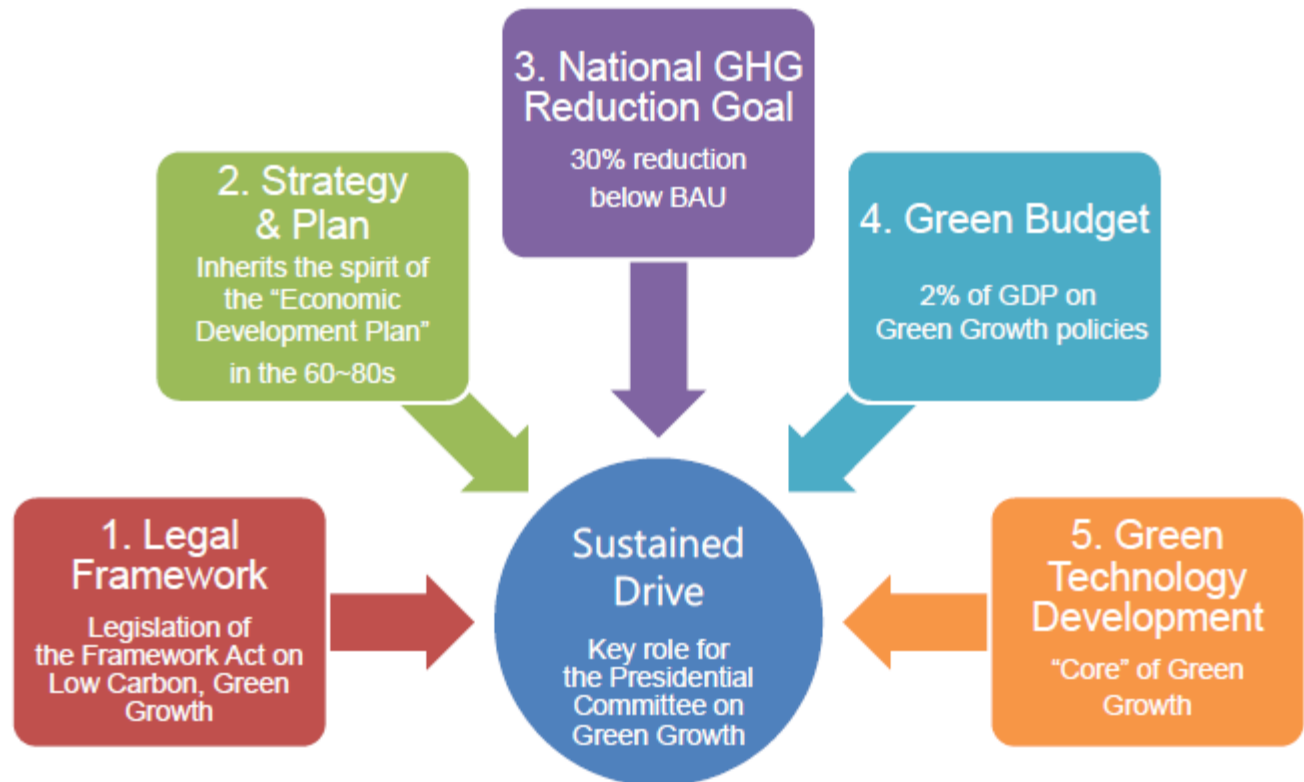


GLOBAL BENCHMARK: SURVEY FINDINGS

- Surveying more than 600 CIO and Senior IT Managers in 8 different sectors in the USA, UK, Australia and India, 2010.
- Findings:
 - The best performing industry sector is IT/Communication/Media.
 - The overall Green IT Maturity level is low and the index across all industries in all countries is 56.4%.
 - The most significant finding is the relative lack of maturity of Green IT policies, practices and technologies – in every industry sector in every country.

GLOBAL BENCHMARK: LEADERSHIP OF SOUTH KOREA

- Presidential Vision –Low, carbon-GREEN GROWTH, 2009 December
- Triple Pillars: **Leadership**, Technology and Attitude
- 5 Green Actions are:



GLOBAL BENCHMARK: EUROPEAN

- European Policy Centre set up a Task Force on ICT-based innovation for a smarter, greener economy in 2009.

Three critical infrastructures

- a carbon-accounting infrastructure to make energy use and carbon emissions visible;
- a smart electrical power grid system to accommodate new demands for renewable energy, energy efficiency and consumer empowerment;
- high-speed broadband access to the Internet made available across all of Europe.

ICT-based innovations for a smarter, greener economy

- Europe's road, rail and waterways must move fully into the information age;
- innovation and investments in near zero-emission smart buildings are crucial;
- cities should be pioneers in the use of smart green infrastructures and applications.

GLOBAL BENCHMARK: R&D FOR GREEN INNOVATION

- **R&D should focus on:**
 - Identifying priority sectors where ICTs can reduce emissions (e.g. smart buildings, intelligent transport systems, wear tear monitoring)
 - The promotion of NGNs (reducing power consumption by up to 40%)
 - Data center, Cloud computing and Smart Grid
 - Recycling and Reusing of ICTs
 - For energy efficiency

GLOBAL BENCHMARK: INTERNATIONAL STANDARD

ITU's universal charger standard

Instead of this have this



Recommendation rev. L.1000
Approved June 2011 **New**

Universal battery standard and industry???

GLOBAL BENCHMARK: ICT MASTER PLAN, 2015

- ASEAN-5: Singapore, Malaysia, Thailand, Indonesia, Philippines
- ASEAN has emerged as a major regional platform for the production of electronics goods in general and computer equipment in particular over the last 30 years.
- However ASEAN Lack of ICT Diffusion. Reasons are
 - Language barriers and impacts of recent financial crisis
 - Policy and regulatory
 - Lack of natural resource
- ASEAN ICT Master plan up to 2015
 - ASEAN will foster creative, innovative and green ICT sector



GREEN ICT IN MONGOLIA

- The ICTPA is actively engaged in the policy making process.
 - “ICT-EXPO-2010” for National Green growth
 - “Role of ICT for Green Economy” conference involved researchers and experts
- NGO initiatives
 - “Creative and Best Green ICT solution” national competition
- International organization’s support
 - UN-APCICT, “Academy of ICT Essentials for Government Leaders” project
 - Academy Programme, “ICT for Disaster Risk Management” and “ICT and Climate Change, Green growth and Sustainable Development”.



GREEN ICT IN MONGOLIA

- ICT National forum held on July 2011, ICT vision up to 2021 discussed and submitted to the Cabinet meeting.
- One of the main principle in this policy framework is:
 - Government shall be specialized support for Innovation of Green and smart technology
- Objectives for actions
 - To develop satellite based remote sensing applications for environment monitoring and climate change
 - To develop Geographic importation system (GIS) for disaster management, environment protection, land usage and livestock etc.

→ What is the Mongolian contribution for Global Green Growth?





ROLE OF MONGOLIA FOR GREEN ICT INDUSTRY

- “Establishing ICT innovation cluster” project initiative supported by Government and International organizations.
 - Investment for Green R&D and innovation
 - Resource-based industries to improve the national competitiveness and economic growth
 - Why?



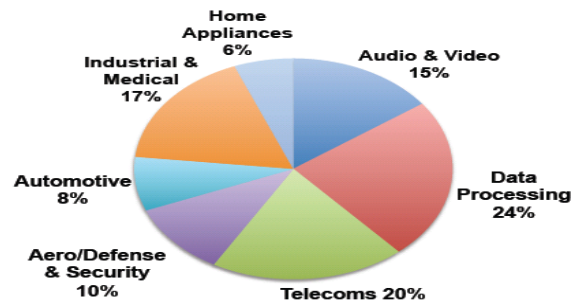
ICT MANUFACTURING

Annual growth of World electronic equipment production in value term, 2009-2014

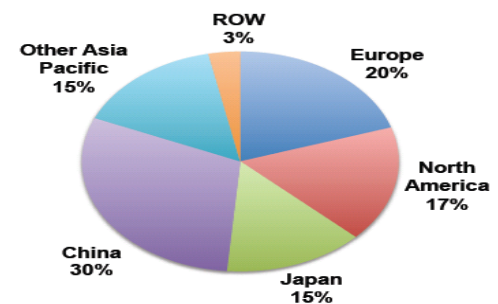
	2009	2010	2011	CAGR 2009-2014
Aero-Def & Security	5%	4%	3%	4,5%
Audio & Video	-7%	-1,5%	1,5%	1%
Automotive	-14%	8%	6,5%	6,5%
Data Processing	-9%	6,5%	6%	6,5%
Home Appliances	-6%	2,5%	3%	3%
Industrial & Medical	-11%	8%	7,5%	8%
Telecoms	-10,5%	5,5%	6,5%	6,5%

Source DECISION, October 2010

World production per application sector, 2009



World production per region, 2009



Source DECISION, October 2010

World production 2009 = 1,115 billion euros

Manufacturing ICT goods for the world markets has become more competitive with entries from China, Mexico and India.



Selected rare metals used in ICT goods manufacturing

Metal	Use in ICT goods	Share of total going into ICT production, United States
<i>Aluminium</i>	Wiring on circuit boards; housings	8% in electronic components
<i>Beryllium</i>	Heat dissipation of conductors in electronics	50% in ICT components
<i>Cadmium</i>	Nickel-Cadmium batteries	83% in batteries
<i>Cobalt</i>	Rechargeable batteries for mobile devices; coatings for hard disk drives	25% in batteries (global)
<i>Copper</i>	Conductors in electronics	21% in electric and electronic components
<i>Gallium</i>	Integrated circuits, optical electronics, LEDs	94% in ICT components
<i>Germanium</i>	Optical fibres, optical electronics, infrared systems	30% in optical fibres (global)
<i>Gold</i>	Solders, conductors and connectors	8% in electric and electronic components
<i>Indium</i>	LCDs, photovoltaic components	n.a.
<i>Lithium</i>	Rechargeable batteries for mobile devices	25% in batteries (global)
<i>Nickel</i>	Rechargeable batteries for mobile devices	10% in batteries
<i>Palladium</i>	Conductors in electronics	15% (global)
<i>Platinum</i>	Hard disk drives, TFT LCDs, etc.	6% (global)
<i>Silver</i>	Wiring on circuit boards; miniature antennas in RFID chips	n.a.
<i>Tantalum</i>	Capacitors and conductors in embedded systems, PCs and mobile phones	60% in ICT components
<i>Tin</i>	Lead-free solders	24% in electric and electronic components

Source: OECD, based on Angerer et al., 2009; Steinweg & de Haan, 2007; USGS, 2009.

CONCLUSION



- Green ICT initiatives in all level
- Leadership like a President of South Korea
- Public awareness and training for IT professional
- R&D foundation for Green ICT innovation and technology transfer
- Global standards for ICT new equipment
- Green ICT industry engine for national economic growth
- Green ICT policies and Green ICT market.
- Green IT- Capability Maturity Model (CMM)

THANK YOU FOR YOUR ATTENTION!

Global GREEN GROWTH

“If you dream alone,
it may end up with just a dream
But if we dream together,
then the dream can come true.”

