Stimulating sustainable development: Green technologies, innovation and entrepreneurship

Thomas Andersson
Astana, October 23, 2013
Disposition

• Where we are on the environment

• Innovation and Entrepreneurship Ecosystem

• on Entrepreneurship

• “Out of the box” available to catch
Where we are on the Environment
2013: Where we are...

- Broadening of economic growth
- Knowledge based economy, new technology, innovation, ICT create new opportunities
- Turbulence, growing income differences within countries, rising unemployment, population explosion in emerging economies and ageing society in the old world
- Globalising World Economy – Culturally and Socially Fragmented
- *Grand Challenges* intensify:
  - Food supply system disrupted
  - Energy and soft water supplies under pressure
  - Destruction of biological diversity
  - Spread of non-communicable disease and pandemics
- Public indebtedness and governance deficit - inability to invest in public goods, intangible investment and address cross-border and long-term issues
CO2 Emissions
(Metric tons per capita, 2010)

Source: The World Bank, World Development Indicators (2013). Data are from 2010 or latest available.
Forest area (% of land area, 2011)

Source: The World Bank, World Development Indicators (2013). Data are from 2010 or latest available.
Youth unemployment (age, 15-24)

Source: CIA Factbook, 2013
Prospects

1. A green economy grows much faster than a ‘brown’ one on a long-term basis. This way, natural capital is saved and accumulated;
2. The dividends’ prices will be higher for traditional business;
3. A green economy provides for growth which is favorable to all social classes. It allows social consensus and sustainable development to be achieved through effective use of energy, water, food and raw resources;
4. A green economy provides new jobs in the midterm and long-term;
5. A green economy preserves ecosystems and considerably reduces environmental pollution and greenhouse gases emissions;
6. Greening’ of the most economic sectors will open new opportunities for innovations, increase productivity, improve competitiveness and reduce dependency on global financial instability

Source: Kazakhstan
Way Forward

Suggested long-term strategy for transition to green economy:
1. Adapt laws, regulations and sectoral programs, e.g. enact Green Procurement Law for energy-saving technology and equipment.
2. Offering tax and investment incentives, attracting green investments and innovations for green economy.
3. Prioritizing green activities and services when carrying out public procurement.
4. Integrated approach in managing water, land and biological resources, mineral resources and production and consumption waste, in improving urban infrastructure.
5. Establishing special public and private financial institutions for green project funding.
6. Updating the current development of new regional programs given their capacity and opportunities of the green economy.
7. Ensuring the training of personnel, who can be in great demand within the conditions of green growth, and raising public awareness about the green path of development.

Source: Kazakhstan
Yet, outstanding challenges

• Uneven progress more or less on all policy fronts, end-of-pipe, processes/products, systems
• Frustrated policy coordination
• Willingness to pay among general public, mixed picture
• Lack of funding to cover initial costs
• Weak information systems/certification, action-reward linkages, lack of accountability

... issues of externality/problems with internalisation/global commons remain unresolved
Pressures and opportunities building

• Mounting scientific evidence on serious systemic risks
• Impacts increasingly felt in practice (extreme weather events, fires, seawater level)
• Information society increases transparency, rewards and punishments …
• Higher incomes increase demand for green solutions
• Quality, value-added and green go together
• The power of human ingenuity using technology, organisational change and the new tools
• Linear → Thresholds
Aspects of sustainable development

**Economic**
- Economic development
- Tourism
- Enhanced oil recovery
- Renewable energy
- Transport systems

**Social**
- Human development
- Health care
- Community building
- Social development
- Family and gender

**Environment**
- Recycling, Waste Management
- Water
- Biodiversity
- Natural resources management
Innovation and Entrepreneurship Ecosystem
Addressing the Needs for All.....

- Care for the elderly
- Advanced services for citizens: VoIP, Video & TV
- Public Safety & Security
- Health Services (e-health)
- e-Government
- State-of-the-art ICT infrastructure for businesses
- Services for disabled citizens
- Education (e-learning)

Broadband can help overcome these challenges
Sectoral Specialisation

Sectors arranged around four thematic domains:

1. **ENERGY** – orange areas – power Buildings
2. **BIOTECH** – green areas – earth buildings
3. **WATER** – blue areas – water buildings
4. **HEALTH** – white areas – air/wellness Buildings

All four utilize GPTs and smart solutions: effective communication, interacting, living, and evolving together
Context of CSR ...

• Government responsibility for the social issues ....
• Companies carrying out their business ... well
• In the **West**, ambivalence, linear thinking common
• **Asia**: from defensiveness to seeing opportunity, China, India decisive government initiative, still common capture by vested interests,
• **Middle East**: general interest, strive for holistic perspective, presence of barriers
Corporate Social Responsibility starts where all existing laws and regulations end; it is an organic link between enterprising, profit-making and social development that is conducted as a win-win solution in areas where a company requires something from society that cannot be bought and requires investment through a business plan for the company and a business plan for society.
- Increasing Affluence, but outstanding issues
- Globalization – localisation
- Free Flow of Information
- Ecological Sustainability
- Brands
- Experience Industry
A BUSINESS MODEL FORMAT
CREATING AND PROVIDING VALUE TO CUSTOMERS
CSR IN A BUSINESS MODEL FORMAT
CREATING AND PROVIDING VALUE TO CUSTOMERS – STAKEHOLDERS – SOCIETY – ENVIRONMENT
Strategic CSR

- Positioning of CSR within firms’ strategic planning process;
- Connection to core operations;
- Stakeholder perspective;
- View of short term versus long term perspective in managing the firm’s resources, and relations with key stakeholders, attaining new sources of inspiration and innovating.
An Ecosystem Conducive to Innovation and Entrepreneurship

1. Programs linking education, research and the business sector/society (hospitals, schools, community services)
2. Bridge-building research infrastructure, equipment allocation, common use spaces (meeting rooms, restaurants, prayer, coffee…)
3. Human resource linkages, collaborative projects, business engagement in research and education, industrial professorships and academics on stage in society, mobility and portability, training in the workplace
4. Conditions for experimentation, business labs, students toying with ideas how to create companies, entrepreneurship training and links to society in research and education
5. Spin-off and start-up mechanisms, incubation, seed funding and business angel networks
6. Strengthening of SMEs competencies, business support
Organisation and mindset

• **Autonomy** - accountability
• **Sound principles** (professionalism, ethics, inclusive, collegial, progression...)
• **Multiple career paths**
• **Mobility**
• **Stakeholder Engagement**
• **Trust, reliability, conflict-resolution**
Public–privat partnership

- **Rationale:** resources, pooling risk, and relevance
- A risk-tolerant and trust-based governance and legal approach
- Flexibility to adapt to the specific needs of different sectors and challenges
- Operational modalities: Openness, transparency, efficiency and sound financial management
- Reporting procedures with proportionate audits
- Long-term commitment and critical mass of funds
- Competitive funding rates
- Balanced funds matching and sustainability of running costs
On Entrepreneurship
Matching Entrepreneurial Capacity and Opportunities

- Entrepreneurial capacity (EC)
- Entrepreneurial opportunities (EO)
- Entrepreneurship
Total early-stage Entrepreneurial Activity by gender (2007 or the latest available)

Source: GEM (2013), http://www.gemconsortium.org/key-indicators
Lack of seed funding
Diversified roles in funding

Source: Business Angel Networks
Phases of Business Development and Funding Tools

- **Start up phase**
  - "Seed" Funds
  - Start up funds
  - Initial stage of funding

- **Maturing phase**
  - Second stage
  - Third stage
  - Fourth stage

**Invention Phases of Incubators**

- **Seed funds**

**Participation Capital / Bank loans**

- Venture Capital
  - Start up
  - Expansion

- **Buy out**
- **Strategic Participation**
Features of Entrepreneurship

• Vulnerability, being bullied, weak bargaining-power
• Necessity-based vs. opportunity-based
• Start-up history matters
• Features of entrepreneurs (age, gender, education, experience, networks)
• Sources of success (captain or current; mode of entry, skills, attitudes, wider ecosystem)
What you need...?

- Financial resources
- Paying customers
- Unique and protected ideas
- Dedicated staff
- Partners, professional services support
- The convincing case
The planning process

• Business ideas

• Communicate those ideas

• The Business Plan

• The Business Process; backed by professional services support

----- Mechanisms
Experiments

- Conducting tests
- Events in process
- Participation in social interactions with peers
- Placing the learner under realistic conditions
- Collaboration: agent based experimentation
Teams

- A group or a team
- Why important?
- What accounts for success
- Within the organisation – the workforce
- The board of directors
- Advisors
- Mentorship and coaching
Soft Skills

• **Awareness**: Recognising your own strengths and weakness.
• **Imagination**: Identifying new patterns in complexity and opportunities in uncertainty.
• **Curiosity**: Challenging and thinking out of the box.
• **Regulation**: Keeping emotions under control.
• **Motivation**: Developing optimism and personal drive.
• **Empathy**: Reading emotions and motivation in other people.
• **Ability** to build and manage relationships.
Hard Skills

- **Professional**: Core in-depth, context, overview and general understanding for linking
- **Financial Literacy**, how to attract and manage
- **Organisational and Management**
- **Communication and Marketing**
- **IT**
- **IPR**
- **Languages**
THE INNOVATION AND ENTREPRENEURSHIP ECOSYSTEM: A Knowledge Pool – A Super Collider (Particle Accelerator) for Entrepreneurial Reaction......bringing them together, the reaction starts.

“...The symbiosis is the building upon one another's strength... one another's competencies...adding value and passing it on”.

from intention to action
“Out of the box” available to catch
The New ICT Landscape

- Mobile diffusion and penetration
- Big data – interoperability, virtual labs
- Amateur scientists – community engagement
- Open source and open innovation
- Internet of things
- Content
Internet Megatrends

Information – search engines
Personal relations – social networks
Mobile applications – smart phones

All data-driven and provider-controlled

VISION: Next megatrend built around individuals getting better control of their data
Is there a business case?
Business Models for Identity Services

USER DOMAIN

END USER INTERFACES AND CONTRACTS TOWARDS USERS

INDI

USER'S OPERATOR

SERVICE'S OPERATOR

DATA SOURCE'S OPERATOR

RELYING PARTY DOMAIN

B2B INTERFACES AND CONTRACTS TOWARDS SERVICES

USER IN CONTROL

COMPLIANCE AND COMPATIBILITY BETWEEN OPERATORS

DATA SOURCE DOMAIN
### BEHAVIOURAL CHANGE LEVERS

#### Traditional Behavioural Change Approach

**Interactive**
- See a doctor
- Personal coach
- Counseling

**Non Interactive**
- Traditional push mass media campaigns
- Traffic signs
- Newspaper, TV

#### Major Communication Trends (Enabled by Mobile Devices & Technology Evolution)

1. Targeting individuals who are “in the market” – early in the process, dormant
2. Arranging a “context” for experience to engage individuals
3. Building interactivity with tailoring and focus on direct response, utilising monitoring, measurement, assessment and feedback loops
4. Using communities for scale-up and to deliver more influencing messages
5. “In real time” - connecting “on the go” via mobile devices and the Internet of things, at non-disturbing moments
The opportunity to revamp agriculture

• Reforming state agencies (grain, machinery leasing, and agricultural credit markets) while increasing presence of private service providers to agriculture;

• Public investment to remove deficiencies in transport infrastructure, water and land management, plant and animal health and food safety;

• Public goods provision, enabling private sector growth and managing risks in agriculture

• Integrate small-scale producers into agricultural markets and diversify rural incomes.

• Governance and evaluation and policy monitoring by stakeholders

• Culture; maintain link to the past
Hydrological systems and biomass

• Water savings of some 60-90% compared with conventional drip irrigation.
• Water wastage, e.g., through evaporation, is dramatically reduced (e.g. water diffused underground, without air contact).
• Pioneering knowledge of local species and root systems
• Increased efficiency, reduced costs of fertilisers.
• Reduced maintenance costs and high robustness suitable to Central Asian conditions without losses in functionality.
Turning policies constructive

• Holistic view
• Carving out interface research niches and industry
• Applying regulations and tax incentives
• Phasing out unproductive subsidies, water and energy
• Procuring and enabling waste management, new water and energy solutions
• Stakeholder engagement, financing, social pressure
• Information management, monitoring, auditing, disclosure, certification, "naming and shaming"
It is about people

• Use “Champions”, Trust builders, Creative individuals capable of transcending traditional boundaries (cultural, institutional and geographical) that prevent knowledge sharing.
• An approach to customers as partners, and knowledge workers as revenue creators.
• Caring and sound governance of our environment
• Management of the environment in which knowledge is created.
• Informal networks of alliances: Knowledge entrepreneurs usually emerge from a network of complementary ideas and people.
• Build bridges between different communities and societies

... national/regional mobilisation around addressing key issues and opportunities