

**Humanities and the Contemporary World
hosted by
Montenegrin Academy of Sciences and Arts**

***An Economist's Reflections on Individuality,
Human & Social Capital and Responsibility of
Academia***

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Introduction

- **Background => Learning how to respond to challenges**
- **Defining Human & Social Capital**
- **The Role of Human & Social Capital in Sustainable Development (SD)**
 - **Operationalizing SD**
 - **Competing Approaches**
- **Lessons from Central and Eastern Europe**
- **Building Human and Social Capital for SD**
- **Challenges and Opportunities for Academia**

Previous Research Background

- **The Center for Nations in Transition (CNT), University of Minnesota, has been involved in policy-oriented research, institutional design for sustainable development and in reforming management and economic education in seven Central and East European countries (CEEC) since the late 1980s.**
- **Four “blueprints” for sustainable development (SD) were prepared for Poland, Czechoslovakia, Hungary and Bulgaria -1990-1992.**
- **A Regional Report for UNCED on “Capacities for SD in CEEC” was elaborated and delivered for the Earth Summit in Rio de Janeiro 1992.**
- **Since the 1990s, CNT initiated research on sustainability of the transformation processes in the CEE region. The CNT activities are continued at the Evans School, University of Washington since 2007.**

Defining Human Capital - 1

- From classical economists such as Adam Smith through neoclassical economists such G. Becker and T. Schultz – **Capital** is mainly defined as a **stock of abilities to produce benefits** – revenues, incomes or profits.
- **Human Capital (HC)** presents the **unique form of capital** that has the ability to put other forms of capital – tools, infrastructure (man-made capital) and land (natural capital) in motion to produce goods & services and thus to **create new values**.

Defining Human Capital - 2

- The **value** of HC depends on the **previous investments** in developing new and useful knowledge, skills and attitudes.
- As any capital, it requires **continuing investment** in developing new knowledge and skills.
- **Academia** plays enormous role in building new human capital but its effectiveness depends on many other factors, including **political system** and **culture**, which could **encourage or suppress** critical thinking and creativity – the unlimited ability of this capital to create values.

Defining Social Capital

- **Social Capital is a stock of norms, rules and connections (networks) that allow building the trust within communities and between those participating in economic or political activities – the fundamental factor of success.**
- **Academia plays an important role in shaping the right attitude, including openness, positive thinking, and collaborative behavior – foundation for building social capital.**



**IN OUR HANDS
UNITED NATIONS
EARTH SUMMIT '92**

**CAPACITIES AND DEFICIENCIES FOR IMPLEMENTING
SUSTAINABLE DEVELOPMENT IN CENTRAL AND EASTERN EUROPE**

Prepared for the United Nations Development Programme

**UNITED NATIONS CONFERENCE ON
ENVIRONMENT AND DEVELOPMENT**

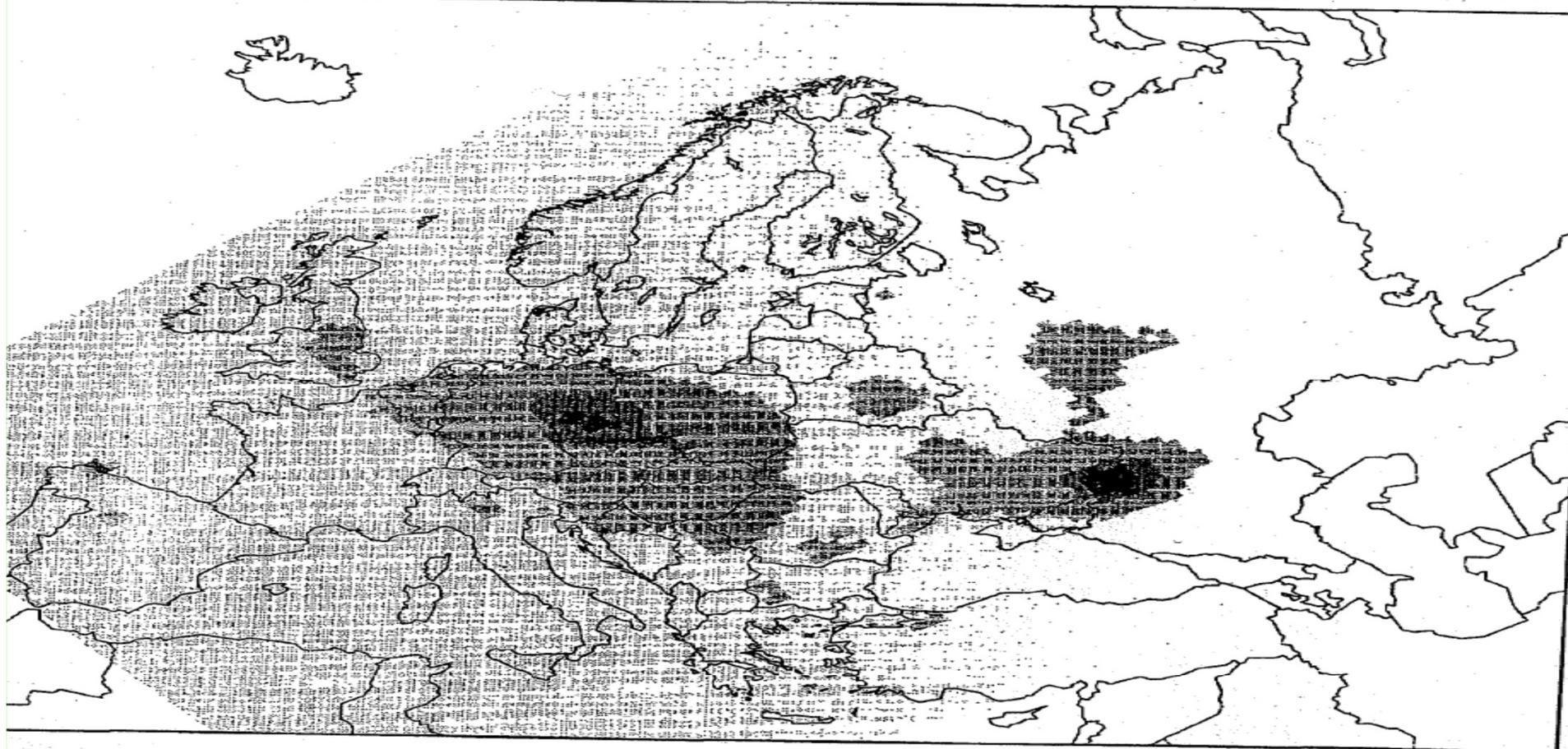
**Research Paper No. 46
February 1992**

Before Rio 1992: Legacy of Centrally Planned Economies in CEE

The inefficient centrally planned system produced:

- ✓ Economic stagnation or decline at the end of the 1980s
- ✓ Chronic shortage of consumer and capital goods
- ✓ High material & energy intensity of GDP (5 times higher than in EU)
- ✓ High dependence on non-competitive CMEA market (65-70%)
- ✓ Outdated, deeply in debt major enterprises and industries
- ✓ High external debt (particularly in Bulgaria, Hungary and Poland)
- ✓ Social apathy and/or unrest (e.g., Solidarity, Charter 77)
- ✓ High levels of **industrial pollution** and severe **damage to the environment and health** of local people
- ✓ The environmental conditions became a barrier for development

CENTRAL AND EASTERN EUROPE CONCENTRATION OF TOTAL DUST AVERAGE CONCENTRATION IN 1990



MICROGRAM PER
CUBIC METER:

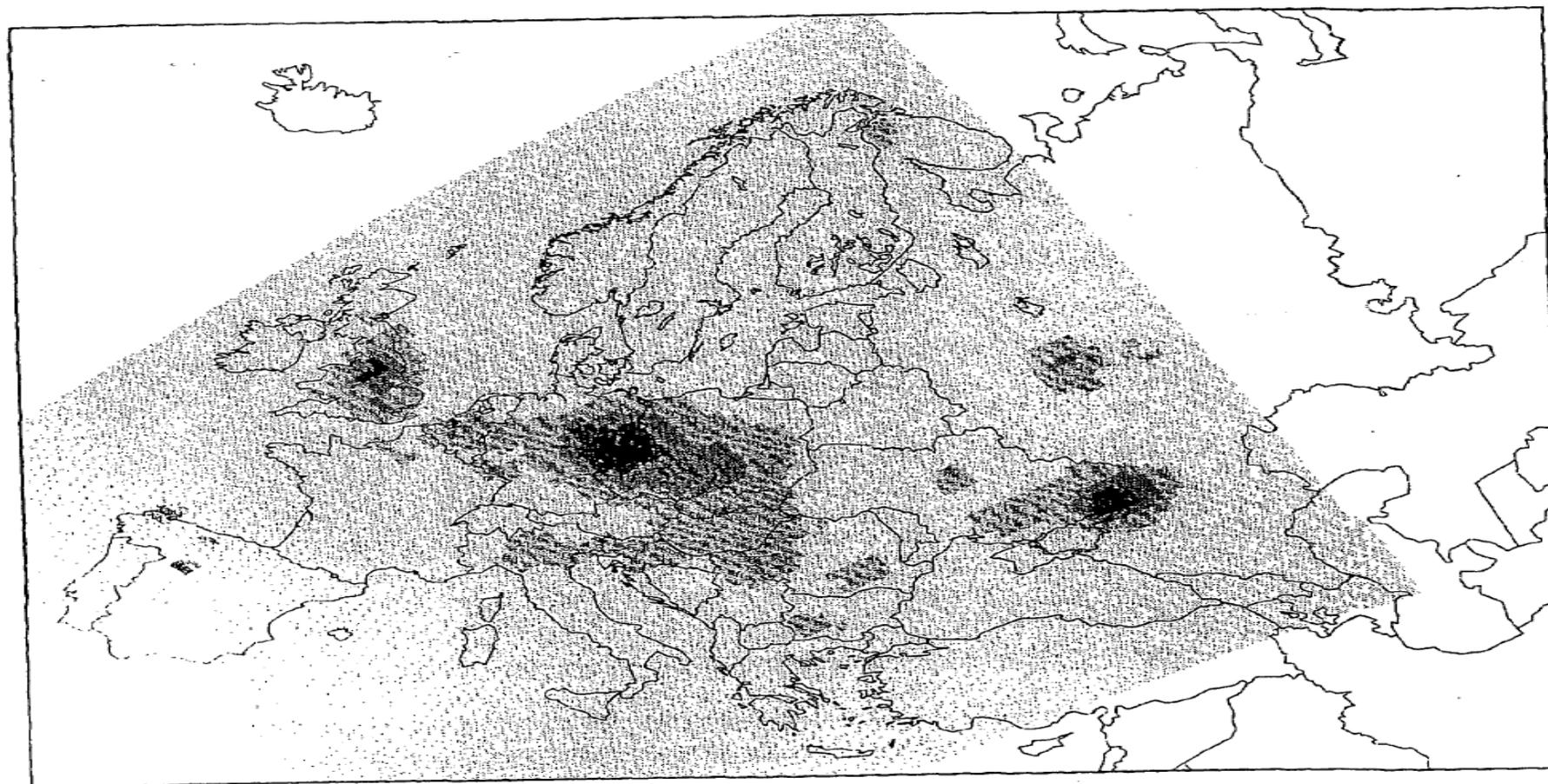
	< 20
	20 - 40
	40 - 60
	60 - 90
	> 90

putations: RIVM

MAP 1

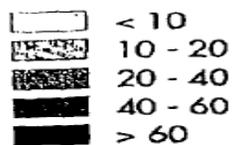
The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries

CENTRAL AND EASTERN EUROPE
CONCENTRATION OF SULFUR-DIOXIDE
AVERAGE CONCENTRATION IN 1990



MICROGRAM PER CUBIC METER

MAP 3

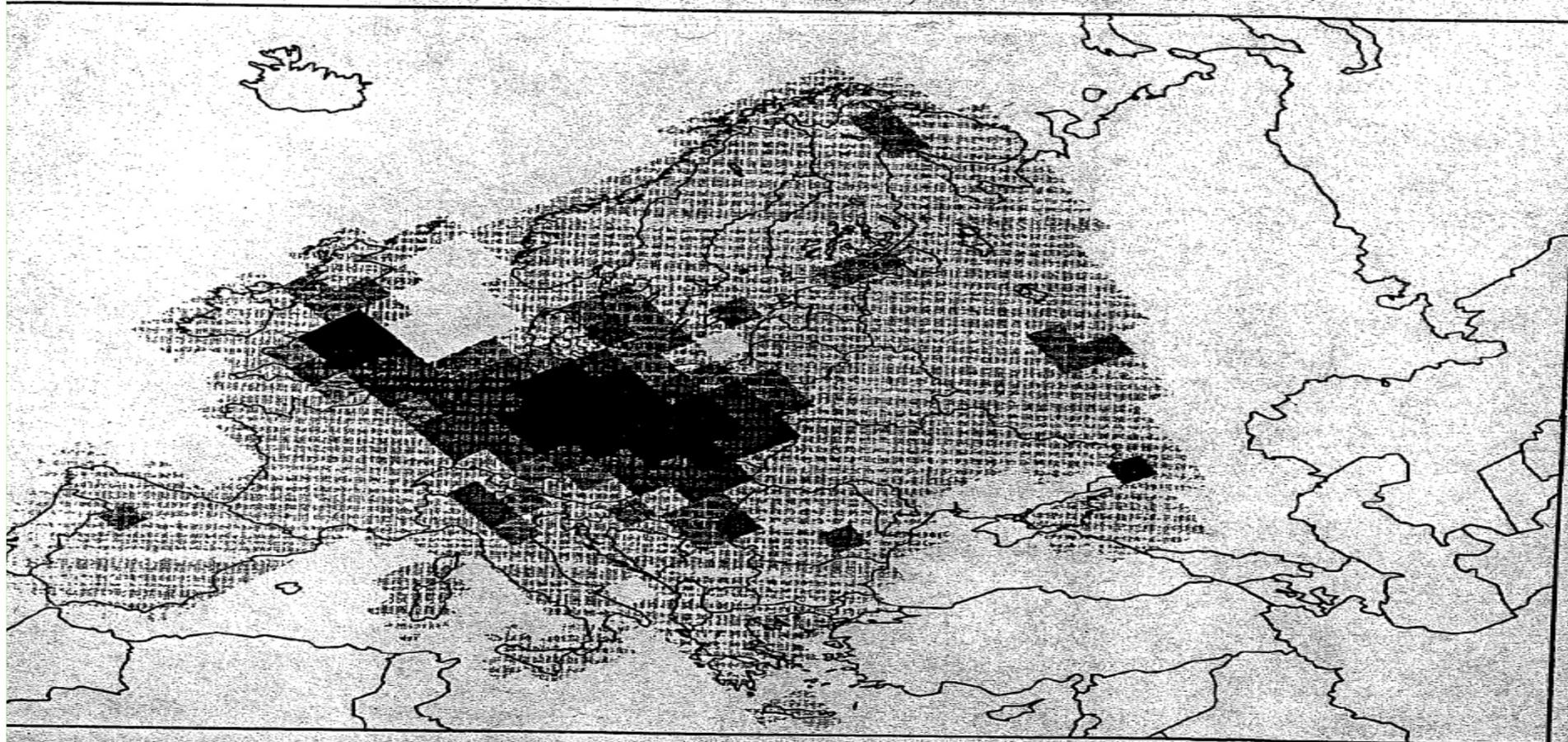


Computations: RIVM

The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

MARCH 1994

CENTRAL AND EASTERN EUROPE EXCEEDANCE OF CRITICAL LOADS FOR ACIDITY 1990



EQ/HA/YR

-  < 500
-  500 - 1000
-  1000 - 2000
-  > 2000

MAP 8

The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of the World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

The State of Human Capital in CEE before 1992 - I

Positive legacies of the past system:

- **education system, particularly in mathematics, natural and technical sciences,**
- **basic health care system**
- **these two systems were critical for preserving existing and building new human capital necessary for sustainable development**

The State of Human Capital in CEE before 1992 - II

Major deficiencies of the education system:

- **weak humanities & social sciences**
- **lack of neoclassical economics and management – disciplines critical for transformation to market economy**
- **misallocation of priorities in the education process:**
 - **too much time devoted to knowledge transfer**
 - **too little to the development of appropriate skills and attitudes**
- **passive, teacher-centered way of delivery**
- **lack of appreciation for soft skills**

What Are Their Major Achievements of CEE 10?

- **National Economies in 2007:**

- Economic growth of over **3.5% annually** during the 13 years before the financial crisis (1994-2007)
- Moved away from industrial to **post-industrial societies** with dominant contribution to GDP from **services** (55-65%) and **significant reduction** (over 50%) of contribution from “**heavy industries**”
- Shifted their exports from non-competitive CMEA markets (65-70%) to demanding **EU and developed countries’ markets** (70-75%)

What Are Their Major Achievements of CEE 10?

● National Wealth in 2007:

- Increased average living standards (measured by GDP per capita) **over 50%**, compared to 30% increase in EU15
- Reduced infant mortality by **50%**
- Extended life expectancy of over **3 years**

What Are Their Major Achievements of CEE 10?

● Environment:

- Introduced basic institutional infrastructure for the environment
- Made visible progress in technical infrastructure
- CEE10 Significantly reduced major types of pollution
 - particulate matters (70-80%)
 - carbon dioxide (15-20%)
 - sulfur dioxide (over 60%)
 - nitrogen oxides (35-40%)
 - wastewaters (35-40%)

Are the Achievements Sustainable?

Sustainability of systemic transformation means the process has reached a “critical mass” and cannot be reversed in the foreseeable future, particularly:

- *A civic society* that cannot be turned to a dictatorship
- *A market economy* that cannot be replaced by a centrally planned or heavily regulated economy
- *Improved basic ecosystems* that cannot be endangered by nation's policy
- Initiated movement along the path of *sustainable development*

What is Sustainability?

- Often the term **sustainability** is used as:
 - a substitute of sustainable development (Adams 2006)
 - an intergenerational equity (Ott 2003)
- In fact the sustainability applied in many disciplines means **maintaining a state of a dynamic balance of a system** with its major elements interacting with each others and its relations with the higher system

Two Basic Approaches to Sustainability

- **Maximizing Wealth vs. Non-Declining Total Capital**
- **Applying John HARTWICK's rule (1977):
“constant level of consumption could be maintained perpetually if all the scarcity rents were invested in capital.” (after Tietenberg 2008)**

Evaluating Sustainable Development: Non-Declining Wealth vs. Non-declining Total Capital

- *Non-declining Wealth:*
 - a. Non-declining income per capita (mostly GDP –PPP- per capita)*
 - b. Non-declining genuine (adjusted net) savings (GDS or ANS)*

GDS indicator (Pearce 1994):

- $GDS = GDP - C - Kmf D + EdI - EngD - MinD - ForD - CDD$

Where:

- GDS genuine domestic savings
- GDP gross domestic product
- C annual consumption
- Kmf D capital fixed depreciation
- Ed I education expenditure (investment in human capital)
- EngD energy resource depletion (depreciation of natural capital)
- MinD mineral resource depletion (depreciation of natural capital)
- ForD forest depletion (depreciation of natural capital)
- CDD damage to the environment due to carbon dioxide emission (depreciation of natural capital)

$$ANS = (GNS - D_h + CSE - \sum R_{\pi,i} - CD) / GNI$$

- *ANS* - the Adjusted Net Savings indicator,
- *GNS* - Gross National Savings,
- *D_h* - depreciation of produced capital,
- *CSE* - current non-fixed capital expenditures on education,
- *R_{π,i}* - rent from natural capital depletion,
- *CD* - damage from carbon dioxide emissions,
- *GNI* - Gross National Income at market prices.

Slide 21

kas1

Zbig, I recommend creating a higher quality version of this equation image. It may not translate to the screen very well as it is.
Kay A. Sterner, 3/2/2010

Evaluating Sustainable Development: Non-Declining Wealth vs. Non-declining Total Capital

- Non-declining Total Capital
(Bochniarz & Bolan, 2005, expanding concepts of Solow, 1974; Hartwick, 1977; and Pearce, 1989)
- $TK = K_m + K_n + K_h + K_s = \text{constant}$ (non-declining)
- Where:
 - $K_m = K_{mf} + K_{mo}$ (*capital fix and operational*)
 - $K_n = K_{nu} + K_{nr}$ (unique and renewable *natural capital*).
 - $K_h = K_{hu} + K_{hi} + K_{hr}$ (unique, institutionalized and renewable *human capital*)
 - $K_s = K_{so} + K_{sn}$ (old, inherited and new, needed at a current stage of development *social capital*).

How Did the CEE10 Cope with the Crisis: EU vs. CEE 10 GDP Growth 2008

- EU 27 0.9%
- EU 15 0.6%
- CEE10 4.5%

- | | | | | | |
|------|------|----|------|----|-------|
| ● RO | 7.1% | PL | 5% | LI | 3% |
| ● SK | 6.4% | SL | 3.5% | HU | 0.5% |
| ● BG | 6% | CZ | 3.2% | ET | -3.5% |
| ● | | | | LV | -4.6% |

How Did the CEE10 Cope with the Crisis: EU vs. CEE 10 GDP Growth 2009

● EU 27 -4.2%

● CEE10 -2.4%

● PL 1.7% CZ -4.3 SK -4.7%

● SL -4.7% BG -6.5% HU -6.9%

● RO -8.5% ET -14% LV -18%

● LI -18.5%

How Did the CEE 10 Performed in 2010 vs. EU

- **EU 27** **2.0%**
- **EU 15** **2.0%**
- **CEE10** **3.5%**

- | | | | | | |
|-------------|--------------|-----------|-------------|-----------|--------------|
| ● SK | 4.2% | PL | 3.9% | CZ | 2.7% |
| ● SL | 1.4% | HU | 1.3% | RO | -1.6% |
| BG | 0.4% | ET | 2.3% | LI | 1.4% |
| ● LV | -0.3% | | | | |

How Did the CEE 10 Performed in 2011 vs. EU (earlier estimates)

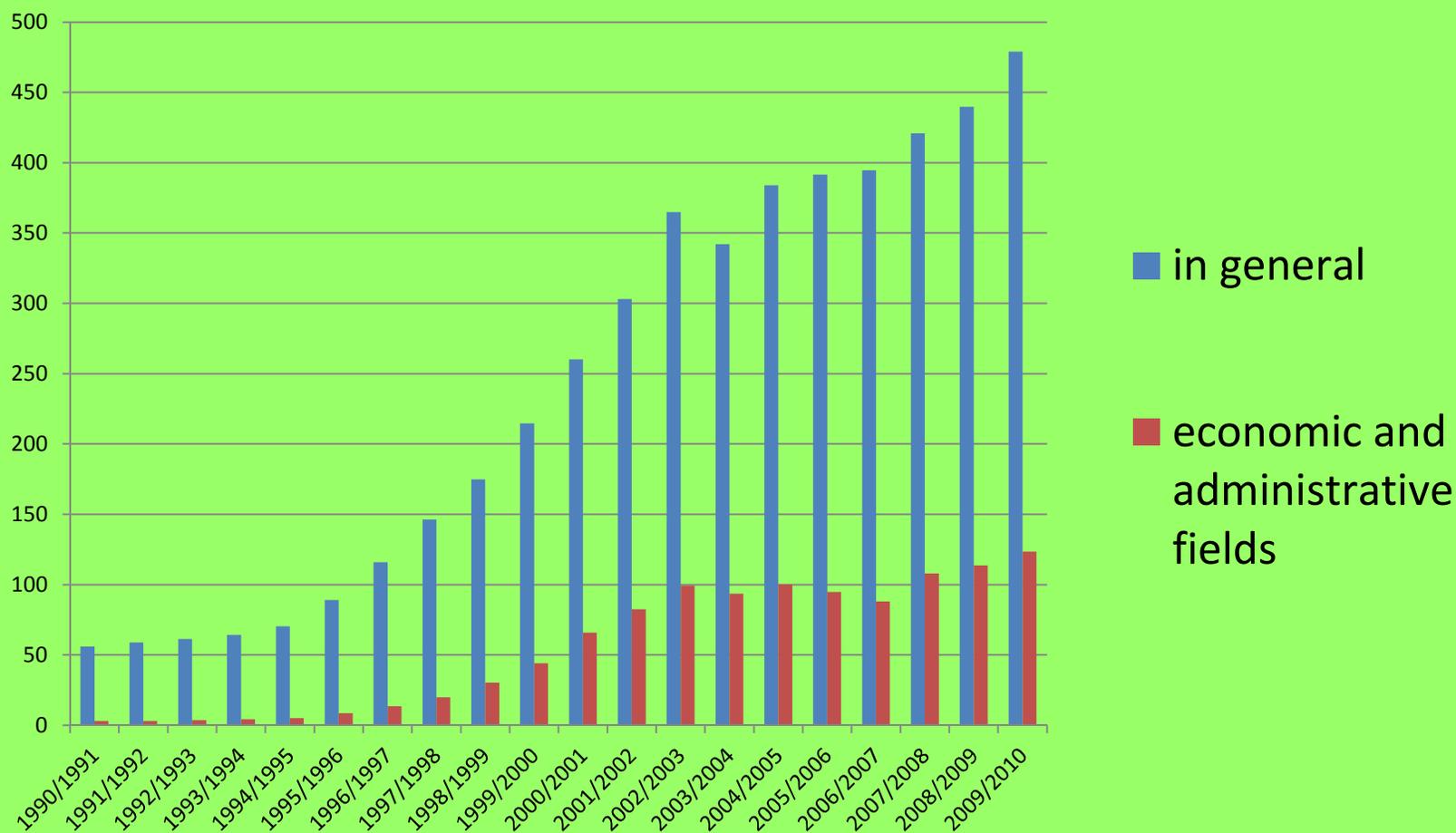
- **EU 27 1.5%**
- **EU 15 1.4%**
- **CEE10 4.2%**

- **ET 7.6%** **LI 5.9%** **LV 5.5%**
- **PL 4.3%** **SK 3.3%** **RO 2.5%**
- **BG 1.7%** **CZ 1.7%** **HU 1.7%**
- **SL -0.2%**

What Factor Contributed the Most to These Successes?

- The single most important factor was the CEEC's significant investment in *Human Capital* (*Kh*), particularly in higher levels of education, which increased enrollment 4-5 times
- Consider the case of **Polish** higher education from 1990-2005:
 - Total number of students **increased 5 times**
 - 3 times in public institutions (part-time students have increased by 7)
 - **More than 30 times in private schools**
 - **17 times in economics and business** management
 - Total capital investments in public institutions has increased 16 times – in private universities and business schools much more

Graduates from higher education institutions in Poland: 1990 - 2010



Dynamics of Enrollment and Graduation vs. the Education Quality

- Huge increases in enrollment did NOT match appropriate increases in hiring new faculty members => Quality of education suffered
- More teaching resulted in decreasing of faculty
- research activities
- Building Human Capital at educational organizations => New curricula is NOT enough
- New delivery methods – student-centered - needed

Polish high economic growth confirms theory of increasing returns

- Huge inflows of new graduates, particularly with their neoclassical economics and managerial skills was one of the major sources of the successful transformation process in Poland resulting in high economic growth during last 20 years
- Has this huge influx of new graduates contributed to make Poland more innovative and competitive?

Poland's Competitiveness

World Economic Forum: GCR 2011-2012 (142 countries)

Rank/Score (R/S)	Basic Requirement (BR)		Efficiency Enhancers (EE)		Innovation Factors (IF)	
Poland 41	4.5	56	4.70	30	4.61	57 3.64
CEE benchmk. (CZ, ET, SL)	4.59		5.02		4.65	4.20
EU benchmk. (SW, DK, FN)	5.47		5.99		5.28	5.42

Poland's BR Pillars: Institution Infrastruct. Macroecon Stab. Health & Prim. Edu.

56 (4.7)
52(4.2)
74(3.9)
74 (4.7)
40 (6.1)

Poland's Competitiveness

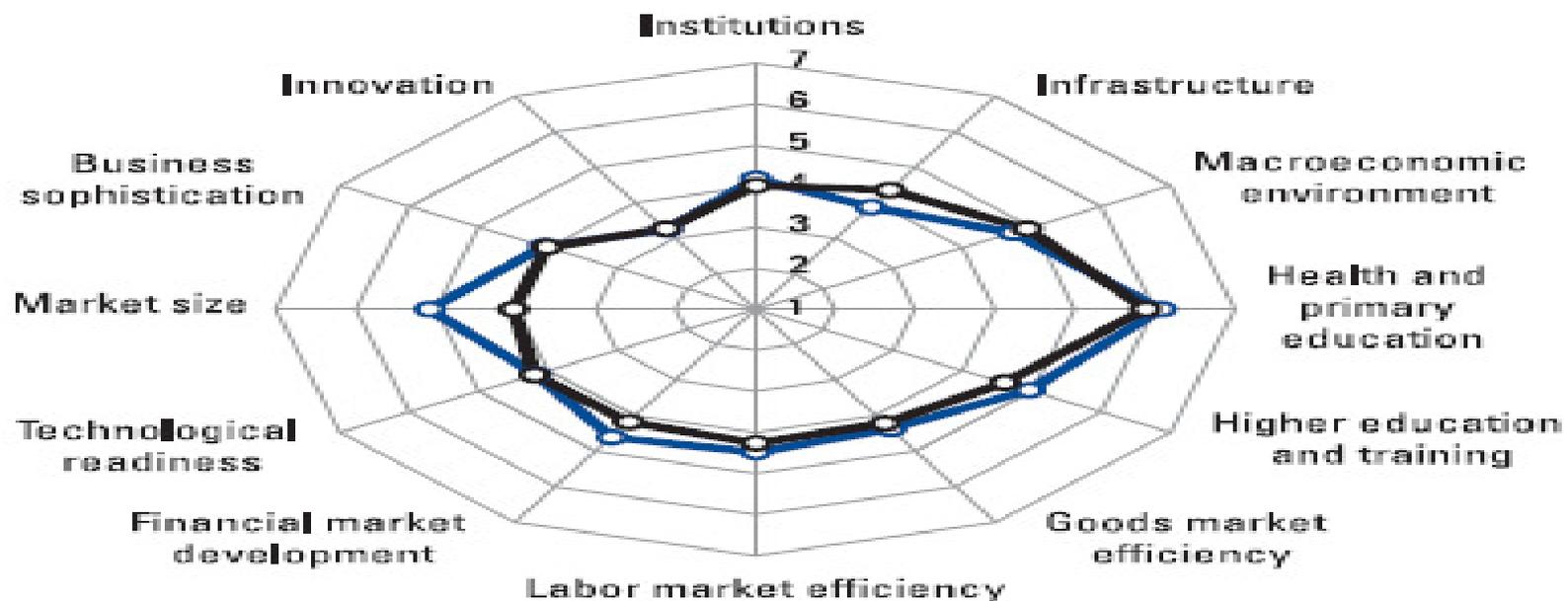
World Economic Forum: GCR 2011-2012

<u>Poland's Institutions</u>	52
• Burden of government regulations	124
• Efficiency of legal framework of setting disputes	97
• Transparency of policy making	93
• Efficiency of legal framework of challenging regulators	83
• Public trust of politicians	76
• Wastefulness of government spending	76
<u>Infrastructure</u>	74
• Quality of roads	134
<u>Macroeconomic Environment</u>	74
• Governmental debt	102

Poland's Competitiveness

World Economic Forum: GCR 2011-2012

Stage of development



—○— Poland
 —○— Economies in transition from 2 to 3

Poland's Competitiveness

World Bank: Doing Business 2010 – Poland (183 countries)

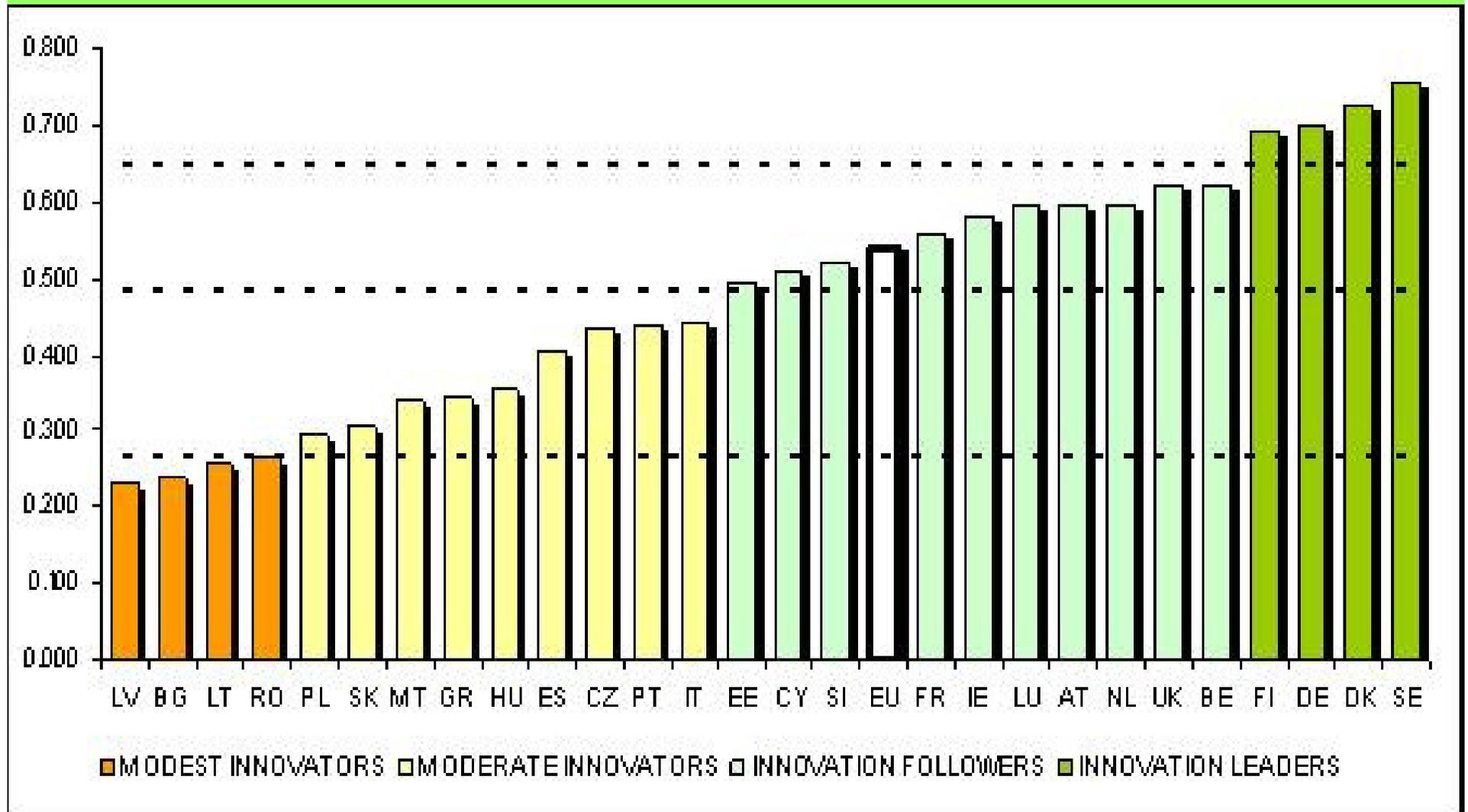
**DOING
BUSINESS
2012
RANK**
62

**DOING
BUSINESS
2011
RANK**
59

**CHANGE
IN RANK**
↓ -3

TOPIC RANKINGS	DB 2012 Rank	DB 2011 Rank	Change in Rank
Starting a Business	126	115	↓ -11
Dealing with Construction Permits	160	159	↓ -1
Getting Electricity	64	64	No change
Registering Property	89	87	↓ -2
Getting Credit	8	8	No change
Protecting Investors	46	44	↓ -2
Paying Taxes	128	128	No change
Trading Across Borders	46	36	↓ -10
Enforcing Contracts	68	69	↑ 1
Resolving Insolvency	87	74	↓ -13

EU Member States' innovation performance - EC 2011



Lessons learned from the best

- The common feature of the most innovative and competitive economies - rich human and social capital – the critical component to building strong industrial clusters and network-based communities.
- All Nordic economies successfully combined a high level of R&D with investment in education & ICT, while maintaining a high level of social capital and cluster-based development policies.
- Similar patterns followed by Switzerland, Singapore, The Netherlands and US.

How to Deliver the right Knowledge in the right Way?

Our educational environment in 21st Century:

- Instant **Internet access** to verify the knowledge (K)
- Acceleration of scientific discoveries make K fast outdated =>
=> Less textbooks more articles & reports from websites
- **Comparative study** helps to understand concepts
- Practical **cases facilitate discovering** of the theoretical concept
- Literature from competing schools boosts **critical thinking**
- **Practitioners** make the concept relevant
- **Projects competition** inspire students to learn and apply (e.g. GSEC)
- **Focusing on K application** in the academic (e.g. green university) or local/regional environment (e.g. action research on local pollution)

How to Shape the necessary Skills?

What are the necessary skills?

- Hard Skills => mostly quantitative
- Soft skills => mostly qualitative:
 - Communication:
 - written,
 - verbal,
 - informal (symbolic, body language, etc)
 - Entrepreneurship
 - Leadership
 - Team work
 - Problem solving

How to Build the needed Attitude?

Several methods to build the needed attitude:

1. Collective case study solving
2. Team projects
3. Mentoring
4. Practicing “advocatus diaboli”
5. Participating in competitive projects
6. Designing project own “constitution” – roles, rules & schedule
7. Exploring potential project sponsors.

Policy Recommendations for Higher Education

- Designing balanced programs with the right proportions between knowledge, skills and attitude building.
- Teaching the public & business administration officers and staff the basics of innovation and competitiveness from globally-recognized programs adapted to local conditions.
- Opening universities to practitioners to act as guest lectures.

Policy Recommendations for Higher Education

- Encouraging collaborative efforts with faculty exchanges and joint programs through universities from the top competitive economies.
- Including faculty achievements in developing innovation as criteria toward evaluating their performance and promotion.
- Motivating faculty to conduct applied research on the innovation and competitiveness of their own communities, cities and regions.
- Spearheading the public-private dialogue to improve innovation and competitiveness of their local and regional communities.

Conclusions

The global financial crisis and follow up economic recession, lingering environmental and social crises call for visionary leadership in mobilizing factors to generate sound economic development, innovations, entrepreneurship, for converting disadvantages into advantages, and weaknesses into strength.

An effective government oriented on high performance of strategic priorities, equipped in appropriate human & social capital, and technology should facilitate the change for recovery and prosperity.

Academia and their alumni should be first to answer to this call.

Thank You!

Questions please...