Global Challenges Confronting Humanity in the 21st Century

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# Transformation of Society and Work

<table>
<thead>
<tr>
<th>Year</th>
<th>World Population</th>
<th>Urban Population</th>
<th>Life Expectancy</th>
<th>World Trade</th>
<th>Agriculture</th>
<th>GDP/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>978M</td>
<td>3%</td>
<td>27 y</td>
<td>3% WGDP</td>
<td>85%</td>
<td>1950: $2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1990 international dollars)</td>
</tr>
<tr>
<td>2010</td>
<td>6900 M</td>
<td>49%</td>
<td>69 y</td>
<td>27% WGDP</td>
<td>33.5% global WF</td>
<td>1950: $6500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2% USA WF</td>
</tr>
</tbody>
</table>

1950: 67%
Ecological footprint = measure of human demands on environment (Rees, Wackernagel, 1992)

<table>
<thead>
<tr>
<th>EF</th>
<th>1970</th>
<th>1992</th>
<th>2007</th>
<th>2050 (BAU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.9</td>
<td>1.0</td>
<td>1.5</td>
<td>3.0</td>
</tr>
</tbody>
</table>

(Bankrupting Nature, A. Wijkman and J. Rockstrom)

13.798±.037Gy  3.8Gy  0.8Gy  70ky  12ky

phy→ 300ky chem→ life/bio→ fire  cogn rev  NAR

“God forgives always, humans sometimes and Nature never.”
Contemporary world:
☼ global
☼ fast changing
♦ interdependent
♦ uncertain, black swans)
♦ Destruction of natural and human capital

Employment:             Inequality
♦ Low employment
♦ Underemployment       !Essential political task!
♦ Miss-, Mal- employment  !Achievable!
♦ Unemployment
“It was the best of times, it was the worst of times...” (Ch. Dickens, The Tale of Two Cities)

Our Successes during last 100 years

☼ Life Expectancy → $\times 2$
☼ GDP → $\times 5$
☼ Decolonization, Cold War end, WMDFZ (39% humankind, 115 sovereign states)
☼ More democracy: 1972: 43 states democratic
   2002: 89 states (2.5 G person)
   Ottawa (3.5.1996 - Landmine/not ratified: US, RF, China, India, Pakistan)
Natur(20c) $\equiv (10M)$
Spanish flue $\equiv (60M)$
WWI $\equiv (17M)$
WWII $\equiv (60M)$
Kor/Viet $= (5.5M)$

Democide(20c) $= \parallel = (262M)$
Worldwide Poverty
(1990-2013) $= \parallel = (432m)$

WWP $\gg$ Democide (x2) $\gg$ wars (x3)
Near Misses Between Russia and the West
APPENDIX A: Russia – NATO Close Encounters – Baltic and North Sea

High risk incidents are shown in Red

Serious incidents are shown in Yellow

Near-routine incidents are shown in Blue

Miscellaneous incidents are shown in Green

This map details the geographical spread and threat level of incidents involving the Russian military and the forces of NATO and its partner states in the Baltic and North Sea area. An interactive version of the map can be accessed here.
Doomsday clock (Bulletin of Atomic Scientists)

1947  7 min to Midnight
1953  3 - 2 min to Midnight  (USA and USSR test H-bombs)
1989  17 min – end Cold War
January 14, 2014    5 min (destruction of natural, human and social capitals)
January 22, 2015    3 min (As bad as 1953 + Ukraine, ISIL)
[Sep 26, 1983 – the day the world almost died – Stanislav Petrov:
  flying time ICBM - US-USSR = 12 min]
GOVERNMENT AND ELECTIONS

Is your country governed by the will of the people? (Global response)

- Yes
- No

Are your elections free and fair?

- Yes
- No

SOURCE: BBC/Gallup International
Do you think the United Nations is doing a good job or a poor job in trying to solve the problems it has had to face?

- % Good job
- % Poor job

GALLUP®
QA3a. What do you think are the two most important issues facing (OUR COUNTRY) at the moment?

- Unemployment: 45% (EB82 Aut.2014), 48% (EB81 Sp.2014)
- Economic situation: 24% (EB82 Aut.2014), 29% (EB81 Sp.2014)
- Immigration: 15% (EB82 Aut.2014), 18% (EB81 Sp.2014)
- Health and social security: 14% (EB82 Aut.2014), 16% (EB81 Sp.2014)
- Government debt: 13% (EB82 Aut.2014), 14% (EB81 Sp.2014)
- Rising prices/inflation: 14% (EB82 Aut.2014), 16% (EB81 Sp.2014)
- Pensions: 11% (EB82 Aut.2014), 11% (EB81 Sp.2014)
- Taxation: 10% (EB82 Aut.2014), 11% (EB81 Sp.2014)
- Crime: 9% (EB82 Aut.2014), 12% (EB81 Sp.2014)
- The education system: 9% (EB82 Aut.2014), 9% (EB81 Sp.2014)
- The environment, climate and energy issues: 7% (EB82 Aut.2014), 5% (EB81 Sp.2014)
- Housing: 6% (EB82 Aut.2014), 5% (EB81 Sp.2014)
- Terrorism: 6% (EB82 Aut.2014), 2% (EB81 Sp.2014)
- Other (SPONTANEOUS): 3% (EB82 Aut.2014), 2% (EB81 Sp.2014)
- None (SPONTANEOUS): 0% (EB82 Aut.2014), 0% (EB81 Sp.2014)
- Don't know: 1% (EB82 Aut.2014), 1% (EB81 Sp.2014)
Global Distribution of Wealth

- **Bottom 99.9%**: USD 10.3 trn (19 percent)
- **Top 0.001%**: USD 16.7 trn (30 percent)
- **Next 0.1%**: USD 17.4 trn (32 percent)
- **Next 0.01%**: USD 10.7 trn (19 percent)

James S. Henry, 2012
## The balance-sheet of wealth

<table>
<thead>
<tr>
<th>Country</th>
<th>2008, $trn*</th>
<th>1990-2008 growth†, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>117.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Japan</td>
<td>55.1</td>
<td>0.9</td>
</tr>
<tr>
<td>China</td>
<td>20.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Germany</td>
<td>19.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Britain</td>
<td>13.4</td>
<td>0.9</td>
</tr>
<tr>
<td>France</td>
<td>13.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Canada</td>
<td>11.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Brazil</td>
<td>7.4</td>
<td>0.9</td>
</tr>
<tr>
<td>India</td>
<td>6.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Australia</td>
<td>6.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Inclusive wealth per person 2008, $'000**

- **Japan**: 400 Human, 200 Natural, 100 Physical
- **United States**: 300 Human, 100 Natural, 100 Physical
- **Canada**: 300 Human, 200 Natural, 100 Physical
- **Norway**: 200 Human, 200 Natural, 100 Physical
- **Australia**: 200 Human, 200 Natural, 100 Physical
- **Germany**: 200 Human, 100 Natural, 100 Physical
- **Britain**: 100 Human, 200 Natural, 100 Physical
- **France**: 100 Human, 200 Natural, 100 Physical
- **Brazil**: 100 Human, 100 Natural, 100 Physical
- **India**: 100 Human, 100 Natural, 100 Physical
- **Saudi Arabia**: 100 Human, 100 Natural, 100 Physical
- **Venezuela**: 100 Human, 100 Natural, 100 Physical

Source: UN

*Constant 2000 $  †Average annual rate
Figure 7-14.
Public confidence in leadership of selected institutions: 1973–2000

Percent expressing great deal of confidence

See appendix tables 7-31.

Science & Engineering Indicators – 2002
“People are the real wealth of nations. The basic aim of development is to enlarge human freedom and choices so that people live full and creative lives. This must benefit everybody equitably.”


We add: people - healthy, educated, active and happy, living in a society of social justice and social cohesion in a healthy environment assuring sustainable development.

Achievable: “Enough for human needs, but not for human greed.” (M. Gandhi)
“Our century has given birth to a great epoch, but the great moment finds a stunned generation and even more stunned politicians”. F. Schiller, The Present Moment 1796

“It is absurd to believe that everything is going to change, but politics will and can remain the same.”
(Y. Dror, Avant-garde politician, 2014)
Quality of life and ability to cope with threats and challenges are increased by science. «To the Age of reason we owe our prosperity, .. but also emancipation of slaves and women, the view that we are all at root the same.» (Lee Smolin, New Scientist, July 2008).

1970-now: over 70% of the public considers scientific research to be beneficial, less than 15% considers it to be harmful. Public trusts scientists and physicians more than most other professions: 40% of business leaders and 61% of political leaders considered dishonest.
Nevertheless, there is rampant pseudoscience, fundamentalism and superstition. New Scientist special issue of October 8, 2005: «After two centuries of the ascendancy, the Enlightenment project is under threat....Religious movements are sweeping the globe preaching unreason, intolerance and dogma, and challenging the idea that rational, secular inquiry is the best way to understand the world.»
Al Gore, Assault on Reason (2007)
Knowledge-based society is the best approach to assure and maintain sustainable global society.
• Th. Kuhn, The Structure of Scientific Revolutions
• (1962) “universally accepted scientific achievements, that – for a time – provide model problems and solutions for a community of practitioners.”

• ☼ worldview

• ☼ pattern of activity

• Παράδειγμα - Plato, Timaeus:

• Pattern used by God to create the universe
“Information is not knowledge, Knowledge is not wisdom, Wisdom is not truth, Truth is not Beauty.” F. Zappa (vs. J. Keats “Ode on a Grecian Urn”)

Win-win strategy:
Reciprocal altruism – evolutionary stable strategy - tit for tat (John Maynard Smith: win-win games)
“Best place to store food is in another person belly”- Eskimo
“It is ours what we give to others” St. Bernard of Clairvaux

Golden Rule

In our own selfish interest we have to get involved in the betterment of global conditions. We need to emphasize cooperation, networking and solidarity, increasing human options and freedom.