

Information for Sustainable Development

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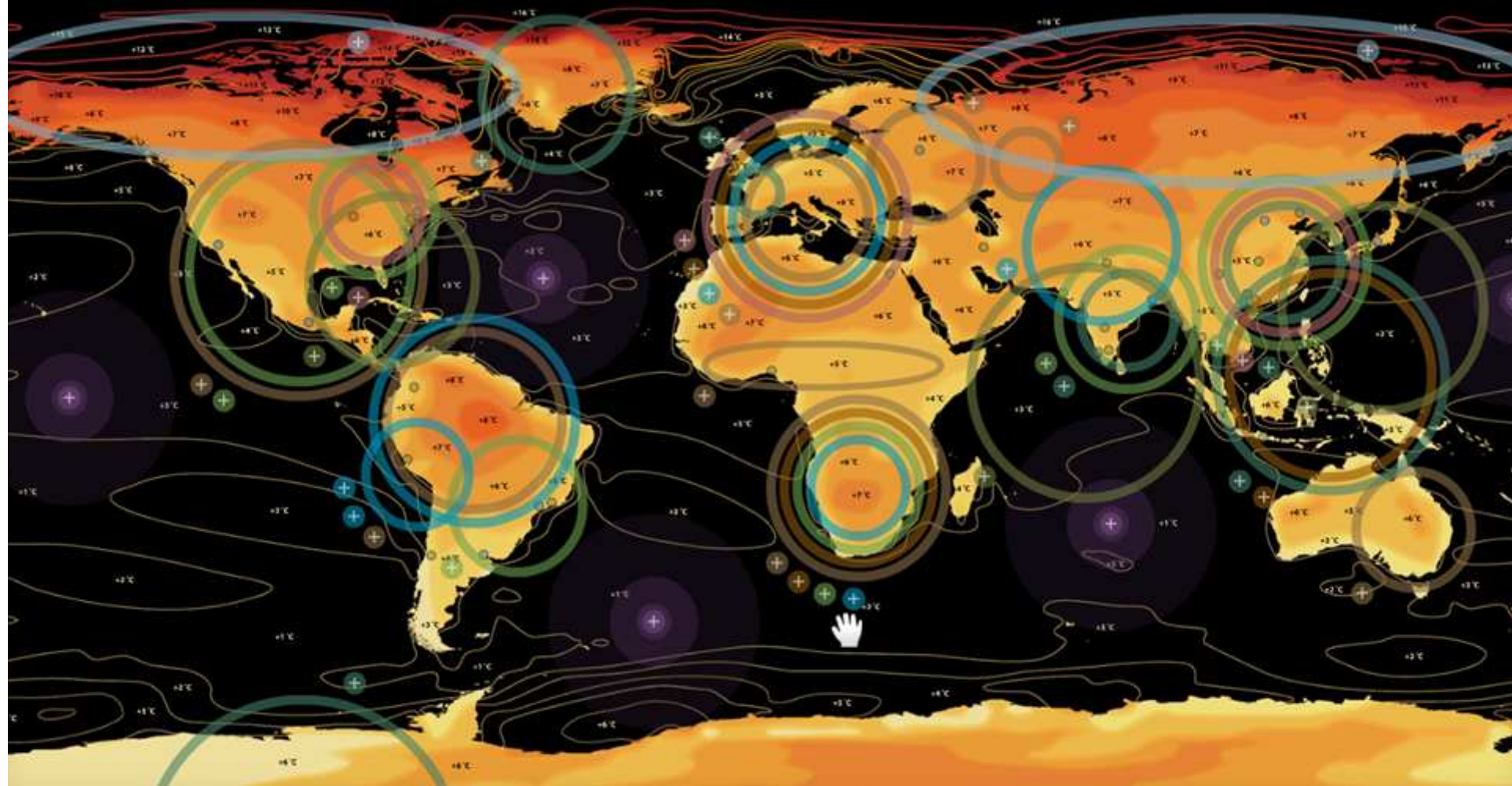


Food and Agriculture Organization of the United Nations

www.fao.org/climatechange

ice

The impact of a global temperature rise of 4°C (7°F)



- The Amazon Forest ▲
- Agriculture ▲
- Water availability ▲
- Sea-level rise ▲
- Carbon cycle ▲
- Tem ▲

- Water Availability
- Sea Level Rise
- Marine
- Drought
- Permafrost
- Tropical Cyclones
- Extreme Temp
- Health

+ °Celsius

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	4	5	7	9	11	13	14	16	18	20	22	23	25	27	29

+ °Fahrenheit

Source: UN Statistics Division Demograph

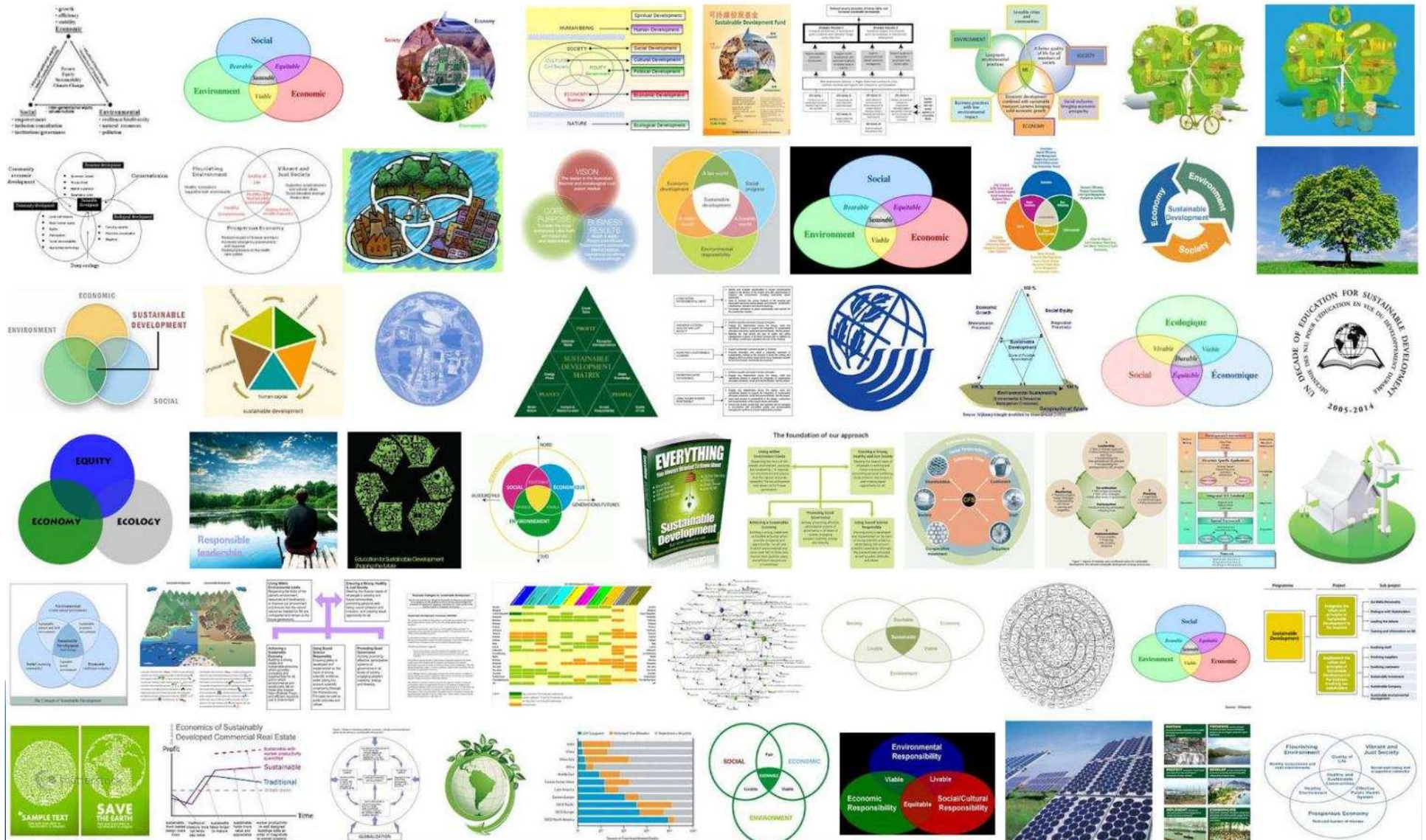
1. Sustainable Development

Selected milestones:

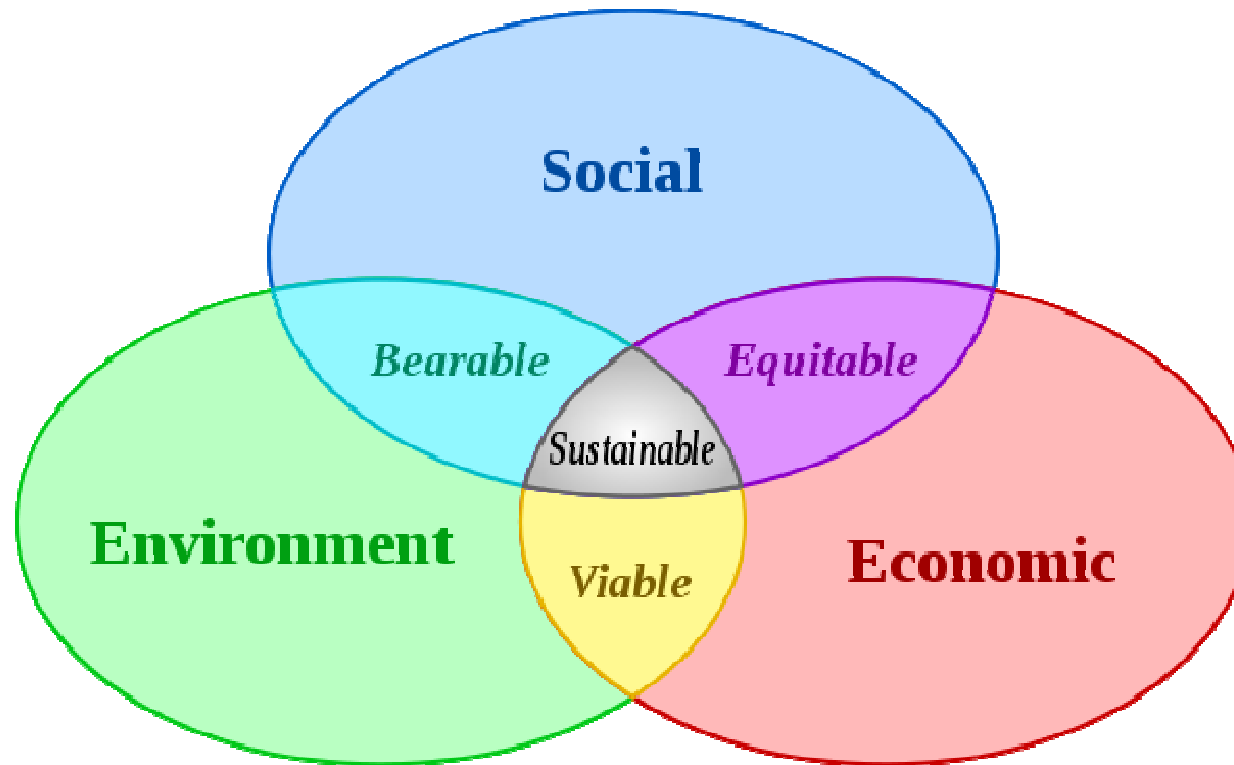
- 1972 UN conf. on Human Environment, Stockholm
- 1987 Brundtland report
 - *"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*
- 1992 UNCED in Rio (Stockholm+20) – Agenda 21
- 2000 Millennium Declaration
- 2002 Earth Summit on Sustainable Development (Rio+10)
- 2005 World Summit
- Every year: Commission on Sustainable Development (CSD)
- 2012 Rio+20 (Stockholm+40)



Images of Sustainable Development



A worn-out concept?



No. But how do we measure success??



2. Is it important to compare?

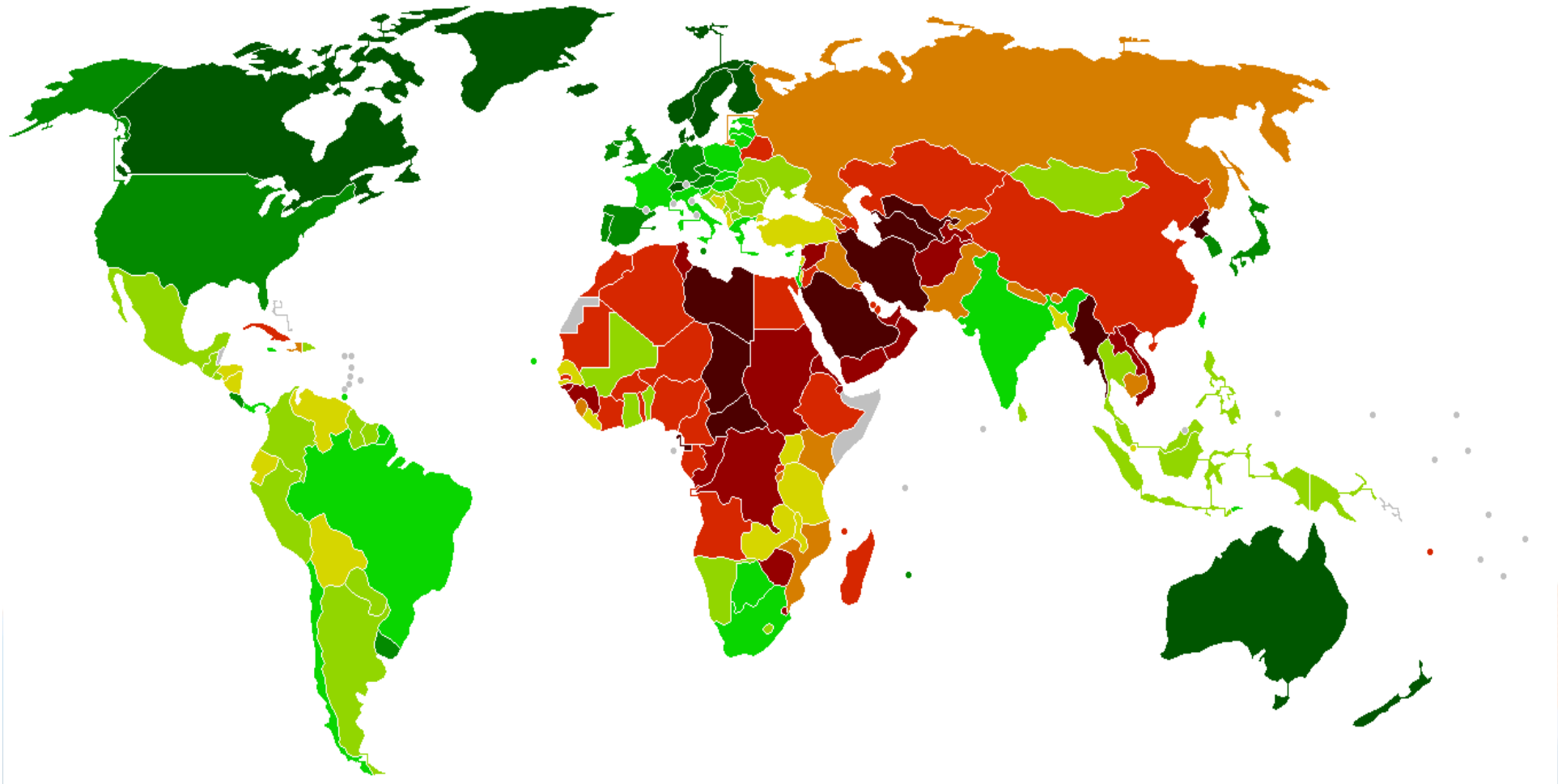
- Very strong focus on comparing countries
 - GDP, MDG indicators, FRA, GHG, ...
- Huge efforts to standardize definitions and reporting
- But why compare apples and pears?
- Does it lead to better decisions?
- Official international statistics tend anyway to exclude the controversial comparisons



Not part of UN information

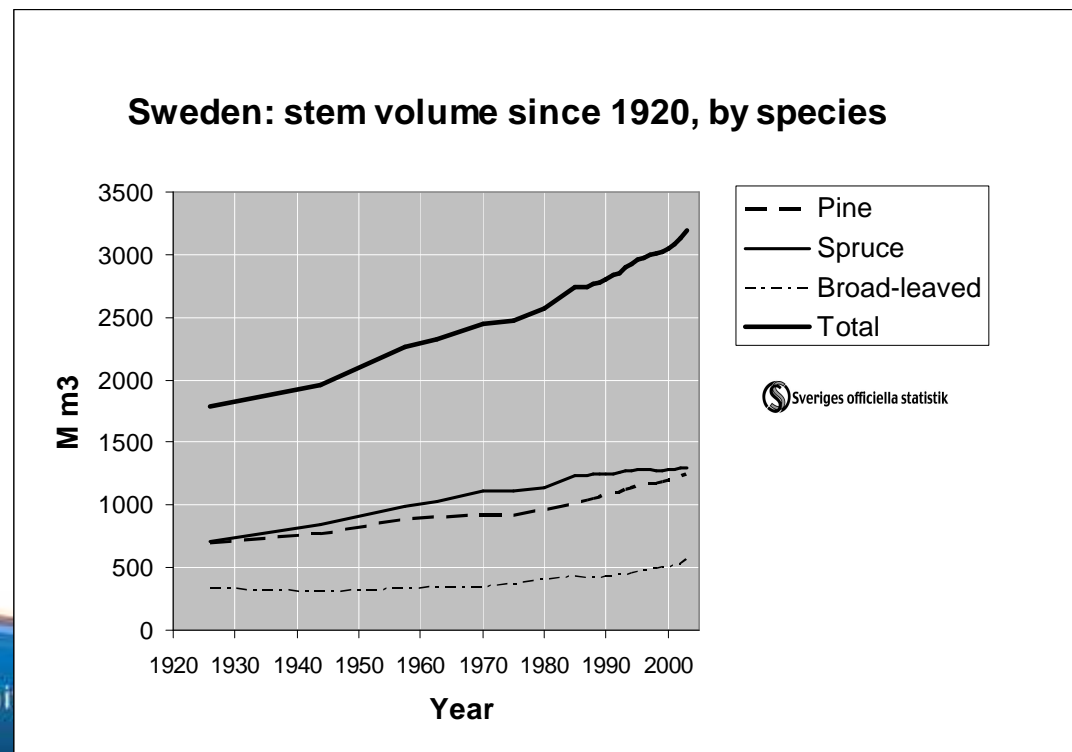
Democracy Index 2010

Source: Economist Intelligence Unit



Change over time is more important

- Need to measure performance over time to track progress towards SD.
- Information on within-country change is more important than comparing countries.
- Consequences for what and how we measure and monitor.



3. What information? Keep it simple!

- Complex indicator systems are a pain
 - A lot of work
 - Fights (political and technical) over choice of indicators
 - Introvert expert communities want their pet variables
 - Delayed reporting, missing data
 - Poor accuracy and precision
 - No clear overall picture
 - Typically about state and not change
 - Generally failure in influencing high-level decisions
- By contrast: Some simple and influential measures:
 - GDP growth
 - GHG emissions
 - Change in unemployment



Example: MDG Indicators (8 goals, 19 targets, 60 indicators)

Millennium Development Goals (MDGs)	
Goals and Targets (from the Millennium Declaration)	Indicators for monitoring progress
Goal 1: Eradicate extreme poverty and hunger	
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below \$1 (PPP) per day ^a 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below \$1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption
Goal 2: Achieve universal primary education	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men
Goal 3: Promote gender equality and empower women	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary and tertiary education 3.2 Share of women in wage employment in the non-agricultural sector 3.3 Proportion of seats held by women in national parliament
Goal 4: Reduce child mortality	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1 year-old children immunised against measles
Goal 5: Improve maternal health	
Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate 5.4 Adolescent birth rate 5.5 Antenatal care coverage (at least one visit and at least four visits) 5.6 Unmet need for family planning
Goal 6: Combat HIV/AIDS, malaria and other diseases	
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS	6.1 HIV prevalence among population aged 15-24 years 6.2 Condom use at last high-risk sex 6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs
Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.6 Incidence and death rates associated with malaria 6.7 Proportion of children under 5 sleeping under insecticide-treated bednets 6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs 6.9 Incidence, prevalence and death rates associated with tuberculosis 6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course
Goal 7: Ensure environmental sustainability	
Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	7.1 Proportion of land area covered by forest 7.2 CO2 emissions, total, per capita and per \$1 GDP (PPP) 7.3 Consumption of ozone-depleting substances 7.4 Proportion of fish stocks within safe biological limits 7.5 Proportion of total water resources used 7.6 Proportion of terrestrial and marine areas protected 7.7 Proportion of species threatened with extinction
Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.10 Proportion of urban population living in slums ^b
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	
Goal 8: Develop a global partnership for development	
Target 8.A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Includes a commitment to good governance, development and poverty reduction - both nationally and internationally	<i>Some of the indicators listed below are monitored separately for the least developed countries (LDCs), Africa, landlocked developing countries and small island developing States.</i> Official development assistance (ODA) 8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income 8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation) 8.3 Proportion of bilateral official development assistance of OECD/DAC donors that is untied 8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes 8.5 ODA received in small island developing States as a proportion of their gross national incomes
Target 8.B: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction	Market access 8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty 8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries 8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product 8.9 Proportion of ODA provided to help build trade capacity
Target 8.C: Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)	Debt sustainability 8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative) 8.11 Debt relief committed under HIPC and MDRI Initiatives 8.12 Debt service as a percentage of exports of goods and services
Target 8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	

Forestry indicator examples

- MCPFE
 - 35 “quantitative” + 17 “qualitative” indicators..
- WB/FAO Forest Governance
 - 97 indicators..
- UNFF
 - 4 global objectives – formulated as indicators
 - Good example!



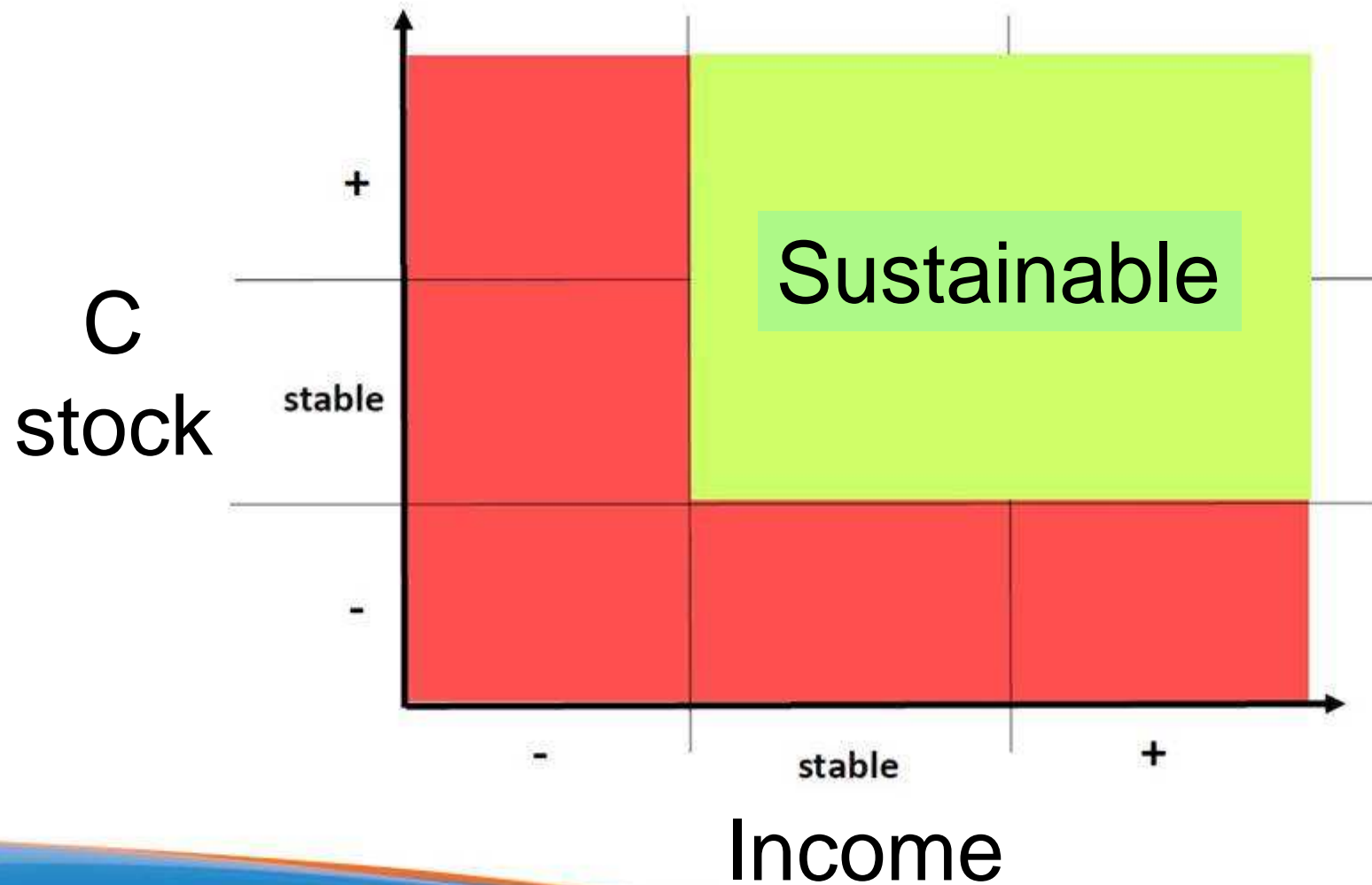
Proposed simple measure of SD in land use sectors

Measure	unit	Soc	Econ	Env
1. Income	\$	✓	✓	✓
2. Carbon stock in the landscape	t	✓	✓	✓
3. Fossil energy use	J	✓	✓	✓
4. Participation in decisions	n	✓	✓	✓

If all are stable or improving, then we have Sustainable Development.



Stable or improving = Sustainable



4. How to collect the information

- Here: focus on the Carbon
 - Related to this year's Wallenberg price.
 - Also in focus of the UNFCCC REDD+ development
 - Renaissance for the national forest inventory approach
 - Long-term investment in institutions
- Required:
 - Measurements
 - Models
 - Statistical design

Note! Weak correlation between measurements and actual C!
- Some particularities
 - It is Change we want. Much more difficult than State
 - REDD+ is arguably about Change-of-Change, which is near impossible
 - Field sampling is necessary
 - Remote sensing helps, but does not provide enough information
 - Lidar is promising



Remote Sensing Data Supply. The Challenge.

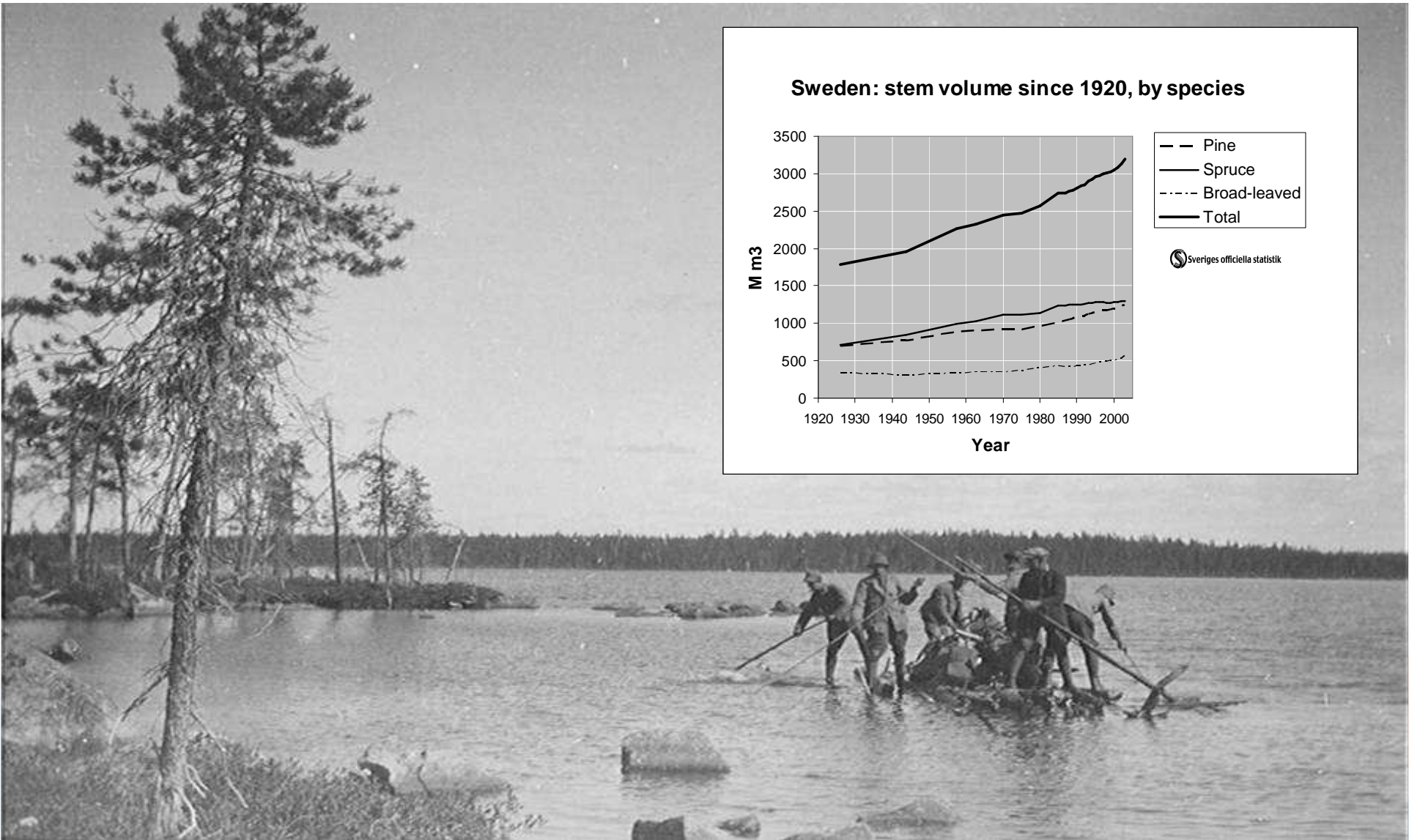


Principles of (national) information for SD

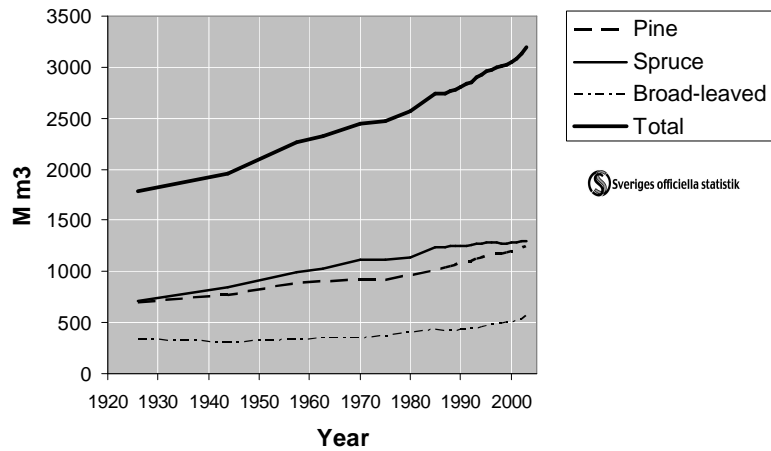
- Known accuracy and precision (sampling, field data, models)
- Relevance (think broadly)
- Time series data (are we progressing?)
- Cost-effective (sampling)
- Influence-effective (simple)
- Trustworthy (institutional setup)
- Transparent
- Stakeholder participation (influence)
- Access
- Capacity and willingness to use (training)



Swedish nfi field work 1927, Lappland



Sweden: stem volume since 1920, by species



Concluding remarks

- Concept of SD standing strong
 - But how far will/can international arrangements take us?
 - No measures of progress so far
- Progress over time should be in focus
 - Not comparing countries
- Monitoring and information should be designed to impact
 - Keep it simple!
- Four measures to determine SD of land use proposed:
 - \$, C, J, n
 - If all stable or improving, then SD
- Monitoring forests/natural resources through national forest inventories is fundamental
 - Technology transfer to developing countries essential
 - ..which was said already in Stockholm 1972..



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