

Dimensions of

Sustainable Development

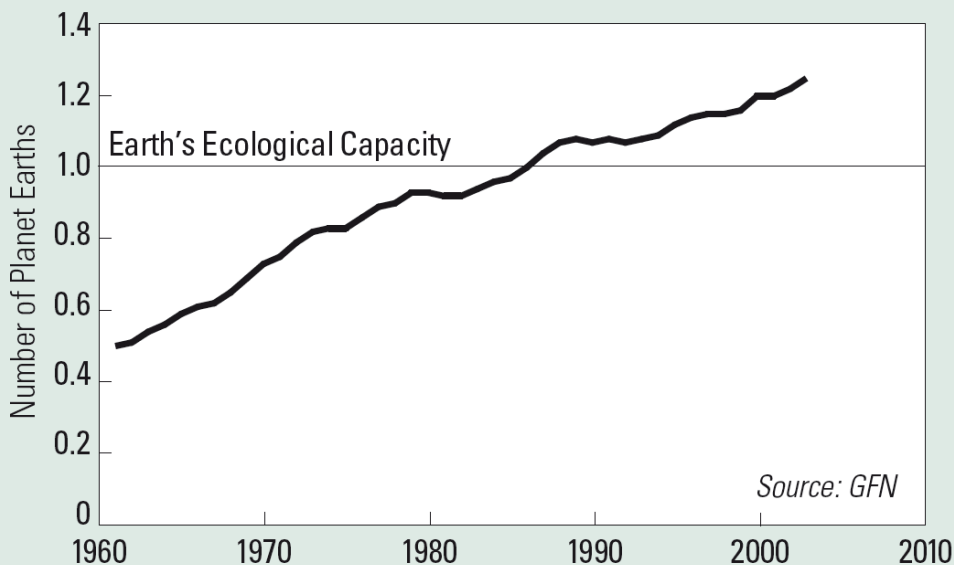
Sustainable Development – what is it about?

- natural ecosystems = sustainable system

SD – to live and thrive within the Earth's ecological capacity

*„SD is a complex **set of strategies** that makes possible to meet **people's social needs**, both material and spiritual, by using right **economic instruments**, while respecting **environmental limits**.“*

Figure 3. Humanity's Ecological Footprint, 1961–2003

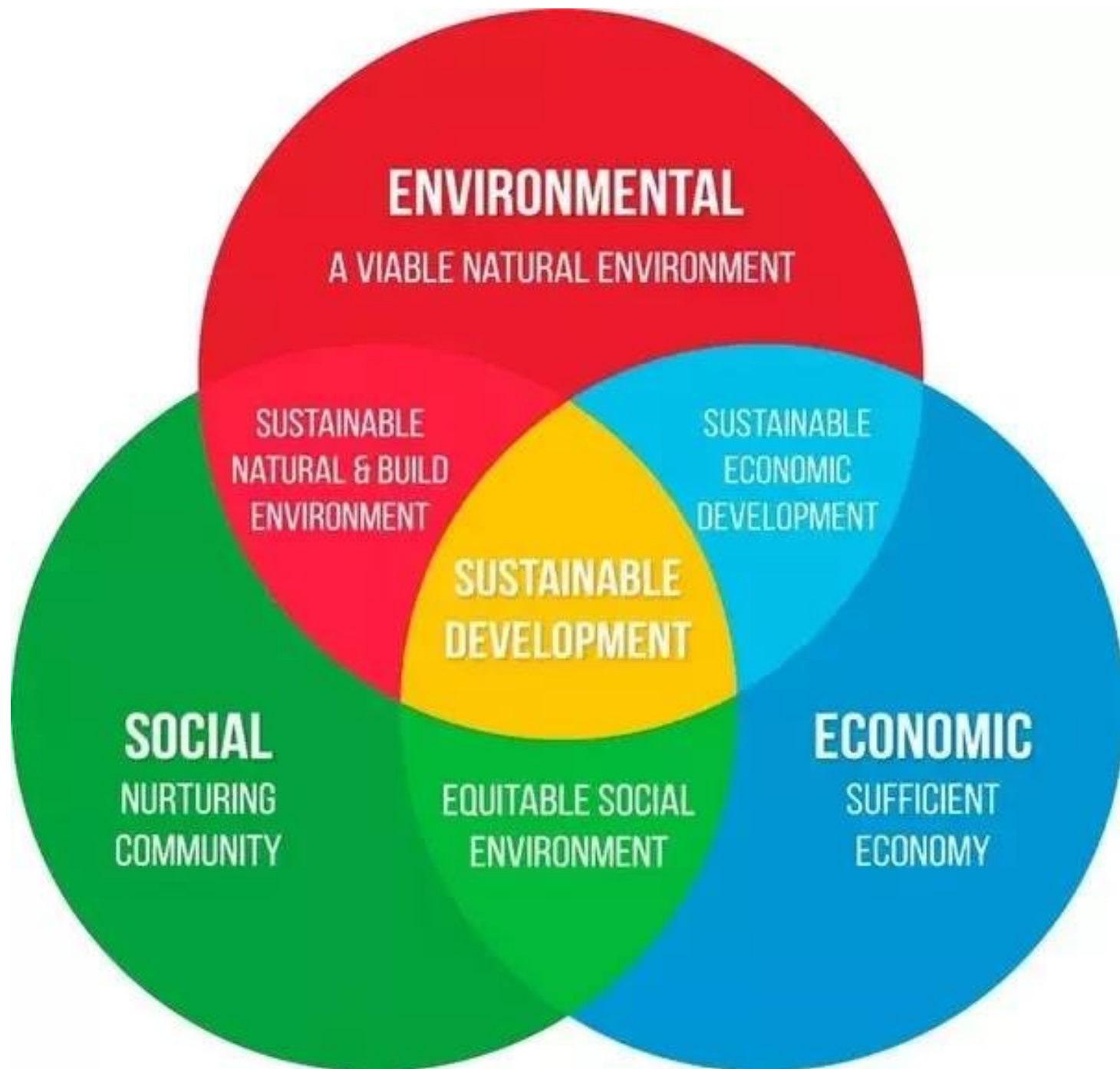




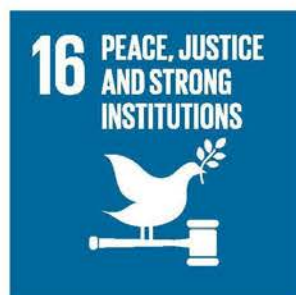
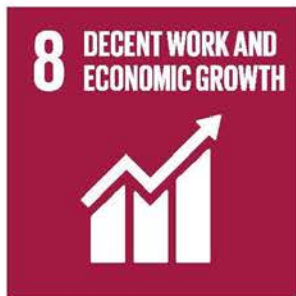
What are the three main pillars of sustainable development/sustainable society?

Nobody has responded yet.

Hang tight! Responses are coming in.




Sustainable Development Goals (2015 – 2030)





Goals, targets and indicators

Goal description	Target	Description	Indicator
<p>1</p>  <p>End poverty in all its forms everywhere.</p>	1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.	1.1.1 Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)
	1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.	1.2.1 Proportion of population living below the national poverty line, by sex and age
		By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
	1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work injury victims, and the poor and the vulnerable
	1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.	1.4.1 Proportion of population living in households with access to basic services
		By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.	1.4.2 Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure

Sustainable Development Goals (2015 – 2030)





11



Make cities and human settlements inclusive, safe, resilient and sustainable.

11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing
11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.	11.2.1 Proportion of the population that has convenient access to public transport, by sex, age and persons with disabilities
11.3	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.	11.3.1 Ratio of land consumption rate to population growth rate
	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage.	11.4.1 Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.	11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters
	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by	11.6.1 Proportion of municipal solid waste collected and managed



WELL CONNECTED

The transport facilities, including public transport, help people to travel within and between communities and reduce dependence on cars. There are facilities to encourage safe local walking and cycling.

TRANSPORT

WAP

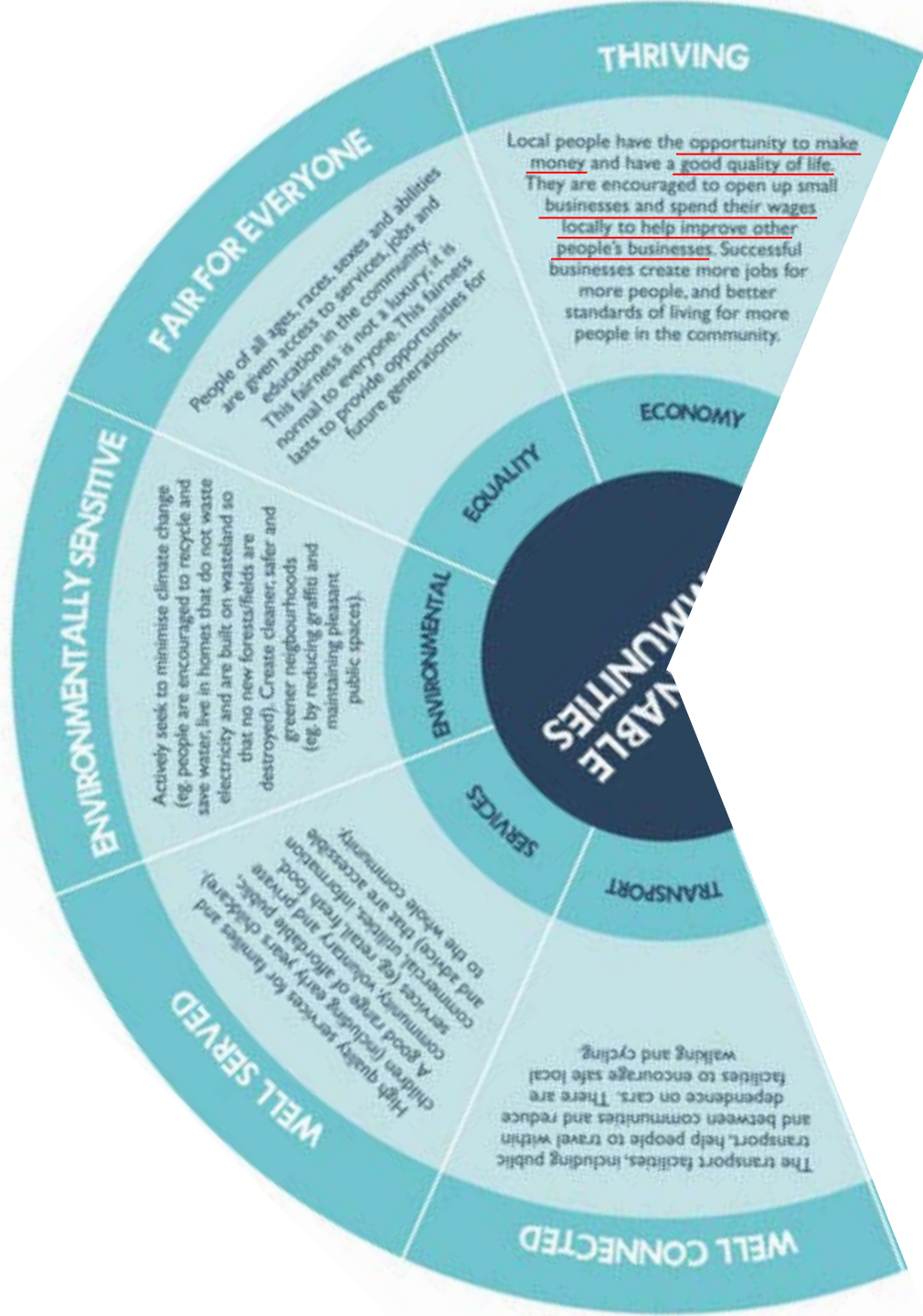


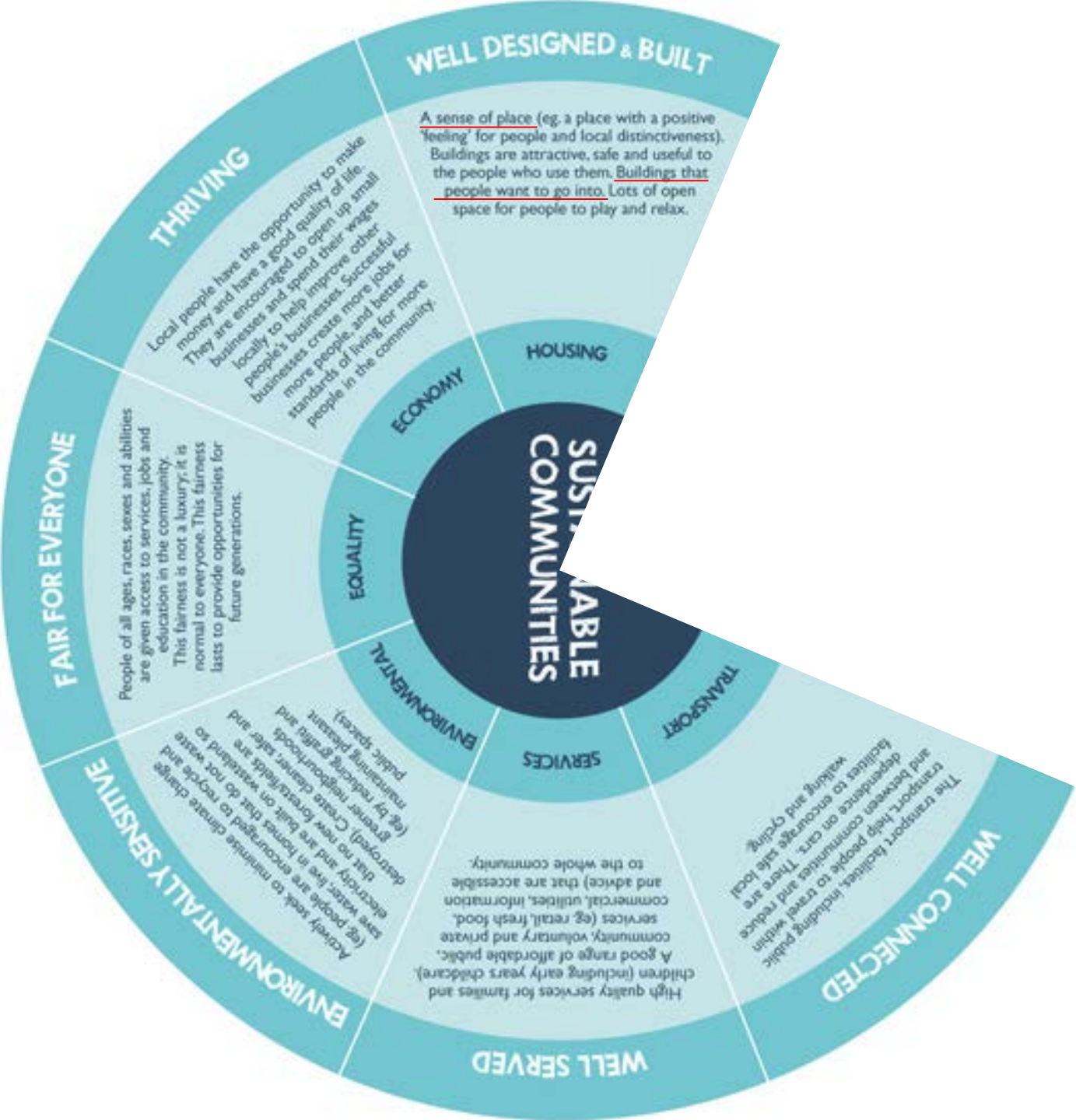


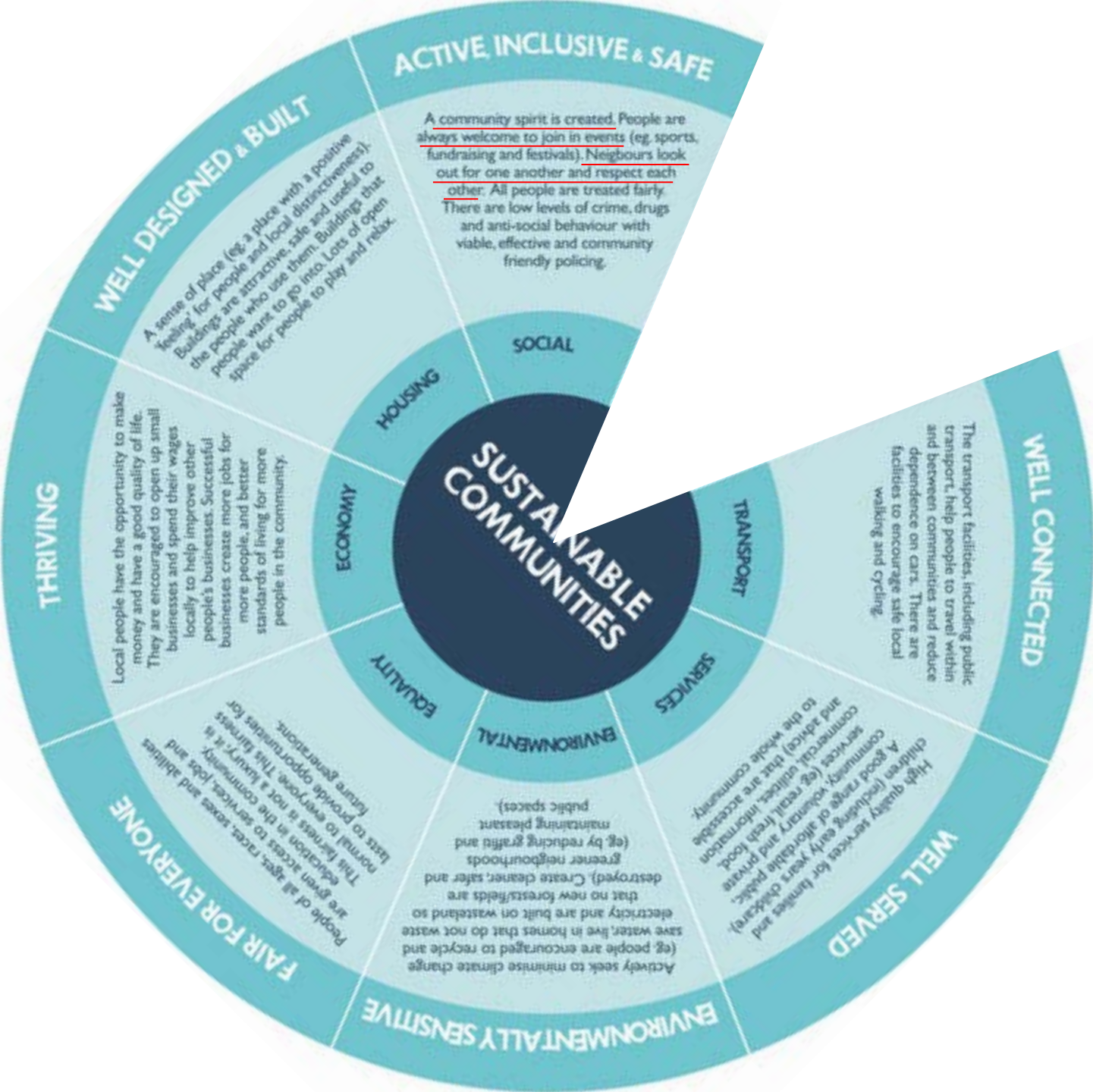


WELL CONNECTED

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Scope of Sustainable Development as defined by the United Nations

Agriculture	Consumption & Production Patterns	Finance	Industry	Land Management	Sanitation	Trade and Environment
Atmosphere	Demographics	Forests	Information for Decision Making & Participation	Major Groups	Science	Transport
Biodiversity	Desertification and Drought	Fresh Water	Integrated Decision Making	Mountains	Small Islands	Waste (Hazardous)
Biotechnology	Disaster Reduction & Management	Health	International Law	National Sustainable Development Strategies	Sustainable Tourism	Waste (Radioactive)
Capacity-Building	Education and Awareness	Human Settlements	International Cooperation for Enabling Environment	Oceans and Seas	Technology	Waste (Solid)
Climate Change	Energy	Indicators	Institutional Arrangements	Poverty	Toxic Chemicals	Water

Sustainable Development Goals (2015 – 2030)





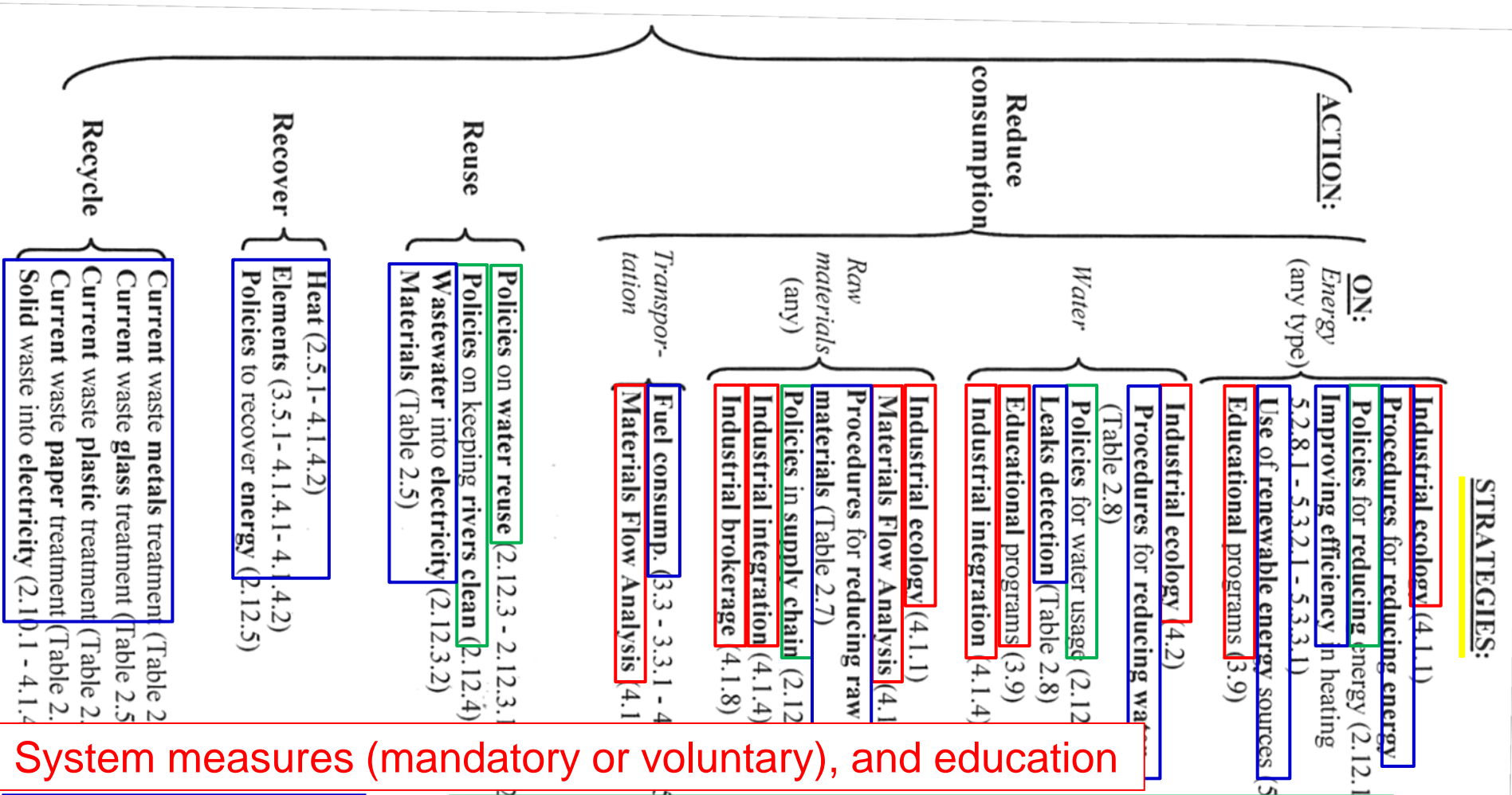
How to decrease the energetic or material consumption?

Nobody has responded yet.
Hang tight! Responses are coming in.

Decrease energetic/material consumption

How to reach?

- 4R rule: **Reduce – Reuse – Recover – Recycle**



STRATEGIES:

System measures (mandatory or voluntary), and education

Specific solutions

State policy (mandatory or voluntary measures)

Reduce

- Reduction of total material consumption while maintaining or increase the product quality.



How to reduce energy consumption?

Nobody has responded yet.
Hang tight! Responses are coming in.

Reduction of **E** consumption (legislation x money)

- 1) Support a research of renewables
- 2) Appropriate subsidy support for the use of renewable energy sources in suitable areas (biomass, solar, wind)
- 3) Support for the nuclear fusion research
- 4) Regulation of the E intensity of buildings
 - in the EU, about 40% of E is spent for heating of buildings!
- 5) Promote energy-saving lighting, and turning off
- 6) Install solar panels on public buildings and subsidize its support for private use
- 7) Sanction the lighting in public buildings overnight or on weekends

PRŮKAZ ENERGETICKE NÁROČNOSTI BUDOVY				
Typ budovy, místní označení Adresa budovy			Hodnocení budovy stávající doporučen	
VELMI ÚSPORNÁ				
0,30	A			
0,60	B			X,Y,Z
1,00	C		X,Y,Z	
1,50	D			
2,00	E			
3,00	F			
	G			
MIMORÁDNĚ NEHOSPODÁRNÁ				
Celková vypočtená roční dodaná energie v GJ			XY	XY
Měrná vypočtená roční spotřeba energie v kWh/m ²			XY	XY
Vytápění	Chlazení	Větrání	Teplá voda	Osvětlení
XY%	XY%	XY%	XY%	XY%
Platnost průkazu		DD.MM.RRRR		
Průkaz vypracoval		Jméno a příjmení Osvědčení: XY		



How to reduce water consumption?

Nobody has responded yet.
Hang tight! Responses are coming in.



Reduce **water** consumption (legislation x money)

- 1) Promote water saving measures
 - 2) Install water meters in households (not flat rate)
 - 3) Determine the limit for water losses in the distribution system
 - Brno 1989 - 25% of drinking water leaked into the ground, 16% now
 - 1) Mulch in parks = retaining moisture without sprinkling
 - 2) Legislative measures for water recycling in industry
 - 3) Recycle „grey water“ for flushing in hotels, offices, homes
 - 4) In the case of water transport from remote places, minimize losses by evaporation
 - 5) Use BAT in various productions
 - 6) Saving faucets and shower-heads
 - 7) Reward ideas of employees
- how to manage water efficiently

Water consumption in stealworks
China – 23-56 m³ /t of steel
USA – 6 m³ /t of steel

Water consumption in paper mills
1900 – 1t water / kg of paper
1990 – 64 kg / kg
1995 – 1.5 kg / kg
- re-use of „waste“ water



How to reduce raw materials consumption?

Nobody has responded yet.
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Reduce **raw materials** consumption

- 1) Biological waste composting
- 2) Eliminate the amount of packaging material
- 3) Replace disposable plastic bags with durable cloth ones
- 4) Donate usable unnecessary goods to charity
(clothing, electronics, furniture, building materials, etc.)



The screenshot shows the website for 'ARMÁDA SPÁSY'. The top navigation bar includes links for 'Úvod', 'Co děláme', 'O nás', 'Pro média', 'Partneři', and 'Kontakt'. A prominent red button says 'Jak podpořit Armádu spásy'. Below the navigation is a list of branches: 'POBOČKY Brno Praha Ostrava Havlířov Krnov Opava Karlovy Vary Šumperk Přerov Jirkov Národní ústředí'. The main content area features a photograph of four children. The heading is 'Materiální / věcné dary' with a link 'Zpět na možnosti podpory'. The text describes donating old furniture or household items. A sidebar shows the 'Číslo dárcovského účtu: ČSOB 475335613/0300'. At the bottom, there are donation amount buttons (100 Kč, 300 Kč, 500 Kč, 1000 Kč) and a 'Darovat' button. The footer includes the slogan 'Srdce Bohu, ruce lidem.' and contact information for the Střediska zde.

Reuse

- Use an item or material without changing its chemical composition for the purpose for which it was originally intended.

Reuse of raw materials / products

Water

- introduction of methods for drying sludge by compression between sieves (WWTP, slurry, industrial) or reverse osmosis

Resources

- reuse of lead and sulfuric acid from car-acumulators

Second-hands

- clothes
- toys
- ...



mimibazar.cz
ZA PÁR KAČEK SPOUSTA
OBLEČKŮ A HRAČEK

podívejte se na končící aukce co je nového v e-shopech často kladené

Recover

- Recover – obtaining material or energy from waste.

Recovery

Energy

- cogeneration production of heat and electricity
- incineration of suitable waste (tires) in modern power plants / heating plants or cement plants to obtain heat / electricity
- *eg. Göteborg - 60% energy supplied (electricity and heat) from unconventional sources heat: waste incinerator (largest in Europe) + Shell refinery + heat pumps from WWTP + testing of Volvo engines + from the Chalmers fluidized bed boiler research facility electricity: biofuels and wind farms*

Materials

- use of gypsum from SO_2 from the combustion of fossil fuels
- production of gypsum boards



Recycle

- Reuse of material for the same or a similar purpose, or for the manufacture of another product
- Generally, the smallest reduction in materials/E consumption, the recycling process is often expensive.

MÁ TO SMYSL, TŘÍDTE ODPAD!

DO PAPIRU PATŘÍ:

- noviny, časopisy
- kancelářský papír
- reklamní letáky
- knihy, sešity, krabice
- lepenka, kartón
- papírové obaly (např. sáčky)

DO SKLA PATŘÍ:

- láhve od nápojů
- skleněné nádoby
- skleněné střepy -
tabulové sklo

DO NÁPOJOVÝCH KARTONŮ PATŘÍ:

- nápojové „krabice“ od džusů,
mléka a mléčných výrobků,
vín, rajského protlaku,
hotových omáček apod.

DO PLASTŮ PATŘÍ:

- PET láhve od nápojů
(prosím, nezapomeňte
je sešlápnout!)
- kelímky, sáčky, fólie
- výrobky a obaly z plastů
- polystyrén

PAPÍR



SKLO



NÁPOJOVÉ
KARTONY



PLASTY



Prosím, nevhazujte:

- mokrý, mastný nebo jinak
znečištěný papír
- uhlový a voskovaný papír
- použité plenky
a hygienické potřeby

Prosím, nevhazujte:

- keramiku
- porcelán
- autosklo
- drátěné sklo
- zrcadla

Prosím, nevhazujte:

- nápojové kartony znečištěné
zbytky potravin (pokud je
vypláchnete vodou
a zmáčknete, pak je můžete
vhodit do kontejneru
na nápojové kartony)

Prosím, nevhazujte:

- novodurové trubky
- obaly od nebezpečných látek
(motorové oleje, chemikálie,
barvy apod.)

Limits of technological solutions

- The technological „solutions“ of environmental issues are popular because it does not require significant changes in people's lifestyles and is not contrary to the idea of economy growth
- **but it is not enough to achieve SD!**

Example - cars

- new cars emit significantly **fewer toxic substances** and CO₂
- according to LCA - much more environmentally friendly



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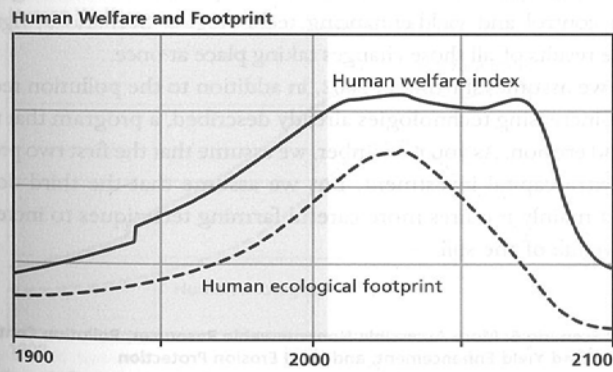
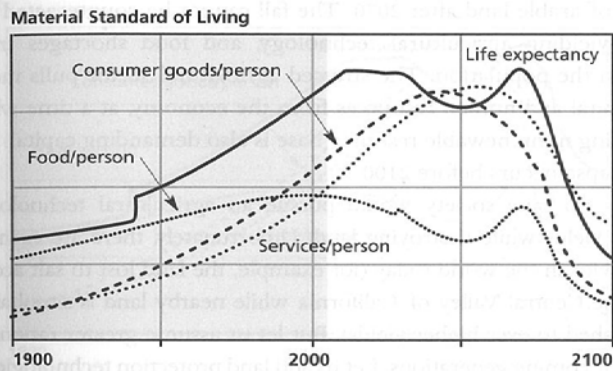
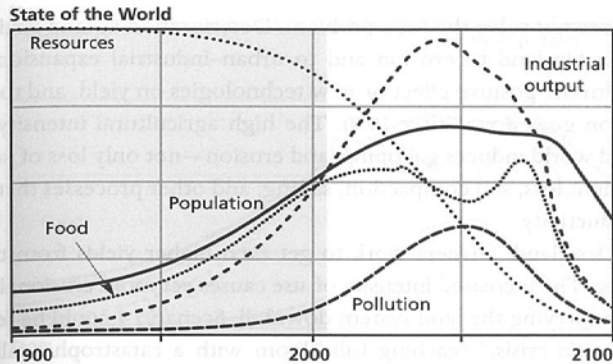
Other issues related to motoring persists!!!

- affecting the environment by **noise and vibration**
 - affecting the landscape and organisms by construction and presence of **transport infrastructure**
 - roads (motorways), divide the landscape and complicate/disable movement in the cultural landscape (migrating species, people)
 - risk of **accidents** (wildlife or other road users)
 - issues of motoring in cities
- traffic jams, parking spaces, pedestrian and cycling restrictions



We have to count all pros x cons

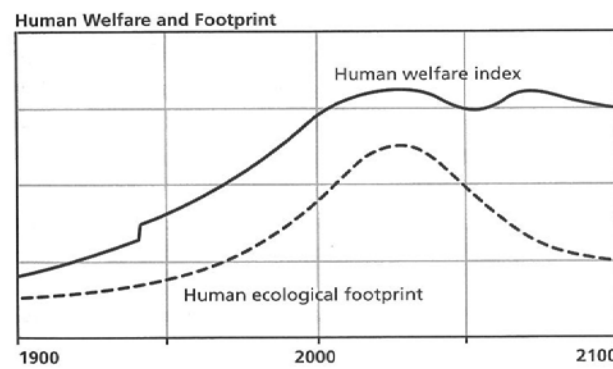
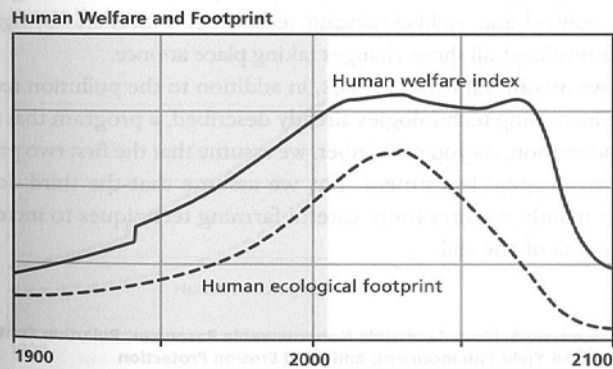
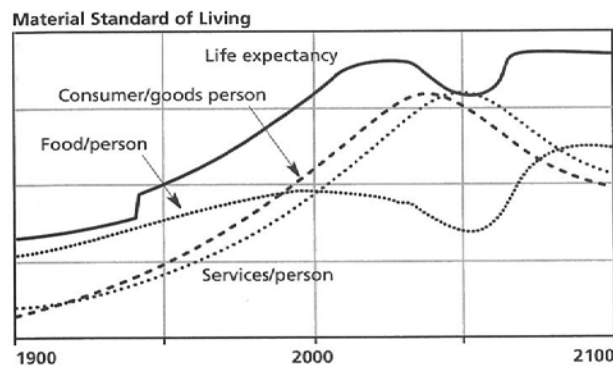
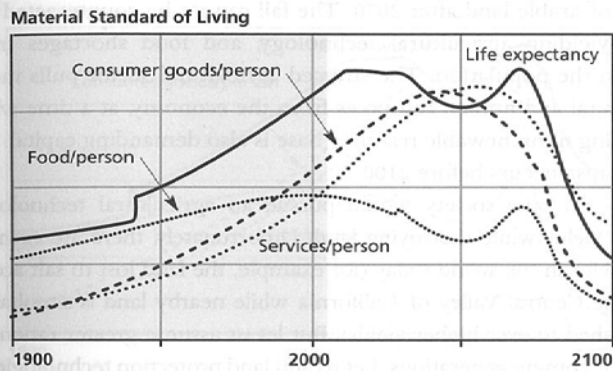
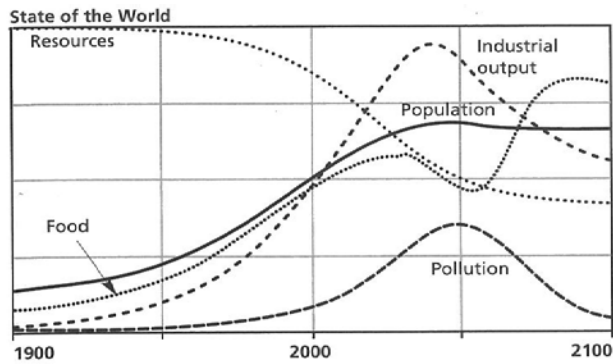
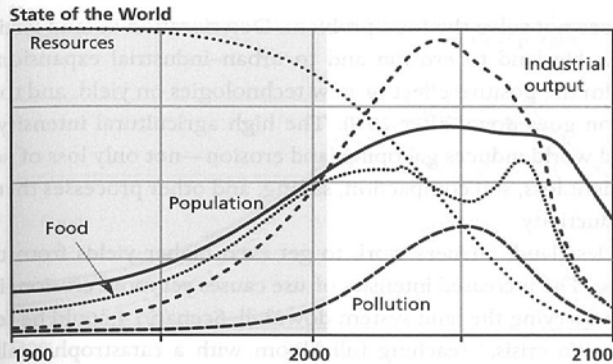
Limits of technological solutions



Scenario 4

Technologies eliminating pollution
Technologies increasing soil quality

Limits of technological solutions



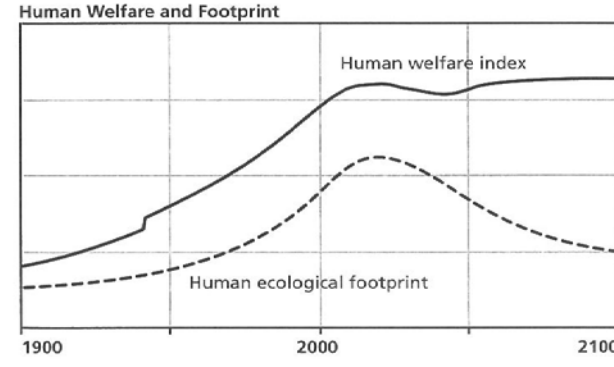
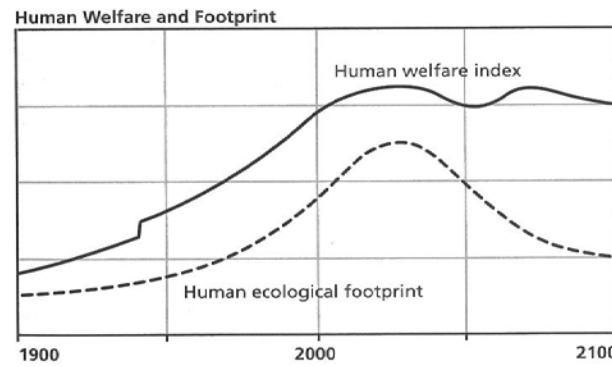
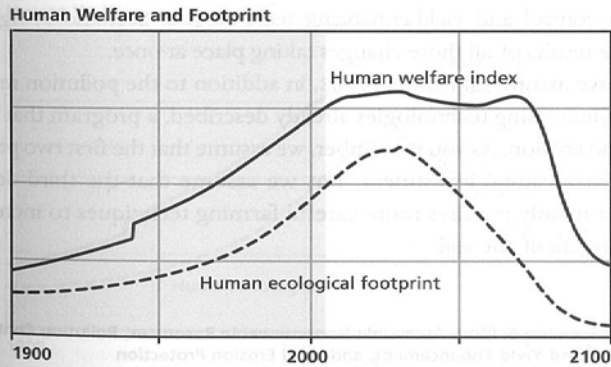
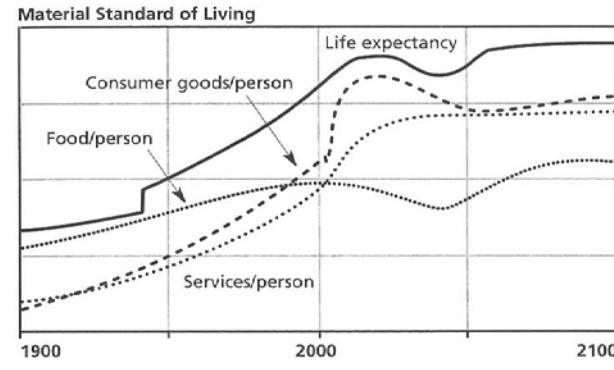
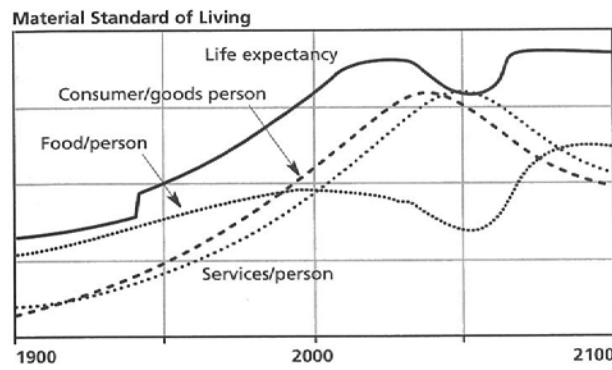
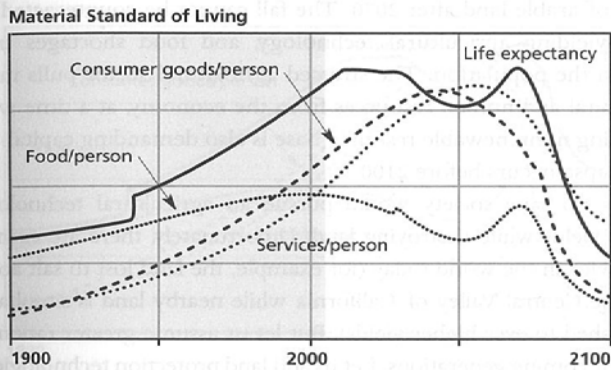
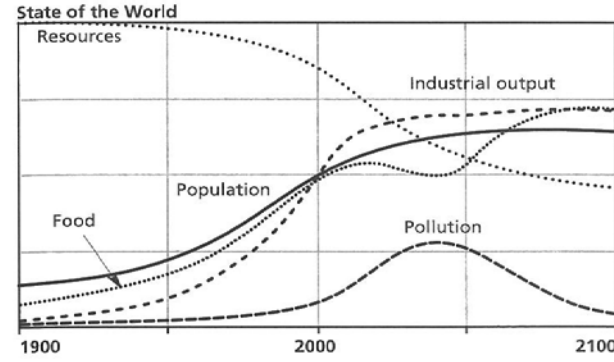
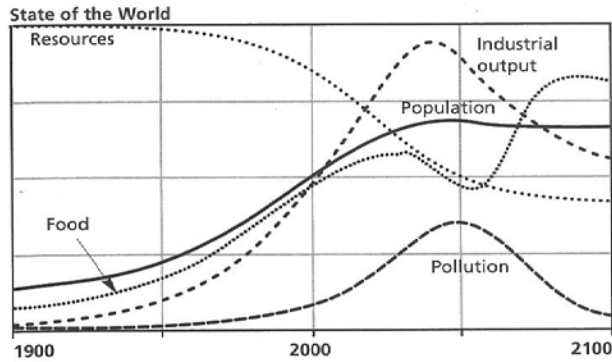
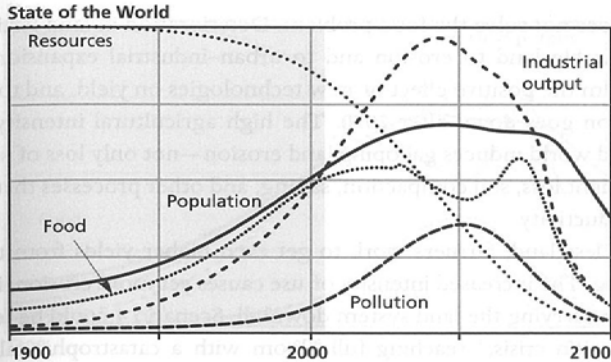
Scenario 4

Scenario 6

Technologies eliminating pollution
Technologies increasing soil quality

+
Technol. for resources extraction
Technol. protecting soil from erosion

Limits of technological solutions



Scenario 4

Scenario 6

Scenario 9

Technologies eliminating pollution
Technologies increasing soil quality

+ Technol. for resources extraction
Technol. protecting soil from erosion

+ Stable GDP/person
Stable population

Consuming → consumer society



Consuming → consumer society

- „A society in which people often buy new goods, especially goods that they do not need, and in which a **high value is placed on owning many things**“
- the need to acquire "**position goods**" (proof of social position - recognition)
- expresses the situation of social groups or the state (welfare state)
- excessive consumption - a hobby / necessity? ownership of tangible goods or services → typical dynamics of shopping and consumption (=waste)





Voluntary simplicity x poverty

- poverty

- voluntary simplicity



Voluntary simplicity x poverty

- **poverty** - low income, low ownership and consumption, feeling deprived, social exclusion, low social status, minimal share of political power
- **voluntary simplicity** - voluntariness, self-sufficiency, diverse interpersonal relationships, active participation in public affairs (municipalities ...)



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Voluntary Simplicity

By Duane Elgin and Arnold Mitchell

The Co-Evolution Quarterly, Summer 1977

I. Introduction

For the past several years the popular press has paid occasional attention to stories of people returning to the simple life—of people moving back to the country or making their own bread or building their own solar-heated home, and so on. Beneath this popular image of simple living we think there is a major social movement afoot which has the potential of touching the United States and other developed nations to their cores. This is

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II. What is Voluntary Simplicity?

The essence of voluntary simplicity is living in a way what is outwardly simple and inwardly rich. This way of life embraces frugality of consumption, a strong sense of environmental urgency, a desire to return to living and working environments which are of a more human scale, and an intention to realize our higher human potential—both psychological and spiritual—in community with others. The driving forces behind



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Modesty as a part of the social prestige/status

- eg. Dutch doctors - modesty and ecological luxury is a prestigious matter, **consumption is rejected as unethical, majority and vulgar**
- env. favorable behavior of the rich is a question of social prestige, but also of personal attitudes → **orientation outside material values**



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- society is no longer stratified into classes, but according to lifestyle
 - the poorer strives to imitate (looks up to) the richer people
 - imitation can be more effective than environmental upbringing
 - spreading under the influence of fashion is faster and more efficient
 - social elites → influence on legislation, politics and economy

Selective demand/consumption

- different perspective of voluntary simplicity
- a person is **demanding, but for certain things**
 - eg. on water quality, environment, public transport, joy of life
- it is **not about austerity, but about the joy of life** instead of joy of property



Fighting climate change is opportunity to improve public health



Switching to public transport could boost global health *(Image: Andrew T. B. Tan/Getty)*

Driving cars and eating too much red meat damage more than your carbon footprint. Curbing our carbon habit

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Postmaterialism

- **changes in values** in some rich western countries, the Netherlands, Germany, Denmark x the USA and Canada
- transition from **materialistic values**: material well-being and security, orientation towards economic prosperity, observance of social order, to **postmaterialist values**: free self-realization, participation in the administration of public affairs, creation of a more humane society, creation of the environment



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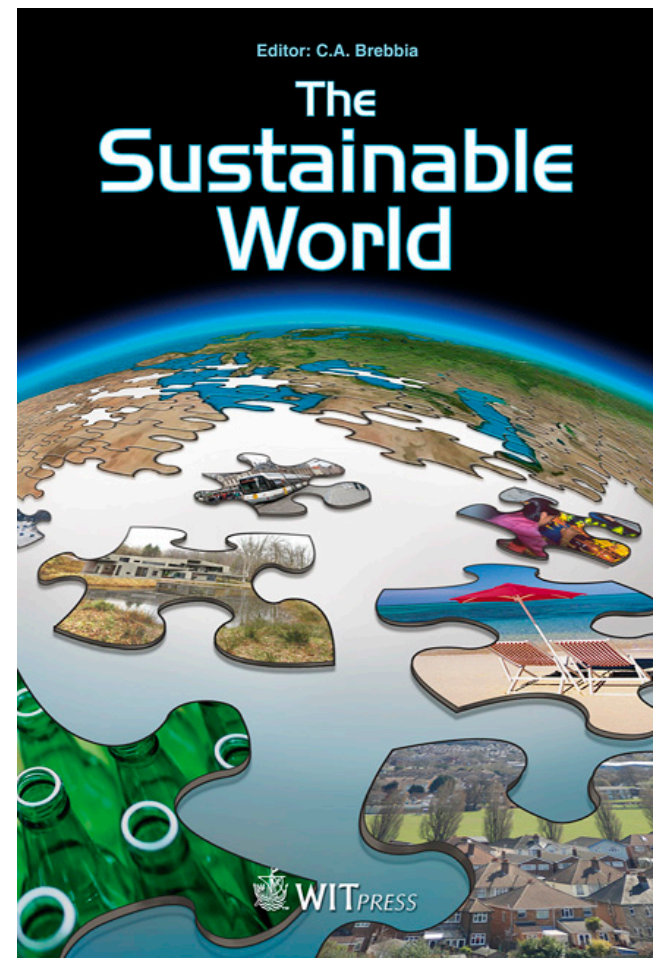
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- transition from **materialistic values**: material well-being and security, orientation towards economic prosperity, observance of social order, to **postmaterialist values**: free self-realization, participation in the administration of public affairs, creation of a more humane society, creation of the environment
- the change in values is taking place especially in the younger generations, who grew up in a larger economic and societal security (not during the war)
 - **economic prosperity contributes to the spread of postmaterial values** and vice versa (oil crisis in the 1970s - decline in postmaterialism)





Essentials to reach a SD

- To decide for it, and long lasting will
- = necessary to re-evaluate our life-style
- **difficult, lengthy, but feasible**



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Successes, once unthinkable

- abolition of slavery
- smoking restrictions
- recycling
- relations between France and Germany
- etc.



SINO-SINGAPORE TIANJIN ECO-CITY

A MODEL FOR SUSTAINABLE DEVELOPMENT

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The Sino-Singapore Tianjin Eco-city's vision is to be a thriving city which is socially harmonious, environmentally-friendly and resource-efficient.

It is a flagship cooperation project between the governments of Singapore and China.

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BEYOND POLITICS POVERTY AND WAR

The Venus Project proposes an alternative vision of what the future can be if we apply what we already know in order to achieve a sustainable new world civilization. It calls for a straightforward redesign of our culture in which the age-old inadequacies of war, poverty, hunger, debt and unnecessary human suffering are viewed not only as avoidable, but as totally unacceptable. Anything less will result in a continuation of the same catalog of problems inherent in today's world.

HIGHLIGHTS