

Dimensions of

Sustainable Development

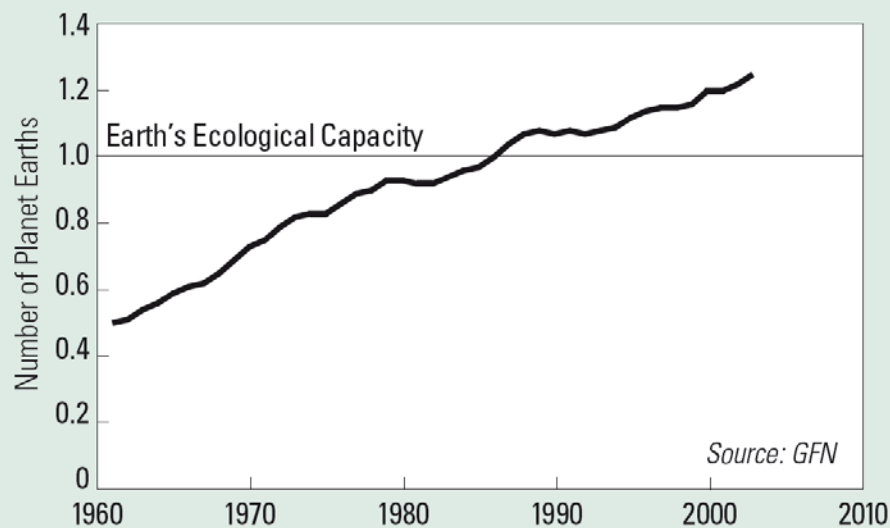
Sustainable Development – what is it about?

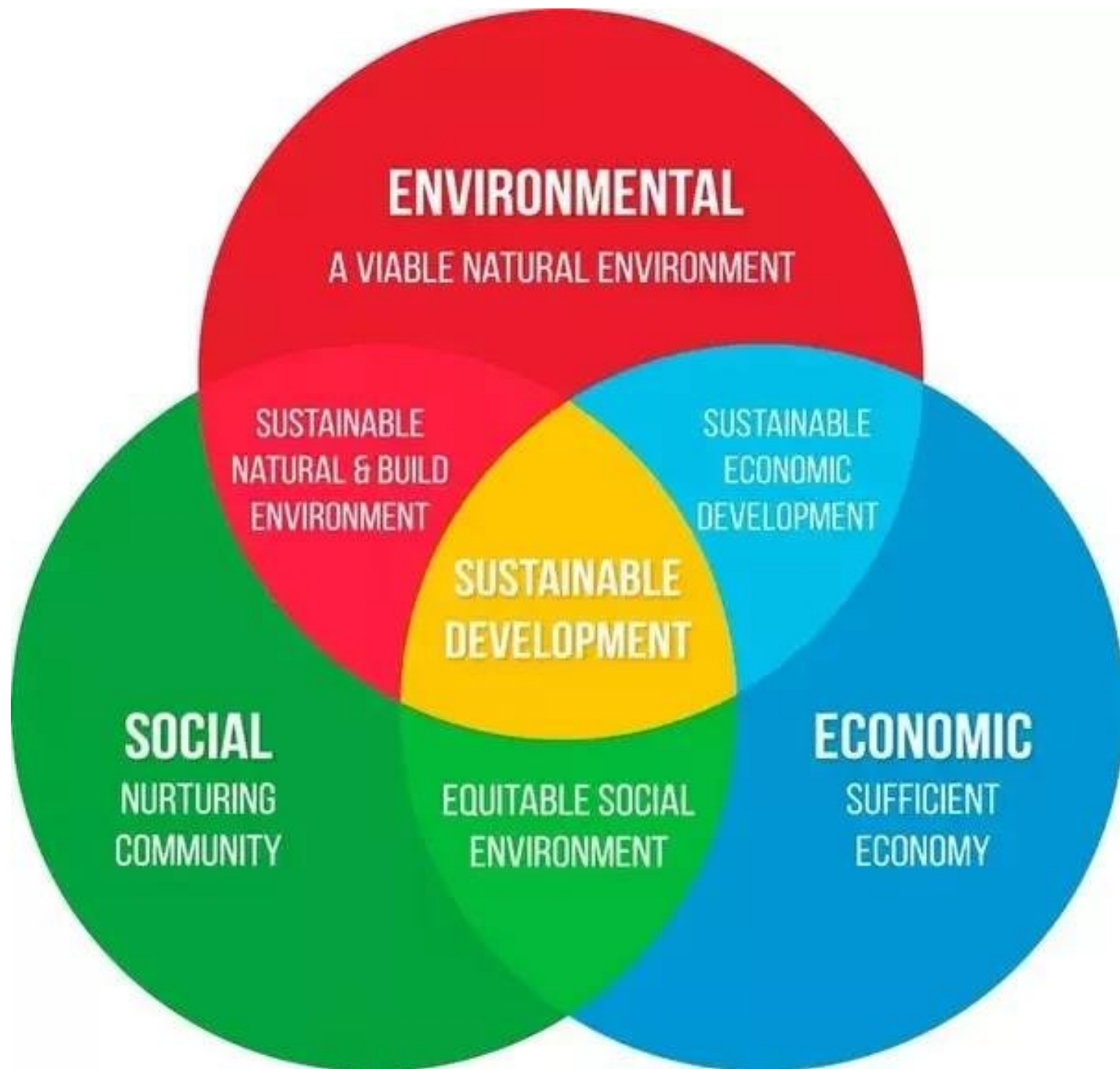
- natural ecosystems – sustainable system

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







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



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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



WELL CONNECTED

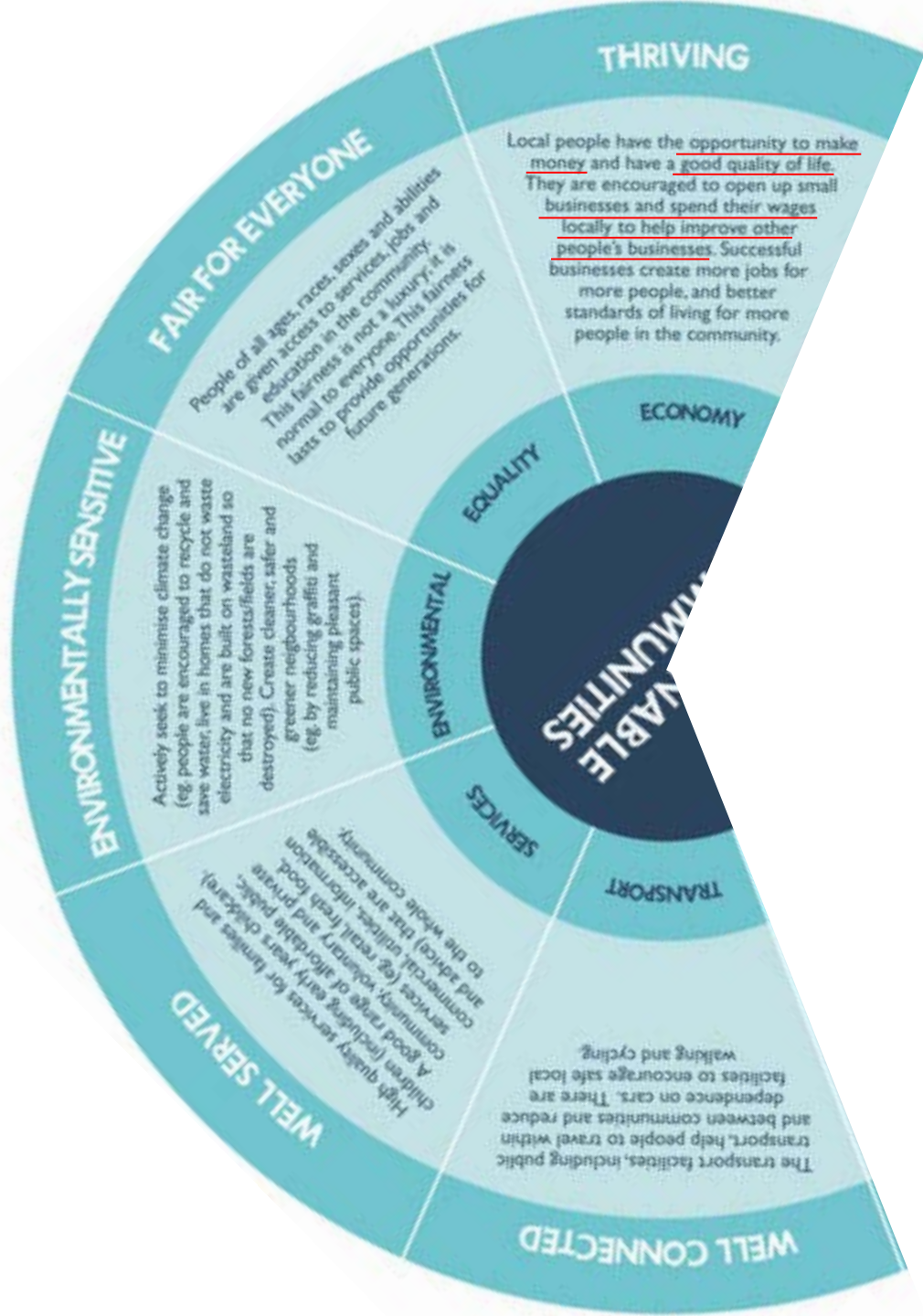
The transport facilities, including public transport, help people to travel within and between communities and reduce dependence on cars. There are facilities to encourage safe local walking and cycling.

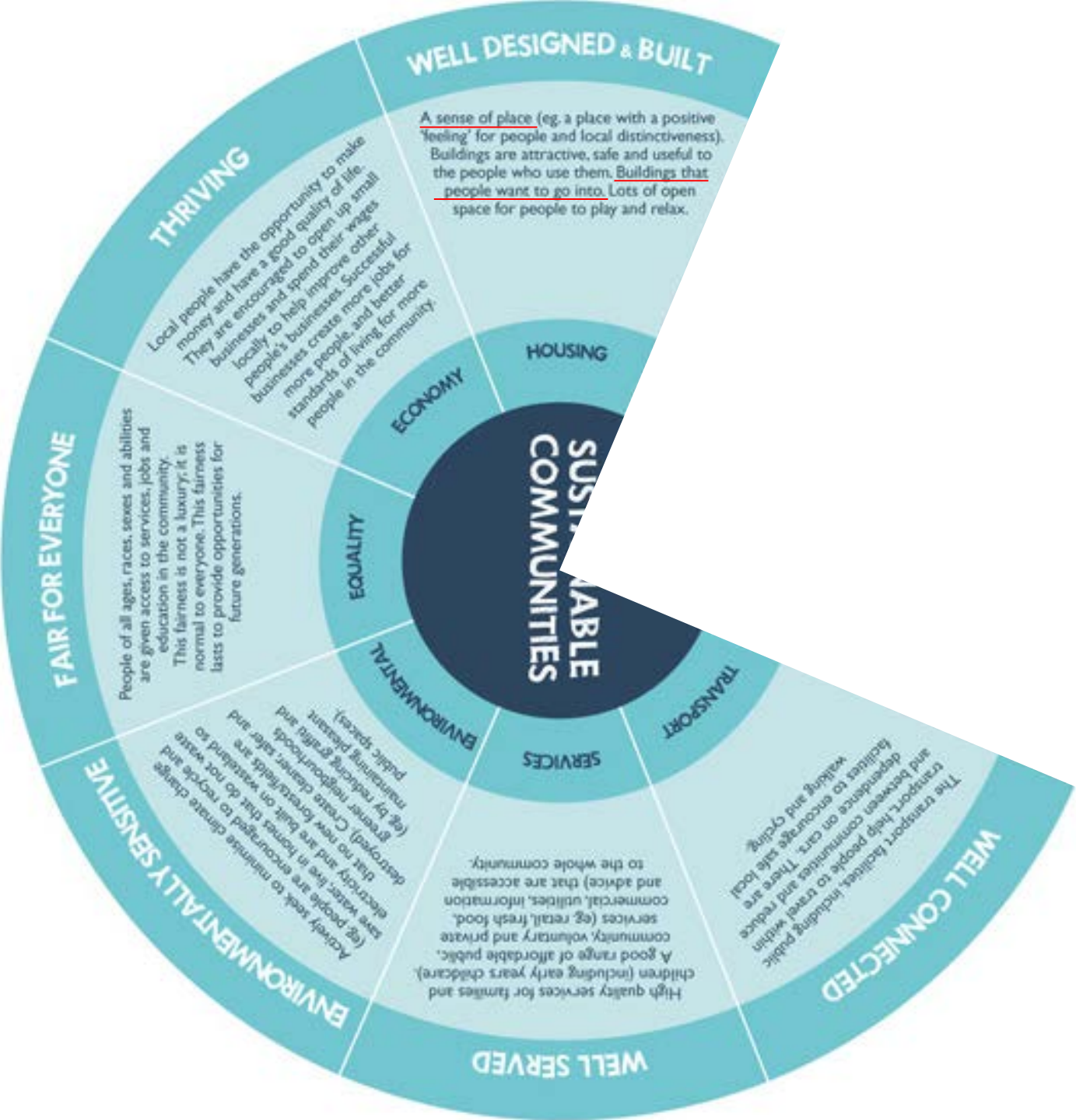
TRANSPORT

WAP













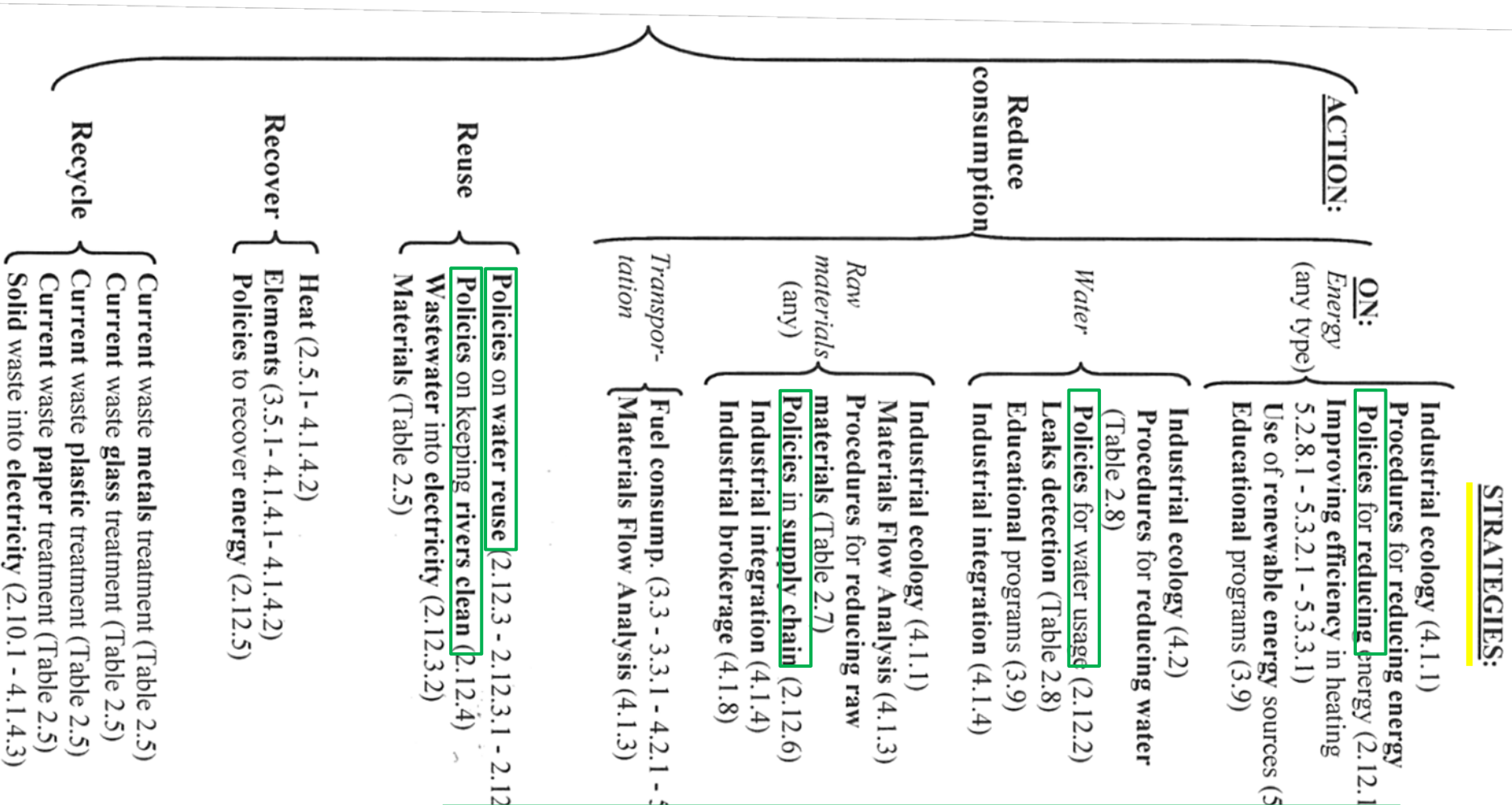
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Decrease energetic/material consumption

How to reach?

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



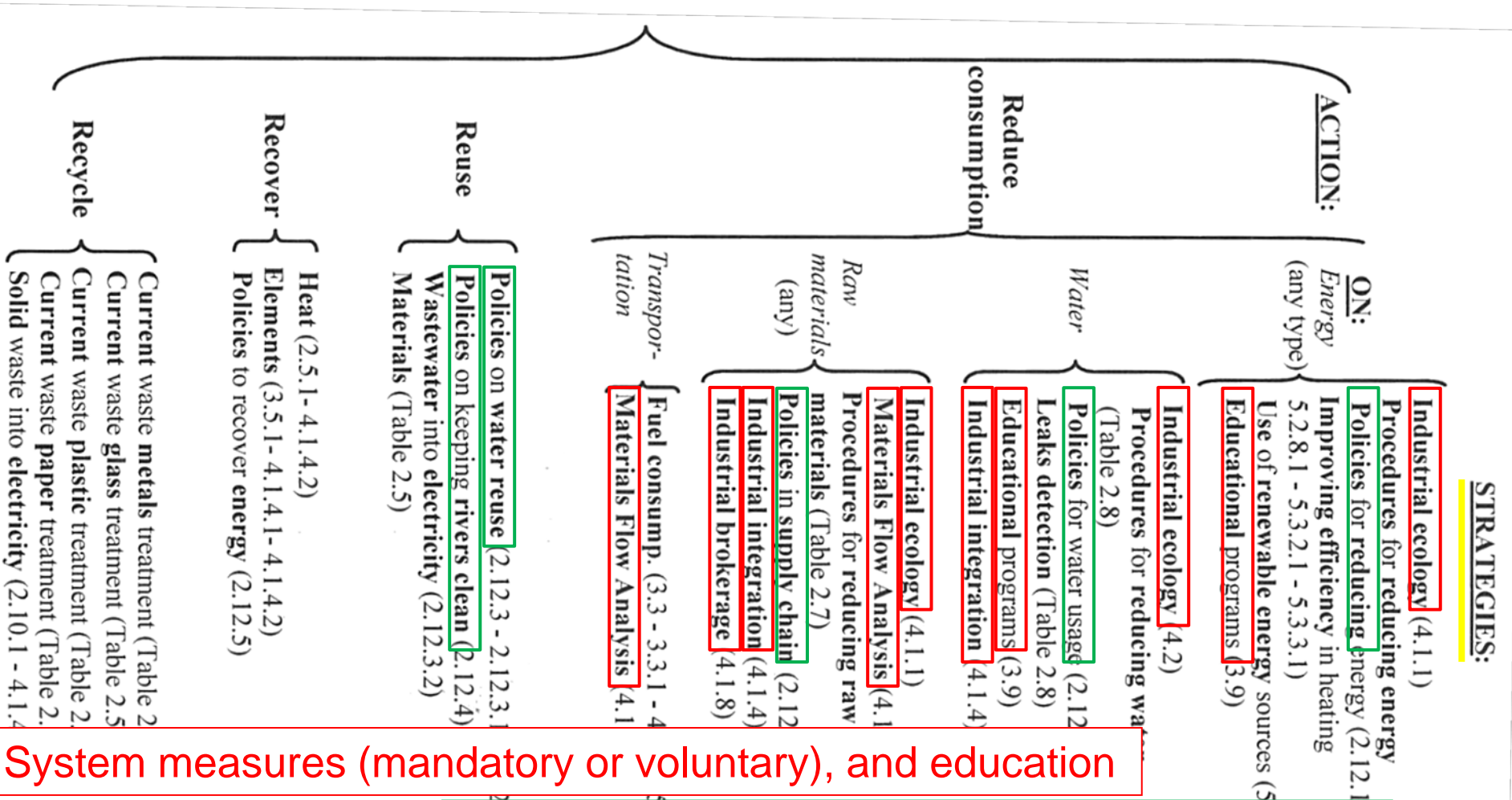
STRATEGIES:

State policy (mandatory or voluntary measures)

Decrease energetic/material consumption

How to reach?

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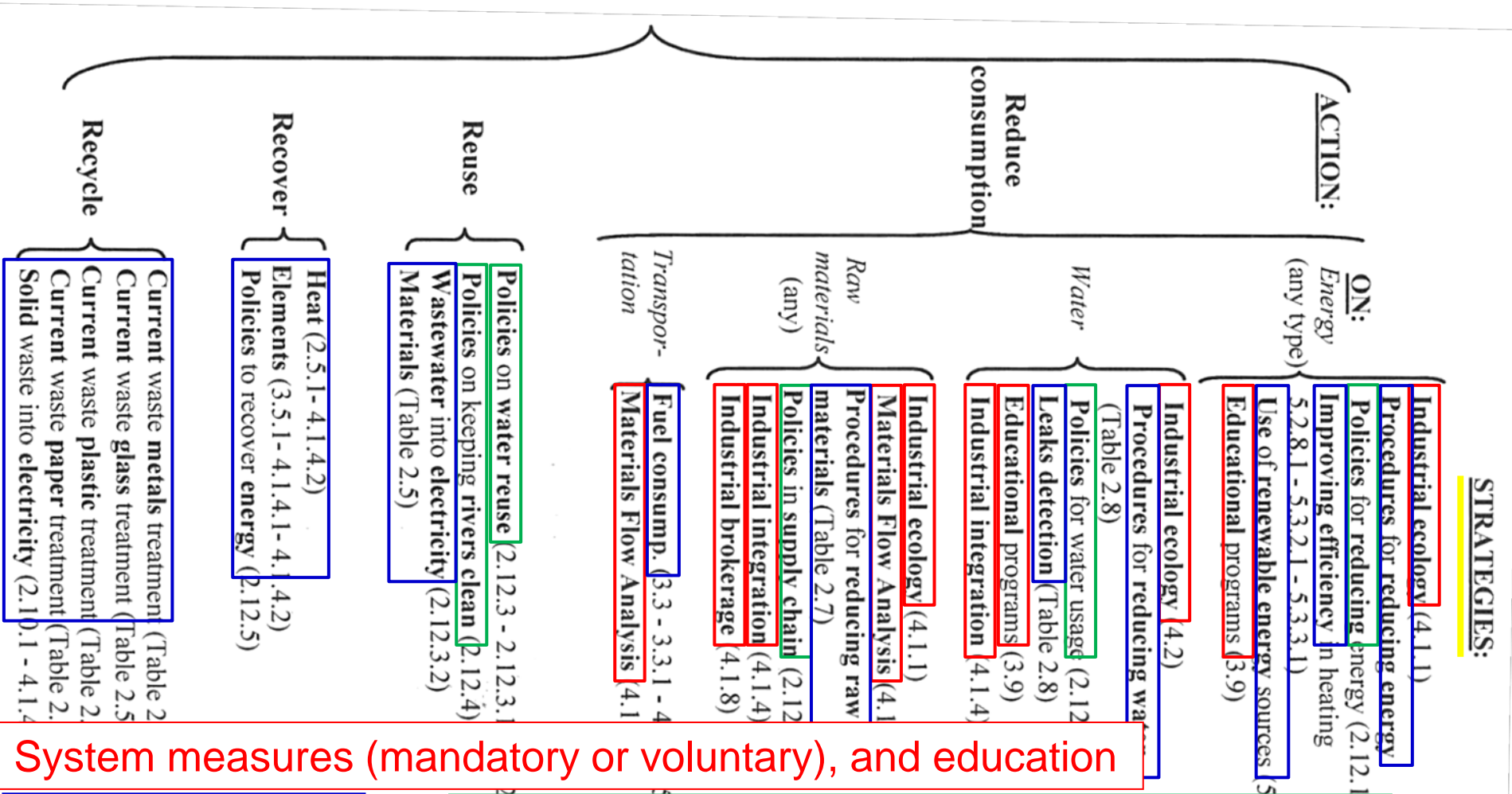
System measures (mandatory or voluntary), and education

State policy (mandatory or voluntary measures)

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.

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 nuclear fusion research
- 4) Determine the E intensity of buildings by law
 - in the EU, about 40% of E is used to heat 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 lit lights 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		



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

- 1) Promote water saving
- 2) Install water meters in households (not flat rate)
- 3) Determine the limit for water losses in the distribution system
- 4) Brno 1989 - 25% of water leaked into the ground, 16% now
- 5) Mulch in parks = retaining moisture without sprinkle
- 6) Address the need for water recycling in industry by law
- 7) Recycle water for flushing in hotels, offices or at home
- 8) In the case of water transport from remote places, minimize losses by evaporation
- 9) Use BAT in various productions
- 10) Saving faucets and shower-heads
- 11) 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

Reduce raw materials consumption

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



The screenshot shows the website for Armáda Spásy (The Salvation Army). At the top, there is a navigation bar with the logo, a list of locations (Úvod, Co děláme, O nás, Pro média, Kontakt, Partneři), and a red button that says "Jak podpořit Armádu spásy". Below the navigation bar is a red banner with the text "POBOČKY" followed by a list of cities: Brno, Praha, Ostrava, Havlířov, Krnov, Opava, Karlovy Vary, Šumperk, Píerov, Jirkov, and Národní ústředí. The main content area features a large photograph of four children. Below the photo is the heading "Materiální / věčné dary" and a link "Zpět na možnosti podpory". The text below the heading reads: "Máte doma obnošené staré věci nebo starý nábytek a nevíte co s tím? Jednou z přijemných možností je darovat tyto věci a pomoci tak druhým." To the right of this text is a box with the text "Číslo dárcovského účtu: ČSOB 475335613/0300". Below this is a form with four buttons for donation amounts: "100 Kč", "300 Kč", "500 Kč", and "1000 Kč", with a "Darovat" button and a "nebo" option. At the bottom right is the Armáda Spásy logo and the slogan "Srdce Bohu, ruce lidem." At the bottom left, it says "Kontakty na jednotlivá střediska zde".

Reduction of traffic load

why?

- I) Increases the share of people in public transport
 - PT must be attractive enough for people
 - clean, accurate, comfortable, financially interesting

Project CiViTas (City-VITAlity-Sustainability)

Aims of this EU projects:

- promote the introduction of clean and energy efficient PT
- promote the development of the industrial sector in the field of PT



Public transport in Curitiba (Brasil)

- ***Bus rapid transit***
- improved bus transport combining bus flexibility and quality of trains/trams with priority in driving
- long buses have special lanes reserved
- frequent ride, uniform fares everywhere
- inspiration for many other South American cities



II) Taxi, rental shops, carsharing

- **basic idea** – cars are used on average 1 hour a day, 23 hours stand
- **taxi** - should be affordable, good quality with a good reputation
- **car rental** - suitable for occasional car rental according to our wishes
- **carsharing** - it is necessary to create a car association, which buys cars and then the cars of the association borrow cars for travel costs
- it is said to pay off for anyone who drives less than 10,000 km a year

autonapůl
první český carsharing

O celé sdružení se stará tříčlenné Prezídium, o jednotlivá auta jejich patroni – členové, kteří za symbolickou odměnu dohlížejí na to, aby vozy byly v pořádku, měly kompletní povinnou výbavu, správné pneumatiky v zimě i v létě...



III) Cycling, walking

- use of cycling is limited by the passability of cities, lanes for cyclists, parking



Reuse

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

Reuse of **raw materials** without change of state

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
- clothing
- 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 way of solving environmental issues is 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 in itself to achieve SD!**

Example - cars

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



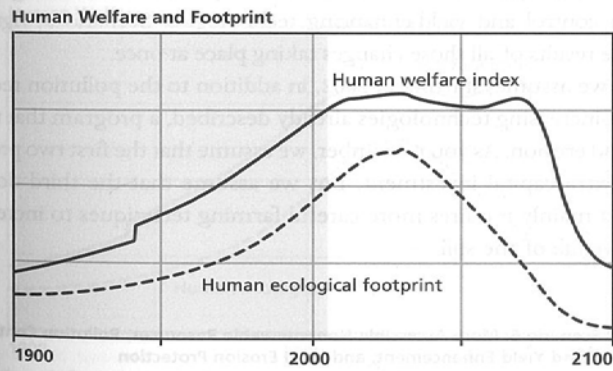
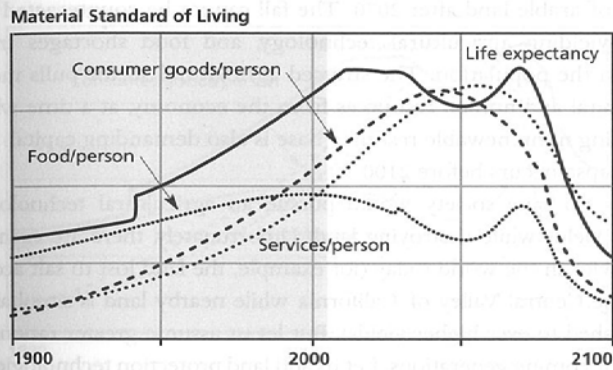
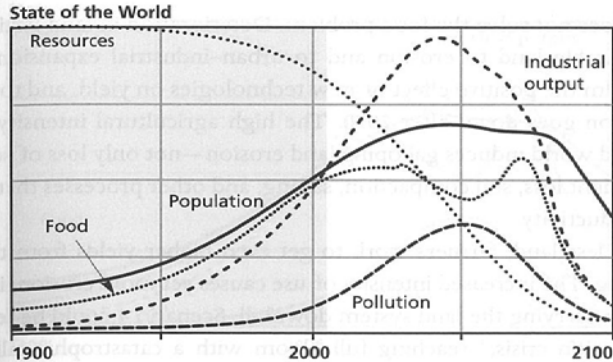
Other issues related to motoring persists!!!

- affecting the environment by **noise and vibration**
 - affecting of landscape and organisms by construction and presence of **transport infrastructure**
 - roads (motorways), divide the landscape and complicate (even prevent) 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 count all pros x cons

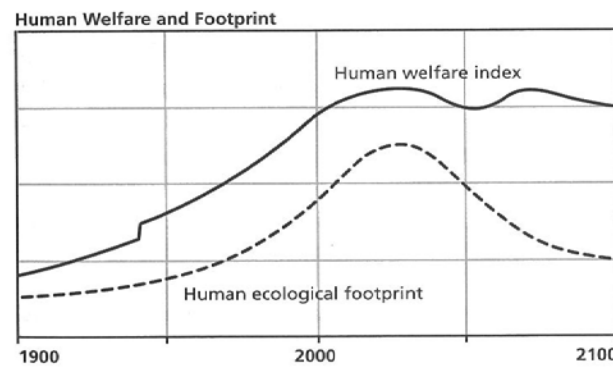
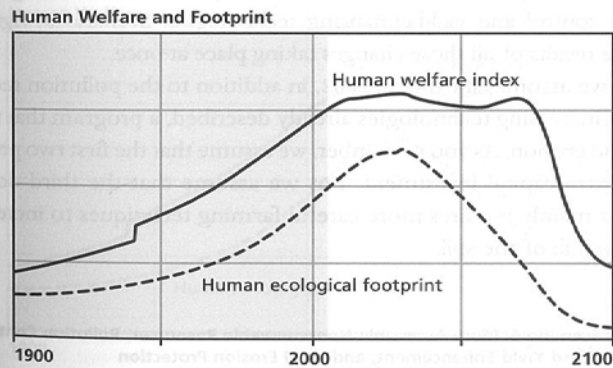
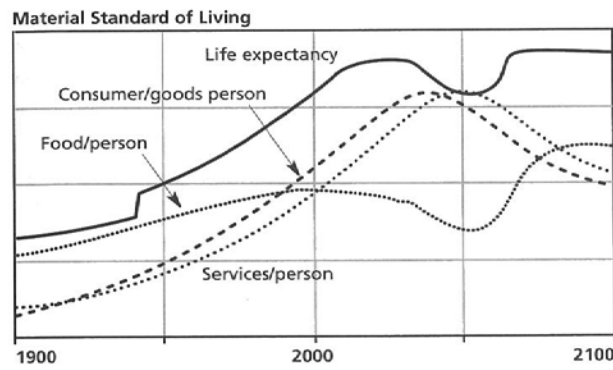
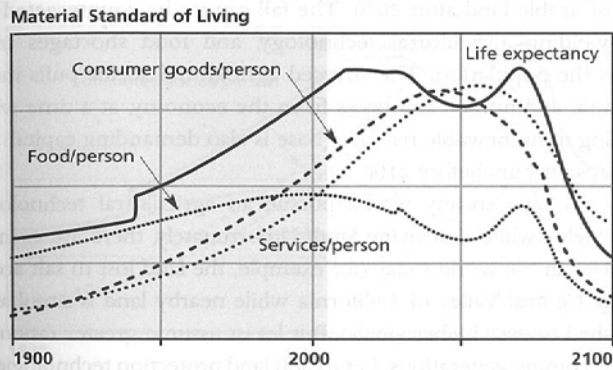
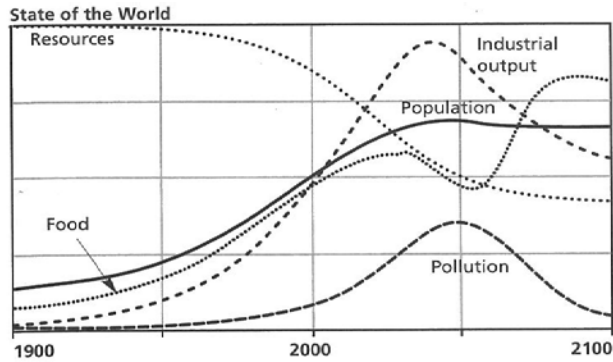
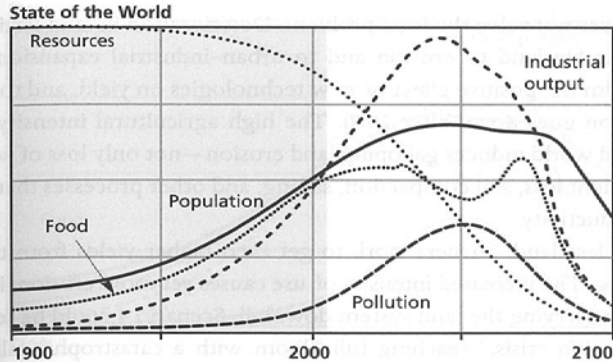
Limits of technological solutions



Scenario 4

Technologies eliminating pollution
Technologies increasing soil quality

Limits of technological solutions



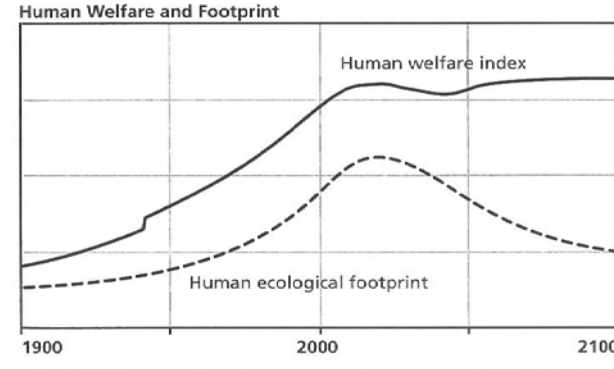
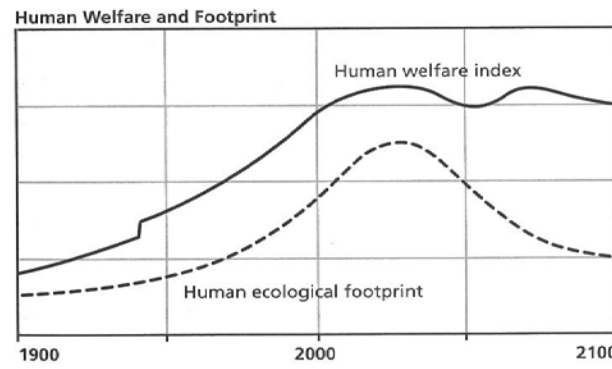
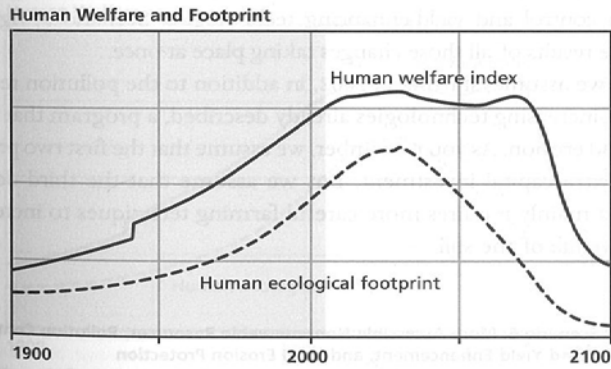
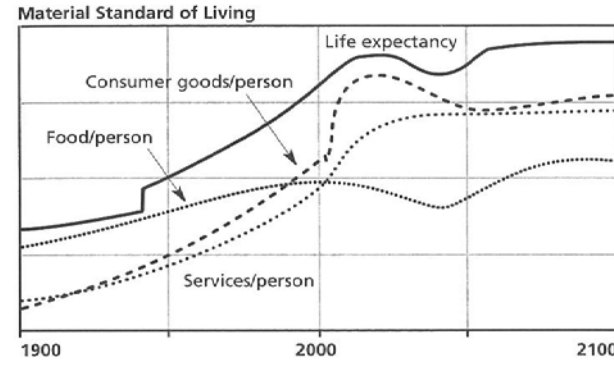
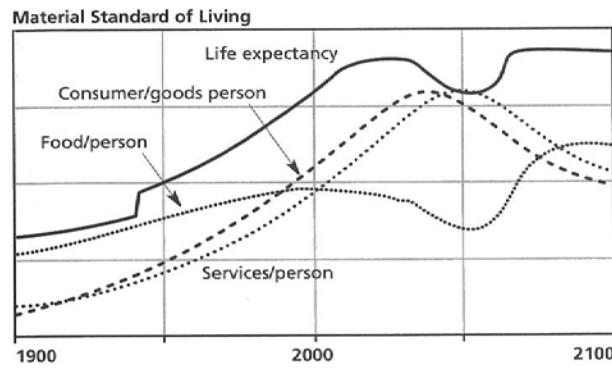
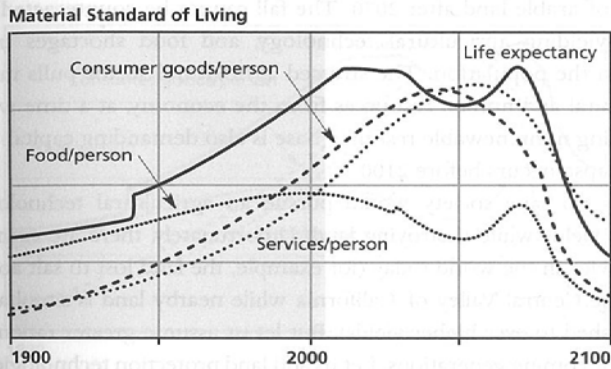
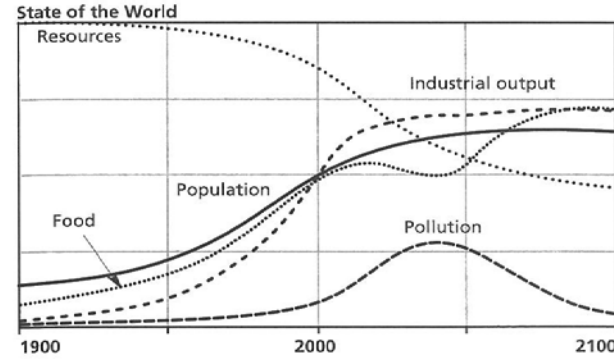
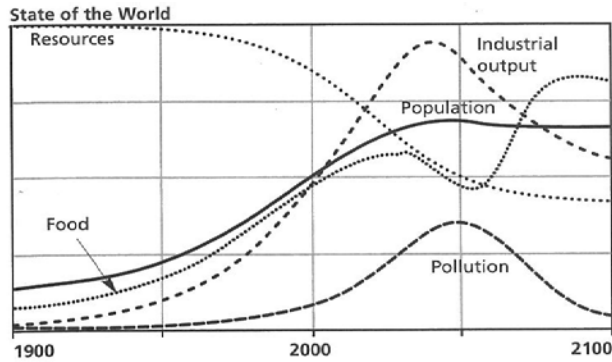
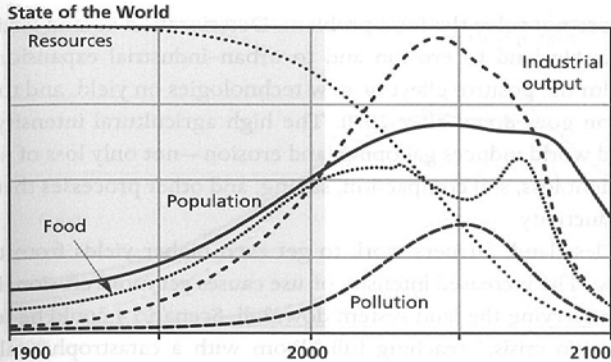
Scenario 4

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

- „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** - low income, low ownership and consumption, feeling deprived, social exclusion, low social status, minimal share of power
- **voluntary simplicity** - voluntariness, self-sufficiency, diverse interpersonal relationships, active participation in public affairs (municipalities ...)
- the idea of simplicity (modesty) common in ancient philosophy, Islam, Christianity, Judaism, Taoism, Confucianism, ancient mythology and natural nations

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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Modesty as part of the social prestige of 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**
- society is no longer stratified into classes, but according to lifestyle
 - the poorer strives to imitate the richer
 - imitation can be more effective than env. upbringing
 - spreading under the influence of fashion is faster and more efficient
 - social elites → influence on legislation, politics and economy

Selective demand

- 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



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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
- 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 postmat. values** and vice versa (oil crisis in the 1970s - decline in postmaterialism)



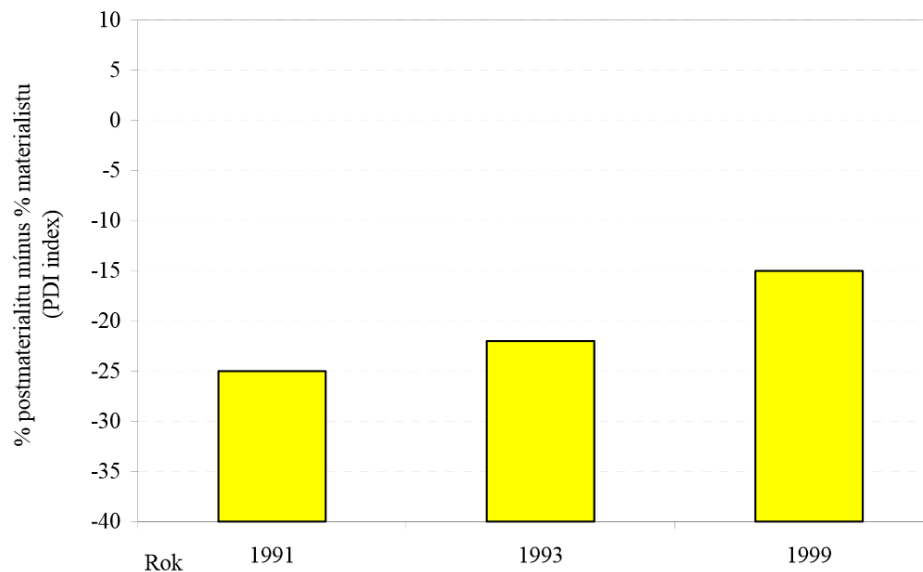
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Postmaterialism



Obrázek 2. Vývoj postmaterialismu v ČR 1991-1999
PDI index (podíl postmaterialistů mínus podíl materialistů)



Essentials to reach SD

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

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

Within This Website

Eng

中文

Home

Background

Collaboration

Gallery

News Room

Useful Links



A- A A+



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.

LATEST DEVELOPMENTS



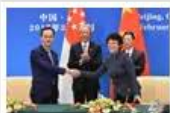
26 June 2017
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26 June 2017
尚达曼：中新天津生态城将进入起飞阶段拐点

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27 February 2017
13th Joint Council for Bilateral Cooperation (JCBC) Meetings in Beijing, The People's Republic of China

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[Three interesting facts about the Sino-Singapore Tianjin Eco-city](#)

COLLABORATION IN THE ECO-CITY



GALLERY HIGHLIGHTS



Ministry of National Development

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THE VENUS PROJECT

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



The solutions certainly won't be one-size-fits-all. It's possible to have a sustainable London and a sustainable Amazonia, but they will function very differently. "A renewable world depends on what you have close to hand," says McKibben.

So living sustainably need not be a step backwards. Some things will change, though. Meat will become a luxury, as its cost is pushed up thanks to the huge amounts of energy and water needed to farm livestock. And while we'll still be able to take holidays, those weekend jaunts on budget airlines are likely to be a thing of the past because there is currently no tax on aircraft fuel.

Porritt believes that doing away with such counterproductive subsidies and tax havens is essential. A global carbon tax and a tax on financial transactions would help to fund ecosystem restoration, public health, education and other crucial steps towards sustainability. "Tax is such a powerful instrument to promote sustainability," he says. "It's absolutely fundamental to the transformation we're talking about."

Porritt and Sanderson are buoyant about the quality of life in a more equitable and sustainable world, without denying the difficulties ahead. "One of the reasons why I think we have failed is that we haven't given a sense of just how good a world it would be," admits Porritt.

All of which adds up to a vision of a sustainable world that is significantly different from the one that critics envisage. It might mean a leaner and slower way of life for some, but also a healthier, happier and more peaceful world for us and future generations to enjoy. We have the tools. What we do with them remains to be seen.