

Sustainable development indicators: the Austrian approach

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Stubenring 1

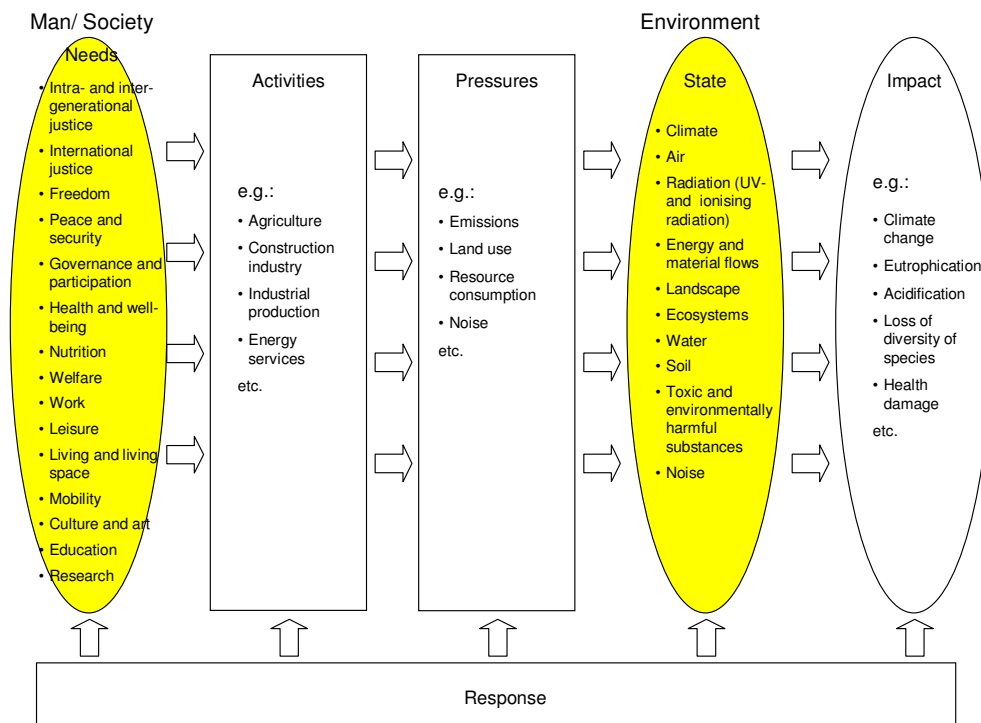
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In Austria a strategy for sustainable development was adopted in 2002. It requires the development of a set of indicators for the overall assessment of sustainable development based on a systematic approach. Therefore it was tried to use an already well developed reference model in term of its appropriateness for the monitoring of sustainable development in Austria. The two-sphere model developed and applied in Germany has been identified as such a reference model. It was adapted to the requirements of Austria.

The indicator system relies on the below-described framework for sustainable development. This framework follows the notion of sustainable development as formulated by the Brundtland Commission on Environment and Development, defining sustainable development as a development which meets the needs of the present without compromising the ability of future generations to meet their needs. These needs trigger various activities, for example agriculture, industrial production, transport or the generation of energy which result in pressures that have an impact on the state of the environment. This in turn causes undesired effects like climate change or the loss of species. The response of politics can be effective in all five areas.

Relation of sustainable development



Sustainable development is created through a balance between the two yellow-shaded spheres of this chain of effects: the needs of man and society on the one hand and the environment on the other: The alliance between the environment sphere and the needs of the Man/Society sphere, in which they do not meet as

antagonistic or exploitative forces allows sustainable development.

In a broad-based participatory process the needs and relevant objectives for sustainable development monitoring were identified. Strategic documents, law texts and the like served as sources for the objectives. In addition, experts were interviewed with the result that eventually a set of objectives with main- and sub-objectives was available.

For the search for appropriate indicators for the defined main objectives and sub-objectives of each theme area first of all, the publications of Statistics Austria and international indicator sets were examined in an attempt to assign proposals for indicators to the various objectives of the theme areas. Data and indicator experts, including seven members of Statistics Austria were asked for their opinions on the resulting collection of proposed indicators for the main objectives and sub-objectives of the themes; they were also requested to make further suggestions. The result – a fundamental framework for a collection of indicator proposals pertaining to the objectives of each theme area – formed the basis for workshops in which interested individuals from various groups of society made a selection taking into account their knowledge of the underlying data sources and the resulting assessment of the most appropriate indicators made possible thereby.

The set of the indicators for sustainable development thus consists of indicators assigned to the two yellow-marked spheres of this chain of effects. Their number is limited to a maximum of 4 indicators per theme, of which one performs the function of a headline indicator.

Indicators for the overall assessment of sustainable development in Austria

Sphere Man/Society		
Theme areas	Headline Indicators	Further Indicators
1 <i>Intra- und inter-generational justice</i>	GE 1 Inequality of income distribution (top/lowest quintile)	GE 2 Gender pay gap in unadjusted form GE 3 Projected changes in age-related public expenditure on pensions and education
2 <i>International justice</i>	IG 1 Official Development Assistance (ODA)	IG 2 Amount of spending on central themes of Public Development Cooperation IG 3 Sale of selected fair trade labelled products IG 4 Contribution of the Clean Development Mechanism (CDM) to reducing greenhouse gas emissions in developing countries
3 <i>Freedom</i>	FH 1 Authoritarianism index	
4 <i>Peace and security</i>	FS 1 At-risk-of-poverty-rate before and after social transfers	FS 2 <i>Sense of security</i> FS 2a Crime, violence or vandalism in the neighbourhood FS 3 Disasters (floods, mudflows, avalanches) FS 4 Resource dependency
5 <i>Governance and participation</i>	GP 1 Level of Austrians' confidence in institutions	GP 2 Electoral participation GP 3 Number of LA21 processes GP 4 <i>Creating the necessary framework conditions for sustainable development</i> GP 4a Environmental taxes
6 <i>Health and well-being</i>	GW 1 Healthy life years at birth	GW 2 Self-perceived health status by level of income GW 3 Health care expenditure relative to GDP GW 4 Well-being/Health
7 <i>Nutrition</i>	ER 1 Body mass index	ER 2 Health behaviour ER 3 Sales figures for organic food ER 4 Food contaminated with residues of pesticides + dioxin, PCB, <i>heavy metals and mercury</i>
8 <i>Welfare</i>	WO 1 GDP per capita	WO 2 Equivalised household income WO 3 At-persistent-risk-of-poverty rate WO 4 Wealth in time

9 <i>Work</i>	AR 1	Total unemployment rate by age, gender, and highest level of education	AR 2	Total unemployment rate by nationality and disabilities	
			AR 3	<i>Job satisfaction</i>	
			AR 3a	Working climate index	
			AR 4 AR 4a	<i>Unpaid Work</i> Housekeeping, childcare, and other forms of care	
10 <i>Leisure</i>	FZ 1	Satisfaction with leisure time organisation	FZ 2	Leisure activities	
	FZ 1a	Compatibility of work and family life	FZ 3	Activities by associations and groups	
11 <i>Living and living space</i>	WS 1	Close social and functional mixing	WS 2	Housing costs relative to household income	
			WS 3 WS 3a	<i>Well-being in the living environment</i> Satisfaction with housing situation	
			MO 2	External costs of transportation	
12 <i>Mobility</i>	MO 1	Access of population to mobility	MO 3	Volume of transport (passenger and freight)	
			MO 4	Emissions of air pollutants from transport activities	
			KK 2	Museum sites awarded a quality label	
13 <i>Culture and art</i>	KK 1	Public expenditure on cultural activities	KK 3	Cultural activities over the past 12 months	
			BF 2	Life-long learning	
14 <i>Education and research</i>	BF 1	Youth education attainment 20-24	BF 3	Early school-leavers	
			BF 4	Public expenditure on education and R&D as % of GDP	
			Sphere Environment		
Theme areas		Headline Indicators	Further Indicators		
1	<i>Climate</i>	KL 1	Greenhouse gas emissions	KL 2	Projected GHG emissions
2	<i>Air</i>	LU 1	Exceedances of the limit value for PM10	LU 2	Exceedances of the ozone target value for the protection of human health
				LU 3	Exceedances of the ozone target value for the protection of vegetation
				LU 4	Exceedances of the NO ₂ -limit value
3	<i>UV radiation</i>	ST 1	UV radiation intensity	ST 2	Thickness of ozone layer
4	<i>Ionising radiation</i>			ST 3	Gamma dose rate
5	<i>Energy and material flows</i>	ES 1	Energy consumption absolute and relative to GDP (gross domestic energy consumption and final energy consumption)	ES 3	Groundwater quantity
		ES 2	Material input (DMC and DMI)	ES 4	Amount of waste
6	<i>Landscape</i>	LA 1 LA 1a	Landscape changes Changes in use of land (forests, grassland/arable land)	LA 2	Development of specific areas for ÖPUL measures
				LA 3	Development of area/length and quality of characteristic landscape features
				LA 4	Fragmentation
				LA 5	Surface area of managed grassland
				ÖK 2	Naturalness of composition of tree species
7	<i>Ecosystems</i>	ÖK 1	Bird species groups and orchids as indicators of habitat quality	ÖK 3	Activities to promote biodiversity
				WA 3	Lakes: ecological and chemical condition
8	<i>Water</i>	WA 1	Quality of surface water (ecomorphology)	WA 4	Substantially modified or artificial bodies of water: ecological potential and chemical condition
		WA 1a	Bodies of running water: ecological and chemical condition		
		WA 2	Groundwater quality		
9	<i>Soil</i>	BO 1	Use of soil	BO 2	Accumulation of harmful substances in the topsoil or exceedance of the recommended values
		BO 1a	Percentage of sealed land		
		BO 3	Percentage of farmland with anti-erosion measures		
10	<i>Toxic and environmentally harmful substances</i>	TS 1	Chemicals Index		
		TS 1a	Consumption of specific materials		
11	<i>Noise</i>	LA 1	Noise pollution	LA 2	Percentage of population exposed to street traffic noise above the threshold levels
				LA 3	Percentage of population exposed to railway noise above the threshold levels
				LA 4	Percentage of population exposed to air traffic noise above the threshold levels

Indicators in *italics*: are „best needed“ indicators but facing problems of definition, data availability or data quality.
An „a“ in the indicator number: means that the indicator is „best available“ rather than „best needed“.

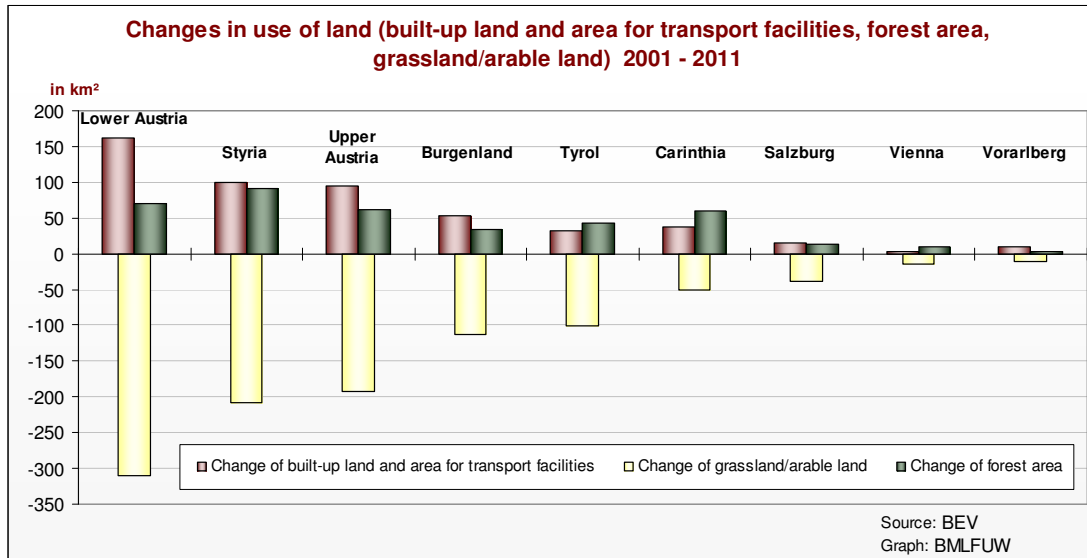
Sources for these indicators are among others:

EU-SILC, Labour force survey, Population statistics, Cultural statistics, several special Micro-census surveys, Environmental Accounting system.

Reports of the sustainable development monitoring have to be published biannually.

The development of the established indicators is published together with the necessary explanations on definitions, data sources, and a brief interpretation of the trend, if possible in comparison with other countries.

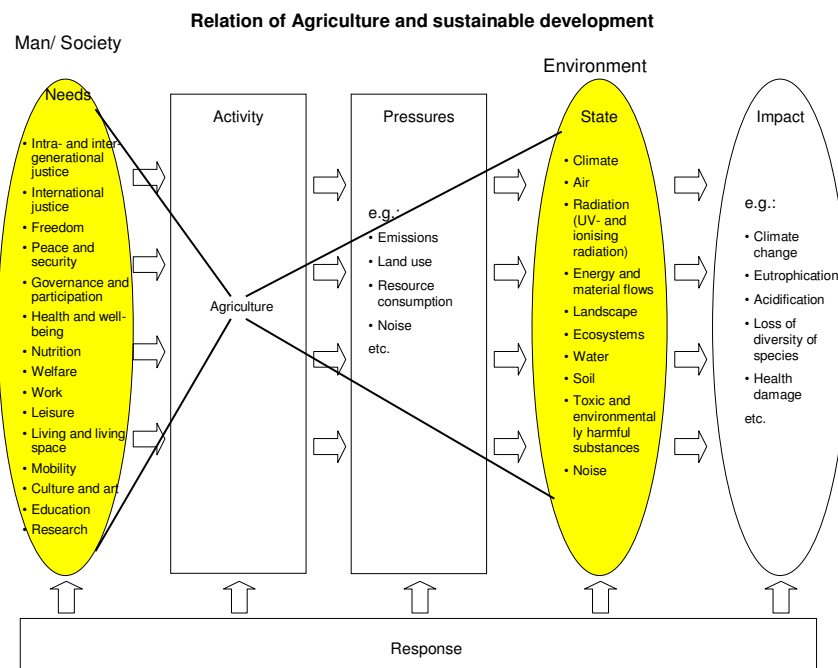
The trends allow conclusions about successful or unfavourable developments. For example, the indicators on land use change show the decrease of grassland/arable land in Austria. However, the figure also illustrates that thanks to appropriate measures this unfavourable development remained less marked in some of the Federal Provinces.



The indicator reports contain a summary evaluation of the development, which is described in words. The individual indicators are not aggregated mathematically.

The scheme of the 2-sphere model as depicted above makes it clear that, beyond the originally intended description of the state in Austria from the standpoint of comprehensive sustainable development, the 2-sphere model is fundamentally open to further development.

The framework allows also the description of activities in the context of sustainable development:

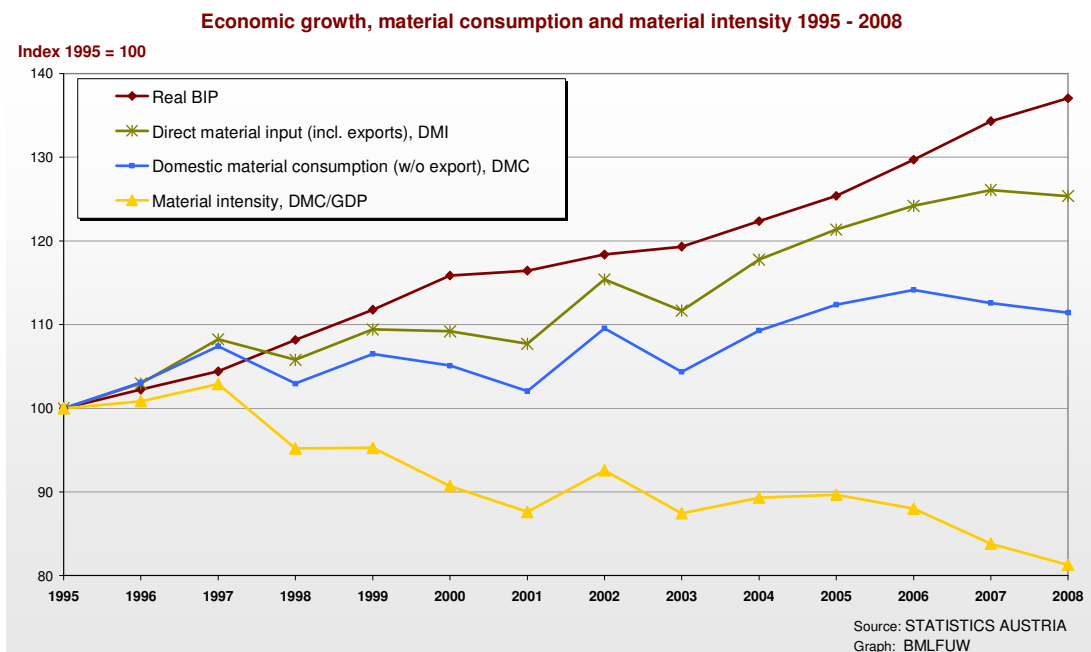
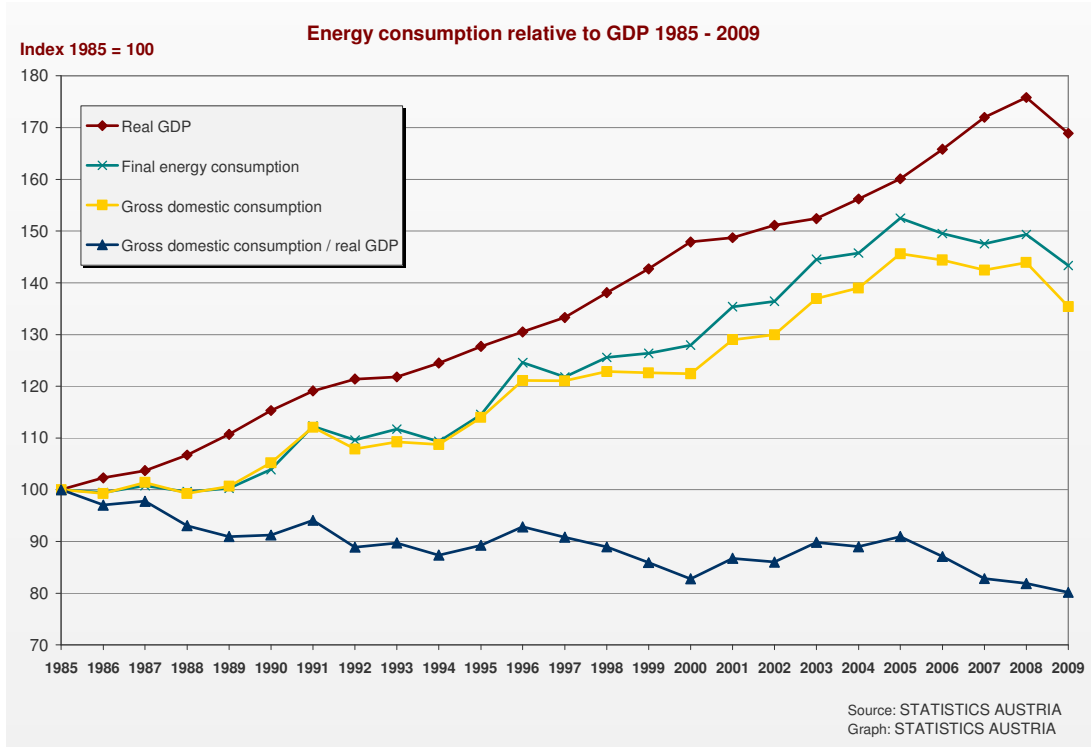


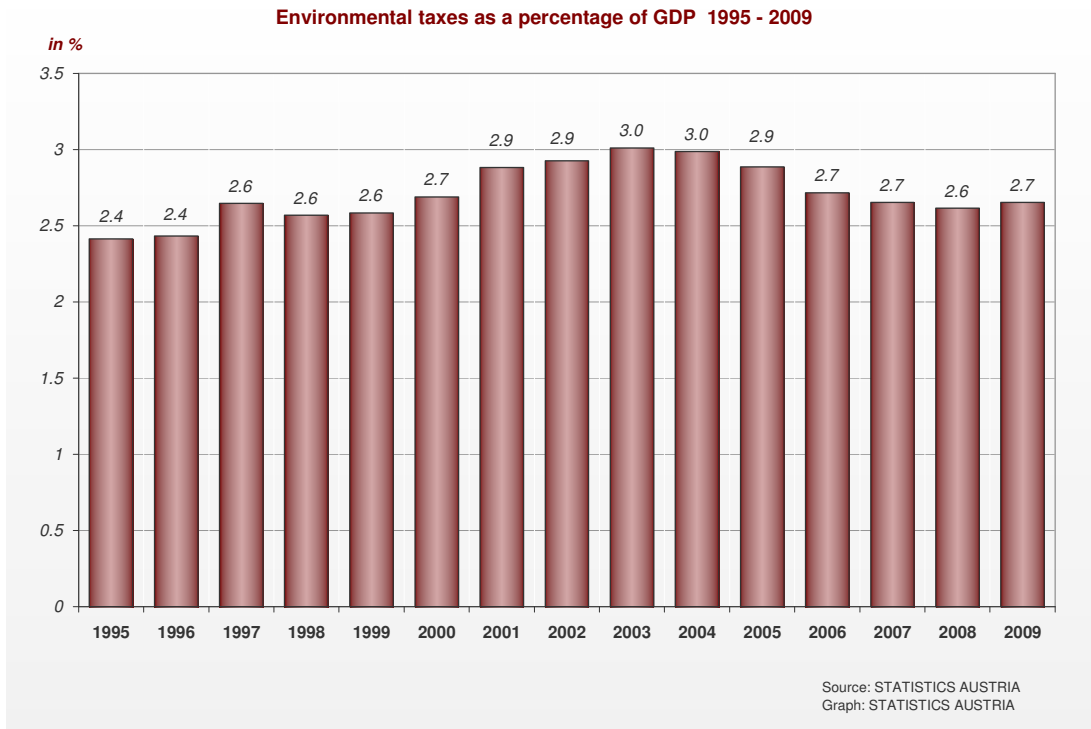
Answers have to be found to the questions which needs are supported by agriculture and which fields of the environment are influenced by agricultural activities. Account has to be taken also of conditions which form the basis of agricultural activity and which, therefore, should also be covered by a monitoring.

The indicators are to describe the chains of effect for agriculture.

An indicator report on the impact of economic activities on the environment has been published.

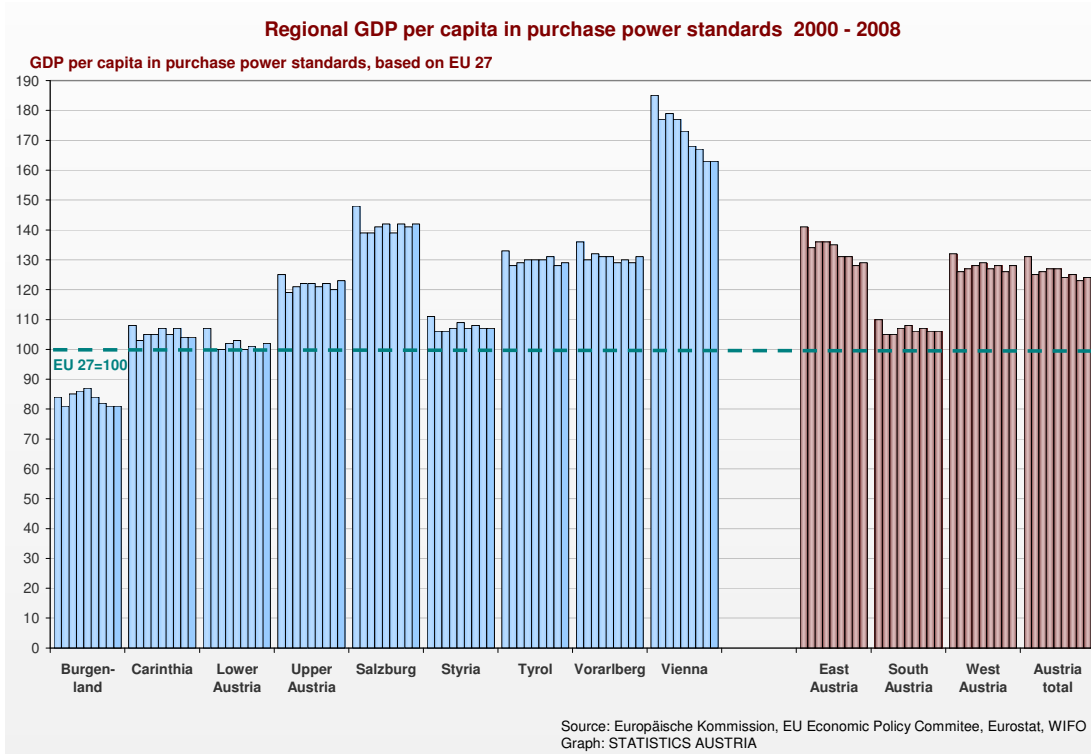
For several indicators, on energy consumption, material input or environmental taxes, e.g., data from the statistical system are used.

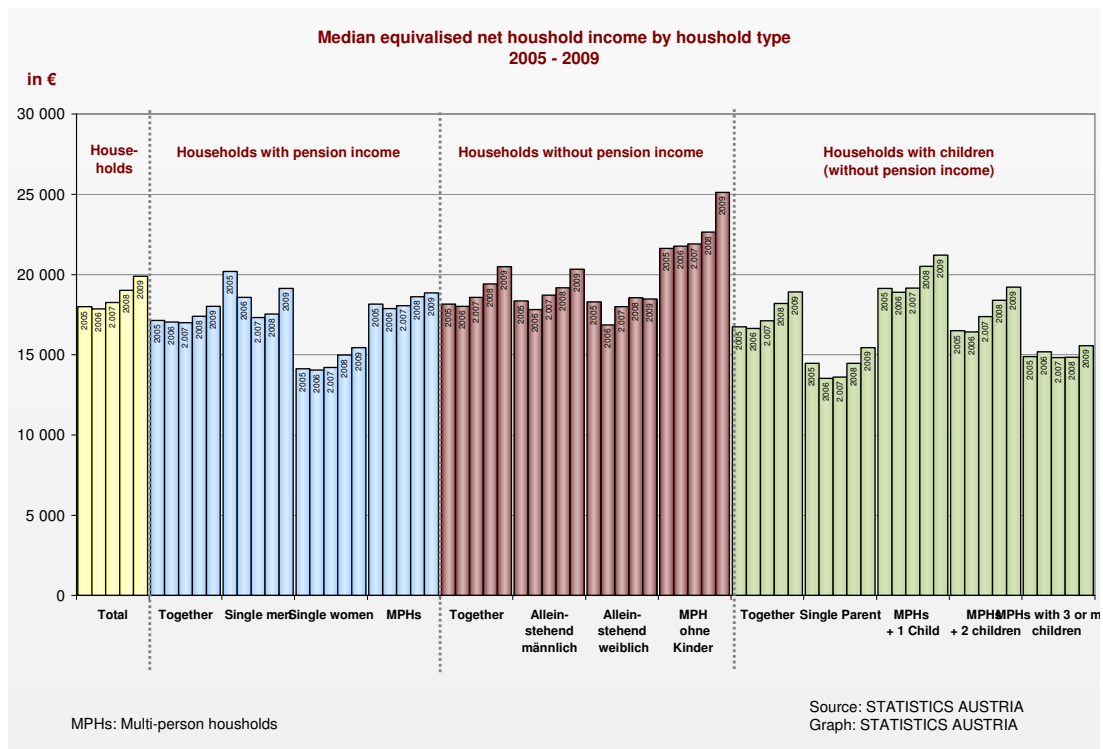




Also prosperity can be described comprehensively on the basis of the statistical system.

In addition to the indicator “GDP per capita” (in purchase power standards), also the “Equivalised household income” is depicted for various household types.

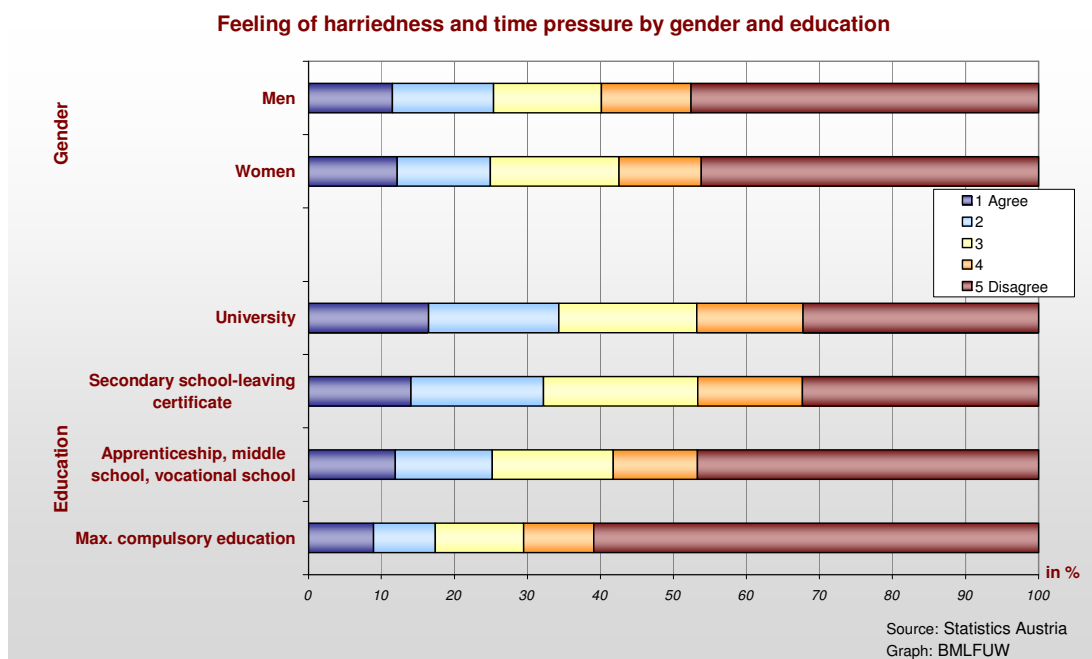


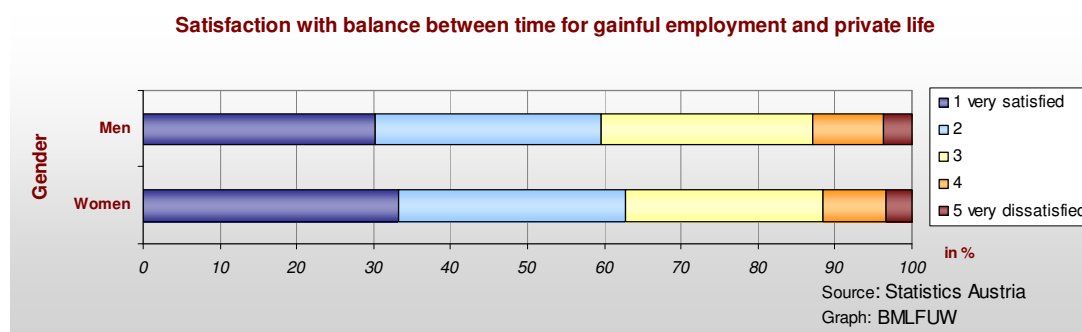


Several indicators illustrate questions of distribution (gender pay gap, income distribution between top and lowest quintile, risk of poverty, ...).

There are also indicators on health, education, culture and on the public expenditure for these areas. The contribution of the environment to prosperity is illustrated both by means of environmental quality indicators and through stock and flow indicators.

In a project supported by Eurostat an indicator for the wealth of time was developed. It was based on a survey conducted among almost 8 000 persons. The questions posed were whether they felt harried and whether the allocation of time between gainful employment and free time was well balanced. Surprisingly, the survey showed that women are more satisfied with the allocation of time than men are.





All these indicators are part of the indicator reports on the monitoring of sustainable development; no separate indicator report on the issue of prosperity was published.

In a study we dealt with the subjective aspects of prosperity and of the quality of life. It was based on the indicators of the set of SDIs, which rely on perception and sensation. This is because the Austrian side contains subjective indicators for many topics, an approach complying with the request of the SDS that “also the aspects of people’s perception and sensation must be taken into consideration, since sustainable development must be oriented towards their needs”.

At regular intervals the Ministry of Agriculture, Forestry, Environment and Water Management commissions a survey on environmental conditions and environmental behaviour. The outcome of the Austrian people’s assessment of the environmental quality of different media on the one hand and the environmental problems on the other hand was compared with the outcome of the measurement results - and showed surprisingly good compliance.

In the framework of the survey on the environmental conditions also data on the importance of the status of the environment for the Austrians’ quality of life were collected. They were integrated in a study on the well-being of the Austrian population and indicate that the status of the environment ranks fourth already after health, the social network and the housing situation.

A study on the well-being of the Austrian population examined subjective indicators of the statistical system in terms of different features, like age, sex, community size, education, professional situation. The most interesting results were published in a brochure.

Apart from the overall life satisfaction, the evaluation results of the partial aspects of well-being, health, satisfaction with the housing situation, safety, noise, job satisfaction, wealth of time and free time are presented.

Education proves to be a positive factor of influence for the general quality of life, the subjective perceptions of people’s health status, work satisfaction, and the feeling of safety. However, education also appears to generate needs. More highly educated persons feel their wealth of time is lower.

Another important aspect for the quality of life is the subjective feeling of freedom. In this context a person’s income and a meaningful job play an important role for various aspects of the quality of life, with a high percentage of the interviewed persons saying that they feel they do meaningful work.

As regards family structure, it is evident above all that single parents are less satisfied with their quality of life, for example with their housing situation, but also in respect of free time management.

Women are more satisfied with their income and the allocation of time between gainful employment and other areas of life than one might assume considering other aspects (lower average payment, higher share of the household work).

What is striking is the impact the degree of urbanisation has in almost all areas of life. People living in smaller places were found to be very pleased with their housing situation, in respect of noise pollution, safety, time abundance and also their general quality of life. It is surprising also that in smaller communities the time used for care obligations is to a higher extent felt to be sufficient than in more highly urbanised areas.

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