

Land Use Planning and Agriculture: Austrian Experiences and Challenges II

ECAP Prague Training Visit 2016 Walter Seher BOKU Vienna



- Sustainability requests land-saving development
 - Soil is a limited and a hardly renewable resource
 - Goal of the Austrian Strategy on Sustainable Development 2010: land take of max. 2,5 ha/day
- Providing sufficient farming land, food security
 - Additional demand for renewable natural resources and energy; "The return of land resources" (Sieferle, 2007)
 - New competition on undeveloped land



"Land scarcity will affect rural areas due to an increasing demand for natural resources: food, energy crops, wood, mineral raw materials, water. Scarcity will primarily relate to open space (i.e. the area not built up)." (One of seven "highly relevant and probable spatial developments" from the research project: "Scenarios of Spatial Development in Austria 2030"; ÖROK, 2009)

Future Land Demands for Agriculture





44 Agricultural Tower Fougeron Architecture San Francisco

Source: Ziegler, 2009

Food Security



NATIONAL, SUBNATIONAL AND COMMUNITY HOUSEHOLDS **INDIVIDUALS** LEVEL Nutritional Socio-economic, Political, Household **Food Economy** Institutional, Cultural and Livelihood Status Strategies, Assets Natural Environment & Activities (vulnerability context) **Food Availability Household Food** Food domestic production Access Consumption Population import capacity Energy intake Education Nutrient intake food stocks, food aid Macro-economy including Consumption foreign trade **Care Practices** Status Policies and laws Child care Natural resources Feeding practices Stability endowment Nutritional knowledge weather variability Basic services Food preparation price fluctuations Market conditions Eating habits political factors Technology Intra-household food economic factors Climate distribution Civil strife Household characteristics Access to Food Livelihoods systems poverty Social institutions **Health and Sanitation** purchasing power, income, Food Cultural attitudes and Health care practices transport and market Utilisation Hygiene, Sanitation gender infrastructure determined Water quality by: Health Food safety & quality status

Source: FIVIMS, FAO

Food Security



- Land-saving development is one among several measures of food security
- How much land do we actually need for providing food security?
- Land required for food security is depending on assumed framework conditions, like eating habits, amount of food imports, way of energy supply, intensity of agricultural cultivation in terms of external resources)

	Bewirtschaftete Fläche pro Kopf	Konsumierte Fläche pro Kopf	Notwendige Fläche laut DGE pro Kopf
Acker m ²	1.560	1.860	1.260
Grünland m ²	2.190	1.740	1.240
Gesamt m ²	3.750	3.600	2.500

Land demands for Austria 2001-2006 according to Zessner et al., 2011

Food Security



- Seemüller (2000) for Germany: 2.100 m² for supply with products from 'conventional' agriculture, 2.800 m² for supply with products from organic agriculture only
- Future situation of agricultural land demand depends on different factors (e.g. climate change, population growth, global political development) and is thus subject to various uncertainties
- Land-saving development or protection of agricultural areas in particular can be considered a **"no regret strategy"** of food security, i.e. an added value of this strategy is independent of those changes actually happening



- Climate change: mitigation and adaptation
 - Soils store CO₂, soil sealing reduces storage capacities
 - Open space land resources are also important in climate change adaptation





- Protection against natural hazards
 - Open space areas are important for flood retention
 - Housing sprawl raises protection costs and potential damages



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- Ensuring biodiversity
- Economic aspects
 - Housing sprawl raises public infrastructure costs, e.g. water supply, energy supply, noise barriers
 - (Commercial) Development outside of core cities may reduce land values in central areas





- Use potentials of internal development:
 - Use of vacant buildings and interior undeveloped building land
 - Reuse of industrial or commercial brownfields



Source: Village Renewal Tyrol cited by BMLFUW, 2012



- Intensification of Regional Planning
 - Limitation of local development by regional growth boundaries or regional zoning for open spaces
 - Side effect: increase of real estate prizes in the case of high demand for building land







- Intensification of Regional Planning
 - Integration of different soil functions into planning (based on evaluations of soil functions)
 - Spatial planning usually focuses on the two-dimensional system of land (not on the three-dimensional soil system)





- Intensification of Regional Planning
 - Integration of agricultural soil qualities in regional planning
 - Agricultural priority zones in regional planning programmes



Source: www.raumplanung.steiermark.at, 2.11.2015

Agricultural Zoning – Goals



- Formulation of sound and transparent agricultural land demands in spatial planning processes
- Counter-strategy to the widespread procedure of dealing with agriculture as a **residual area** in spatial planning processes
- Preventing conversion of high value agricultural land into building land: no (municipal) zoning of building land in agricultural priority zones (displayed in regional planning programmes)
- Maintaining contiguous agricultural areas

Wytrzens, 1994, Grießer, 1999

Agricultural Zoning – Indicators





- Natural conditions
 - Soil quality
 - Altitude
 - Exposition
- Cultivation conditions
 - Slope
 - Extension of contiguous agricultural
 - Suitability for specific crops (e.g. orcharding, viticulture)

Agricultural Zoning – Indicators





- Other indicators
 - Relevance for landscape image
 - Touristic or recreational relevance
 - Ecological importance
 - Importance for natural hazard mitigation

Agricultural Zoning





Legende



Vorrangzonen - Bestand

(ermittelt auf Basis von Erhebungen vor Ort)

Bewertungsvariante ACKERLAND





Stand: Dez. 2006

Agricultural Zoning – Switzerland



- Sectoral planning programme for agricultural zoning ("Fruchtfolgeflächen") explicitely aiming at food security.
- Sectoral programme displays and secures areas necessary for self-sufficiency concerning agricultural products in case of emergency (especially political crisis)
- Sectoral programme comprises land which can be used for crop farming independent of current land use; agricultural potential is the decisive criteria
- Withdrawal of land zoned in this sectoral programme (e.g. by conversion to building land) has to be compensated



Source: ARE, 2006



- Enforcement of Local Development Planning
 - Raise awareness and create acceptance for the advantages of compact housing types







<image>

Source: Google Maps

Source: Reinhard Seiß



- Enforcement of Local Development Planning
 - Implementation of permeable surfaces and greening measures for buildings



Source: Reinhard Seiß



- Planning strategies counteracting the land market, usually require additional measures of land policy to be effective (Davy, 2005); respective examples are:
 - Land (development) taxation
 - Rearrangement of financial support (for municipalities, for private house owners)
 - Public land policy
 - Tradeable development rights
 - Financial support for brownfield development
 - Urban redevelopment by transforming unused housing areas into open spaces



- Land (development) taxation
 - Raise tax rates (property taxes) on building and built-up land
 - Impose taxation on profits made by the zoning of building land
- Rearrangement of financial support (for municipalities, for private house owners)
 - Reform municipal financing
 - Include land-saving building measures into housing subsidies



- Public land policy
 - Public bodies (e.g. municipalities) act as buyers and sellers on the (housing) land market, mainly by land funds
 - Influence on e.g. building densities
 - Zoning profits can be used for public measures
- Tradeable development rights
 - Allocating quotas of development rights to municipalities
 - Developing markets for development rights, municipalities can buy and sell development rights within certain limits of development



- Brownfield development
 - Reuse of mainly industrial brownfields instead of new development: 'land recycling'
 - 8.000 13.000 ha "brownfields" in Austria
 - Contamination risks as an obstacle
 - Monitoring of brownfields available for reuse
 - Financial support (e.g. for site rehabilitation)
- Urban redevelopment