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Department of the Environment,
Transport, Energy and Communications DETEC

Swiss Federal Office of Energy SFOE

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Fact sheet

Methodology for the study on socioeconomic and ecological impacts ("SÖW")

Objectives and indicators system

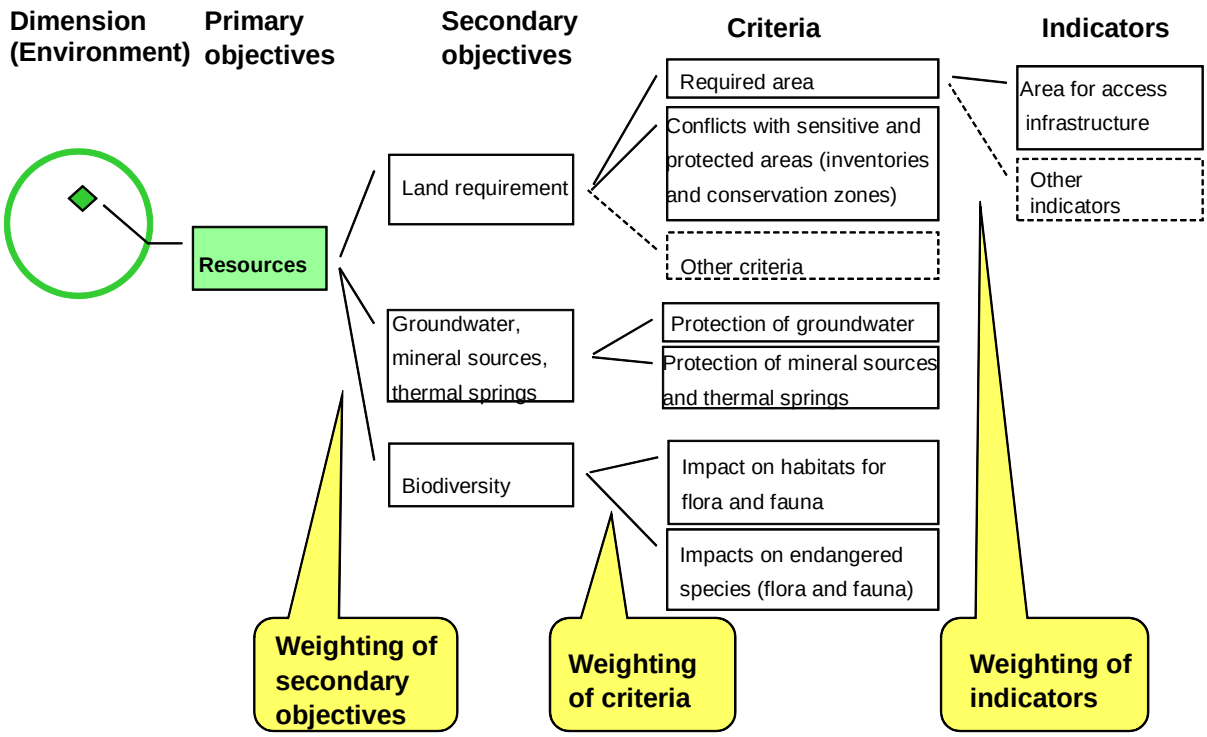
Dimension	Primary objectives	Secondary objectives	Criteria	Indicators
Environment	**Protection of resources**	Avoidance of land requirement	Required area	• Area for access infrastructure (rail, road) • Area for surface facilities • Area for auxiliary facilities
			Conflicts with sensitive and protected areas (inventories and conservation zones)	• Conflict with national conservation zones, inventories and reserves (ecological aspect) • Conflicts with cantonal conservation zones, inventories and reserves (ecological aspect) • Conflicts with municipal conservation zones, inventories and reserves (ecological aspect)
			Required crop rotation areas	• Change in crop rotation areas
			Use of excavated material	• Use of excavated material (ecological aspect)
		Protection of groundwater, mineral sources and thermal springs	Protection of groundwater	• Impact of surface facilities on protected groundwater zones • Impact of underground facilities on protected groundwater zones
			Protection of mineral sources and thermal springs	• Impact of mineral sources and thermal springs
		Preservation of biodiversity	Impact on habitats for flora and fauna	• Impact on wildlife corridors • Impact on surface bodies of water • Impact on other sensitive habitat
			Impact on endangered species (flora and fauna)	• Impact on endangered species (red list)
	Avoidance of immissions	Acoidance of air pollution	Effect on air pollution (home & workplace)	• No. of people affected by increase/decrease in air pollution (home/workplace)
		Avoidance of noise pollution	Effect on noise pollution (home & workplace)	• No. of people affected by increase/decrease in noise pollution (home/workplace)
		Avoidance of consequences of (non-nuclear) accidents	Accident potential (other facilities)	• No. of danger sources (by risk potential) in vicinity of deep geological repository
		Avoidance of pollution through transport	Environmental pollution through transport	• Location of site, connection to railway network • Location of site, connection to road network

Dimension	Primary objectives	Secondary objectives	Criteria	Indicators
Society	**Development of residential zones**	Optimisation of spatial development	Alignment with spatial planning concept	• Degree of alignment of expected development with applicable spatial planning concepts
		Optimisation of population structure and social values	Change in population structure	• Change in proportion of gainfully employed to overall population
	Protection of residential zones	Protection of residential zones	Impact on quality of life	• No. of residents in radius of 2 km from surface facilities
			Impact on planned housing development	• Living space reserves in radius of 2 km from surface facilities
		Protection of local recreation areals	Chance in no. of recreation areas	• Change in no. of major local recreation areas (social aspect)
		Protection of landscapes	Change in appearance	• Conflicts with protected national landscapes • Conflicts with protected cantonal and municipal landscapes
			Changed appearance of other landscapes	• Conflicts with landscapes of national importance (social aspect) • Conflicts with landscapes of cantonal/municipal importance (social aspect)
Economy	**Optimisation of effects on regional economy**	Optimisation of effects on primary income & employment (investments in repository)	Overall effect (added value)	• Change in added value
			Overall effect (employment)	• Change in employment rate
		Optimisation of secondary effects on involved sectors (changed background conditions)	Changes in tourism sector	• Change in added value (tourism)
			Changes in agriculture sector	• Change in added value (agriculture)
			Changes in other important economic sectors	• Change in added value (other sectors)
		Optimisation of changes in value	Changes in value	• Changes in existing value (real estate, land, utilisation, etc.)
	Optimisation of public finances	Optimisation of public finances	Changes in public finances (municipalities)	• Changes in revenue • Compensation payments • Potential conflict with other development projects (resulting in additional expenditure) • Long-term investments of repository (public ownership)

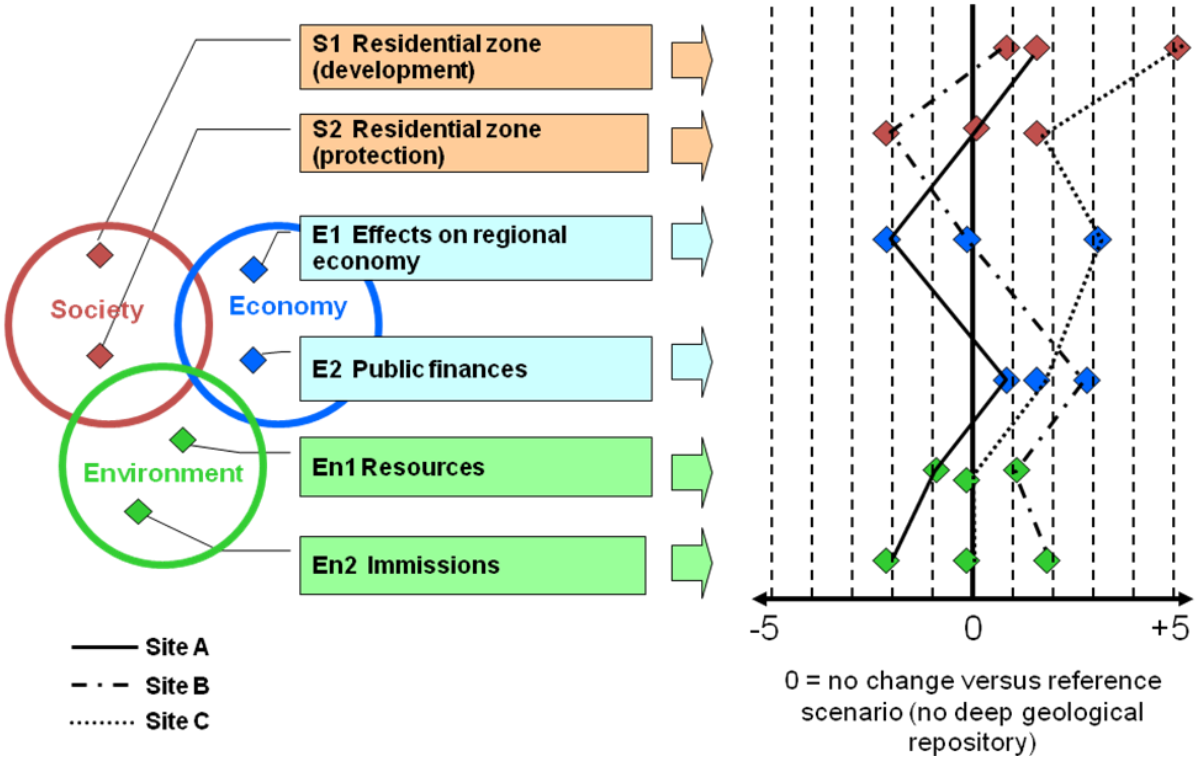
Procedure

- The indicators are to be obtained for each location
- The collection procedure for each indicator is to be precisely described in a fact sheet
- The indicators are to be weighted in accordance with a specified procedure, and summarised in the form of the six primary objectives (cf. diagram below)
- The proposed sites can now be compared with one another at the main objectives level, and assessed verbally (cf. example below)

Diagram: Weighting based on “Protection of resources” primary objective



Example: Comparison of three sites at primary objectives level



Supplementary qualitative assessments and other comments

Site A: Thanks to cleansing of former polluted sites, a significant environmental hazard can be eliminated.

Site C: The economic impulses also have an effect on the surrounding region. The positive effects in terms of added value and employment are also apparent beyond the siting region (spatial delimitation).

Assessment of findings

Site A: The negative impacts in primary objective E1 are largely attributable to the (expected) losses of revenue in the tourism sector (wellness and recreation). At the same time, in view of the limited economic structure, only a very small portion of the investments that arise in association with the deep geological repository can be implemented by the companies in the siting region. Most of the buildings are constructed by external companies.