Comparative critical analysis of the systemic approach to the organization of the environment from the standpoints of ecology, geography and spatial planning

Alexandru-Ionuț PETRIȘOR

Faculty of Geography, University of Bucharest

“Ion Mincu” University of Architecture and Urbanism, Bucharest

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Core Concepts 1

Concept	Ecology	Geography	Spatial Planning
System	Ecological	Territorial	Socio-spatial
Components	Structure, functions	Compon., proc.	Components and flows
Difference	Ecosystem includes geosystem	Geosystem in-cludes ecosystem	Focus on man-dominated systems
Dominant component	Depends on anthropization	Depends on anthropization	Human species
Hierarchy of systems	Ecosystem–complex of ecosystems (land-scape) – ecosphere	Theory of fractals–systems replicated at different scales	NUTS (RO: administra-tive-territorial unit–cou-nty–reg. of developm.)
Main focus of discipline	Landscapes	Administrative-ter-ritorial unit–global	Depends on purpose
Diversity	Biodiversity	Geodiversity	Cultural diversity
Difference	Biodiversity inc-ludes geodiversity	Geodiversity incl. biodiversity	Focus on cultural diversity

Core Concepts 2

Concept	Ecology	Geography	Spatial Planning
Objective of dynamics	Natural: maximize energy entry	Satisfy human needs	Satisfy human needs
Dynamics	Succession vs. adaptive cycles	Territorial dynamics: urbanization–peri- & suburbanization–gentrification; spiral	Economic development
Collapse	Carrying capacity	Natural resources/ eco-energies	Pop. density
Key properties of systems	History, integral, non-linearity, fractal geom-etry, information, self-regulation, diverse, dy-namic, anti-entropic behavior, regeneration, programs	Complex, integral, o-pen (thermodynamic and informational), resistant to change, coherent, synergism, dissipative, variable geometry, global	Diversity, integra-lity, predictable dynamics, social, fractal geometry, domination of human species, eco-social control
Approach	Systemic	Mixture: syst. & sect.	Sectoral

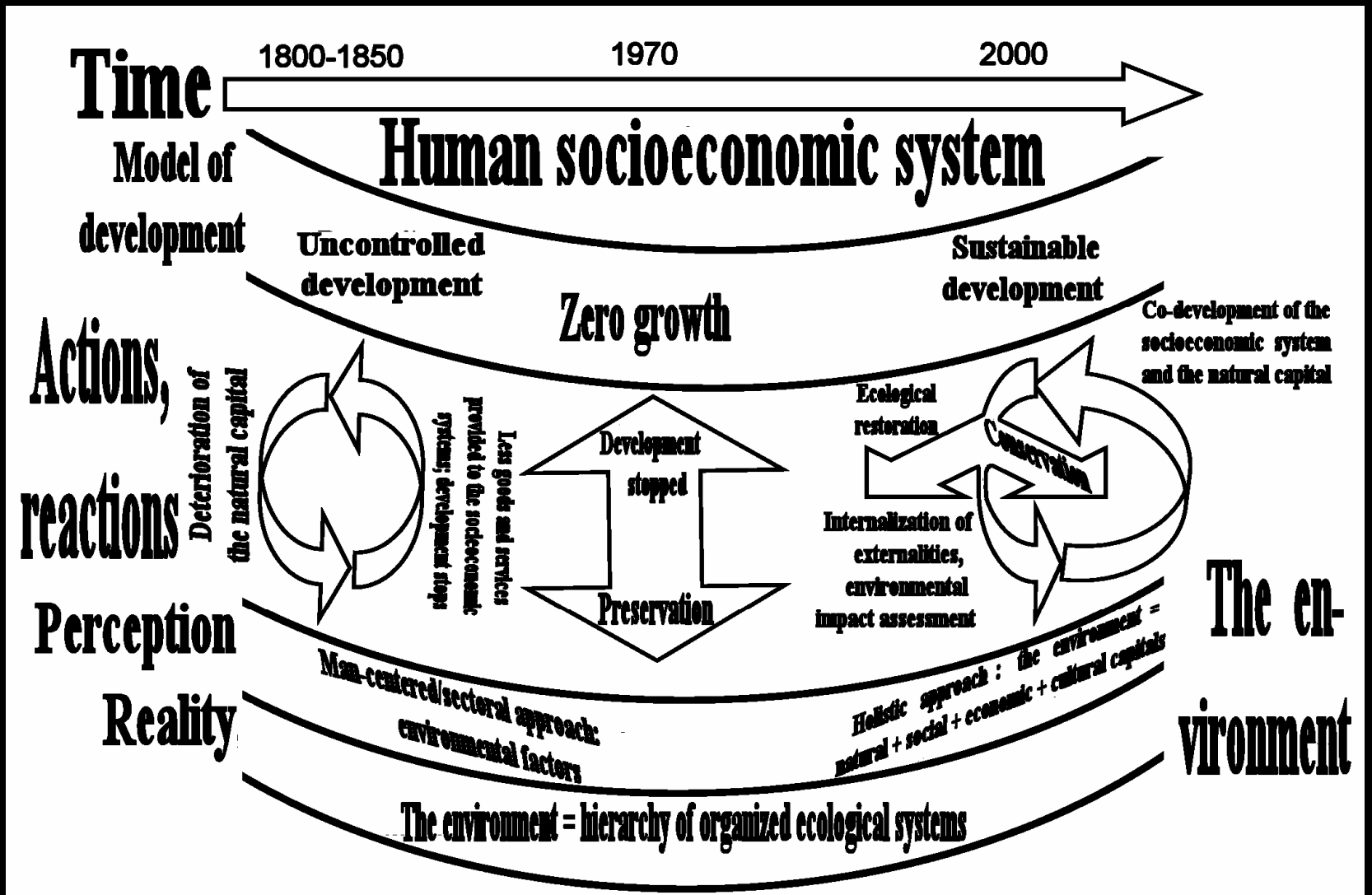
Core Concepts 3

Concept	Ecology	Geography	Spat. Plan.
Study	Field vs. desk; isomorphic vs. homomorphous models	Field, different scales, description, maps, organization, types, way-finding choremes, dynamics	History; emphasis on planning

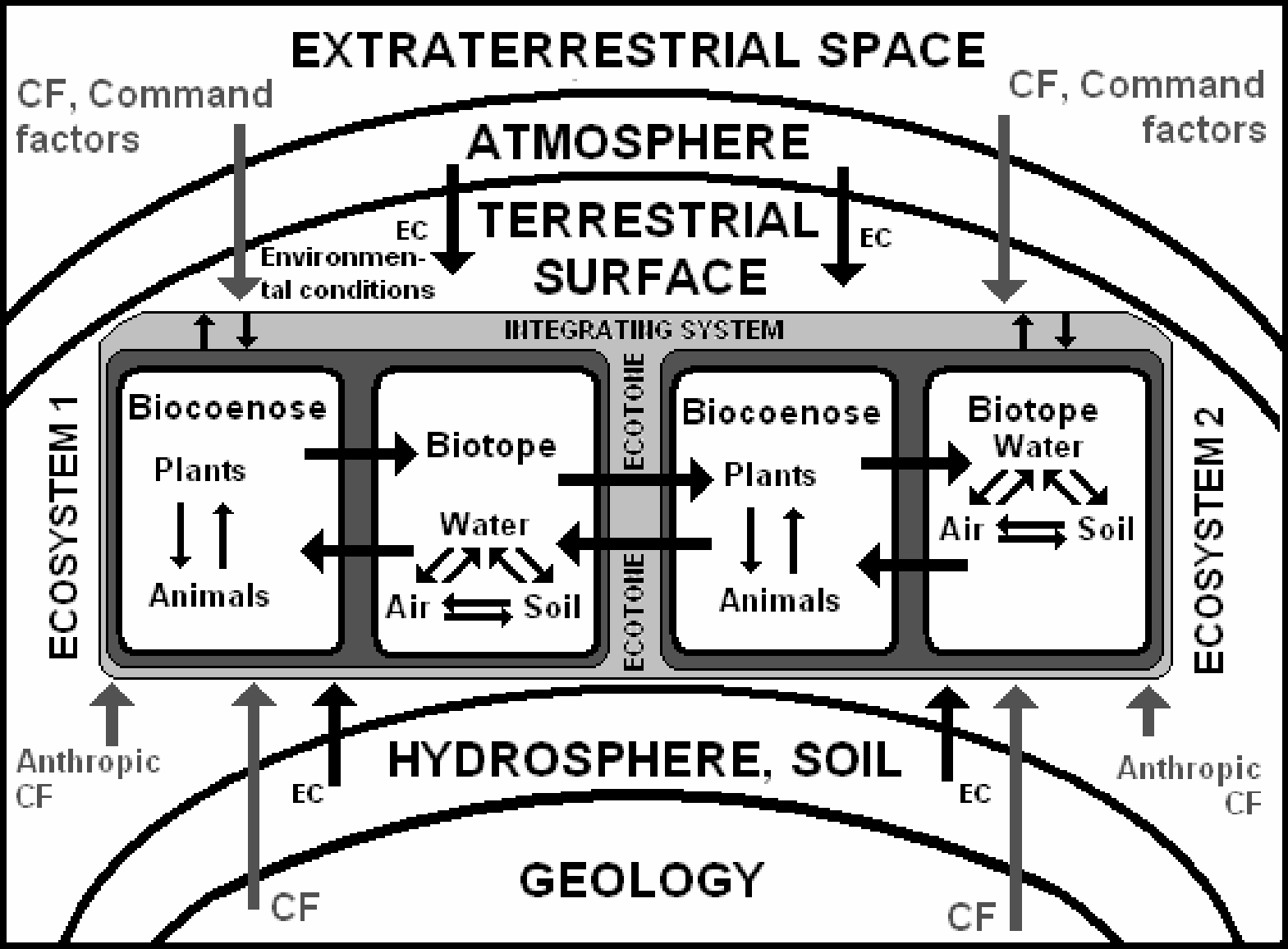
Correspondence of system hierarchies

Ecological	Territorial	Socio-spatial (NUTS)	Diversity
Components of ecosystem	Micro- and nanostructures	-	α, ω
Ecosystem	Geosystem, geofacies, geotope	V	α, ω
Regional complex of ecosystems	Natural region, geographical region, regional system	III	ß, γ, ω
Macroregional complex of ecosystems	Domain, zone, national syst., supranational syst., continental syst.	II, national territory, continent	γ, δ, ε, ω
Ecosphere	Planetary system	Globe	

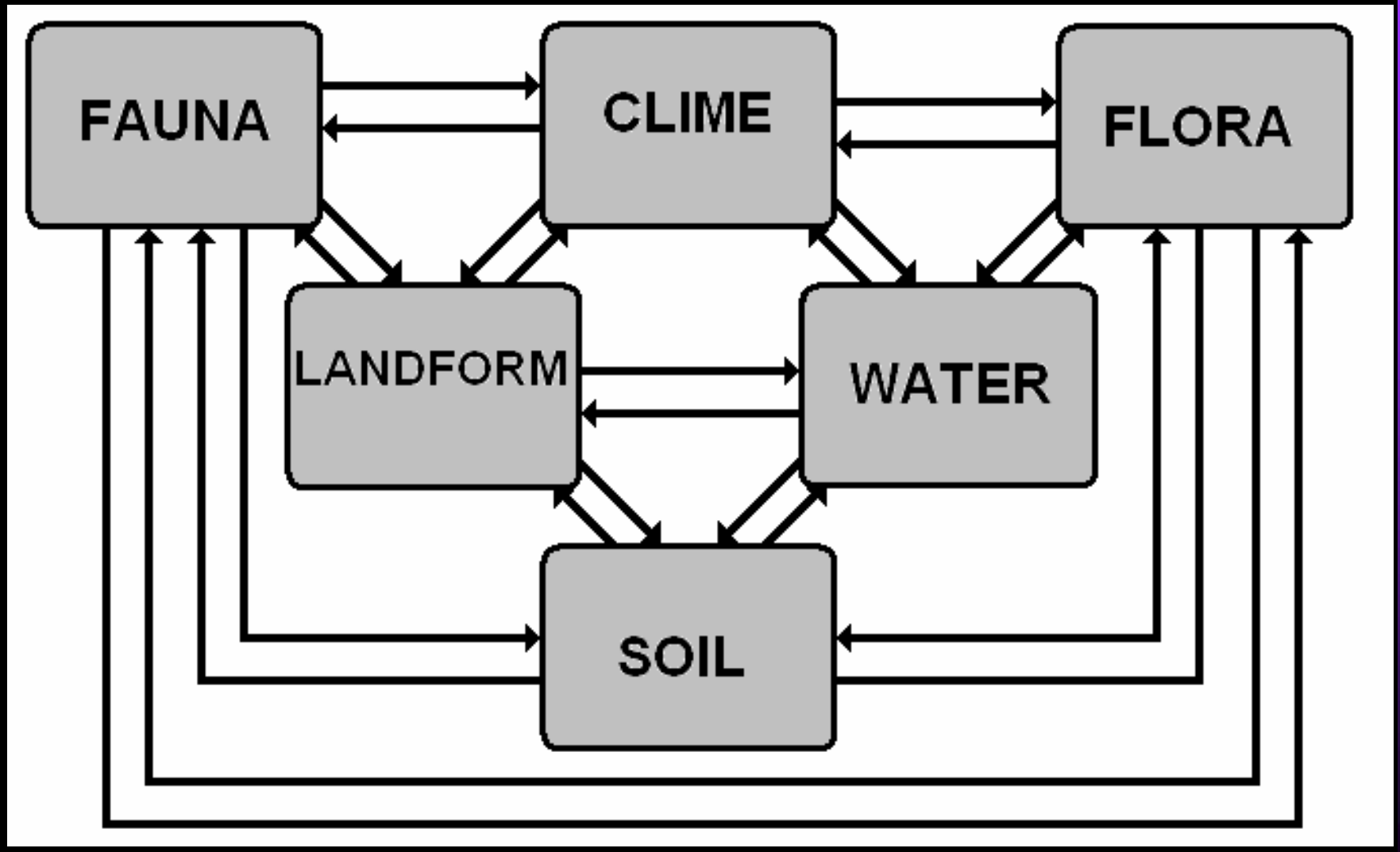
People, Environment, Development



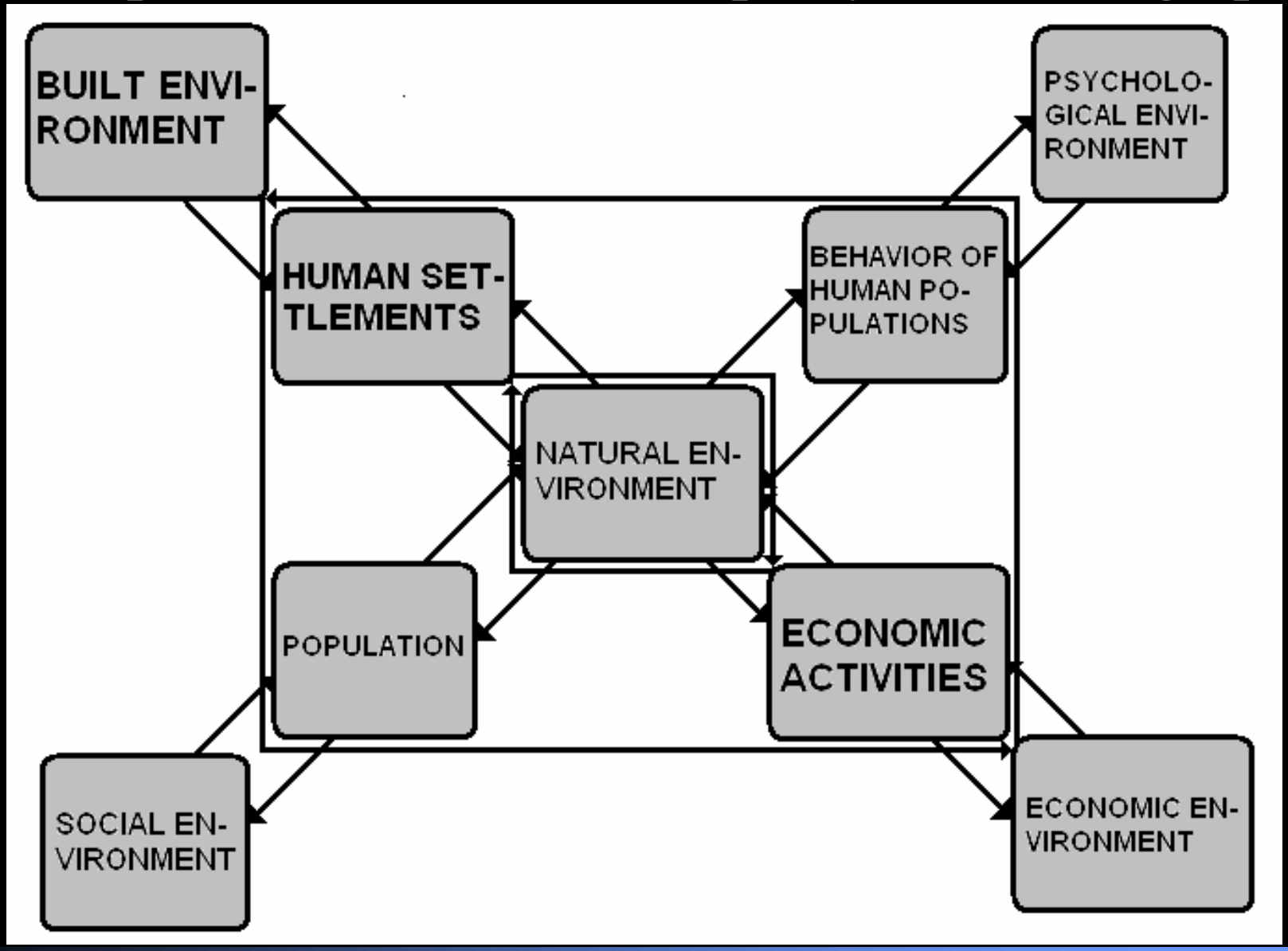
Conceptual Model of Ecological Systems



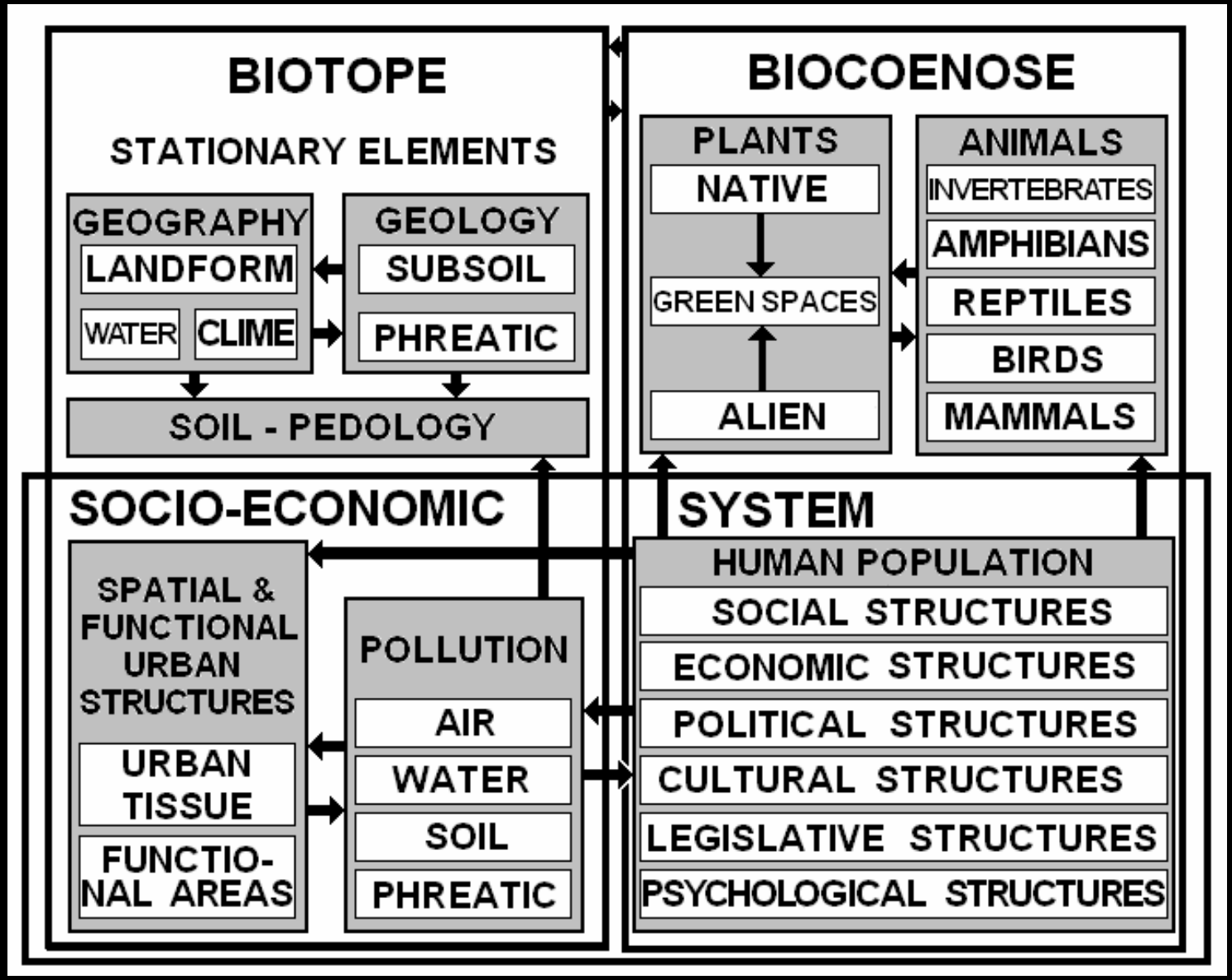
Conceptual Model of a Natural System in Geography



Conceptual Model of an Anthropic System in Geography



Conceptual Model of the Urban Ecosystem



The Landscape: Standpoints

Discipline	Perception	Discipline	Perception
Psychology	Possible sources of comfort	*Urbanism*	Urban, rural, natural; cultural landscape
Ecology	Complex of ecosyst.; land cover & use; biogeographical regions, ecological zones	*Agriculture, forestry*	Land use – agricultural perspective
Geography	Land cover & use	*Arts*	Scenery
Anyone	Whatever eyes can see	*Geology*	Age structure, facieses
Economy	Value of some components	*Botany*	Vegetal associations

The Landscape: Definition

- Zonneveld (1972): holistic entity made up of different elements, all influencing each other
- Florence convention (2000): area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors
- IUCN (1994): area of land where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity

The Landscape: Definition

People + Nature

Past + Present

Physical attributes (scenery, nature, historic heritage) + Associative values (social, cultural)

Conclusions

- Ecology, geography and spatial planning use the same words with different meanings
- Ecology, geography and spatial planning describe the same reality using different words
- The global aim is sustainability, which involves inter- and trans-disciplinary approaches – need to use a common language

Thank you for your attention. Any questions, please?