

Introduction on role of ecosystem service in land-use planning and decision making

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16 May 2018, Sigulda, Latvia



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Ecosystem Service (ES) concept

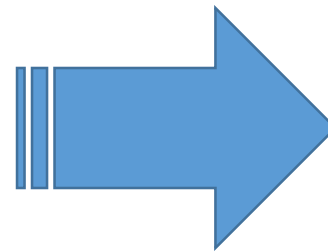
Various definitions of ES....

ecological perspective:

- *conditions and processes through which natural ecosystems and their species sustain and fulfil human life*

economic perspective:

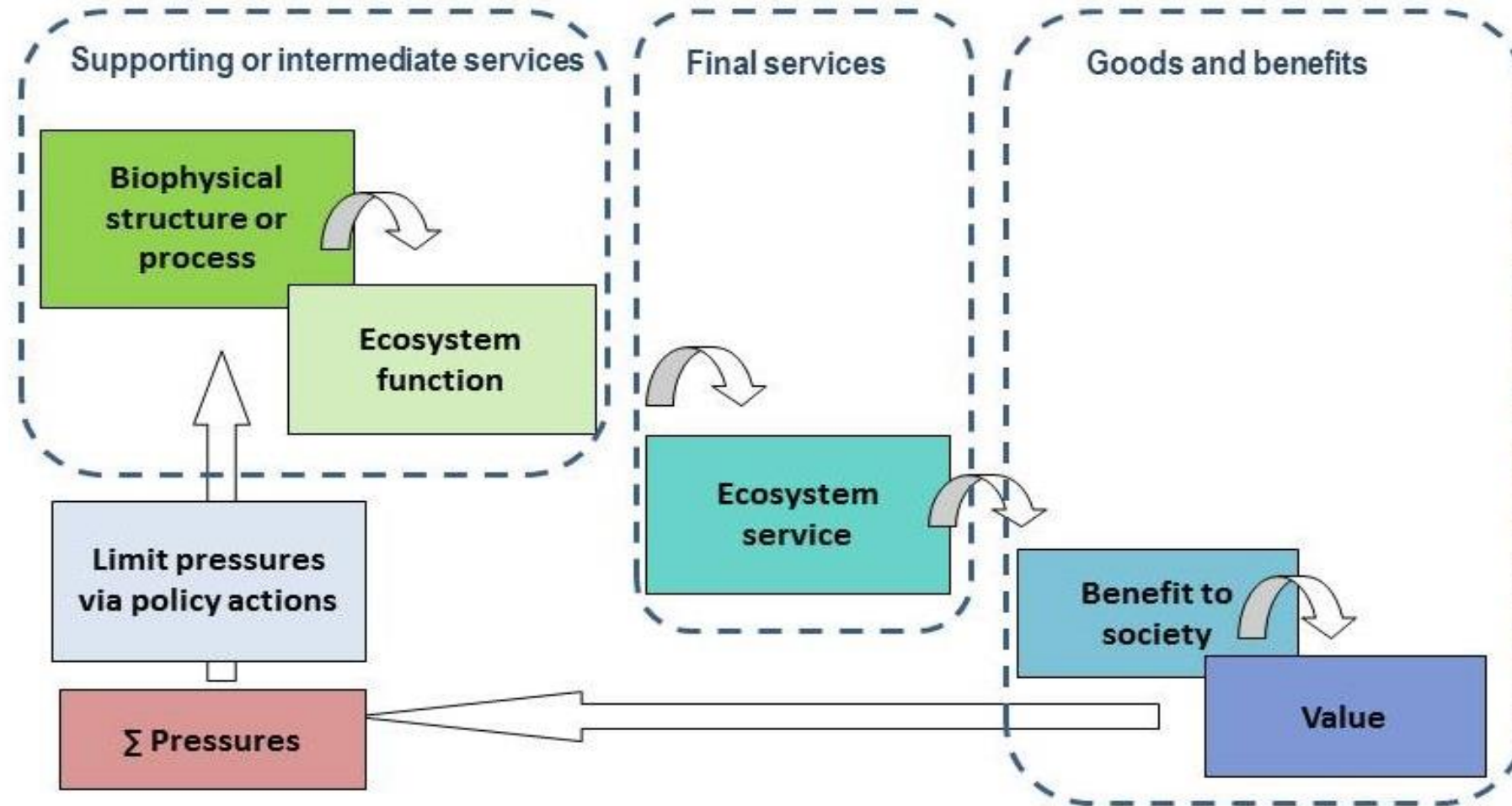
- *benefits humans derive, directly or indirectly, from ecosystem functions*



ES concept is describing **relationships between nature and humans**



The ES cascade model



Haines-Young, R. and M. Potschin (2010): *The links between biodiversity, ecosystem services and human well-being.* In: Raffaelli, D.G & C.L.J. Frid (eds.): *Ecosystem Ecology: A New Synthesis.* Cambridge University Press, British Ecological Society, pp. 110-139.

Advantages offered by ES concept to land use governance and spatial planning

- holistic view on interactions between nature and humans
- comprehensive framework for trade-off analysis addressing compromises between competing land uses
- can facilitate planning and decision-making across sectors, scales and administrative boundaries



Source: Fürst C, Luque S, Geneletti D (2017) Nexus thinking – how ecosystem services can contribute to enhancing the cross-scale and cross-sectoral coherence between land use, spatial planning and policy-making. *International Journal of Biodiversity Science, Ecosystem Services & Management*. 13(1): 412-421

Opportunities for ecosystem service concept in urban planning

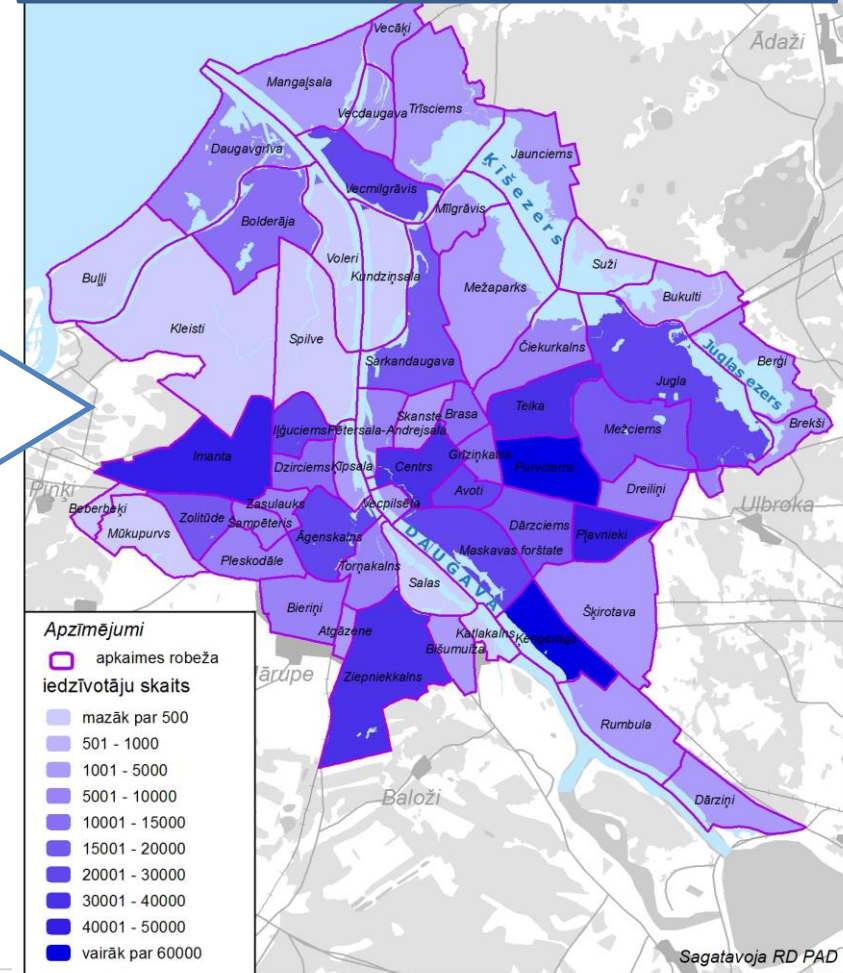
Green-blue infrastructure in Riga



- Zaļie centri
- Teritorijas ar lielu apzāļojuma blīvumu
- ||| Zaļie koridori
- ~ Zaļo taku virzieni pilsētas kodolā
- ~ Ūdensmalas
- ~ Ūdens struktūra
- Zaļā josla ārpus pilsētas
- Rīgas brīvosta

Does the existing green infrastructure fulfil demand for recreation of city dwellers?

Number of inhabitants per neighbourhoods in Riga, 2017



- Apzīmējumi**
- apkaimes robeža
- iedzīvotāju skaits**
- mazāk par 500
 - 501 - 1000
 - 1001 - 5000
 - 5001 - 10000
 - 10001 - 15000
 - 15001 - 20000
 - 20001 - 30000
 - 30001 - 40000
 - 40001 - 50000
 - vairāk par 60000

Sagatavoja RD PAD



Potential Input of ES approach to spatial planning process:

Stocktaking

- Mapping of ES supply and demand
- Identification of ES 'hotspot' or 'coldspot' areas
- Identification of areas of ES trade-offs and synergies

Session I

Development of planning solutions

- Land use prioritization, planning of green infrastructure, etc.
- Trade-off analysis of land use scenarios

Assessment of planning solutions

- Impacts on ES supply:
 - Strategic Environmental Assessment (SEA)
 - Monitoring of implementation of the plan

Session II

Stakeholder involvement

- Local knowledge and perception of ES values / supply
- Facilitates discussion on proposed planning solution and related benefits and impacts to society

Session IV



LIFE Viva Grass Integrated planning tool

- operationalize the ES concept into land use decision making
- provides spatially explicit decision support for grassland management, landscape and spatial planning
- integrated into an online GIS working environment allowing users to assess the ES supply in user-defined areas
- based on nine case study areas (two farms, four municipalities, two protected areas and one county) across the three Baltic States (Estonia, Latvia, and Lithuania).



LIFE Viva Grass Integrated planning tool



Input data:

- ✓ Land use types
- ✓ Land quality
- ✓ Relief/slope
- ✓ Socio-economic factors

Viva Grass experts' input:

- ✓ Grassland typology
- ✓ ES assessment (matrix)
- ✓ Decision making support models

Output data:

- ✓ Maps of ES supply
- ✓ ES bundles, 'hotspots', 'coldspots'
- ✓ Prioritisation of areas for particular decision making context

Thank you!



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