Nature-Based Solutions into Environmental Action Plans: Case Study Romania

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Introduction

- The Environmental Action Plans (EAPs) are the cornerstone of environmental planning
- EAPs establish the main environmental goals for short, medium and long term, which will be transferred to spatial planning and other sectorial policies
- EAPs are strong connected to the funding scheme of European and national programs
- All development projects have to integrate the objectives and measures established in the EAPs (especially in Strategic Environmental Assessment)
- The content of the EAPs emphasize if and how different public and private stakeholders promote environment strategies
- In Romania, EAPs are related to the European integration; the process to develop EAPs at local, regional and national level has started in 2004.

Study area - Romania

- privatization and property-rights disputes due to the transfer of public propriety to former landowners (more corruption, false landowners),
- massive de-industrialization (especially heavy industry, minning) and des-intensification of the agriculture,
- emigration (brain drain): 2,3 milion Romanian between 1990-2015 (main wave in 2007-2008 in Spain and Italy – 1,8 milion),
- increase in spatial disparities
- weak legal enforcement and widespread corruption.
- ideological stances and (powerful) opportunistic interests stigmatized planning as being a communist attitude, based on controls and regulations, and hence undermined its legitimacy.
- environmental problems (e.g. contaminated sites due to heavy industry and minning waste deposits, deforestation, poaching),
- informality in housing and business,

Research questions?

- Which are the environmental problems considered in the Local Environmental Action plans?
- Are the Nature based-solutions integrated within environmental planning in Romania?
- What types of Nature based-solutions are used in environmental planning in Romania?

Method

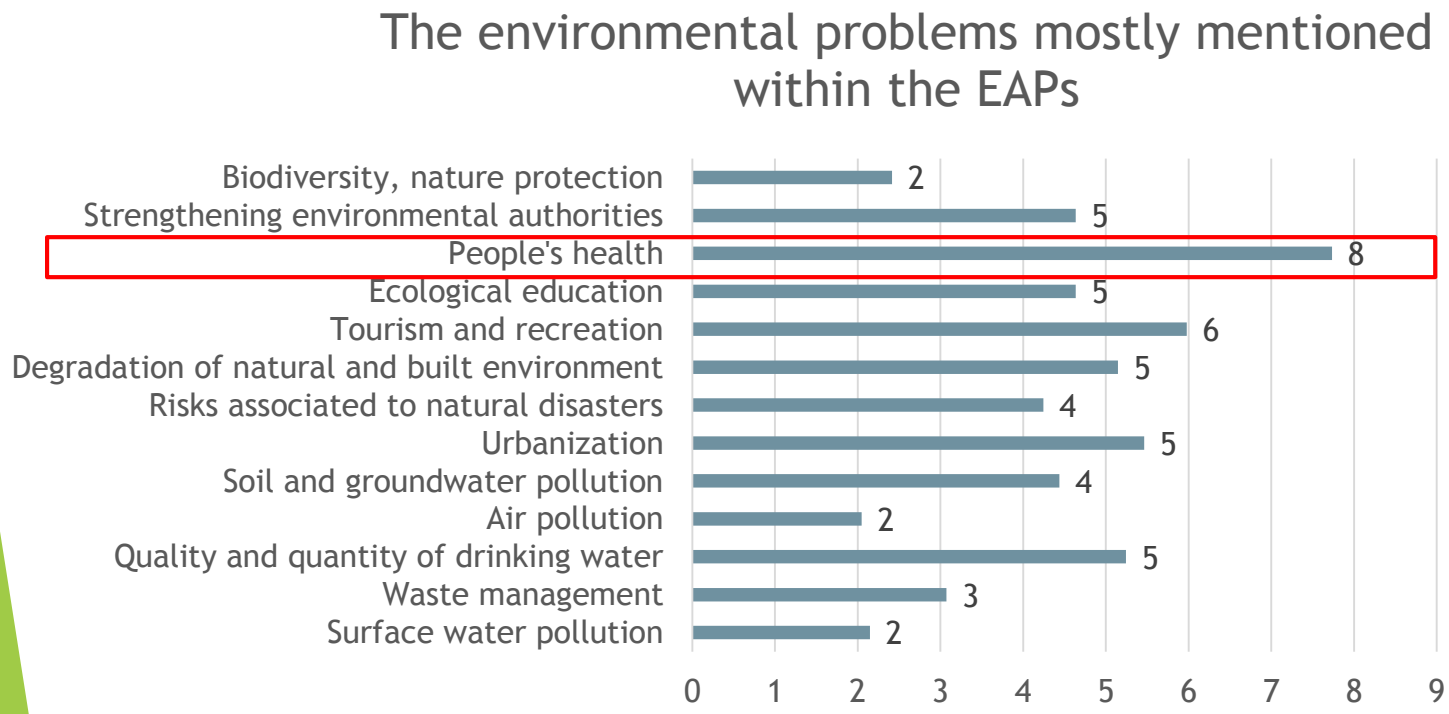
39 Local Environmental Action Plans were assessed

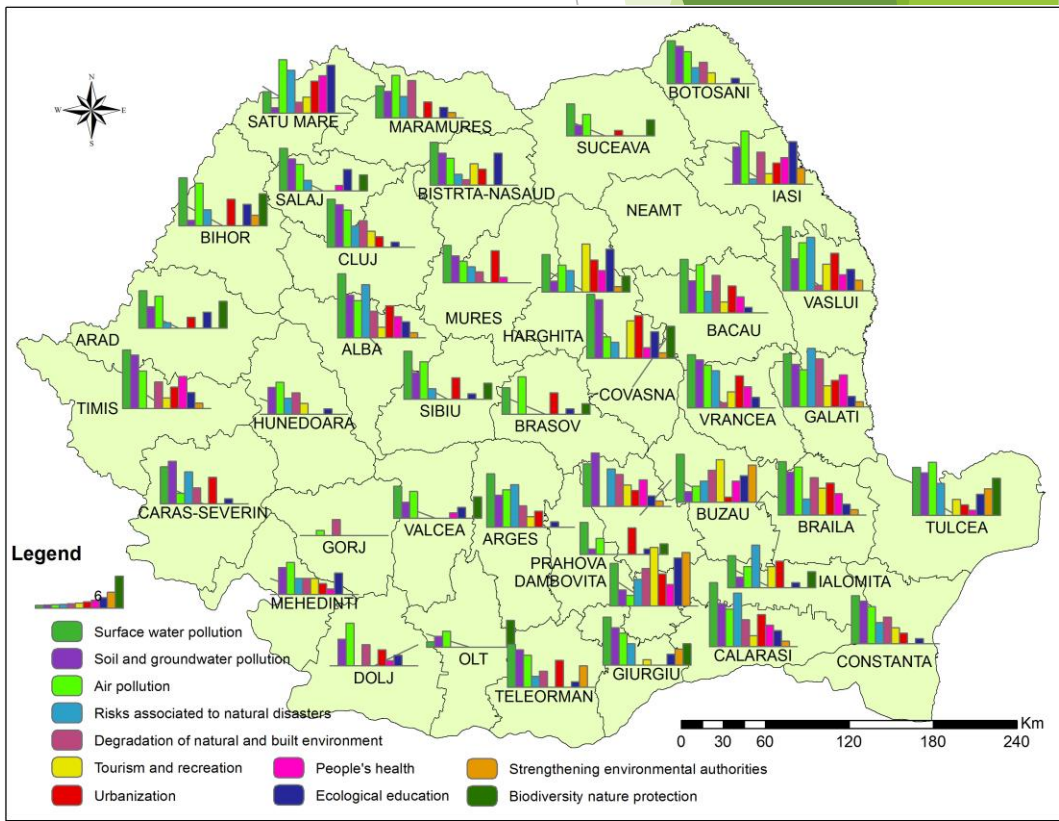
Content analysis
To explore the selected documents following a pre-established guide by a team of coders

Criteria have been developed
Codes were assigned related to how present or absent criteria are in the analyzed plans

Environmental problems

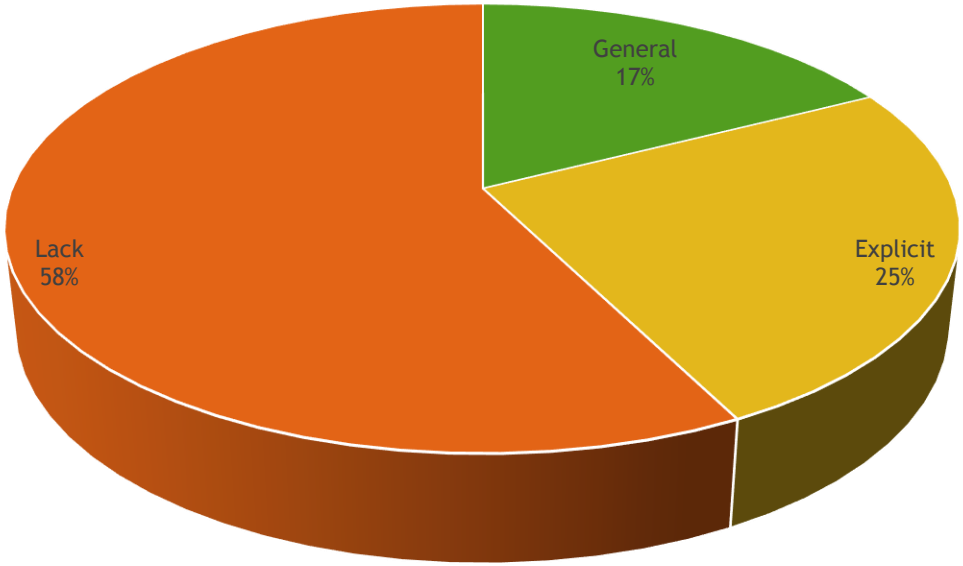
Focus on the impact of environmental issues (e.g. People' health), not on causes





Are Nature-based solutions considered an oportunity for Romania's cities?

- 25% of local EAPs consider NbSs as a opportunity to solve the environmental problems



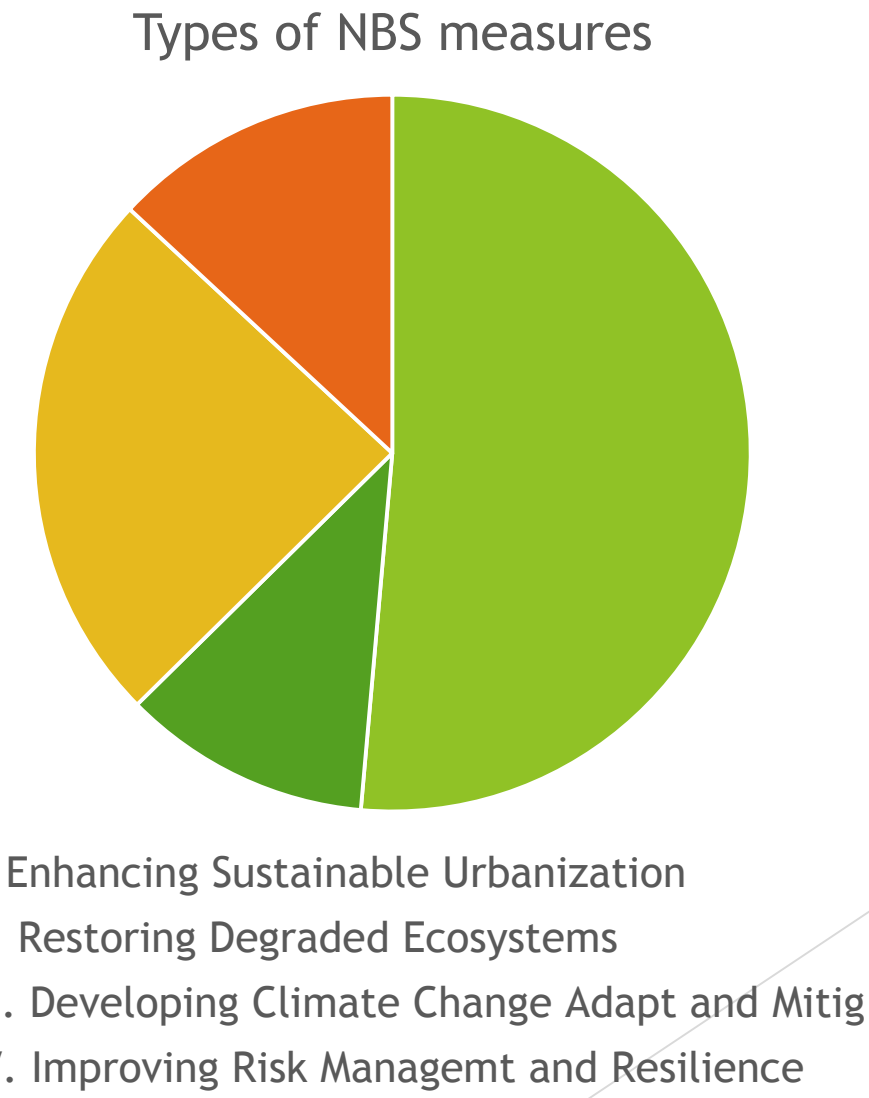
Nature based solution in EAPs

- Most frequent approaches:

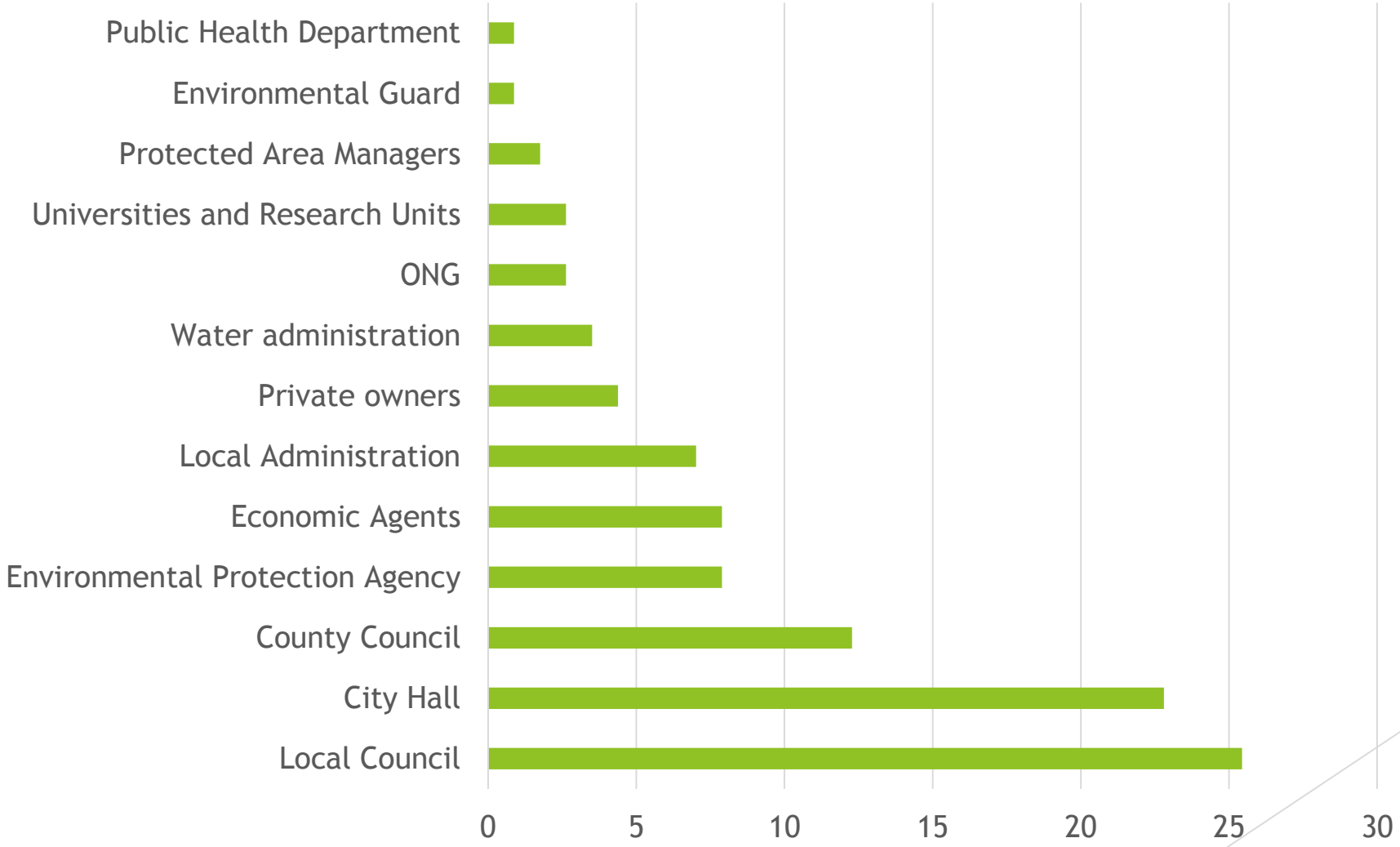
  green spaces

  protection green areas

  climate mitigation measures



Institution responsible for NBS in EAPs



Urban setting – Pest Regulation

Encourage planting of appropriate resource plants and caterpillar food plants in gardens and municipal areas.

Retain areas of rough ground or old built structures for nesting habitat.

Urban setting – Disaster Risk Reduction

Increase use of Sustainable Urban Drainage Systems.

Put streams in daylight.

Reduce garden paving.

Increase use of green roofs/walls.

Increase tree planting in urban locations.

Increase use of balancing ponds and underground storage systems.

Use permeable surfaces in hard landscape construction to provide aquifer recharge.

Increase use of recreative green areas along the river in urban zones to limit potential damages of flooding.

Urban setting – Soundscape management

Plant trees/bushes between roads and housing.

Use running water to mask aversive sounds in public places.

Ensure food sources and safe shelter for song birds.

Urban setting – Health

Make green spaces attracting to access.

Link schools/work to housing through green spaces.

Increase biodiversity within green areas (shown to reduce stress).

Legend

Frequent in Environmental Action Plans

Accidental presence in Environmental Action Plans

Absent from the Environmental Action Plans

Urban setting – Air Quality Regulation

Protect urban green spaces, to absorb gaseous pollutants and trap particulates.

Plant trees alongside roads to trap particulates.

Urban setting – Climate Regulation

Protect urban green spaces to store carbon.

Urban setting – Water Flow Regulation

Plant green roofs/walls to encourage interception of rainfall.

Establish rain gardens (planted depressions or swales allowing runoff from impervious urban areas to be absorbed).

Greater use of balancing ponds to contain surges and release water slowly.

Use underground water storage systems.

Urban setting – Erosion Regulation

Use phytoremediation and phyto stabilisation on contaminated sites.

Use of permeable surfaces and vegetation where possible in hard landscape construction.

Urban setting – Water Purification and waste treatment

Create ponds and wetlands to collect, store and clean water before gradual release into water courses.

Reduce output and improve treatment of industrial and municipal effluent through biodegradation and bioconversion.

Improve remediation of wastes before disposal in soil or water by greater use of biological, physical and chemical methods.

Improve treatment of contaminated land through phytoremediation.

Urban setting – Disease Regulation

Reduce output and improve treatment of industrial and municipal effluent through biodegradation and bioconversion.

Improve remediation of wastes before disposal in soil or water by greater use of biological, physical and chemical methods.

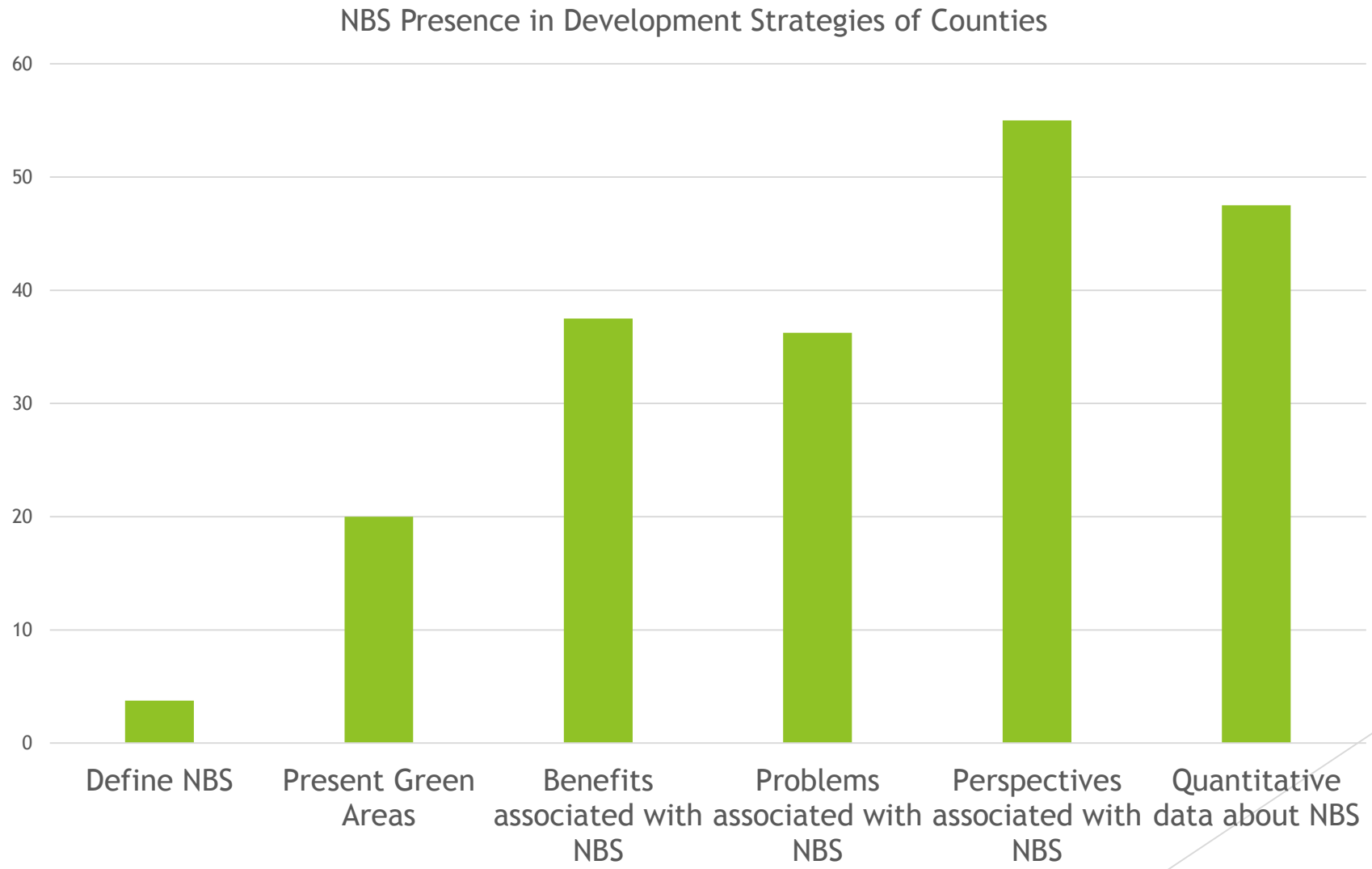
Protect urban green spaces to encourage biodiversity and the establishment of vector feeding species, in particular.

Use permeable surfaces and vegetation where possible in hard landscape construction in order to reduce standing water.

Provide bat houses, and bird feeders and housing, to promote establishment of species for mosquito regulation.

Locate vegetation and other natural features on rooftops and outside of homes to support stress reduction.

NBS in Other Documents



Discussion

Limited consideration of NbSs in environmental planning

- *low interest to promote different NbSs in different sectors of urban environment*

There is an emphasis on green spaces

- *mostly on their quantity, not quality, connectivity and multifunctionality*

Water management, urban agriculture, risk management, and biodiversity

- *the main neglected topics*

Responsibility to implement the Local Environmental Actions plans is of public administration institutions (local and regional)

Universities, research institutes and other institutions have low representativeness in environmental planning

Nature based solutions – low degree of integration within the local EAPs

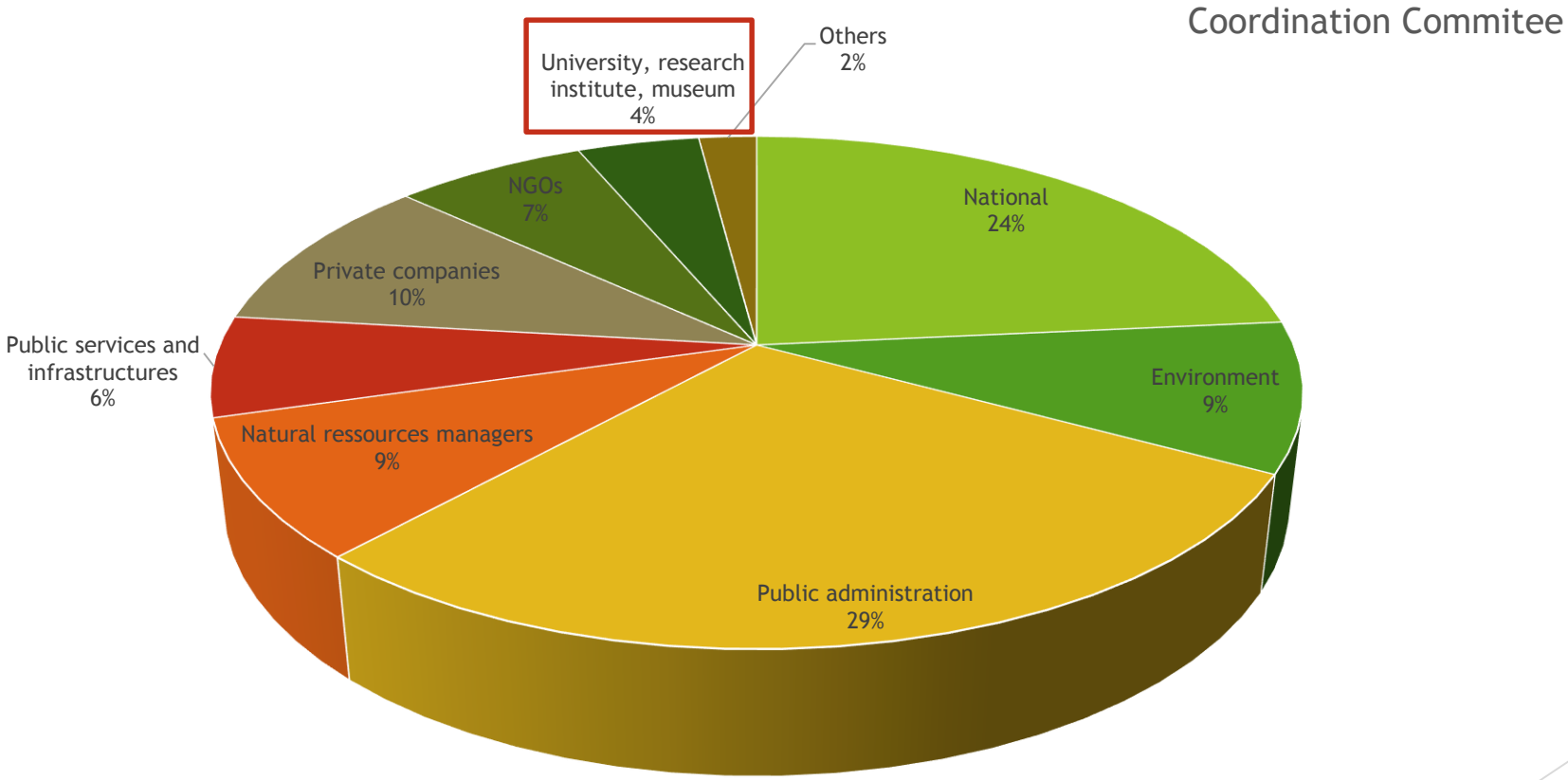
- *staff with insufficient skills in topics related to nature, ecosystem services*

Although the local EAPs refer to nature related activities in their SWOT analysis , some of them do not specifically refer to nature based solutions

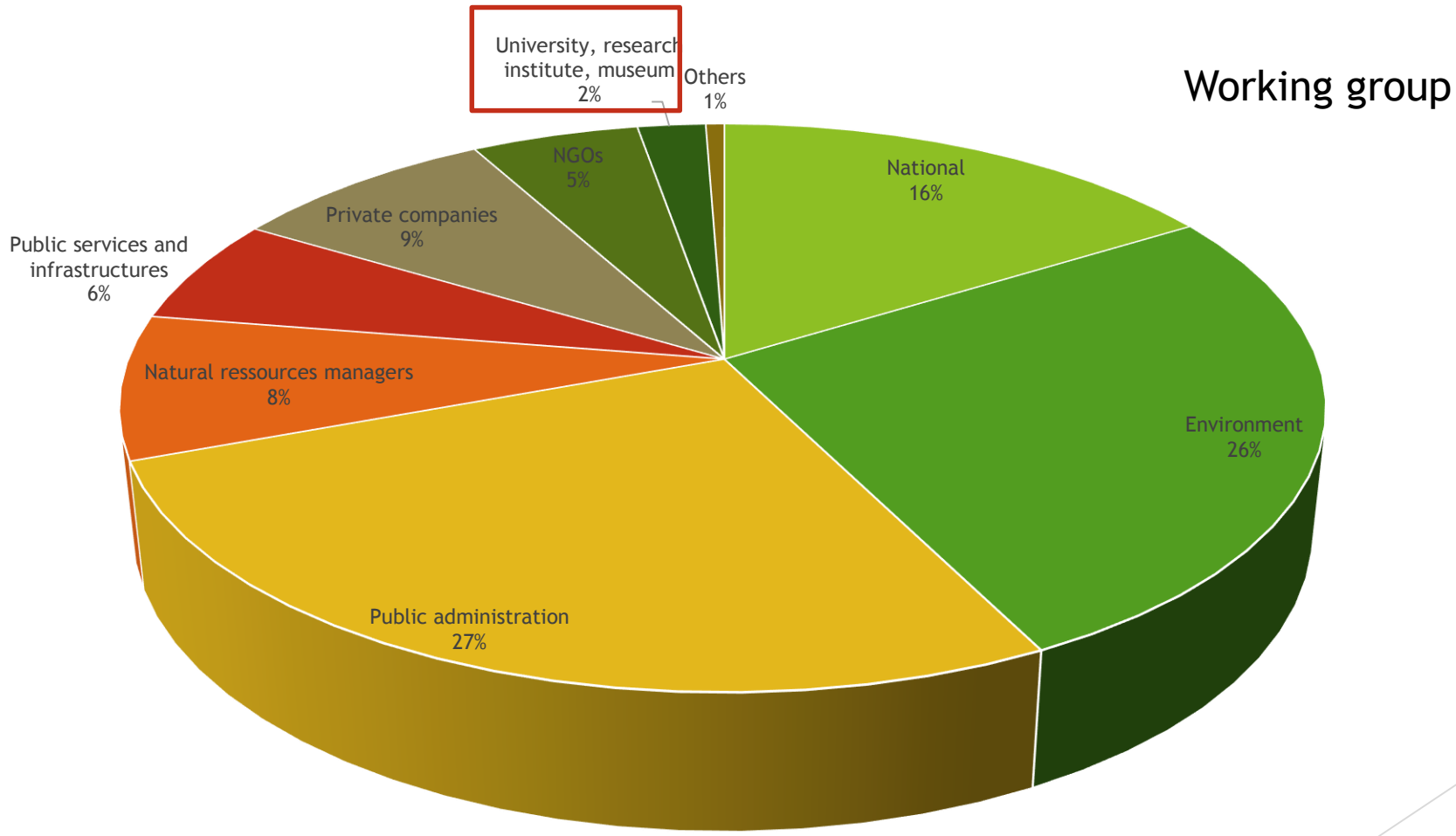
There is a need for a common guidance for the inclusion of nature based solutions within local EAPs

The fundings for NbSs are sometimes unclear

Discussion


Coordination Commitee
University, research institute, museum 4%
Others 2%
National 24%
Environment 9%
Public administration 29%
Natural ressources managers 9%
Public services and infrastructures 6%
Private companies 10%
NGOs 7%

Discussion


Working group
University, research institute, museum 2%
Others 1%
National 16%
Environment 26%
Public administration 27%
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Public services and infrastructures 6%
Private companies 9%
NGOs 5%

Future research

- Deep understanding of EAPs impact on other sectorial strategies and politics
- Analyzing the role of EAPs to anticipate the application of NbSs in Romanian cities, based on the European projects funded between 2017-2013
- PN-III-P4-ID-PCE-2016-0635 - Nature-based sollutions for increasing cities resilience and sustainability – NATURB, funded by Executive Agency for Higher Education, Research, Development and Innovation Funding Romania, starting with 1 June 2017

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