# Economics of Sustainable Management

## 6. Economics and Management of Protected areas

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

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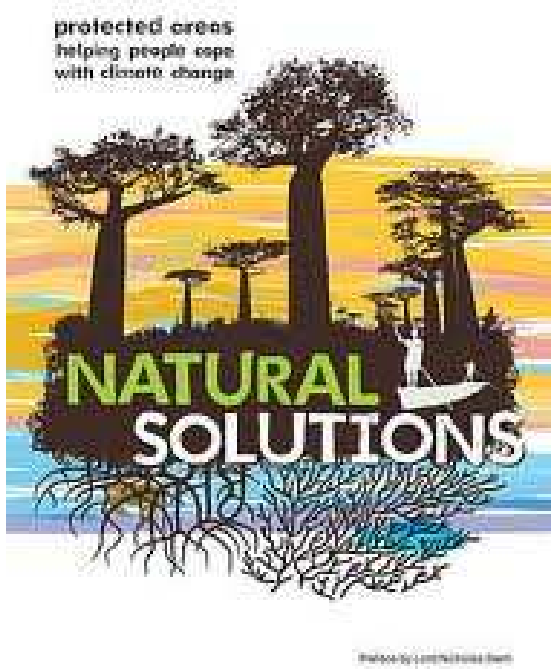
*„Protected areas promise a healthier future for the planet and its people. Safeguarding these precious areas means safeguarding our future.“*

Nelson R. Mandela and HM Queen Noor (2003)

# Content of lecture

- protected areas in environmental policy
- organizations in nature protection
- international conventions and programme in nature protection
- definition of protected areas
- history of protected areas
- classification and categories of protected areas
- management of protected areas
- economics of protected areas
- techniques for valuing protected area goods and services
- financing of protected areas
- nature and lanscape protection in the CR: economic view



# Protected areas in Environmental policy

- protection of nature and landscape is one of the thematic areas of environmental policy
- protection of nature and landscape is to protect and enhance the ecological functions of the landscape, preservation of natural and landscape values and improve the quality of the urban environment
- **protected areas (PAs) are the cornerstone of global biodiversity conservation**
- PAs are one of the most popular and probably the most effective tools how to achieve conservation objectives and play an important role in supporting local, national and international policies in the field of  biological diversity

# Organizations dealing with nature protection

- International Union for Conservation of Nature (IUCN)
- World Commission on Protected Areas (WCPA)
- United Nations Environment Programme – World Conservation Monitoring Centre (UNEP-WCMC)
- The World Bank (WB)
- World Health Organization (WHO)
- World Wide Fund of Nature (WWF)
- European Environment Agency (EEA)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- etc.

# International conventions and programs

- The Convention on Biological Diversity (CBD)
- The World Heritage Convention (WHC)
- The Ramsar Convention on Wetlands
- The Man and Biosphere Programme (MAB)
- United Nations Environment Programme (UNEP)
- United Nations Development Programme (UNDP)
- The European Landscape Convention, etc.

# Definition of protected areas

- IUCN:
  - *„a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values“*
- UNEP-WCMC:
  - *„an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resource, managed through legal or other effective means“*
- CBD:
  - *„a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives“*

# Reasons for PA

- protect the variety of life – „**biological diversity**“
- help **maintain the ecological integrity** of ecosystems
- **save our natural and cultural heritage**, and our ability to understand ourselves
- protect **scared places**, places with spiritual value
- recognize **wilderness** as the raw material for artists, writers and other foundations of culture
- protect **nature‘s great works of art** – the beauty of the land
- all life has a right to exist, protecting **wild species** in PAs respects this intrinsic value
- provide **research and education opportunities** – with knowledge comes understanding, with understanding comes appreciation, with appreciation comes conservation


# History of protected areas

- the concept of PA has existed for **at least several thousand years** in the form of private and communal game reserves and spiritual areas
- **modern PA** in the form of national parks only began in the mid-1800s
- since them, the concept of PA **has evolved significantly**
- the evolution of societal views toward protected areas over the past 150 years can be characterized by **three distinct models**:
  - the classic model,
  - the modern model,
  - and an emerging post-2010 model

| | CLASSIC MODEL (MID-1800s – 1970s) | MODERN MODEL (1970s – MID-2000s) | EMERGING MODEL (MID-2000s AND BEYOND) |
|---|---|---|---|
| Rationale for establishing protected areas | "Set aside" from productive use | Concurrent social, ecological and economic objectives | Strategy to maintain critical life support systems |
| Purpose of protected areas | Established primarily for scenic values rather than functional values | Established for scientific, economic and cultural reasons | Established to support ecosystem services, and promote climate change adaptation, resilience and mitigation |
| Management purpose | Managed mostly for park visitors | Managed with local people in mind | Managed for social, economic and ecological values, with an emphasis on maintaining ecosystem services |
| Role of wilderness in protected areas management | Emphasis on intrinsic value of wilderness | Emphasis on ecological and cultural importance of wilderness and large, intact areas | Emphasis on protection of intact areas and restoration of degraded areas to maintain ecosystem functioning |
| Management actors | Managed by central government | Managed by central government and by local communities | Managed by many partners with many governance models |
| Financing of protected areas | Protected areas are financed by a central government (e.g., through annual budget allocations) | Protected areas are financed by many partners (e.g., bilateral donors, foundations, NGOs) | Protected areas are financed by mainstreaming protected areas into national and local economies and through innovative finance mechanisms |
| Planning | Excludes local people | Conducted with, for and sometimes by local people | Conducted with, for and by many different stakeholders from many different sectors |
| Connection of protected areas with surrounding landscape and human uses | Viewed as islands, isolated from the surrounding landscape, seascape and human uses | Viewed as part of a comprehensive ecological network | Viewed as integral part of national economies and sectoral plans, including land-use, climate adaptation, energy, social development, disaster mitigation, transportation and infrastructure plans |
| Asset value of protected areas | Viewed as national assets | Viewed as a valuable community asset and global concern | Viewed as ecologically, socially and economically valuable at all levels |
| Management planning horizon | Managed by natural scientists over short-term planning horizons | Managed by natural and social scientists over medium-term planning horizons | Managed by multi-disciplinary professionals over long-term planning horizons |

# All protected areas should aim to…

- conserve the composition, structure, function and evolutionary potential of biodiversity
- contribute to regional conservation strategies
- be of sufficient size to ensure the integrity and long term maintenance of the specified conservation targets or be capable of being increased to achieve this end
- maintain the values for which it was assigned in perpetuity
- be operating under the guidance of a management plan, and monitoring and evaluation programme that supports adaptive management
- possess a clear and equitable governance system

## Protected area as a tool

- PAs are internationally recognized as a major tool in conserving **species** and **ecosystems**
- they also provide a range of **goods** and **services** essential to **sustainable use** of natural resources

## Classification of PA

- **national** (established in accordance with national laws) **x international** (international and regional agreements, conventions, programs)
- **terrestrial x marine**
- **small-scale x large-scale**

# Different governance types in protected areas

| | |
|---|---|
| Government-managed protected areas | Federal or national ministry or agency in charge |
| | Local / municipal ministry or agency in charge |
| | Government-delegated management (e.g. to an NGO) |
| Co-managed protected areas | Transboundary management |
| | Collaborative management (various forms of pluralist influence) |
| | Joint management (pluralist management board) |
| Community-conserved areas | Declared and run by indigenous peoples |
| | Declared and run by local communities |
| Private protected areas | Declared and run by individual land-owner |
| | Declared and run by non-profit organisation (e.g. NGO, university or cooperative |
| | Declared and run by for-profit organisation (e.g. individual or corporate landowners) |

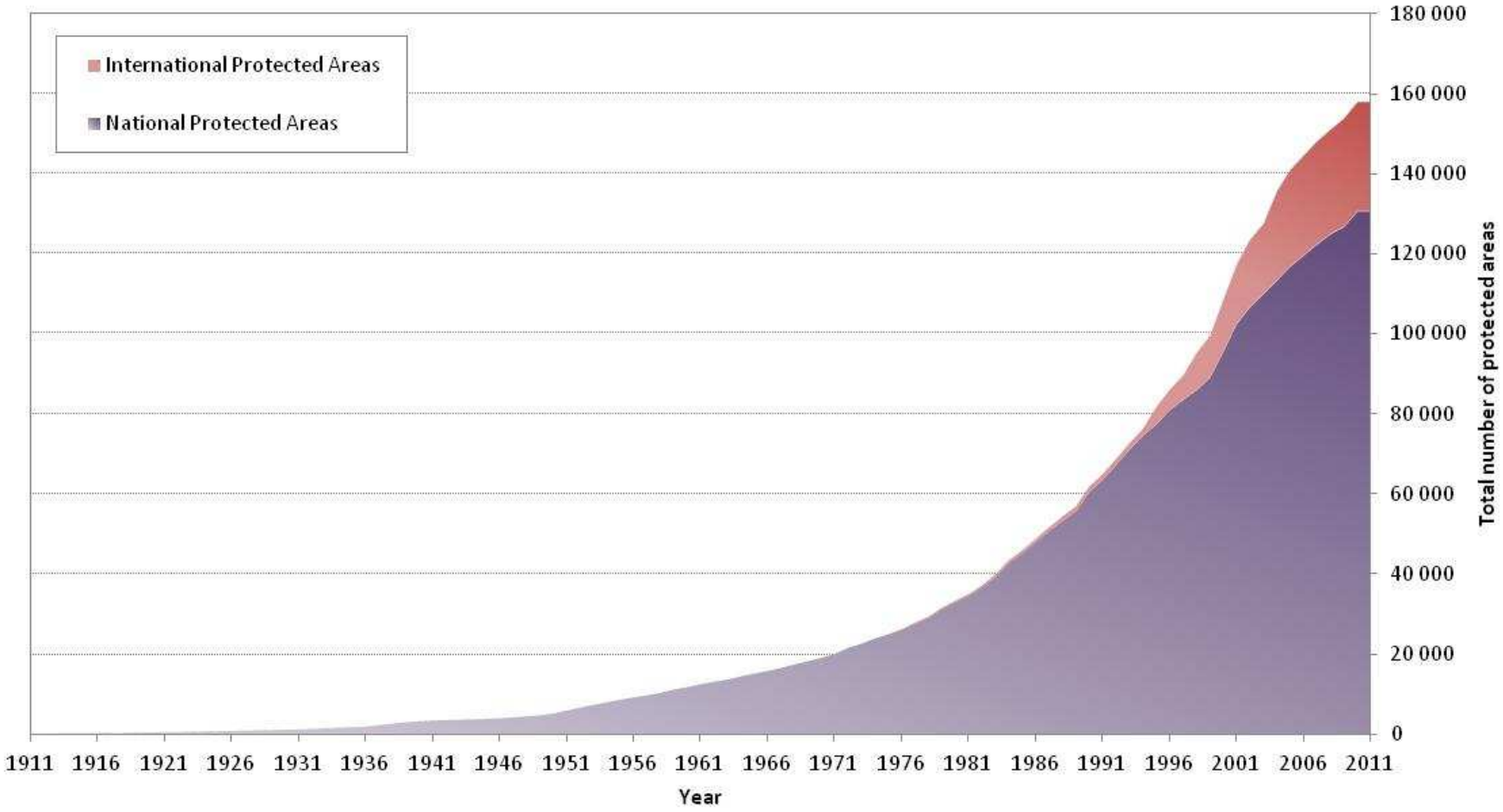
## Categories of PA

- declaring of PAs in different parts of the world led to the creation of various categories of protection
- For examples:
  - IUCN category
  - World Heritage sites
  - Biosphere Reserves
  - Natura 2000 sites, etc.

# World Database on Protected Areas

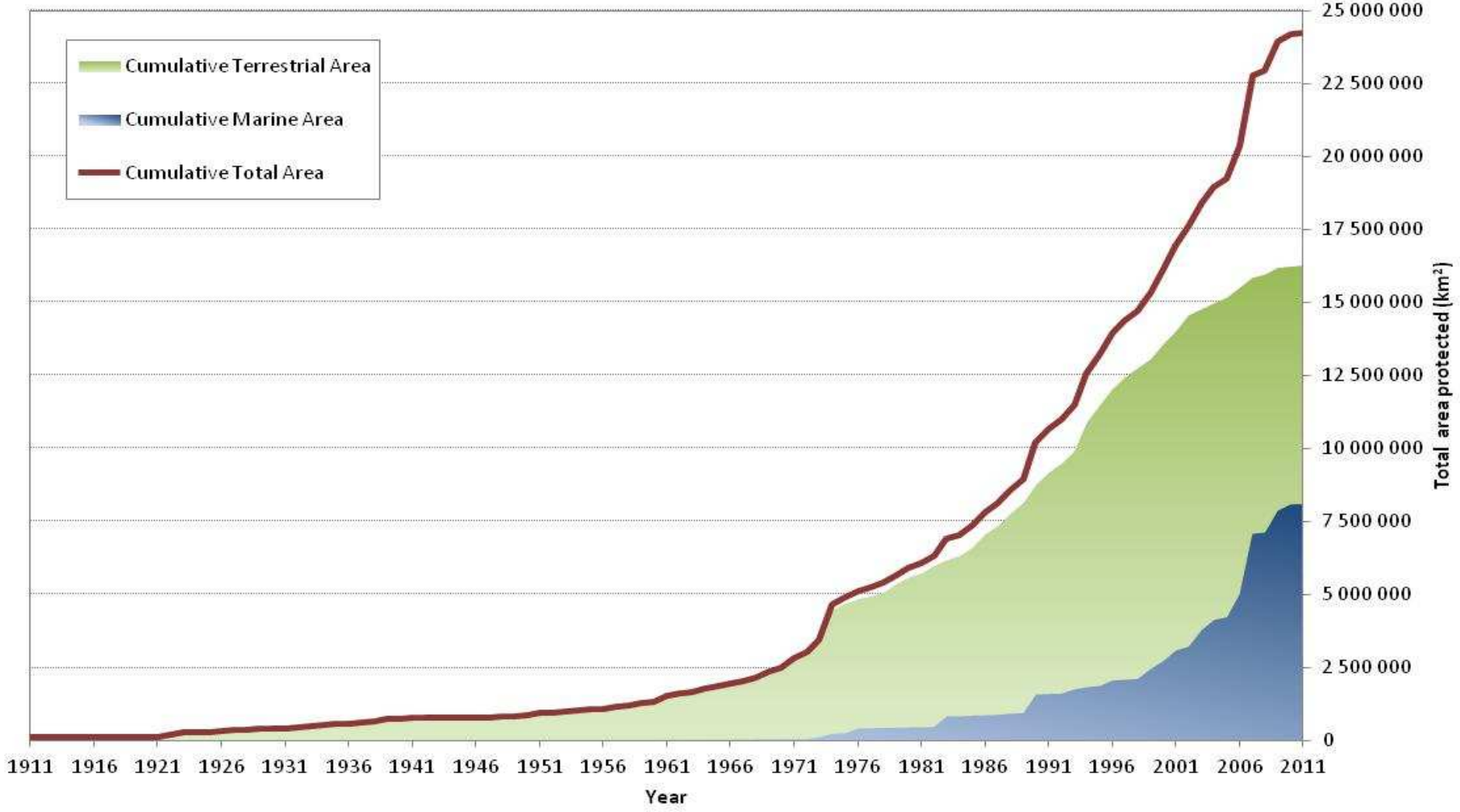
- is the largest assembly of data on the world‘s terrestrial and marine protected areas
- containing more than 161,000 protected areas, with records covering 236 countries and territories throughout the world
- data for the WDPA is collected from international convention secretariats, governments and collaborating Non-governmental organizations
- EU: total 787,573.58 $km^2$; 13.57 %

## Growth in number of nationally and internationally designated protected areas (1911-2011)



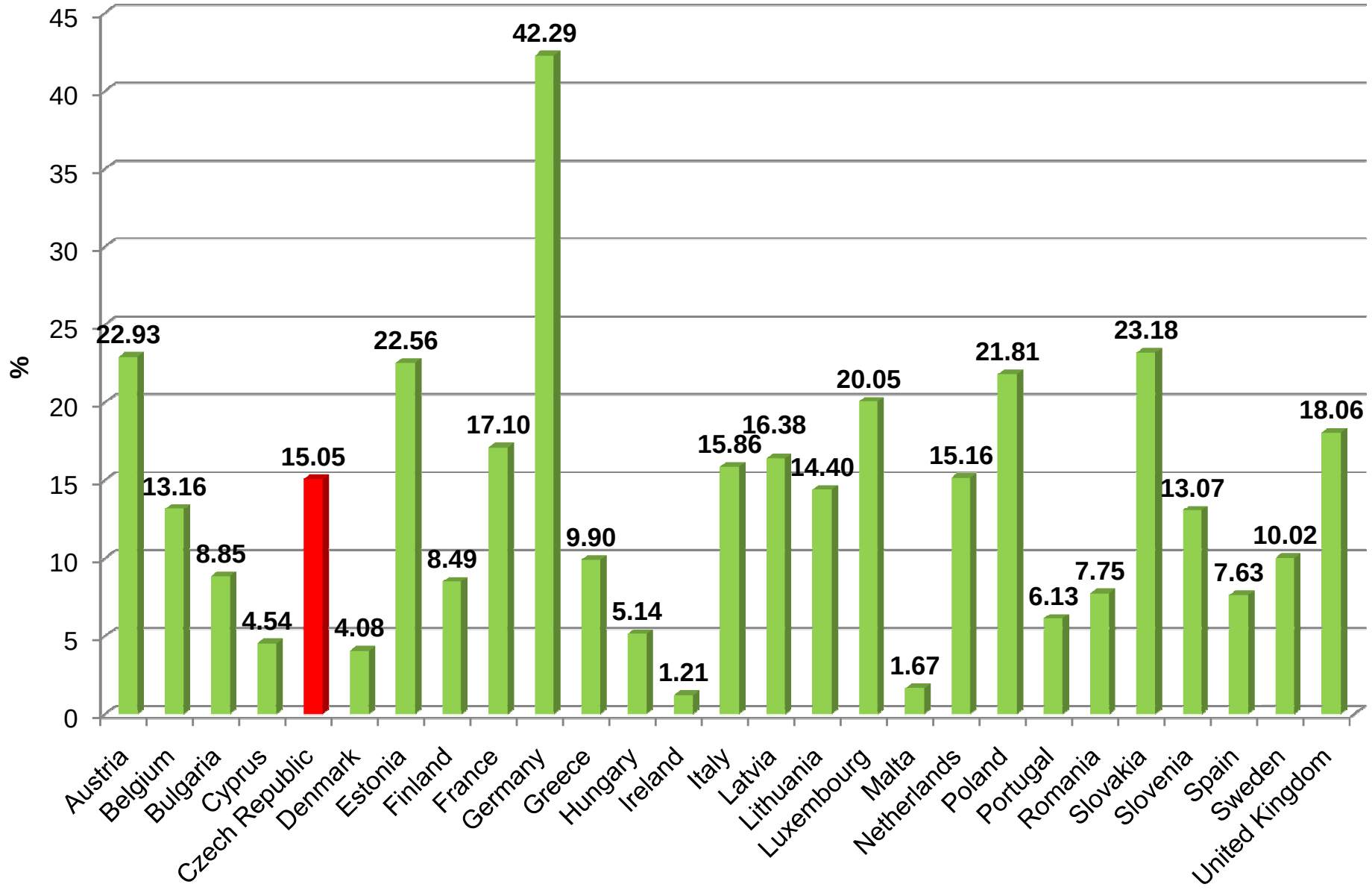

Source: IUCN and UNEP-WCMC (2012) The World Database on Protected Areas (WDPA): February 2012. Cambridge, UK: UNEP-WCMC.

## Growth in nationally designated protected areas (1911 - 2011)




Source: IUCN and UNEP-WCMC (2012) The World Database on Protected Areas (WDPA): February 2012. Cambridge, UK: UNEP-WCMC.

# Protected areas in EU (as percentage share on land area); source: WDPA, 2010



# Protected areas categories

- system of IUCN – **IUCN protected area management categories**
- system classify protected areas according to their management objectives
- unified system applied worldwide
- categorization by primary management objective
- independent from names; national names may vary
- can by used everywhere; countries adapt the system and use their own names
- considers the management objectives, but NOT the actual management effectiveness
- all categories are important – specific role, but imply gradation of human intervention
- 6 categories (I – VI)
- total number of world‘s PA – 114,296, coverage – 19,381 thousand $km^2$

# IUCN PA Management Category I

- **Category Ia: Strict Nature Reserve**
  - PA managed mainly for science
  - 5,549 sites, 1,048 thous. $km^2$
- **Category Ib: Wilderness Area**
  - PA managed mainly for wilderness protection
  - 1,371 sites, 639 thous. $km^2$

***Category Ia: Giant Panda in Wolong Nature Reserve, China***

***Category Ib: Serengeti National Park, Tanzania***

# IUCN PA Management Category II

- **Category II: National Park**
  - PA managed mainly for ecosystem protection and recreation
  - 4,022 sites, 4,475 thous. $km^2$

*Category II: Yellowstone National Park, USA*

# IUCN PA Management Category III

- **Category III: Natural Monument or Feature**
  - PA managed mainly for conservation of specific natural features
  - 19,813 sites, 271 thous. $km^2$

*Category III: Monastery in Montserrat National Park, Spain*

# IUCN PA Management Category IV

- **Category IV: Habitat/Species Management Area**
  - PA managed mainly for conservation through management intervention
  - 27,466 sites, 3,005 thous. $km^2$

***Category IV: A Galapagos tortoise in the Galapagos, Ecuador***

# IUCN PA Management Category V

- **Category V: Protected Landscape/Seascape**
  - PA managed mainly for landscape/seascape conservation a recreation
  - 8,495 sites, 2,393 thous. $km^2$

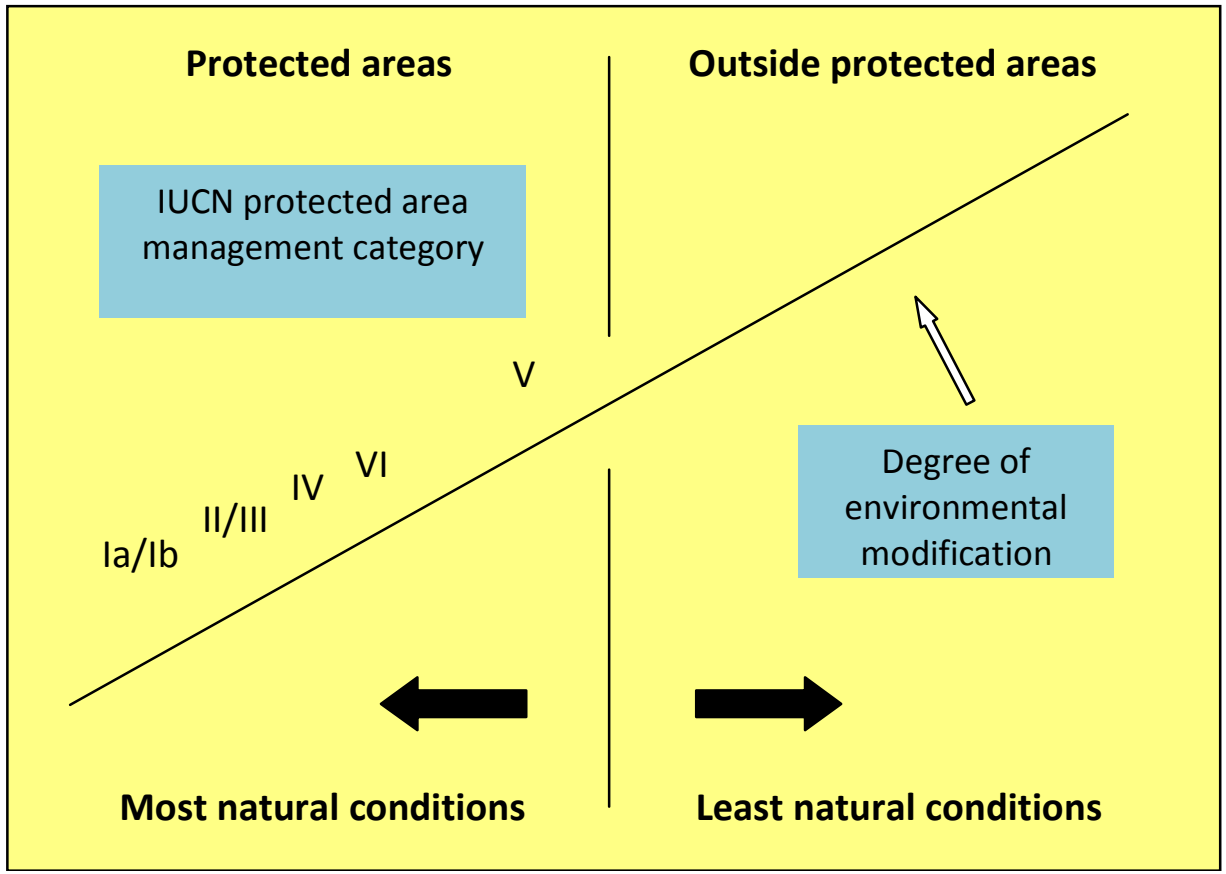
*Category V: Great Barrier Reef, Australia*

# IUCN PA Management Category VI

- **Category VI: PA with sustainable use of natural resources**
  - PA area managed mainly for the sustainable use of natural ecosystems
  - 4,276 sites, 4,284 thous. $km^2$

*Category VI: Rwenzori Mountains National Park, Uganda*

- the categories do not imply a simple hierarchy in terms of quality, importance or naturalness nor are the categories necessarily equal in each situation, but rather should be chosen in order to maximize the changes of addressing threats to conservation under a variety of conditions



# The World Heritage Convention (1972)

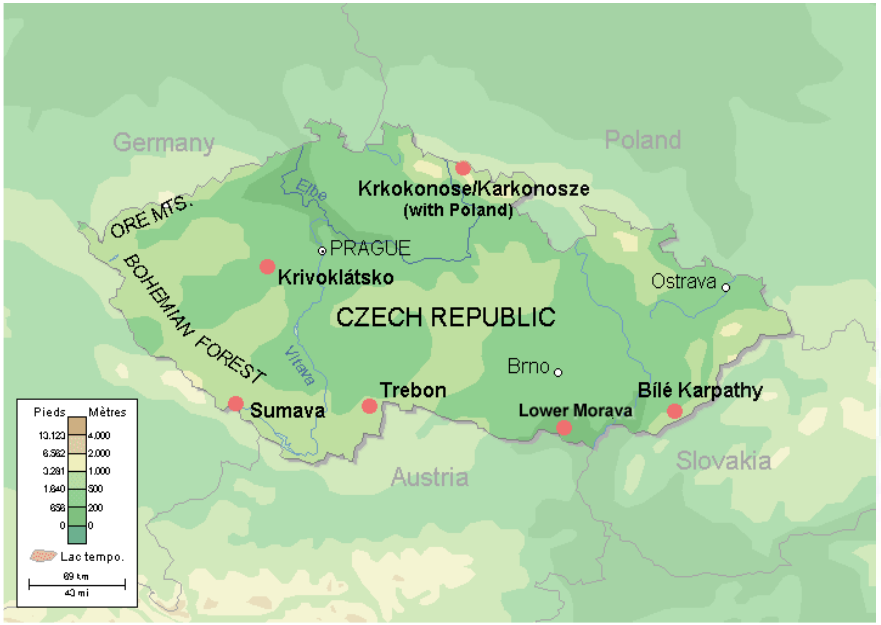
- the Convention defines the kind of natural or cultural sites which can be considered for inscription of the World Heritage List
- it identifies sites of „outstanding universal value“ to be placed on the World Heritage List
- Today…

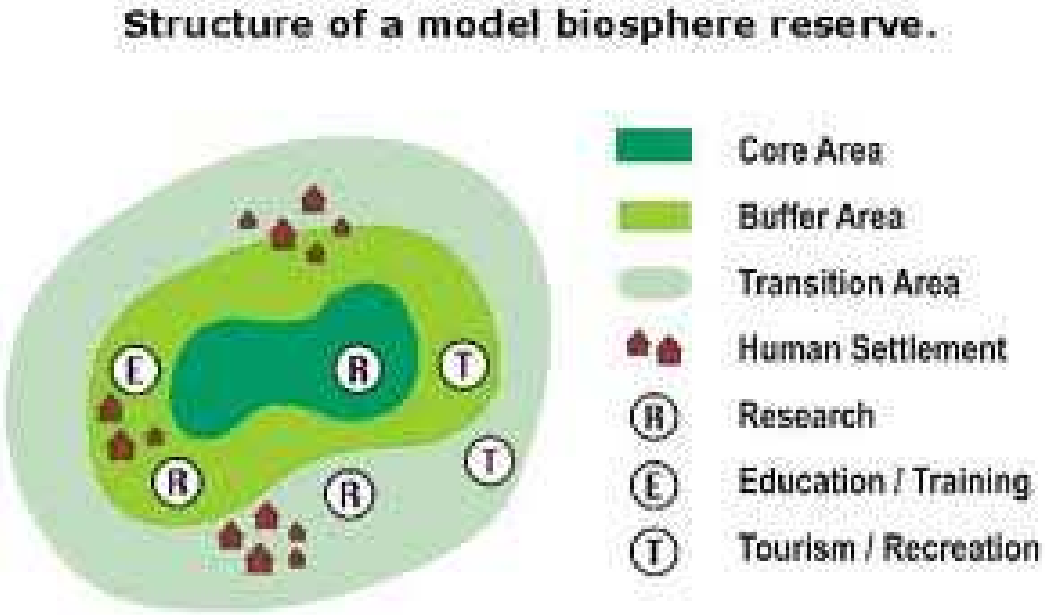
  … 187 State Parties are signatory to the Convention

  …911 sites are inscribed on the World Heritage List
  - 704 cultural sites
  - 180 natural sites
  - 27 mixed sites

# Biosphere Reserves (BRs)

- the concept o BR was produced by a working group of the UNESCO Man and the Biosphere in 1974
- BRs have three inter-connected functions:
  - **conservation**: landscapes, ecosystems, species and genetic variation
  - **development**: economic and human and culturally adapted
  - **logistic support**: research, monitoring, environmental education and training
- **2009** – 567 BRs in 122 countries in the world



# NATURA 2000

- Natura 2000 is the EU-wide network of nature conservation areas set up to ensure the survival of Europe‘s most valuable species and habitats
- 2 directive:
  - 1992 – Habitats Directive (EEC/92/43)
    - EU 27: 5,340; 624,403 km$^2$; 11,7 %
  - 1979 (2009) – Birds Directive 2009/147/EC)
    - EU 27: 22,564; 734,863 km$^2$; 13,4 %

# Management of protected areas


Denise Mortimer

- Caring for protected areas
  - according Management Plan
- Managing protected areas
  - organizations in nature protection

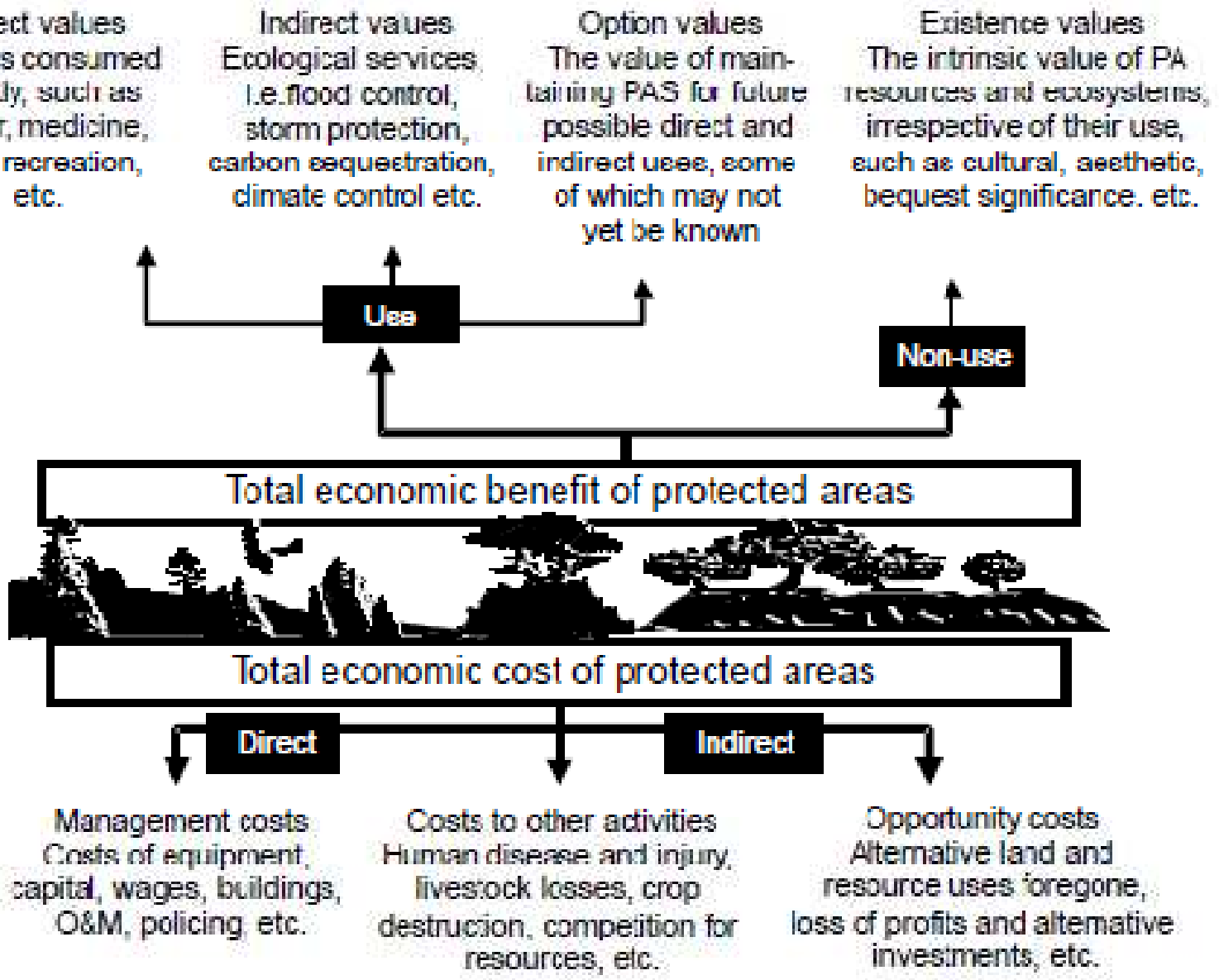
# Economics of PA

- economic value
- costs and benefits of PA
- financing of PA

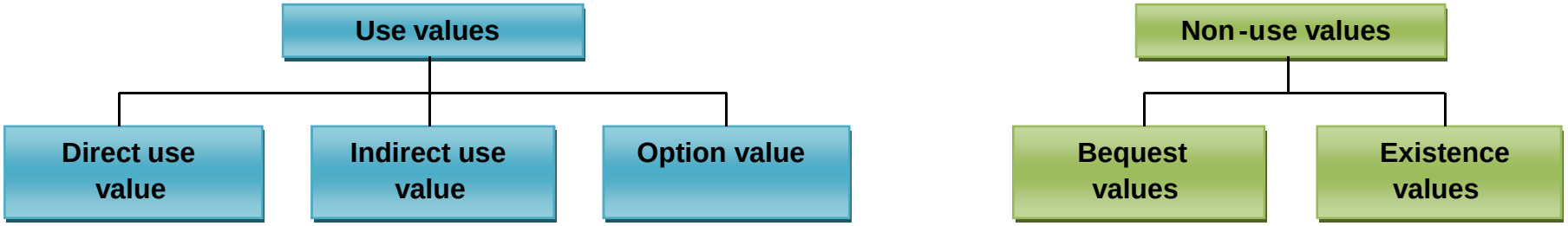
## The total economic value (TEV) of protected areas

- the concept of total economic value emerged in the mid-1980s and is now widely used to identify the economic benefits associated with PAs
- instead of focusing only on direct commercial values, TEV encompasses the non-market values, ecological functions and non-use benefits associated with PAs

# The total economic value (TEV)



# Total economic values of protected areas




Recreation

Sustainable harvesting

Wildlife harvesting

Fuel-wood

Grazing

Agriculture

Gene harvesting

Education

Research

Ecosystem service

Climate stabilisation

Ground-water recharge

Carbon sequestration

Habitat

Nutrient retention

Natural disaster prevention

Watershed protection

Natural services

Future information

Future uses (indirect and direct)

Use and non-use values for legacy

Biodiversity

Ritual or spiritual values

Culture, heritage

Community values

Landscape

Source: Adapted from Barbier et al., (1997)

## Components of PA costs

- recurrent management costs for existing area
- system wide expenses needed to support a network of protected areas
- cost of bringing new areas into system

# PA costs

- **management costs**
  - spending on PAs management is inadequate globally
- **human wildlife conflict**
- **loss of access to natural resources**
  - PAs creation and management can reduce or block access to economically and culturally important resources
- **displacement**
  - a significant number of people have been directly displaced by PAs
- **opportunity cost**
  - choosing to create and manage PAs requires foregoing alternative uses

# Benefits from PA

- **biodiversity protection**
  - the first priority of PAs is the conservation of biodiversity, particularly when those areas contain rare, endangered of endemic species, or under-represented habitats such as grasslands of freshwater areas
- **water**
  - natural vegetation in protected areas can help to maintain water quality and in some circumstances can help to increase the quality of water available
- **food**
  - PAs can provide a variety of food including wild food plants, wild game, and fish
- **health and recreation**
  - PAs are increasingly being recognize as important places to promote physical and mental health and also as major recreational resources
- **disaster mitigation**
  - PAs can help mitigate natural disasters by, for example, soil stabilization, food prevention and coastal protection

# Benefits from PA

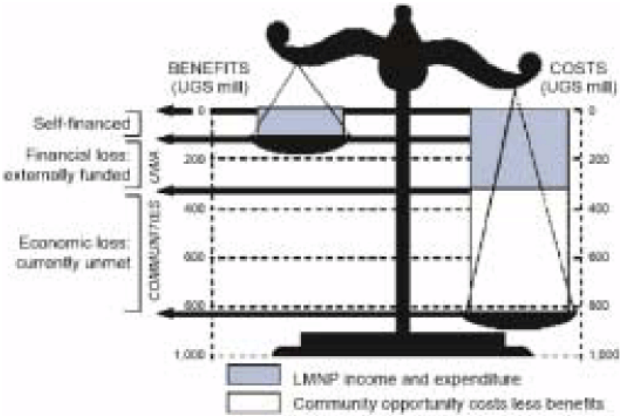
- **climate change mitigation and adaption**
  - PAs can play a role in both sequestering carbon and ameliorating local impact attributable to climate change
- **cultural and spiritual values**
  - many of the world‘s oldest PAs were set aside for their cultural or historical values
- **materials**
  - in many PAs is legal to harvest a whole range of natural products including non-timber forest products such as resin or rubber, fuelwood, coral, shells and grass
- **knowledge**
  - PAs can be used for education, ecological research and monitoring
- **political stability**
  - natural resources are often at the root of conflicts, especially when they are shared across borders

# Examples of PA benefits and costs accuring at different scales

| | Benefits | Costs |
|---|---|---|
| **Global** | - Dispersed ecosystem services (e.g. climate change mitigation/adaptation)<br>- Nature-based tourism<br>- Global cultural, existence and option values | - Protected area management* (global transfers to developing countries)<br>- Alternative development programmes* (global transfers to developing countries) |
| **National** | - Dispersed ecosystem services (e.g., clean water for urban centres, agriculture or hydroelectric power)<br>- Nature-based tourism<br>- National cultural values | - Land purchase *<br>- Protected area management (in national protected area systems) *<br>- Compensation for foregone activities*<br>- Opportunity costs of forgone tax revenue |
| **Local** | - Consumptive resource uses<br>- Local ecosystem services (e.g. pollination, disease control, natural hazard mitigation)<br>- Local cultural and spiritual values | - Restricted access to resources<br>- Displacement<br>- Protected area management (private land owners, municipal lands)<br>- Opportunity costs of foregone economic activities<br>- Human wildlife conflict |

# PAs and Human well-being

- two sets of questions fundamental to the impact of protected areas on human well-being:
  - Do benefits outweigh costs?
  - Who benefits and who bears the costs?

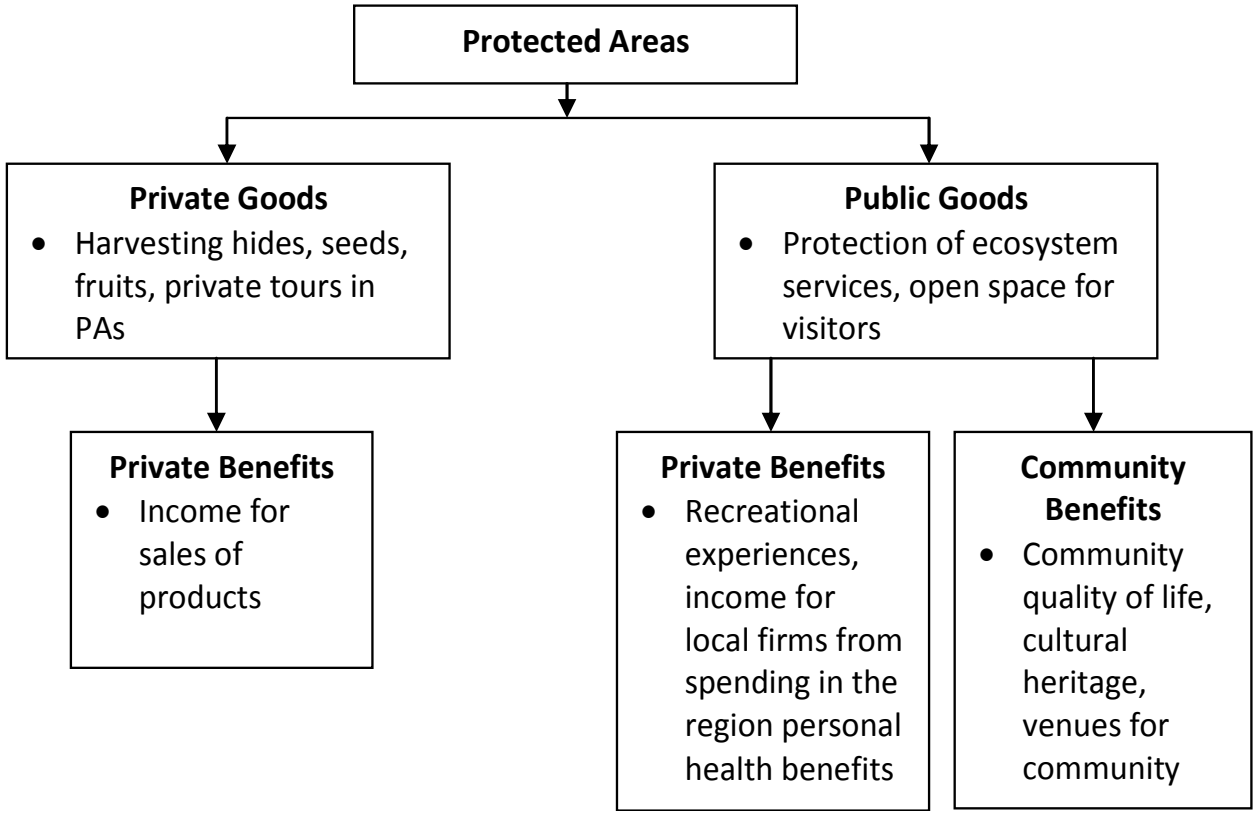


# Economic analysis of PA

- Economic analysis can be used to:
  - conceptualize values of PAs for community welfare
  - quantify values of PAs for community welfare
  - demonstrate to decision-makers and communities that PAs
  - are assets that justify public/private support
- Valuing PA benefits – a vital step in developing sustainable financing strategies

# Benefits to Individuals and Communitis from PAs

- PAs generated „private benefits“ and „public benefits“



## Techniques for valuing protected area goods and services

- there are many different valuation methods applicable to different situation and values of different services

| Method | Approach | Applications | Examples | Limitation |
|---|---|---|---|---|
| Market price | Observe process directly in markets | Goods and services from protected areas that are traded in markets | Timber and fuelwood from forests; water resources | Market process can be distorted, e.g. by subsidies. Protected area services often not traded in markets |
| Replacement cost | Estimate cost of replacing environmental service with man-made service | Ecosystem services that have man-made equivalent that could be used and provides similar benefits to the environmental services | Coastal protection by mangroves, water storage and filtration in forests and wetlands | Over-estimates value if society is not prepared to pay for man-made replacement. Under-estimates value if man-made replacement does not provide all the benefits of the environmental services (i.e. biodiversity benefits) |
| Damage cost avoided | Estimate damage avoided due to ecosystem service | Ecosystems that provide protection to infrastructure and other assets | Landslide/ avalanche protection from forests, wetland protecting against floods | Difficult to relate damage levels to ecosystem services |
| Net factor income | Revenue from sales of environment-related good minus cost of other inputs | Ecosystems that provide an input in the production of a marketed good | Filtration of water by wetlands, commercial fisheries supported by nursery areas protected by coral reefs | Over-estimates ecosystem values |
| Production function | Estimate value of ecosystem service as input in production of marketed goods | Ecosystems that provide an input in the production of a marketed good | Commercial fisheries supported by nursery areas protected by coral reefs; materials used in handicraft production | Technically difficult. High data requirements |
| Hedonic pricing | Estimate influence of environmental characteristics on price of marketed goods | Environmental characteristics that vary across goods | Air quality, scenic beauty, cultural benefits | Technically difficult. High data requirements |
| Travel cost | Travel costs to access a resource | Sites used for recreational purposes | Protected areas | Limited to recreational benefits; hard to use when trips are to multiple destinations |
| Contingent valuation | Ask respondents directly the amount of money individuals are willing to pay for a specified service | Any environmental good or service | Species loss, protected areas, air pollution, clean water | Expensive to implement |
| Choice modelling | Ask respondents their willingness to pay for their preferred environmental goods or services from a set of alternatives with particular attributes | Any environmental good or service | Species loss, protected areas, air pollution, clean water | Expensive to implement. Technically difficult. |
| Value transfer | Use values estimated at other locations | Any environmental good or service when comparison studies available | Species loss, protected areas, air pollution, clean water | Can be inaccurate, as factors vary even when contexts seem 'similar'; should be used with caution |

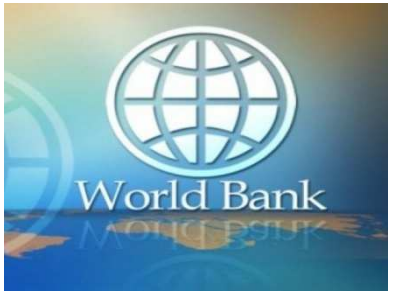
# Techniques for valuing PA benefits

| Valuation Technique | Application |
|---|---|
| Estimation of Market value | Used to identify actual value of PA goods and services and to estimate private costs and benefits. |
| Estimation of contribution to production processes | Used to identify actual value of PA goods and services and to estimate value private costs and benefits. |
| Travel Cost Approach | Use to estimate the value of benefits resulting from recreational experience. |
| Estimation of avoided costs of replacement, mitigation, or damage aversion | Used to estimate costs of alternative sources of services normally provided by PAs, or costs and benefits of protecting PA goods and services. |
| Social Cost-Benefit Analysis | Used to identify total public (and private) benefits and costs. |
| Hedonic Pricing | Used to estimate existence values and reveal preferences of individuals for particular environmental attributes, based on their behaviour. |
| Contingent Valuation | Used to determine individual's hypothetical valuation of environmental goods and services. |
| Cost-Effectiveness Analysis | Used to identify least cost option for delivering different environmental outcomes. |
| Choice Modelling | Used to determine individuals' valuation of specific environmental attributes. |
| Input-Output Analysis | Used to assess contribution of PAs to regional economies |

## Financing of PA

- PAs can seek finance from many sources:
  - **international sources of funding**
  - **those that can be developed at the national level**
  - **those can be developed at the site level**

# International sources of funding




- **Multilateral banks**
  - biodiversity conservation is increasingly benefiting from assistance from multilateral development banks (the World Bank, the Asian Development Bank, the African Development Bank etc.)
- **Global Environmental Facility (GEF)**
  - GEF was established to forge international cooperation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters and ozone depletion

gef

# International sources of funding

- **Bilateral development co-operation agencies**
  - often have poverty alleviation missions with biodiversity as a component of their work programmes
  - CIDA – Canada, DANIDA – Denmark, JICA – Japan, NORAD – Norway, SIDA – Sweden, SDC – Swiss, USAID – United States, development assistance programe of the EU etc.
- **Foundations with a international remit**
  - foundations are created by wealthy individuals, groups or corporations who wish a portion of their wealth to be given to causes which they support

独立行政法人 国際協力機構

# International sources of funding

- **International non-governmental organizations with an international remit**
  - these organizations usually have their own goals, objectives and activities as well as members and partners with whom they collaborate
  - WWF, Conservation International, The Nature Conservancy etc.

CONSERVATION INTERNATIONAL

The Nature Conservancy
Protecting nature. Preserving life.™

# International sources of funding

- **Alternative financial mechanisms**
  - **carbon offsets** – could be developed from the Kyoto Protocol; focus on the reduction of the concentration of „greenhouse gases“ in the atmosphere
  - **global levies** – to support cultural or nature conservation have been proposed from time to time: for example, a levy on international air travel could fund protected cultural and natural sites, since they are often reached by air travel
  - **innovative ways to use the Internet** – the Internet has potential for developing some innovative mechanism for international fundraising efforts
  - **global environmental and cultural funds** – are mechanisms for distributing funding to worthy cases

# National-level mechanisms

- **Taxes, levies, surcharges and tax incentives**
  - the power of governments to tax can be used in a variety of ways to raise funds for conservation
  - for example – Belize charges a tourist tax for each passenger arriving in the country by plane
- **Tax deduction schemes**
  - many countries allow tax deductions for contributions to natural or cultural sites of funds
- **Grants from private foundation**
  - philanthropic foundations provide significant amounts of financing for conservation activities around the world
- **National environmental funds**
  - have proved to be an effective mechanism for long-term financing of conservation activities, which often require many years of sustained funding to achieve their objectives

# National-level mechanisms

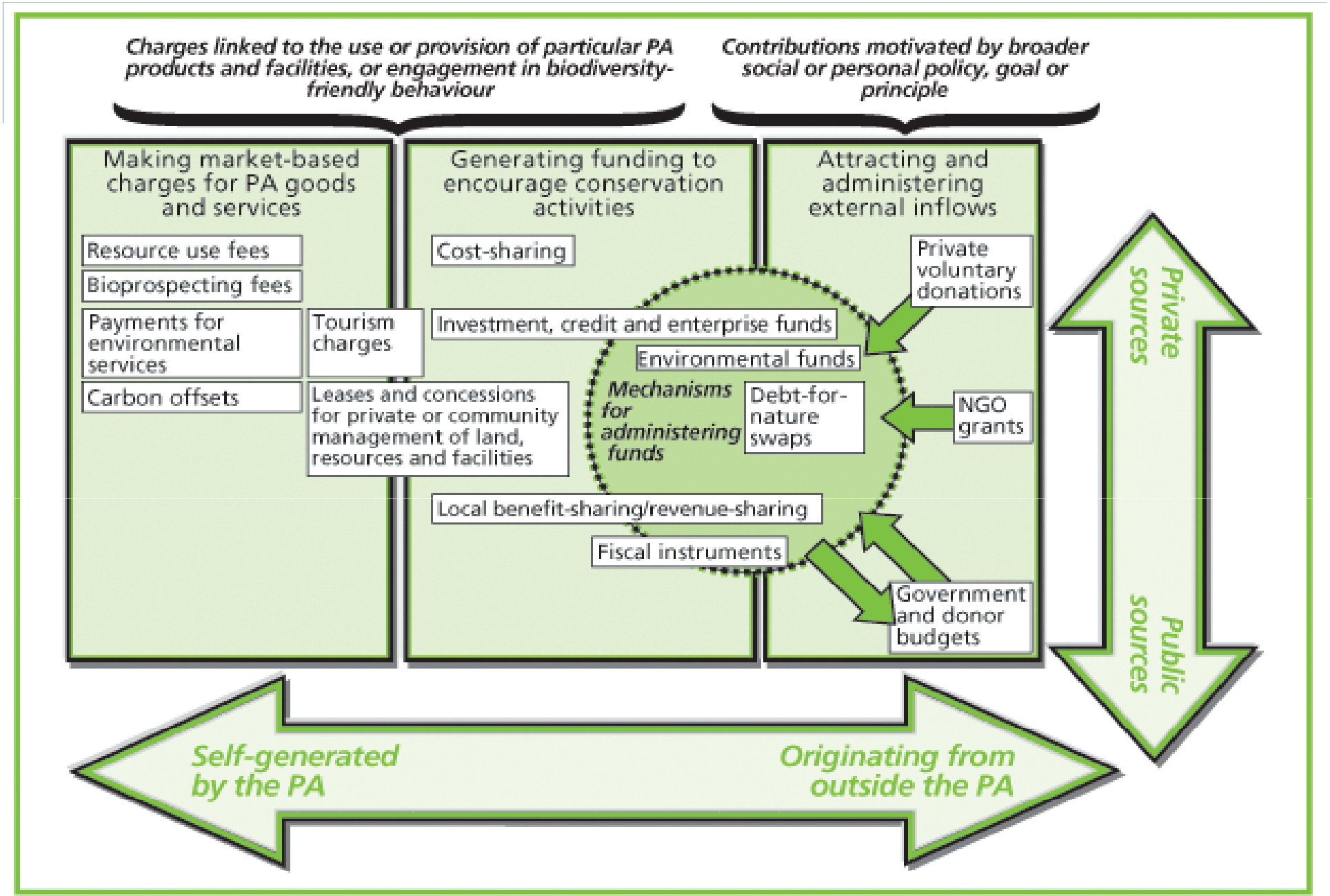
- **Dept swaps**
  - are a means of both alleviating the dept burden of developing countries and of investing in natural or cultural protected sites
- **National and provincial lotteries**
  - are a means of gambling whereby individuals purchase tickets etc., which then drawn for a prize (usually a portion of the earnings from the sale of ticket)
- **Public-good service payments**
  - payments and transfers for public goods and services provide by protected sites and areas are increasingly common
- **Workplace donation schemes**
  - provide an efficient and effective way for individual employee to donate to charitable causes through their employer

# Site-level mechanisms

- **User fees** covers a broad spectrum of possibilities such as:
  - entry fees
  - admissions fees for special attraction
  - fees for parking, camping and picnicking facilities
  - fees charged to concessionaires who profit from operating lodging, food and beverage, guiding, boats for diving…
  - fees for yachting or cruise-ship visit permits
- **Cause-related marketing**
  - is the sale of items (primarily intangibles) whose main value lies in the purchaser‘s knowledge of having helped conservation (special events, sales, adoption schemes, collection schemes…)
- **Adoption programmes**
  - for example: The Nature Conservancy partners in Guatemala, Panama, Costa Rica and other countries have raised money for park protection and park endowment funds by selling „deeds“ to an acre of hectare of a protected areas

# Site-level mechanisms

- **Corporate donations**
  - many corporations are becoming interested in assisting conservation activities
- **Individual donations**
  - great benefits goes, if it is a relationship between the donor and the protected area
- **Planned giving**
  - that is, charitable donations made through a person‘s will or estate, or by other mechanisms such as insurance and annuities – is one of the fastest growing and most lucrative aspects of charitable giving in developed countries today
- **Site memberships and „friends“ schemes**
  - provide a vehicle for voluntary support by a constituency that may or may not actually visit the protected areas




A topology of PA financing mechanisms. (Emerton, Bishop and Thomas. 2006. p.28)

# Elements of PA financial sustainability

- **building a diverse, stable and secure funding portfolio:** minimizing funding risks and fluctuations
- **improving financial administration and effectiveness**: ensuring that funding is allocated and spent in a way that supports PAs finance needs and conservation goals
- **taking a comprehensive view of costs and benefits:** covering the full range of PAs costs, ensuring that those who bear PAs costs are recognized and adequately compensated, and that those who benefit from PAs make a fair contribution to their maintenance
- **creating an enabling financial and economic framework:** overcoming market, price and policy distortions that undermine PAs or act as obstacles to PAs financing
- **mainstreaming and building capacity to use financial tools and mechanisms:** factoring financial analysis and mechanisms into PAs planning processes

# NATURE AND LANSCAPE PROTECTION IN THE CR: ECONOMIC VIEW

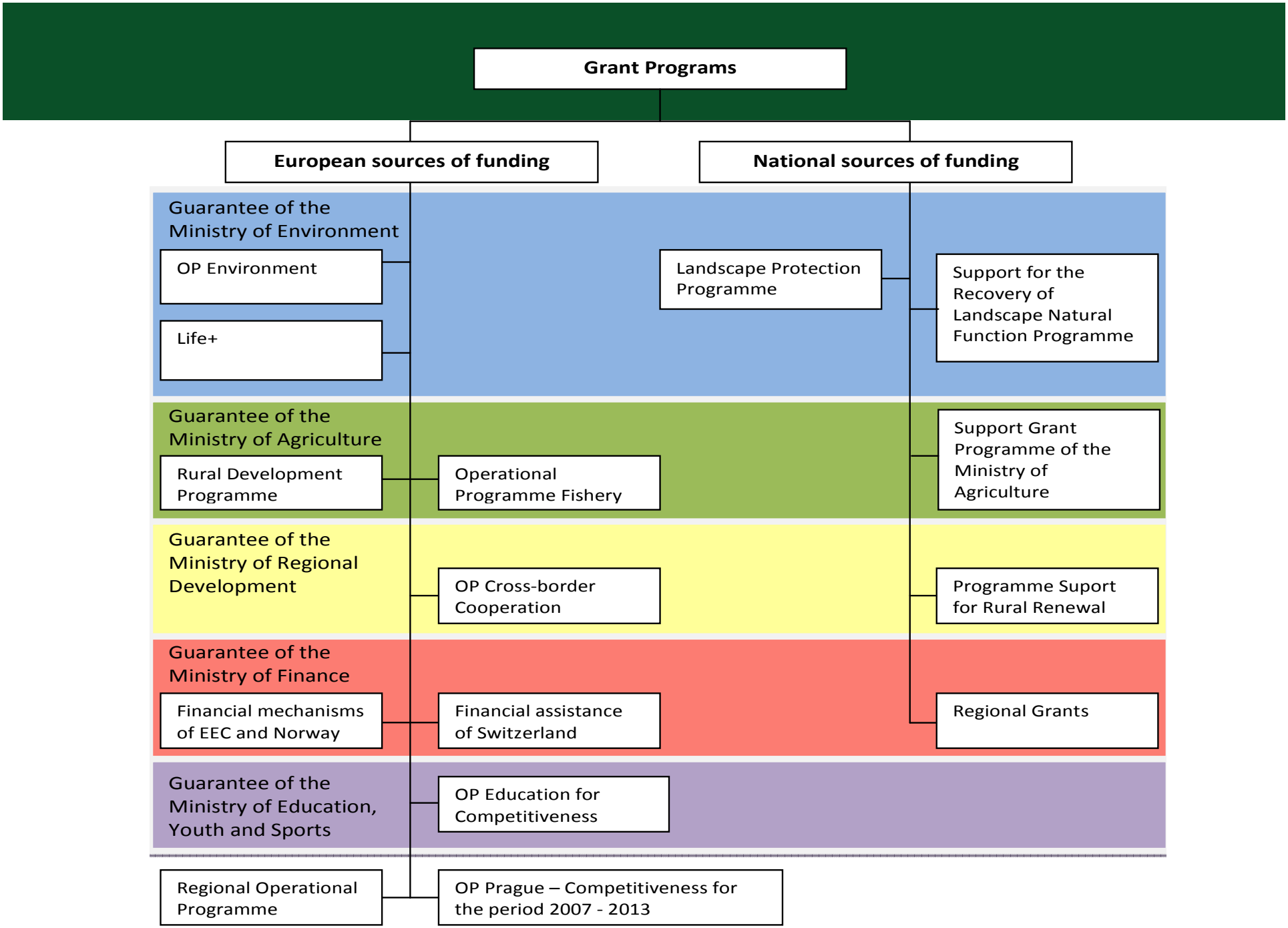
# Protected areas in CR

- Nature and landscape protection in the Czech Republic has a long tradition, and during its development has changed its priorities. Currently the emphasis is on protection of ecosystems and especially to large-scale landscape units.
- Thus focusing on large-scale specially protected areas – under Act No. 114/1992 Coll. – National parks (NP) and Protected landscape areas (PLA).
- CR PA: 11,729.76 km2; 15.05 %
- CR‘s forests: 2.66 mil. ha; 34.4 % (protected 28.3 %)

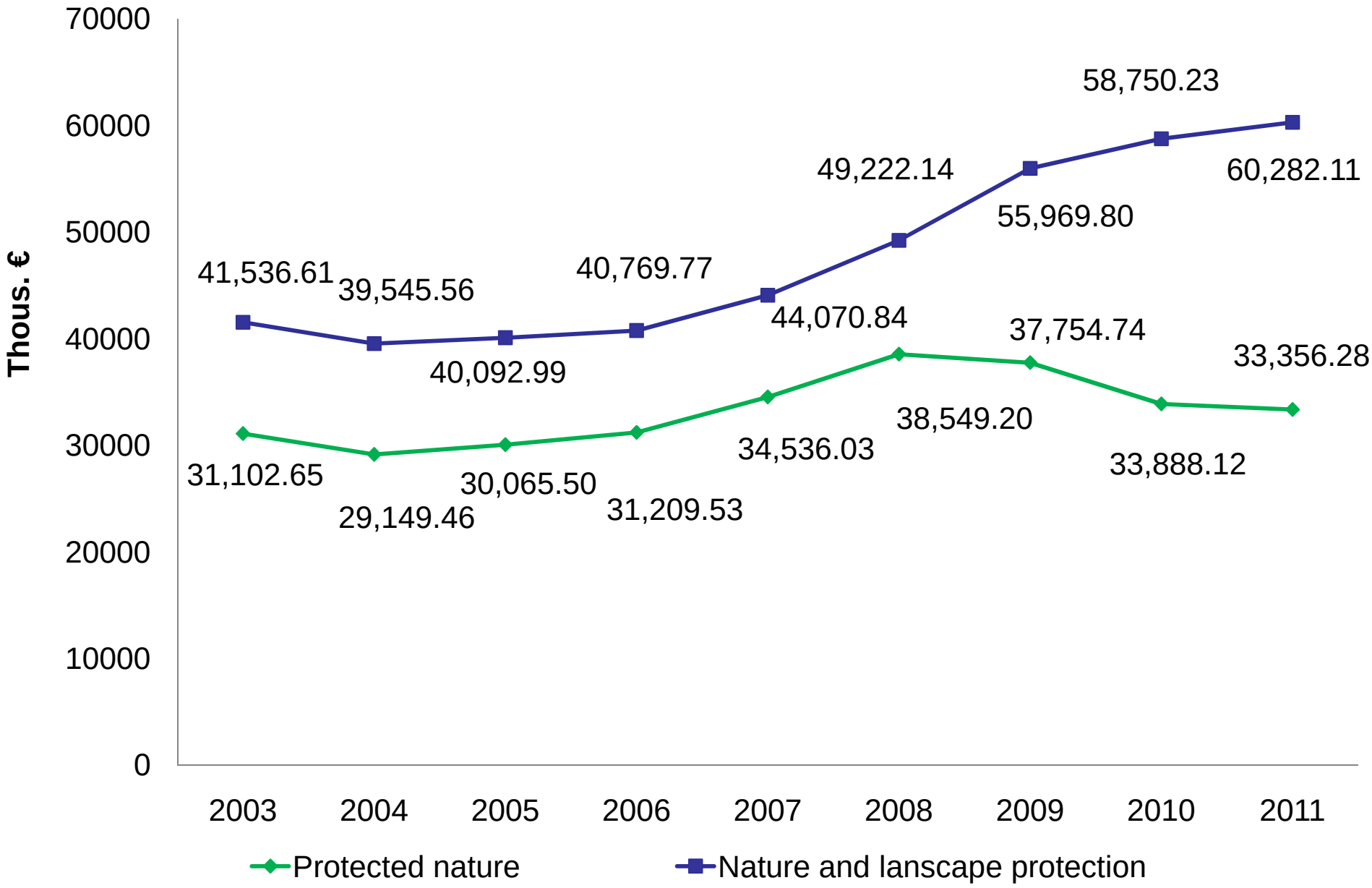
# Protected areas in Czech Republic

Tab.: Category of specially protected areas (SPA) in the CR (2011)

| Category of SPAs (Act. No. 114/1992 Coll.) | Number of sites | Area (ha) | Proportion of total area CR (%) |
|---|---|---|---|
| National parks (NP) | 4 | 119,498.00 | 1.51 |
| Protected landscape areas (PLA) | 25 | 1,086,737.30 | 13.77 |
| National natural monuments (NNM) | 112 | 4,416.70 | 0.06 |
| National natural reserves (NNR) | 110 | 27,458.37 | 0.35 |
| Natural monuments (NM) | 1,248 | 23,525.63 | 0.30 |
| Nature reserves (NR) | 802 | 38,732.72 | 0.49 |
| Total | 2,301 | 1,248,606.24 | 15.84 |


Grant Programs
European sources of funding
National sources of funding
Guarantee of the Ministry of Environment
OP Environment
Life+
Landscape Protection Programme
Support for the Recovery of Landscape Natural Function Programme
Guarantee of the Ministry of Agriculture
Rural Development Programme
Operational Programme Fishery
Support Grant Programme of the Ministry of Agriculture
Guarantee of the Ministry of Regional Development
OP Cross-border Cooperation
Programme Suport for Rural Renewal
Guarantee of the Ministry of Finance
Financial mechanisms of EEC and Norway
Financial assistance of Switzerland
Regional Grants
Guarantee of the Ministry of Education, Youth and Sports
OP Education for Competitiveness
Regional Operational Programme
OP Prague – Competitiveness for the period 2007 - 2013

# Expenditures of the Ministry of Environment to nature and landscape protection



# Authorities dealing with nature conservation in CR

- Conservation Authorities carry out state administration in the field of nature conservation and landscape. Pursuant to Act No. 114/1992 Coll. as follows:
  - municipal authorities
  - authorized municipal authorities
  - municipal authorities with extended scope of activity
  - regional offices
  - **administrations of national parks and protected areas**
  - Czech Environmental Inspectorate
  - Ministry of Environment (MoE)
  - Ministry of Defense

# Management of large-scale specially protected areas

Management systems in the SPA:

- **sustainable forest management**
- **close-to-nature forest management**

Both types of management should fulfill three basic functions – environmental, economic and social.

Management of SPA:

- management of national parks
- management of other specially protected areas

# Administrations of large-scale SPAs

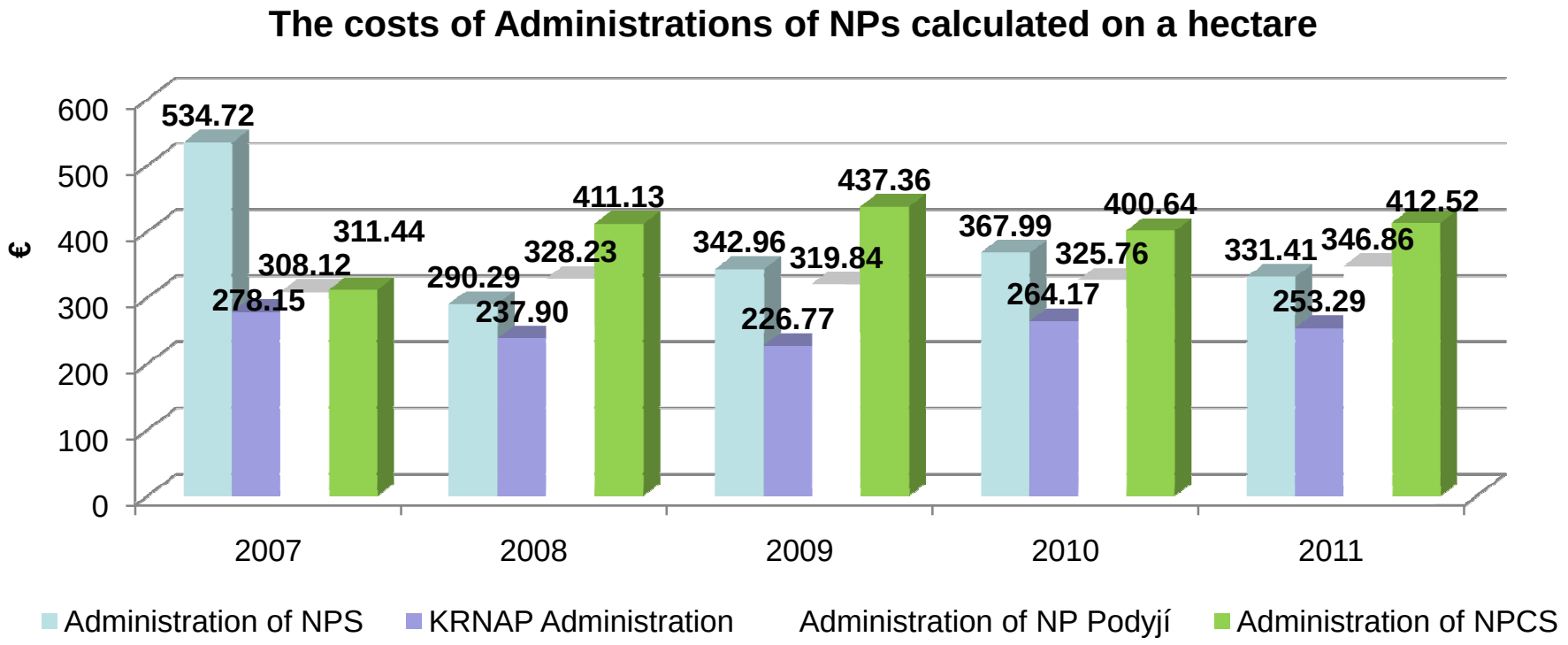
- **state allowance organizations**:
  - Administration of Šumava National Park (Administration of NPS),
  - Krkonoše Mountains National Park Administration (KRNAP Administration),
  - Administration of National Park Podyjí (Administration of NP Podyjí)
- **state government department**:
  - Administration of National Park České Švýcarsko (Administration of NPCS)
  - Nature Conservation Agency of Czech Republic (NCA CR)
- charged by the Ministry of the Environment and are NGOs

# Administrations of large-scale SPAs

| Administration of SPAs | Area of SPAs | Area of forest land | Assets/ Liabilities | Share of long-term assets to total assets | Share of equity in total liabilities | Value of forest land | Value of total land |
|---|---|---|---|---|---|---|---|
| | ha | ha | thous. € | % | % | thous. € | thous. € |
| NCA CR | 13,000 | 2,710 | 61,052 | 94.24 | 62.60 | 4,733 | 28,294 |
| Administration of NPS | 68,064 | 54,100 | 114,115 | 96.35 | 99.18 | 72,382 | 84,780 |
| KRNAP Administration | 54,969 | 36,300 | 96,498 | 89.87 | 98.77 | 58,369 | 59,552 |
| Administration of NP Podyjí | 6,283 | 5,270 | 14,417 | 92.45 | 99.08 | n/a | 10,023 |
| Administration of NPCS | 7,933 | 7,621 | 19,992 | 89.68 | 81.95 | 11,737 | 12,569 |
| Total/Average | 150,249 | 106,001 | 306,074 | 92.52 | 88.32 | x | 195,218 |

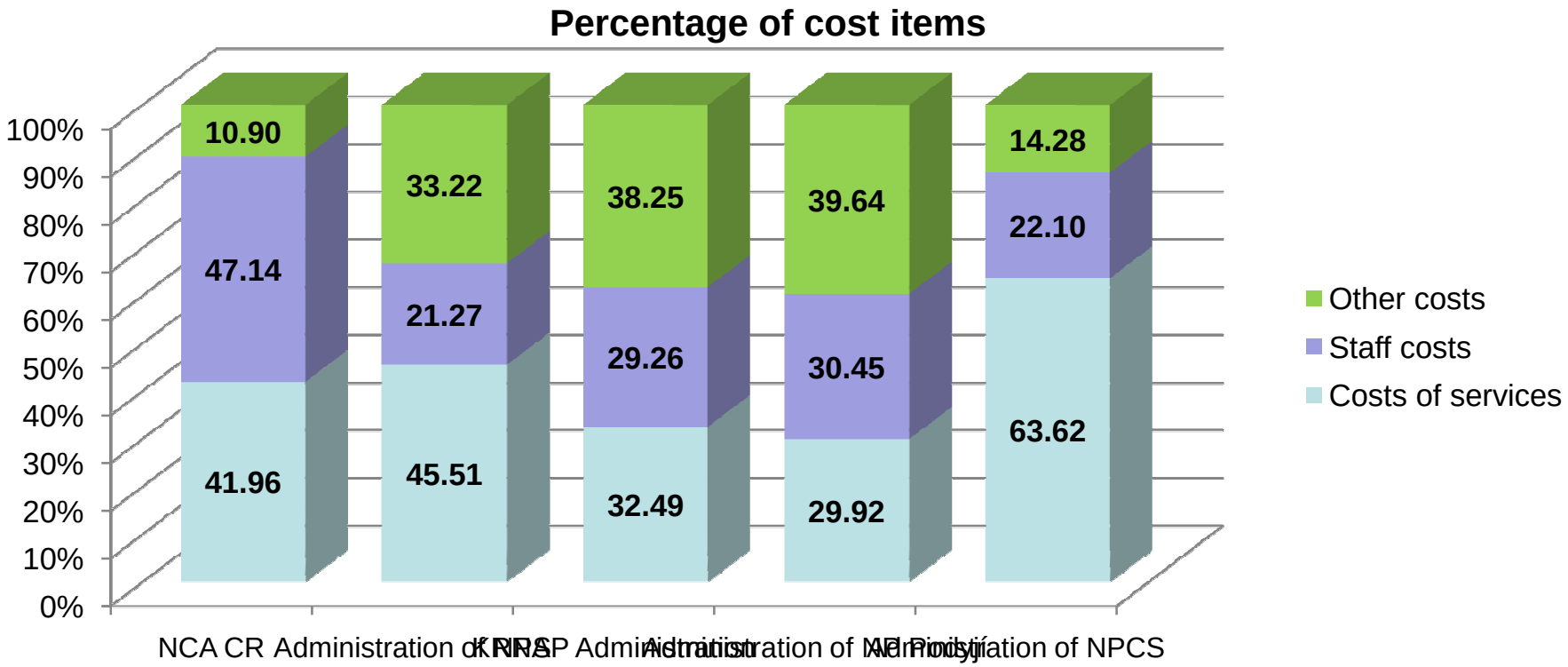
# Costs of Administrations of SPAs

- total costs of Administrations of SPAs in 2011: 61.6 mil. Euro



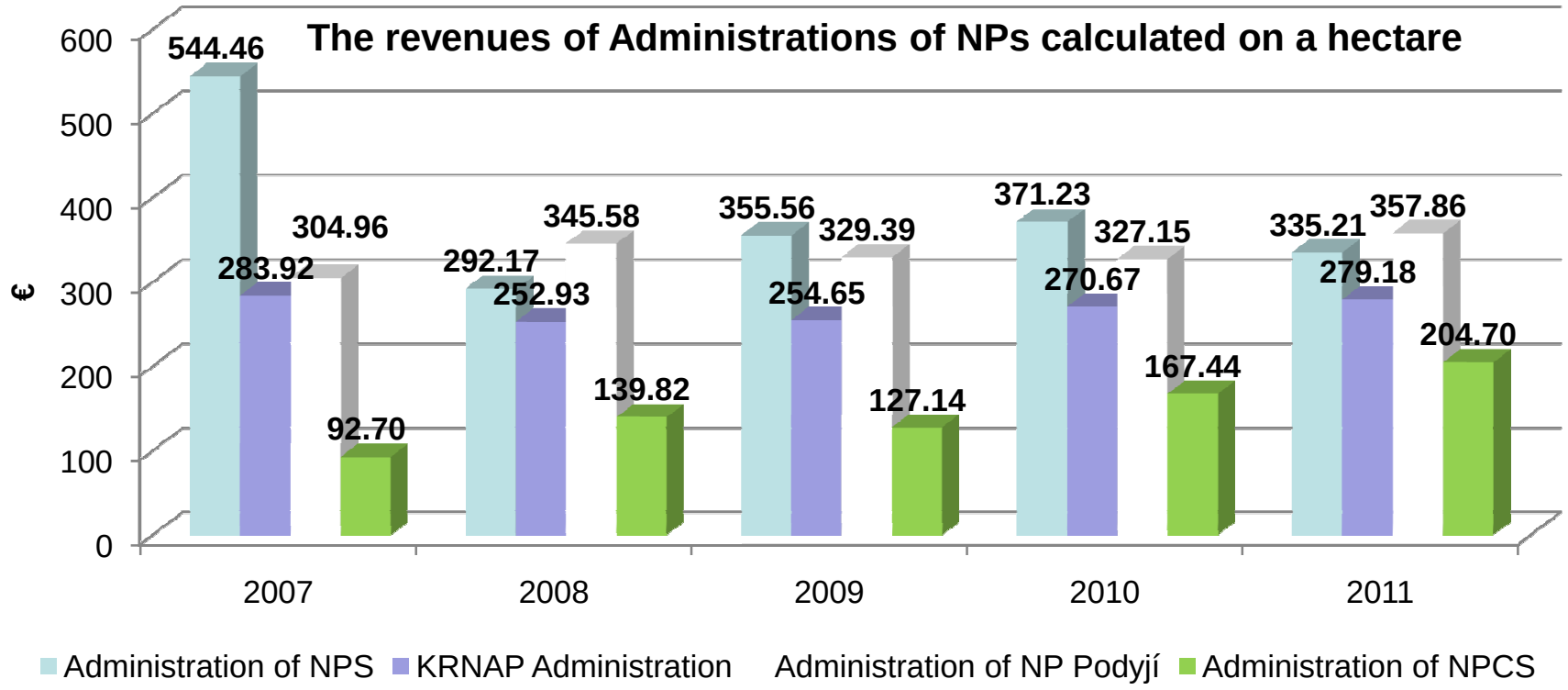
# Costs of Administrations of SPAs

- largest cost item: services (timber transporting and skidding)



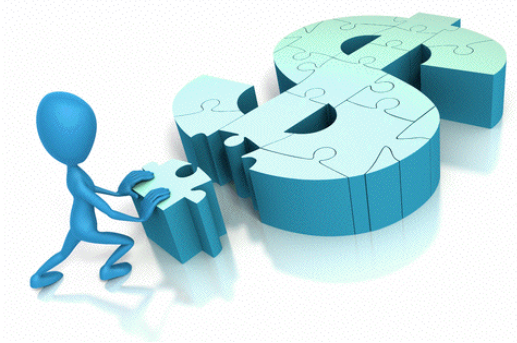
# Revenues of Administrations of SPAs

- total revenues of Administrations of SPAs in 2011: 42.8 mil. Euro
- largest revenues – contributions and grants
- largest revenues from own activities – revenue from sales of timber.



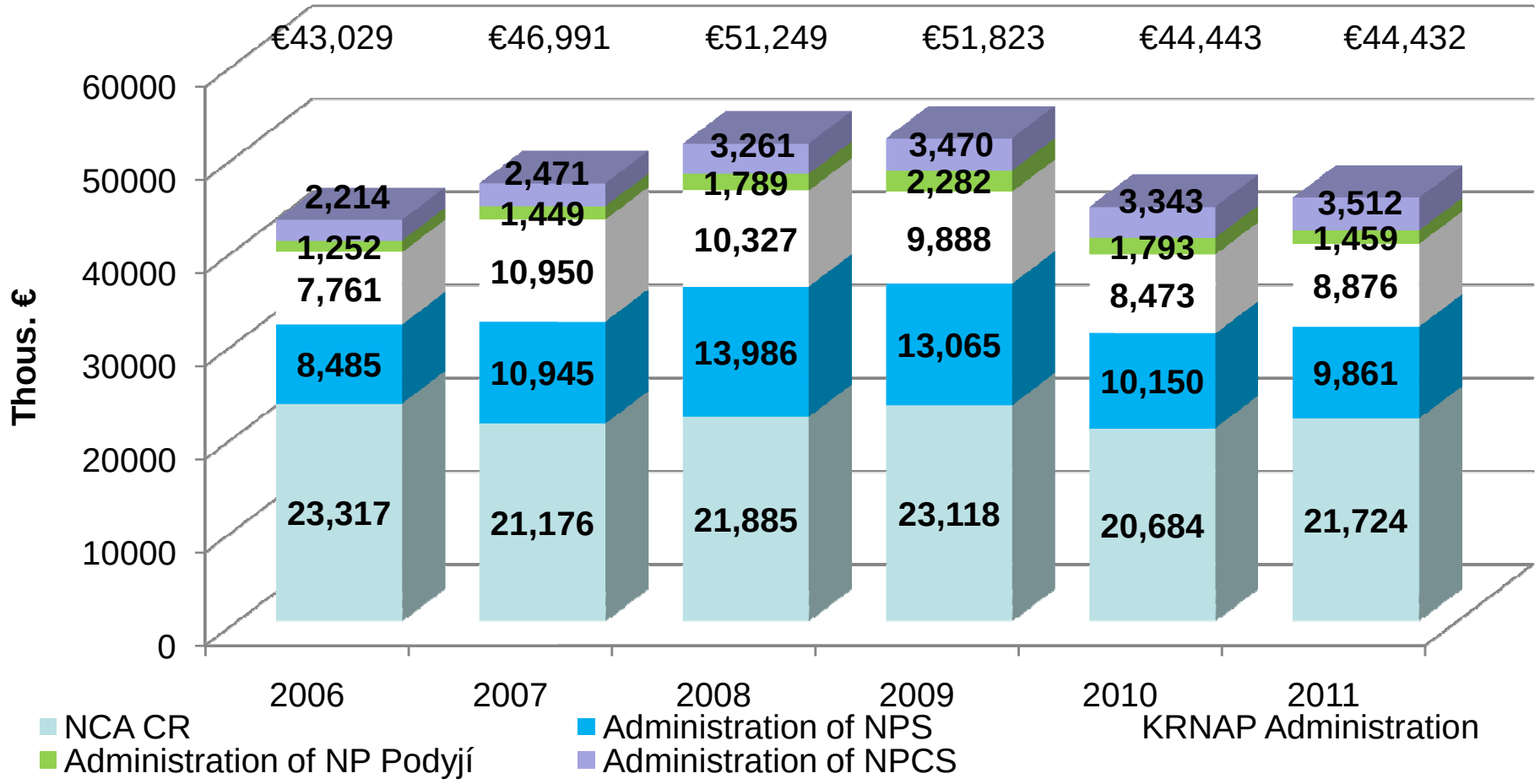
# Financing of Administrations of large-scale SPAs

- **state allowance organisations:**
  - combine  revenues (largest item of revenue from timber sales) contributions and grants
- **state government department:**
  - contributions and grants



# Total contributions and grants allocated for SPAs Administrations

- total contributions and grants for management in the administrations of SPAs (2006 – 2011) ranged from 43 to 52 thousand euro
- mostly to NCA CR (about 47 %)
- the largest amount to the operation (about 90%)



# Financing of SPAs in 2011

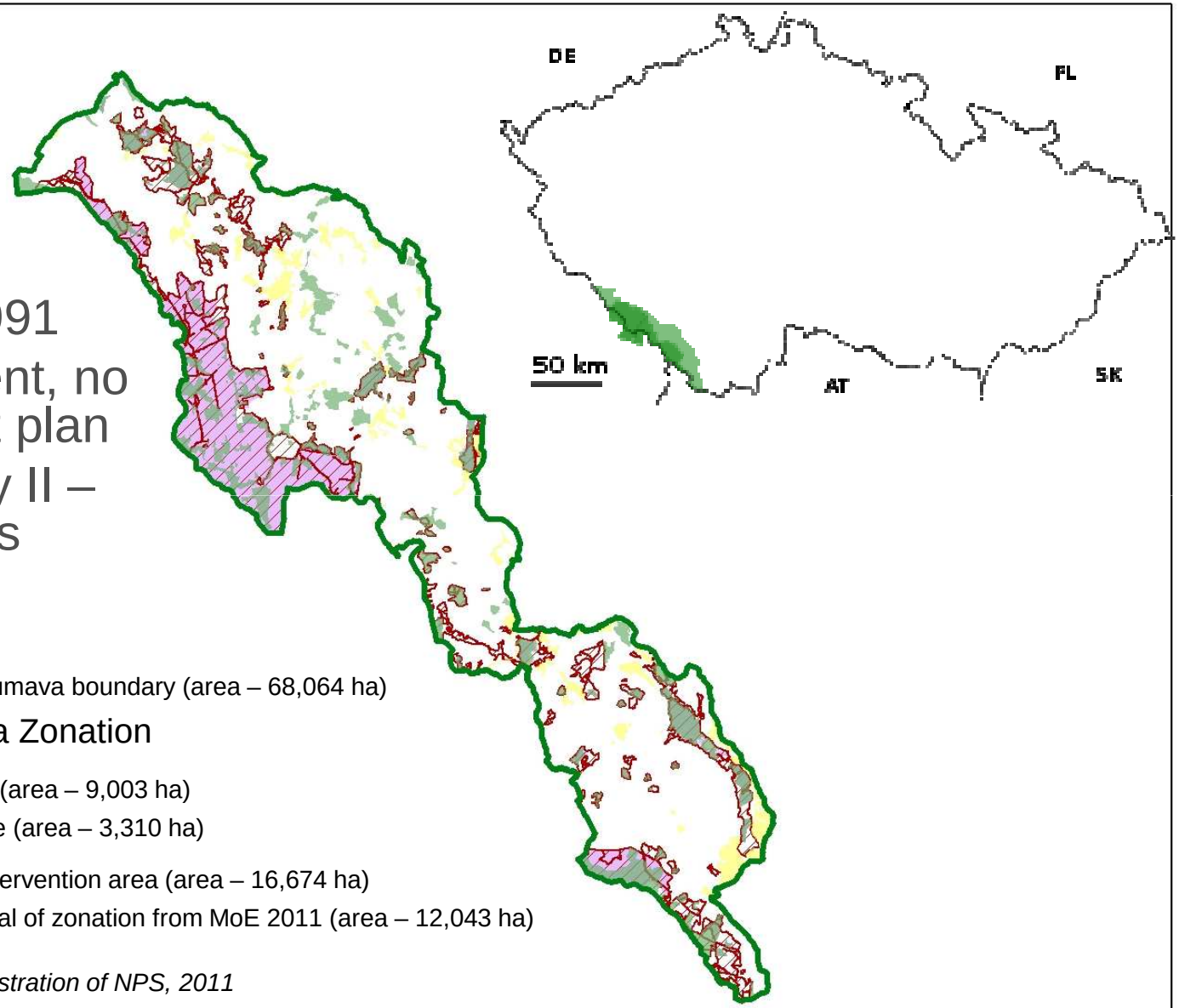
| Administration of SPAs | Contributions and grants | | Own resources | | Total source of funding (thous. €) | Total source calculated on hectar (€) |
|---|---|---|---|---|---|---|
| | operational (thous. €) | investment (thous. €) | thous. € | share on total source (%) | | |
| NCA CR | 19,751.12 | 1,972.53 | x | x | 21,723.65 | x |
| Administration of NPS | 8,633.21 | 1,227.46 | 14,182.65 | 58.99 | 24,043.32 | 353.25 |
| KRNAP Administration | 7,800.03 | 1,075.85 | 7,546.29 | 45.95 | 16,422.18 | 298.75 |
| Administration of NP Podyjí | 1,459.43 | 0.00 | 788.99 | 35.09 | 2,248.43 | 357.86 |
| Administration of NPCS | 3,341.94 | 170.36 | x | x | 3,512.30 | 442.75 |
| Total/Average | 40,985.74 | 4,446.21 | 22,517.93 | 46.68 | 67,949.88 | 363.15 |

# Current situation in the NP Šumava – National Park‘s zonation

foundation in 1991

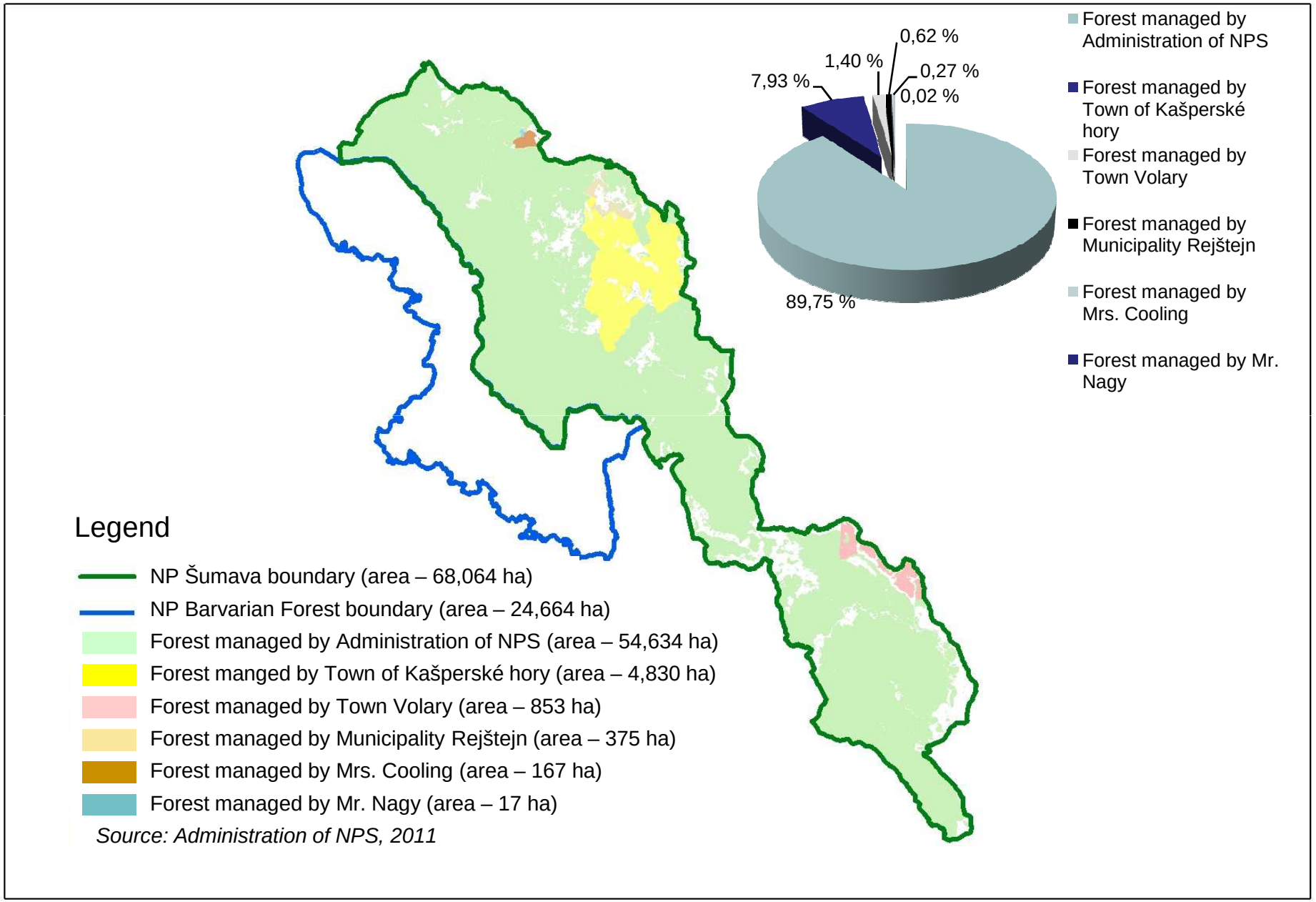
new management, no Management plan

IUCN‘s category II – national parks




*Source: Administration of NPS, 2011*

# Current situation in the NP Šumava – Ownership of forests



# The economic impact of extending non-intervention zones in Šumava NP

- area NP – 68,064 ha
- buffer zone – 99,624 ha
- non-intervention zone – 16,674 ha (135 local fragments
- forest area – 48,832 ha
- non-intervention forest area – 15,815 ha
- proportion of spruce – 83 %
- 2007 – hurricane Kyrill, 744,440 $m^3$ windbreak wood
- 2008 – windstorm Emma
- this resulting in the onset of bark beetle calamity

# The economic impact of extending non-intervention zones in Šumava NP

- over the 2007 – 2010 period, a total of 1,895,000 cubic meters of wood were attacked in forests managed by SNP Administrations, of which 1,128 thous. $m^3$ were located in non-intervation area
- other owner – 150,824 $m^3$
- total number of standing trees attacked by bark beetle throughout Šumava NP was 2,045,824

# Current situation in the NP Šumava

- absence of Management plan
- imbalance of the three pillars of sustainable development
- limitation in the forest and agriculture management
- conflicts between nature conservation and forest owners
- requirement to keep 75 % of the spontaneous development
- limitation in municipal development
- long term extensively used, population migration
- stagnant attendance area
- specific structure of the local economy




# Main problems in SPAs

- interaction between nature conservation and users of SPAs
- financing of SPAs largely from the state budget
- limiting management – use of ecological technologies, further expansion of non-intervention zones in national parks
- economic inefficiency and dependence on public financing

## Topics

- protected areas in environmental policy
- organizations in nature protection
- international conventions and programme in nature protection
- management and economics of protected areas
- techniques for valuing protected area goods and services
- financing of protected areas
- nature and lanscape protection in the CR: economic view

- search the number and extent of protected areas in your country
- select one PA near your residence, briefly describe it
- select and describe 5 costs and 5 benefits of this PA, which are important for you

## Thank you for your attention…

## …any questions?