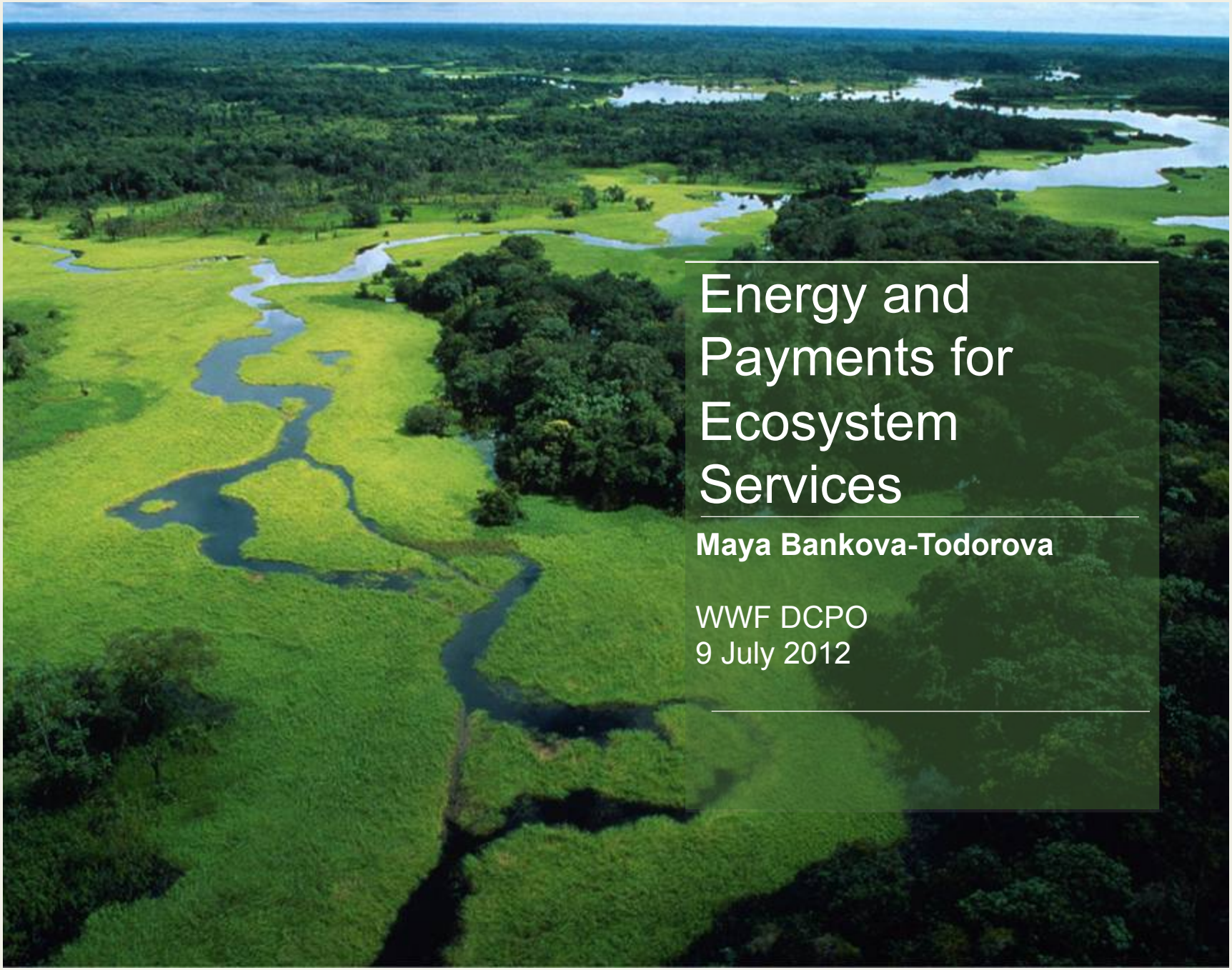

Energy and Payments for Ecosystem Services

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WWF DCPO
9 July 2012

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Structure of the presentation

- Ecosystem services – benefits from nature
- Energy from invasive species
- Payments for ecosystem services
- Examples

Ecosystem services

All benefits, goods and resources people get from nature

4 categories of ecosystem services:

1. Material (provisioning): food, fibers, fuel, herbs
2. Regulating: regulation of climate, water quality and quantity, soil erosion
3. Cultural: aesthetic and recreational value
4. Supporting: photosynthesis, soil formation

The Tisza Case

ENERGY FROM INVASIVE SPECIES

DEPRESSED ECONOMY

INVASIVE PLANTS BECAME DOMINATED ON FLOODPLAINS

HIGH CONSERVATION VALUE FLOODPLAIN

Location: active floodplain of the Tisza River, area: ~3,500 ha of a 30

HIGH UNEMPLOYMENT, LACK OF LOCAL JOBS

east economically develope

zards

DISAPPEARING TRADITIONAL LAND USE

Environmental assets: high conservation value river floodplain

Problem: Cutting traditional farming practices – grassland

HAZARDS AND SYMPTOMS: FREQUENT FLOODS, DROUGHTS,

tion of the Tisza wetland - r

of the natural watercourse

levels dropped and saline s

INCREASING ENERGY COSTS

former floodplain grasslands, reducing meadow fertility.

Spreading of the invasive detrimental shrub amorpha fructicosa (False Indigo) – ‘000 of ha

Most disadvantaged subregions in Hungary

The Tisza Case

ENERGY FROM INVASIVE SPECIES

Effects on economy and nature

Spreading of invasive plants are harmful to nature and economy

Lack of traditional and nature friendly land management

large infected croplands
large infected grasslands
large area of „alien" forests

Significant financial expenses (costly land management)

Less flood capacity
Costly flood prevention

SOLUTIONS & RESULTS

ACTIONS

- Introduction of 2 local breeds of cattle to restore traditional grazing practices
- Cutting the invasive shrub transforming the resource into energy
- Ensure the sustainability through plantation of native energy species

The Tisza Case

ENERGY FROM INVASIVE SPECIES

The Tisza Case

ENERGY FROM INVASIVE SPECIES

The Tisza Case

ENERGY FROM INVASIVE SPECIES

RESULTS

NATURE

- **Reduced invasion** of Amorpha shrubs in the floodplain
- **More** buffer zone areas in the floodplain around **wetlands**
- **More space** for regenerating, original vegetation in **gasslands**
- Reintroduced domestic **animals**, more diverse wilderness
- More **attractive environment** for waterbirds (black storks, bitterns, egrets…)

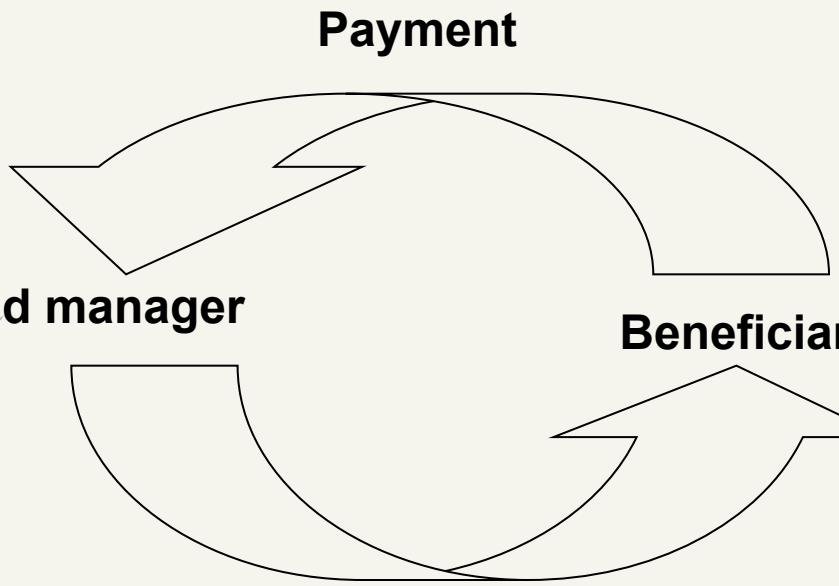
LOCAL ECONOMY

- **New income streams** to local land owners from biomass production
- **Less energy expenditures** of local governments
- More attractive environment for **ecotourism**
- **Improved flood capacity** of the floodplain and better flood prevention
- Better **job security** for local unemployees

Payments for ecosystem services

ENERGY & PES

Economic instrument, which:
1. aims at conserving benefits from ecosystems
2. calculates values of ecosystem benefits hard to quantify in the price of marketable products



Buyers and/or users of ecosystem services: Pay the services that they get

Land managers protect ecosystems, natural resources

Provided by the manager of the natural resource under the form of land use practices protecting the ecosystem or habitat

The case of brewery "Notre-Dame of Saint-Rémy"

Location: Rochefort, Belgium
Problem: Intensive animal-breeding contaminating the water (42 diary farms); increased use of pesticides and fertilizers (almost 50 mg/ l); vulnerability of the karst to pollutions;
Solution: Respect of the good agricultural practices (sustainable nitrogen management plan)
Optimization of the use of manure on grasslands (Composting)
Biomethanization
Cost: 150 euro/ ha to farmers
Benefit: The brewery could continue its work respecting the water standard - 20 mg NO3 /l

The Ciocanesti fishpond – environmentally friendly aquaculture

Location: Ciocanesti fishpond, Lower Danube, Romania; 255 ha

Problem: Fish-eating birds of high conservation value feed on this private market oriented fishpond. The fishpond owners suffer loss of yield to up to 70%. More than 20,000 bird individuals visiting the place

Solution: Introduce payments awarding the managers of the fishponds for their efforts to protect the birds and maintain water quality

Cost: A package of 5 measures was developed with different value for each measure: 70 - 6,000 Euro/ha/ year

Benefit: Protection of the 31 protected bird species, improved water quality, reduction of GHGs

Environmental services of Ciocanesti fishpond

- Fish production: 3,202 €/ha (592,000 €/ year)
- Biodiverisity conservation (birds): 77 €/ ha (19,500 €)
- Carbon sequestration: 5,856 €/ year
- Carbon retention: 3,550 €
- Landscape
- Recreational services
- Educational services

Thank you for your attention

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