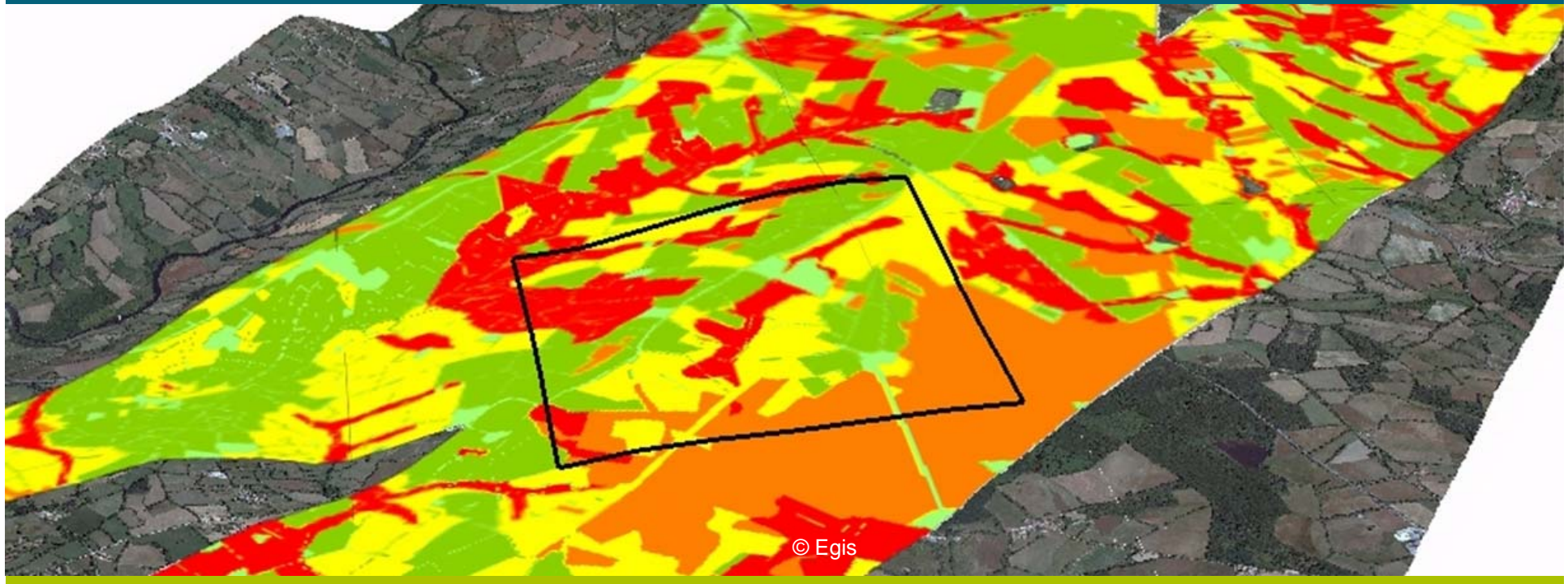


## ECOSYSTEM SERVICES: AULNES©, METHOD AND TOOLKIT





# Content

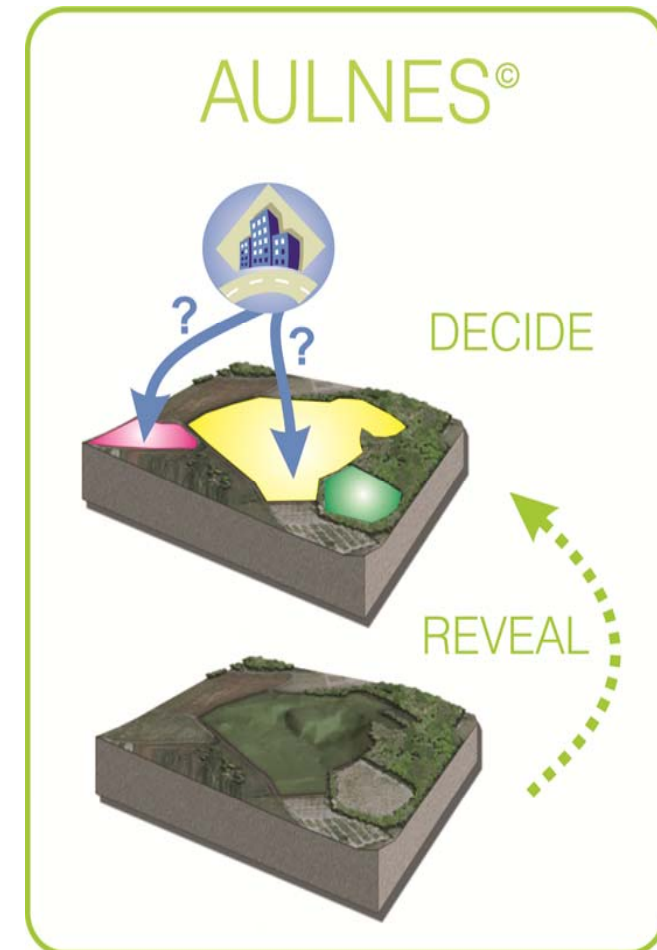
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- A | Objectives
- B | Methodology
- C | Results
- D | Conclusion

# A- OBJECTIVES

## A decision-making tool:

- 1) To reveal services provided by an area's ecosystem to its population
- 2) To assess impacts on Ecosystem Services due to a project
- 3) To help optimize project design



## B- METHODOLOGY:

**Definition:** Ecosystem Services are the benefits people obtain from Ecosystems

**15 Ecosystem Services are taken into account by the toolkit (Aulnes ©):**

### Provision services:

- Raw material (wood...)
- Food (hazelnuts...)
- Fresh water (surface & groundwater)

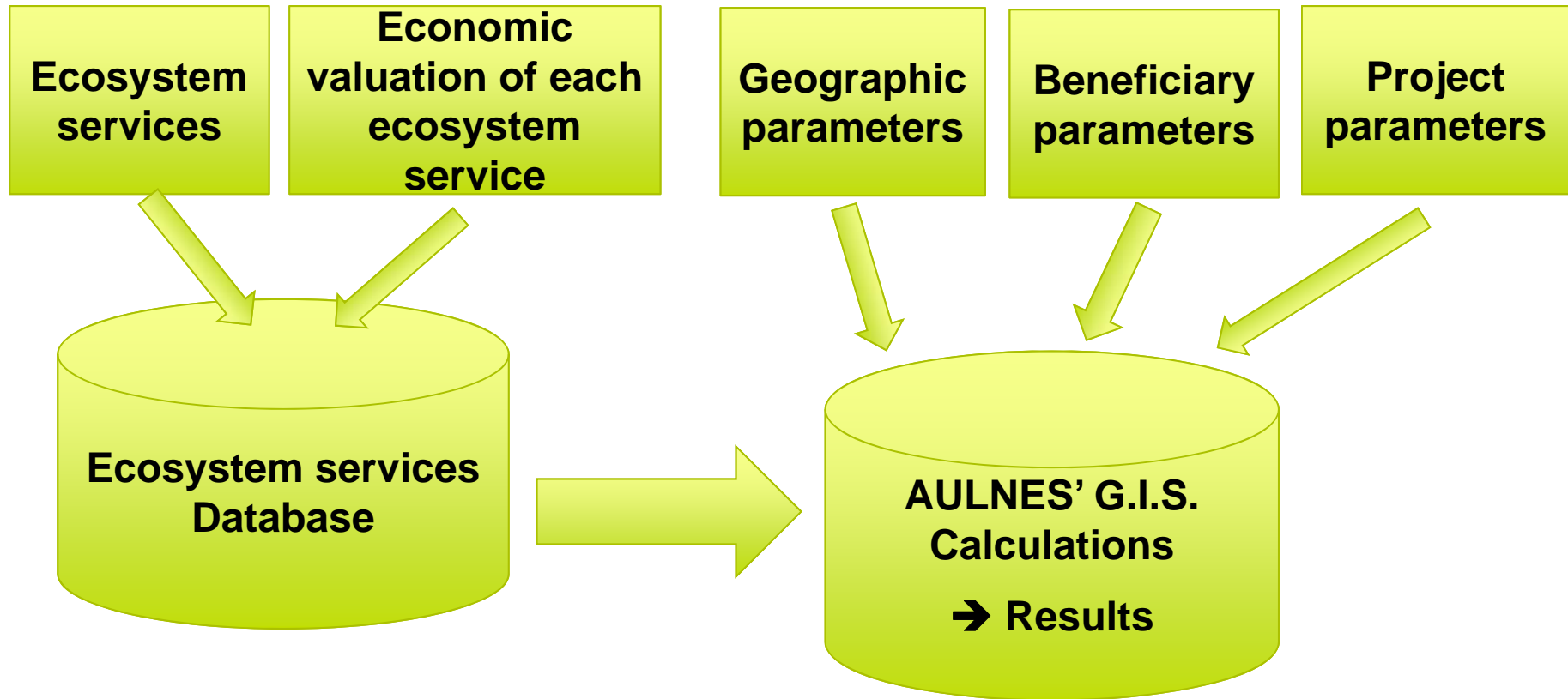
### Regulation services:

- Erosion prevention (forests...)
- Pollination (agriculture output)
- Biological control (pests)
- Global Climate regulation (carbon)
- Air quality regulation (dust abatement)
- Local climate regulation (wind-break)
- Drought control (river low flow)
- Moderation of extreme event (flood)
- Waste water treatment (swamp)

### Cultural / Recreation services:

- Hunting
- Fishing
- Tourism (eco-tourism)

# Many parameters are taken into account



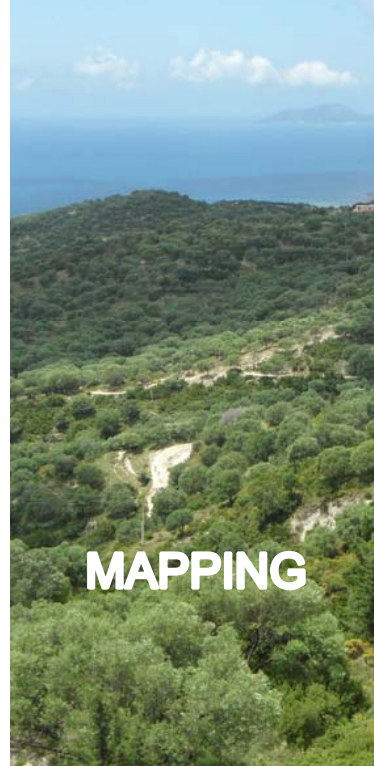


# A methodology in 4 steps :

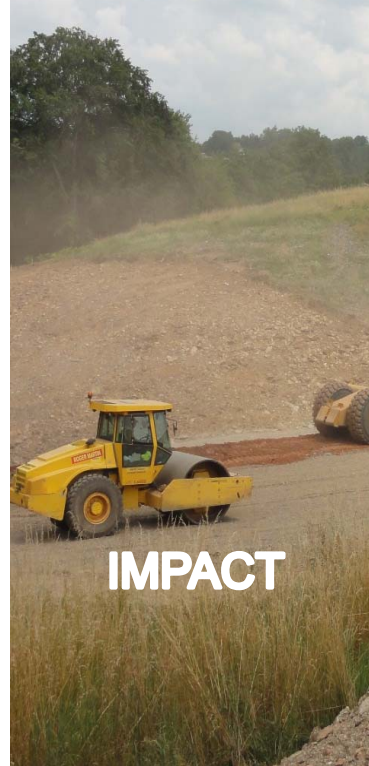
Definition and pricing of the Ecosystem Services



Mapping of each natural habitat composing the Ecosystem



Calculation of loss & gain of services depending on the project impact



GIS Red flag highlighting and alternatives balance



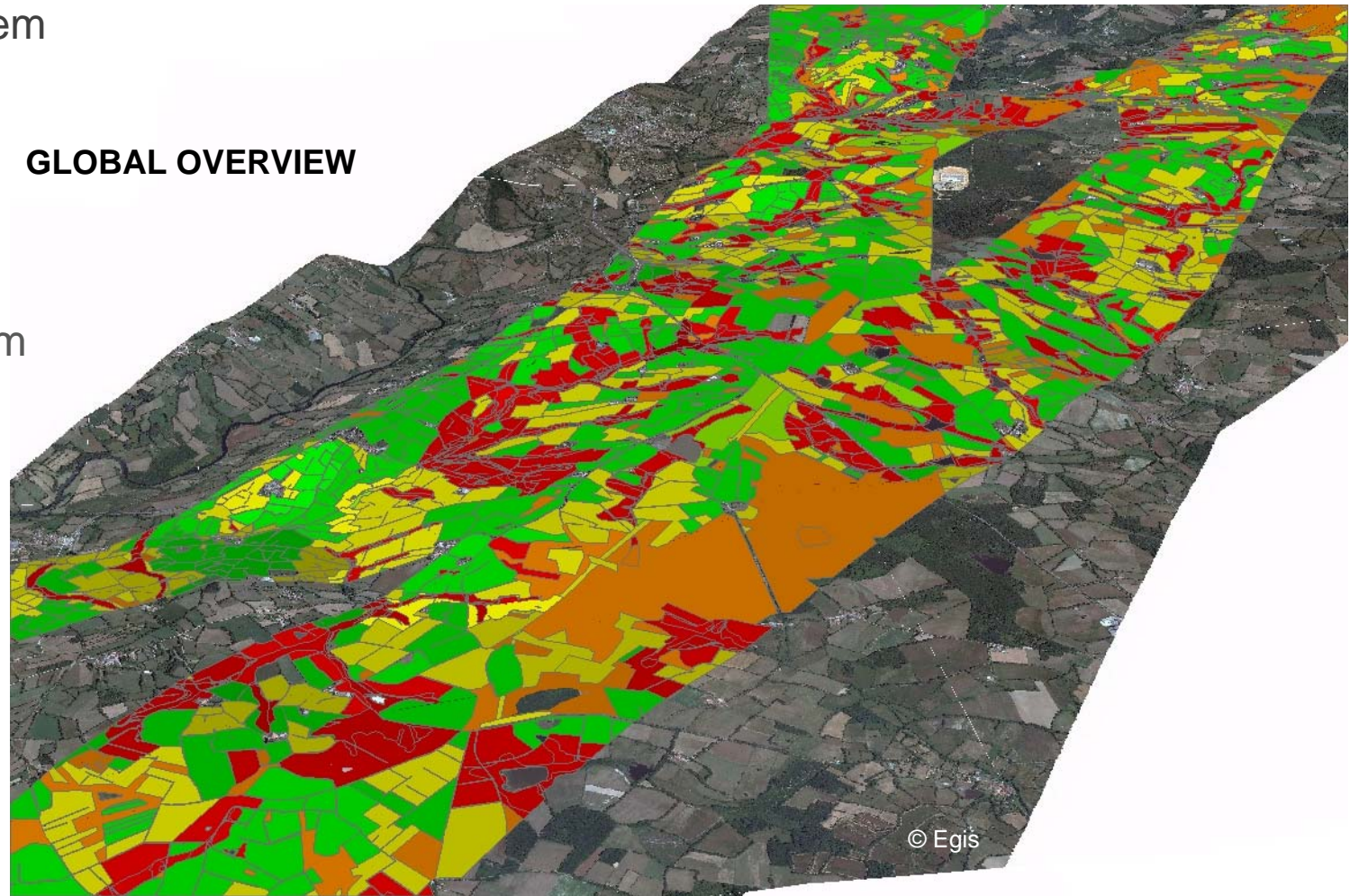
## C- RESULTS :

**Objective N° 1:**  
To reveal Ecosystem  
Services



**Result N° 1 :**  
Mapping ecosystem  
services

**GLOBAL OVERVIEW**





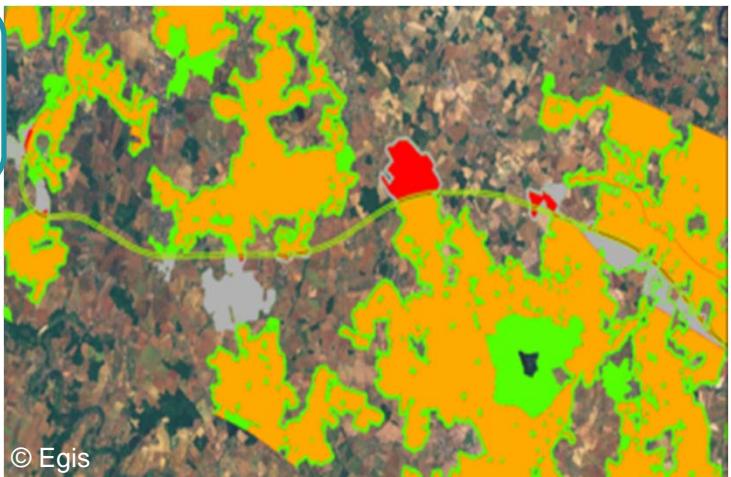
**Objective N° 2:** To assess impacts on Ecosystem Services due to a project

**Result N° 2 :** Direct/indirect loss of ecosystem services due to a project

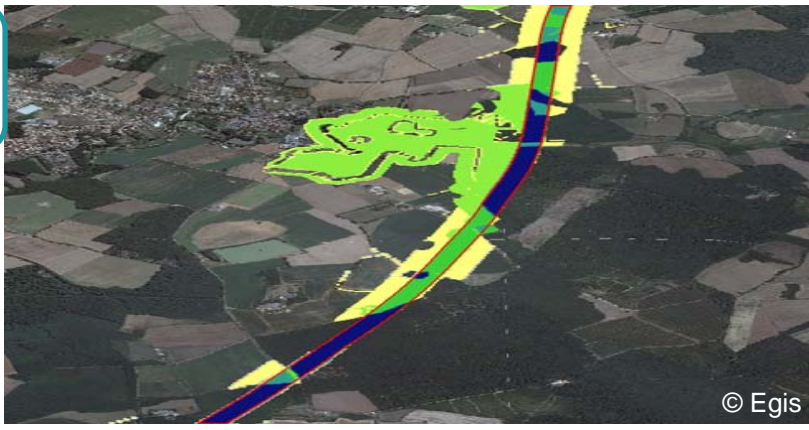
**Direct loss**  
Service of regulation of global climate (tons of carbon / ha)



**Indirect loss**  
Modification of the ecological network



**Summary overview:**  
losses and gains of ecosystem services



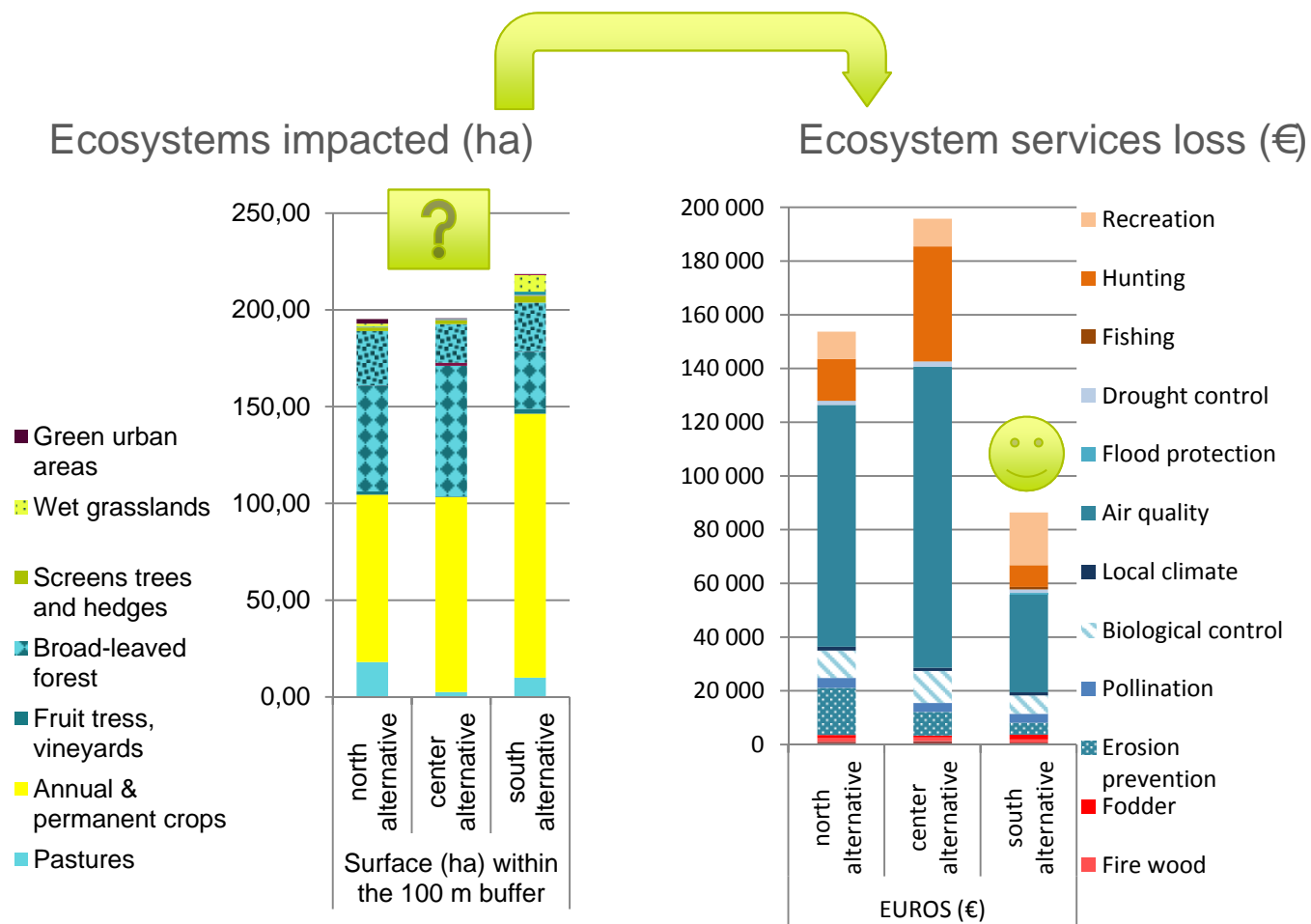
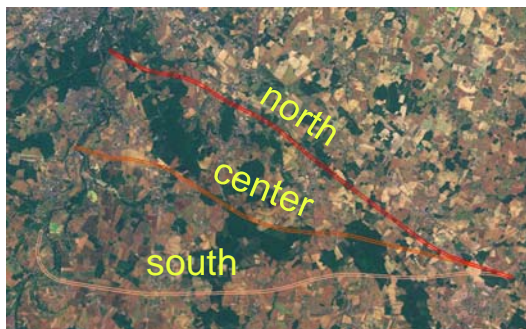


**Objective N° 3: To help optimize project design**

**Result N° 3 : Example of the comparison of 3 alternatives of a project**

→ Choose the one that would have the least impact on Ecosystem Services

3 alternatives of a project:



## D- CONCLUSION

| This approach contributes to improving the AMC (**Avoid-Mitigate-Compensate**) evaluation process.

| The knowledge of the “ecosystem services footprint” allows to conceive complementary and/or targeted measures:

- Mitigation measures,
- Compensation measures.

| The toolkit can help project designers, promoters, managers of natural areas, to make decisions that take into account biodiversity and associated ecological functions.

| It becomes possible to integrate ecosystem services loss into cost-benefit analysis of a project.

# AKNOWLEDGMENTS

The following people participated in the creation of this Toolkit:

- **Léa TARDIEU, PhD** “Integrating ecosystem services in the evaluation of transport infrastructure projects.” SupAgro Montpellier LAMETA

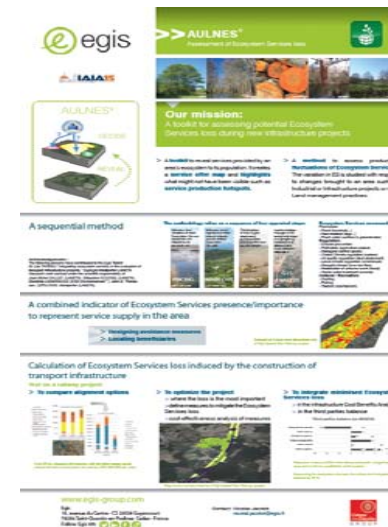
Research work realized under the scientific responsibility of :

- **Jean-Michel SALLES** (LAMETA)
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- **Dorothee LABARRAQUE** (EGIS)

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— THANK YOU FOR YOUR ATTENTION ! —

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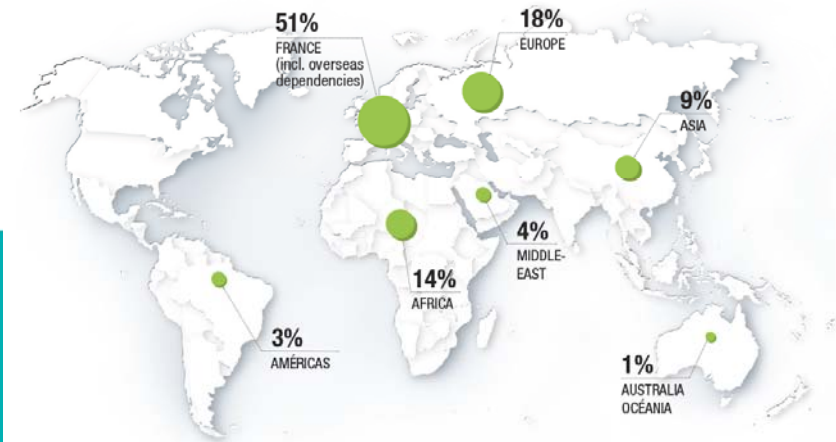
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