



A Multi-Scale Approach for Ecosystem Natural Capital Accounting of Protected Areas in West Africa: From Global to Local Datasets

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The IUCN/VITO PAPBio ENCA Pilot Project

PAPBio: Programme d'appui pour la préservation de la biodiversité et les écosystèmes fragiles, à la gouvernance environnementale et au changement climatique en Afrique de l'Ouest

Comp.1: Sustainable management of PA and peripheral zones (tasks 1 -> 3)

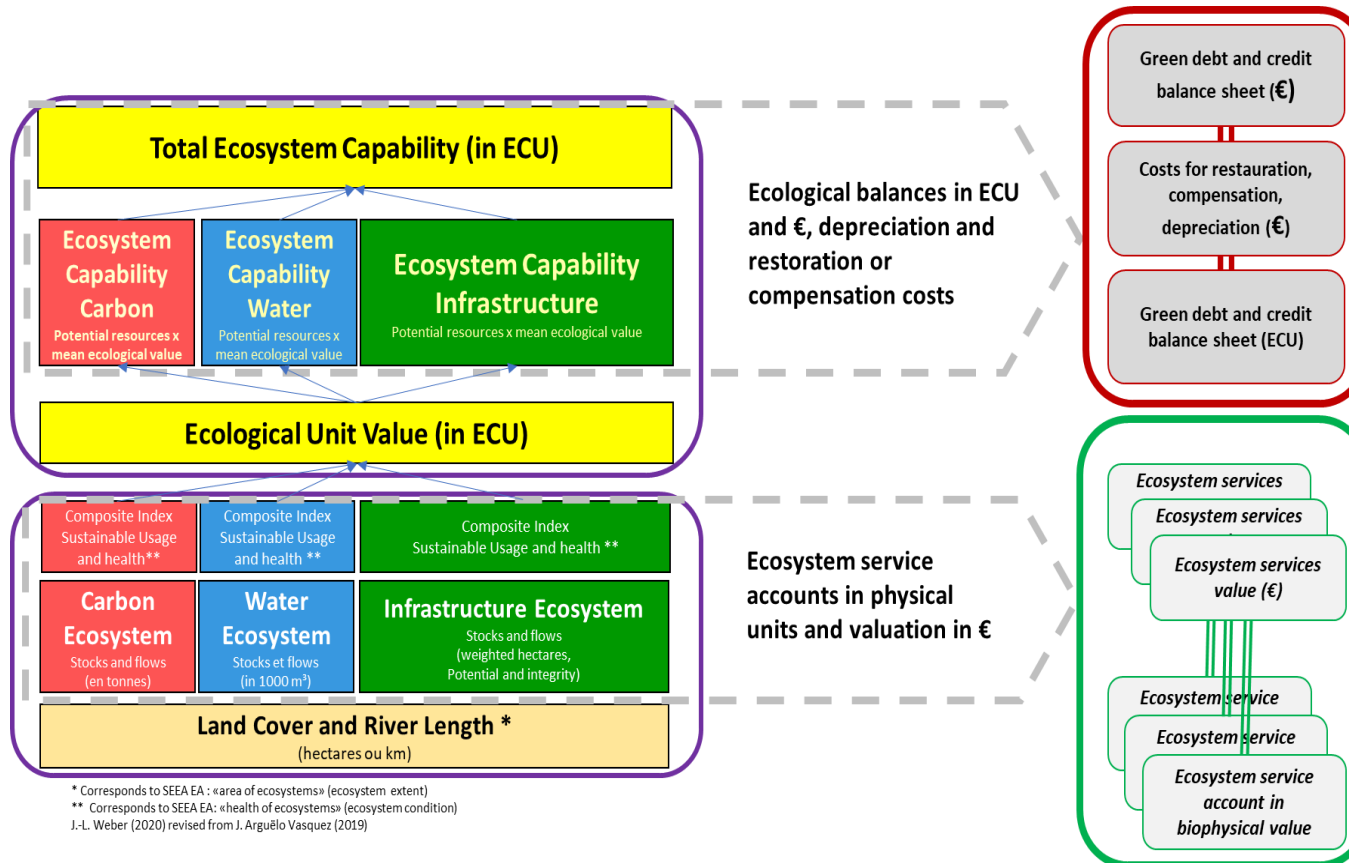
Comp.2: Regional governance and security (tasks 4 -> 7)

Activities task 4

- 4.1 : Create an operational regional framework for Protected Areas (PA) management.
- 4.2 : Strengthen regional mechanisms for conservation/management of coastal ecosystems.
- 4.3 : Support monitoring of PA management, environment and climate change at regional and national level.
- 4.4 : Improve coordination/management of PA, with regional policies/programs/strategies.
- **4.5 : Establish regional capacity for ecosystem natural capital accounting.**
- 4.6 : Develop a harmonized reporting system for all PA.



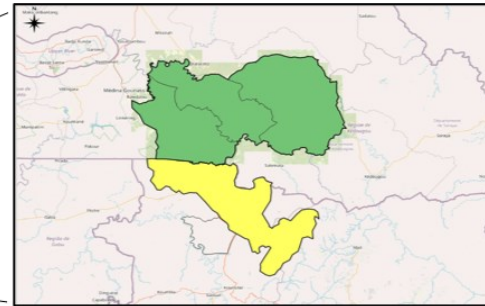
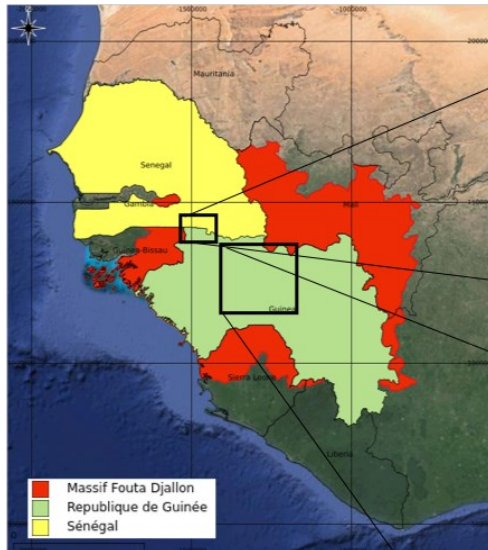
ENCA : An Integrated Approach



Assessing the capability of the ecosystem rather than loss per service

Case Study: National Parks in West Africa

2000 to 2018



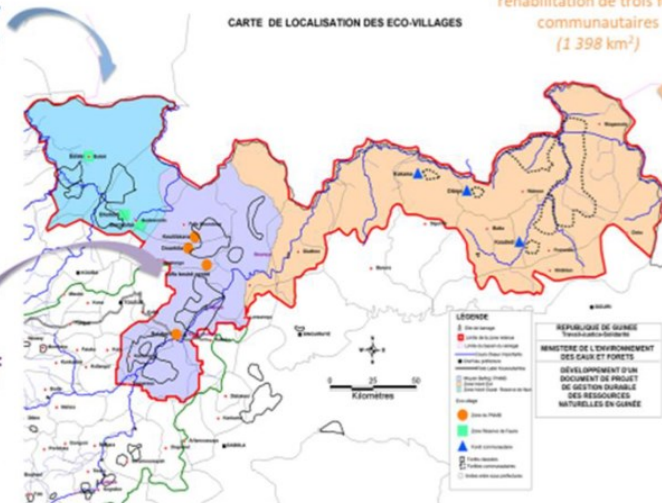
Zone Niokolo - Transfrontalière

Paysage Bafing-Faleme

Zone Nord-Ouest (10 377 km²): création de la Réserve de faune « Gambie Falémé » (3 372 km²)

Zone Nord-Est (15 772 km²): réhabilitation de trois forêts communautaires (1 398 km²)

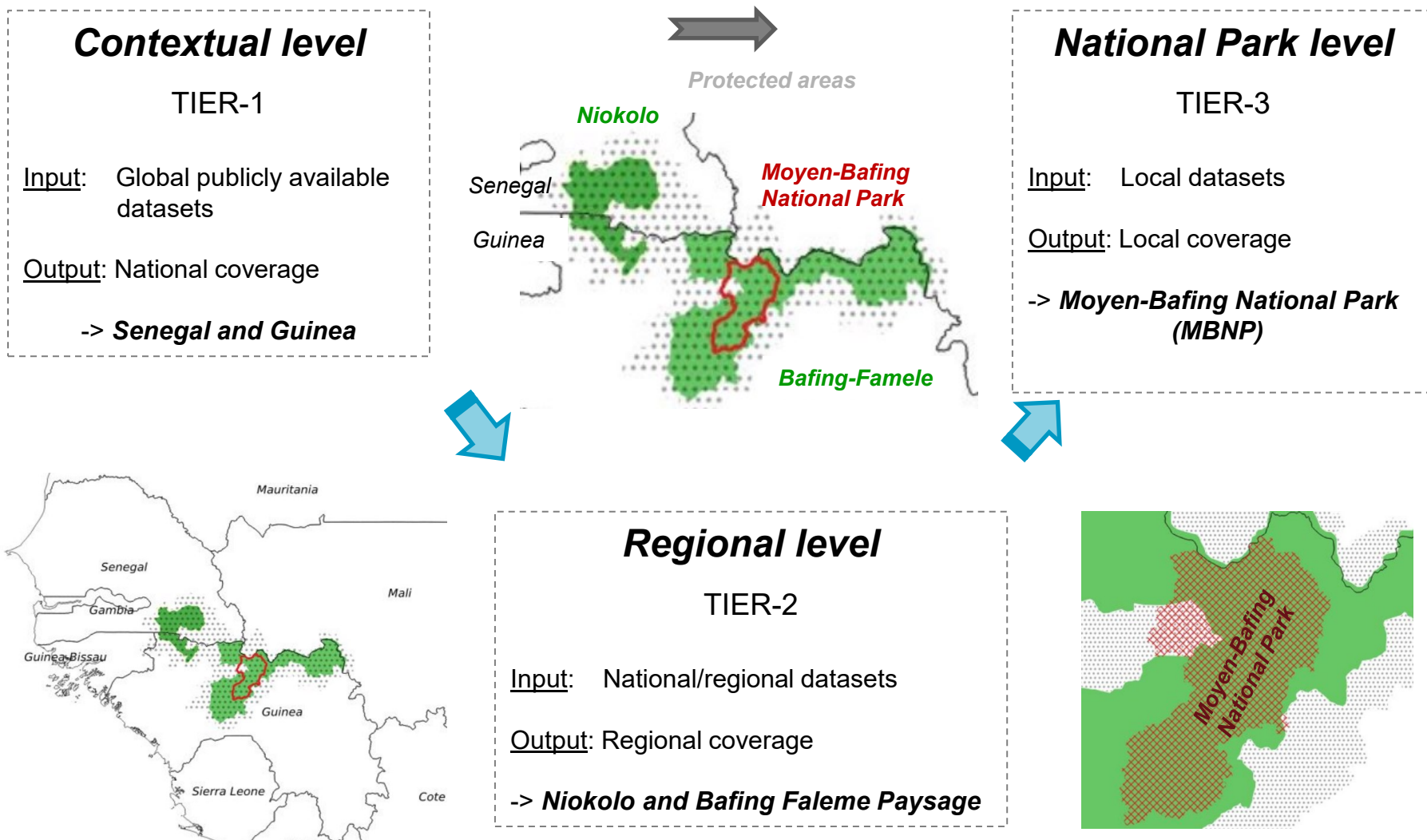
Zone centrale: Parc national du Moyen Bafing (6 426 km²).



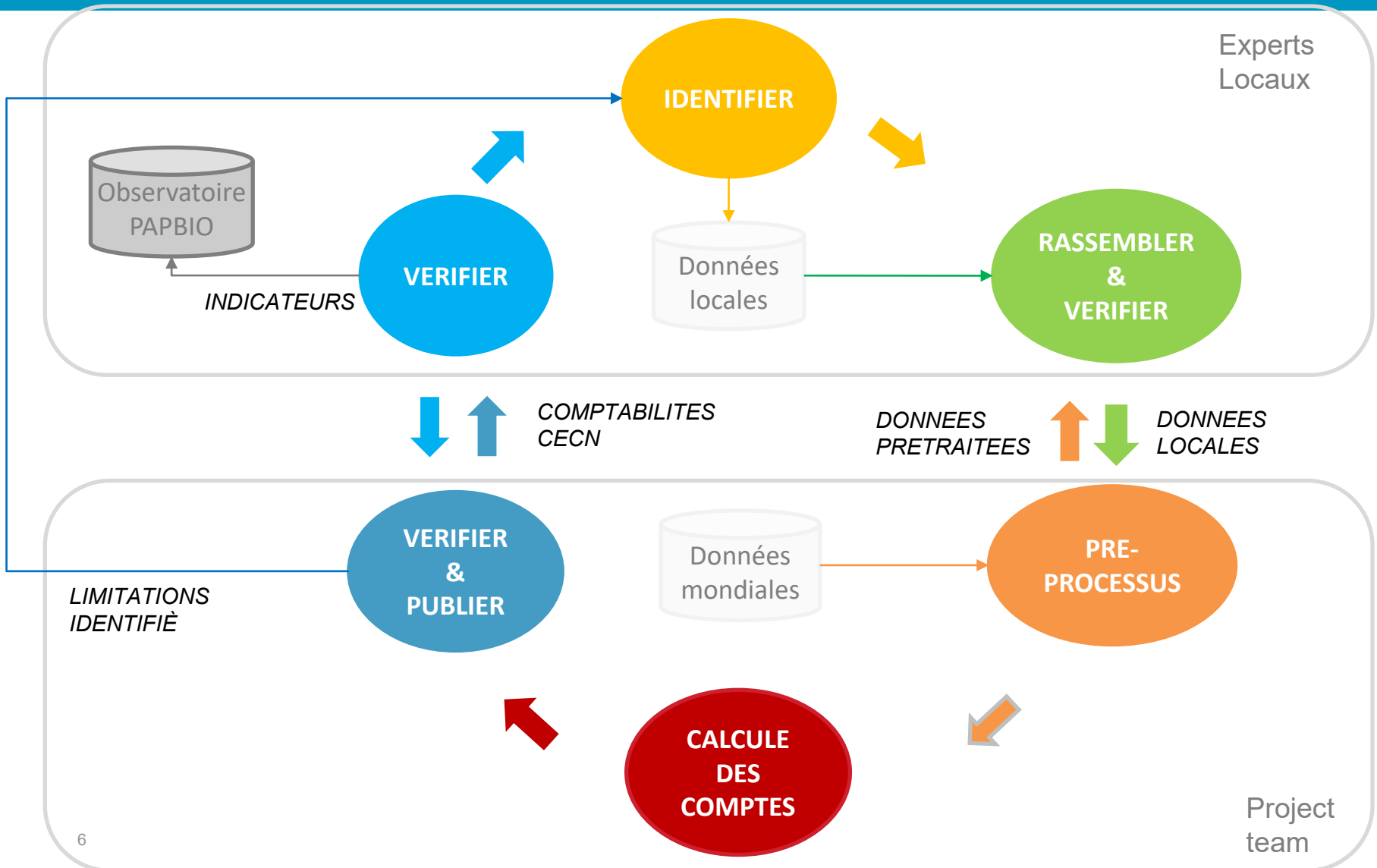
Pressure from:

- Shifting cultivation and fire
- Bauxit mining
 - o River pollution
 - o Deforestation
- Construction of dam and railway
- Fragmentation of ecological corridors

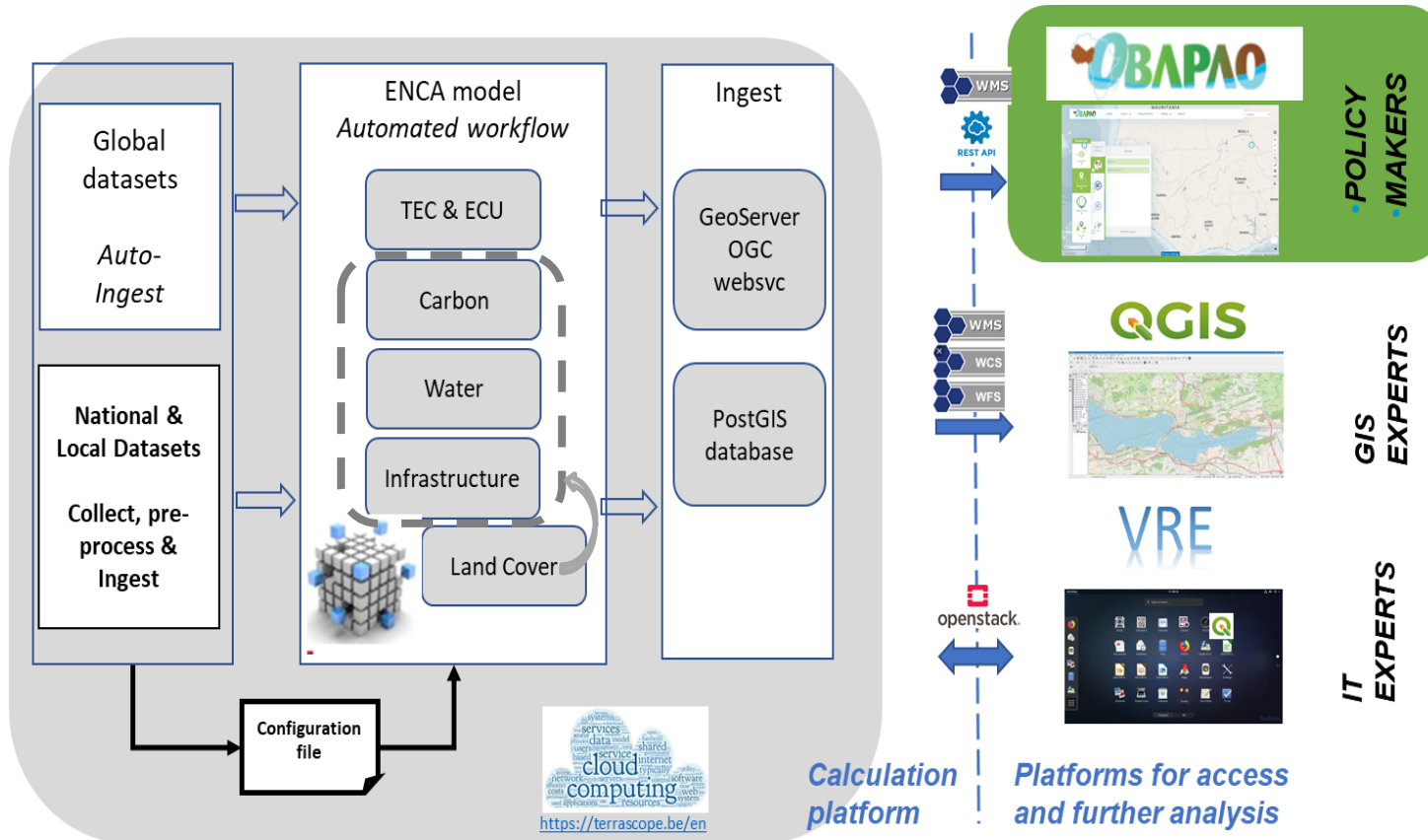
A multi-Level Approach



A collaborative approach



Development of a Semi-Automatised ENCA Tool



This tool reduces human errors, increases efficiency, speed and harmonisation of computation ▷ this allows for the accounting over long timeframes and spatial scales.

Natural Capital in a Changing Climate

Contextual level

TIER-1

Input: Global publicly available datasets

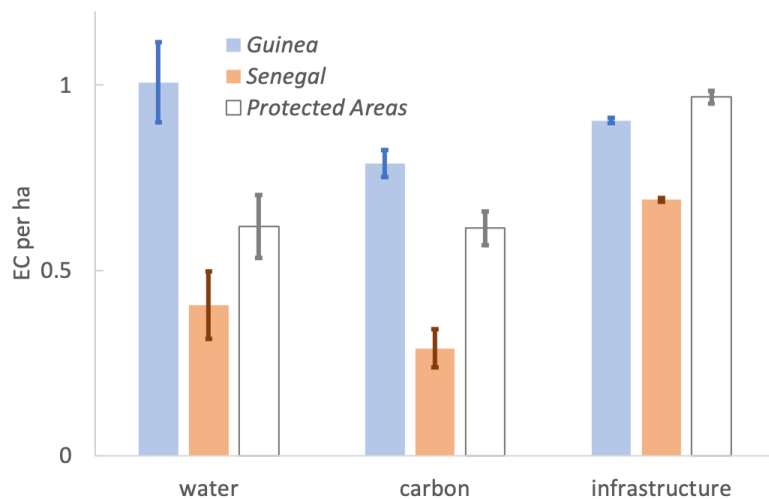
Output: National coverage

-> **Senegal and Guinea**

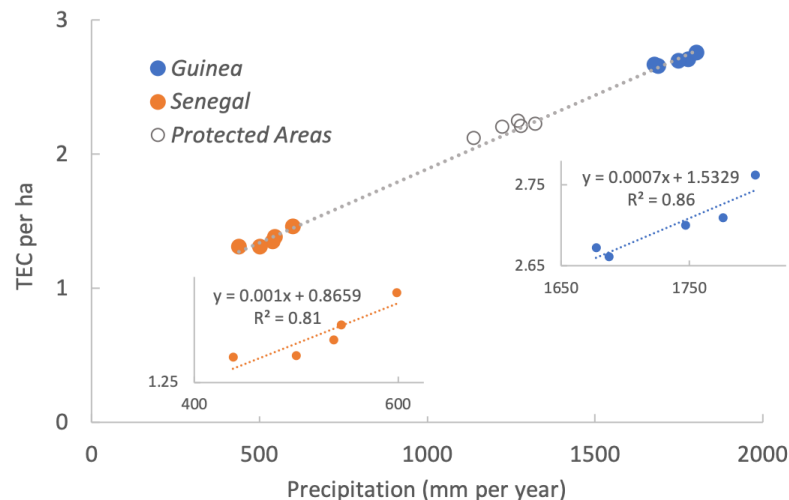


- Climate change will affect the natural capital of the protected areas,
- The accounting highlights the higher ecological value of the protected areas (compared to expected values), mainly through infrastructure -based services.

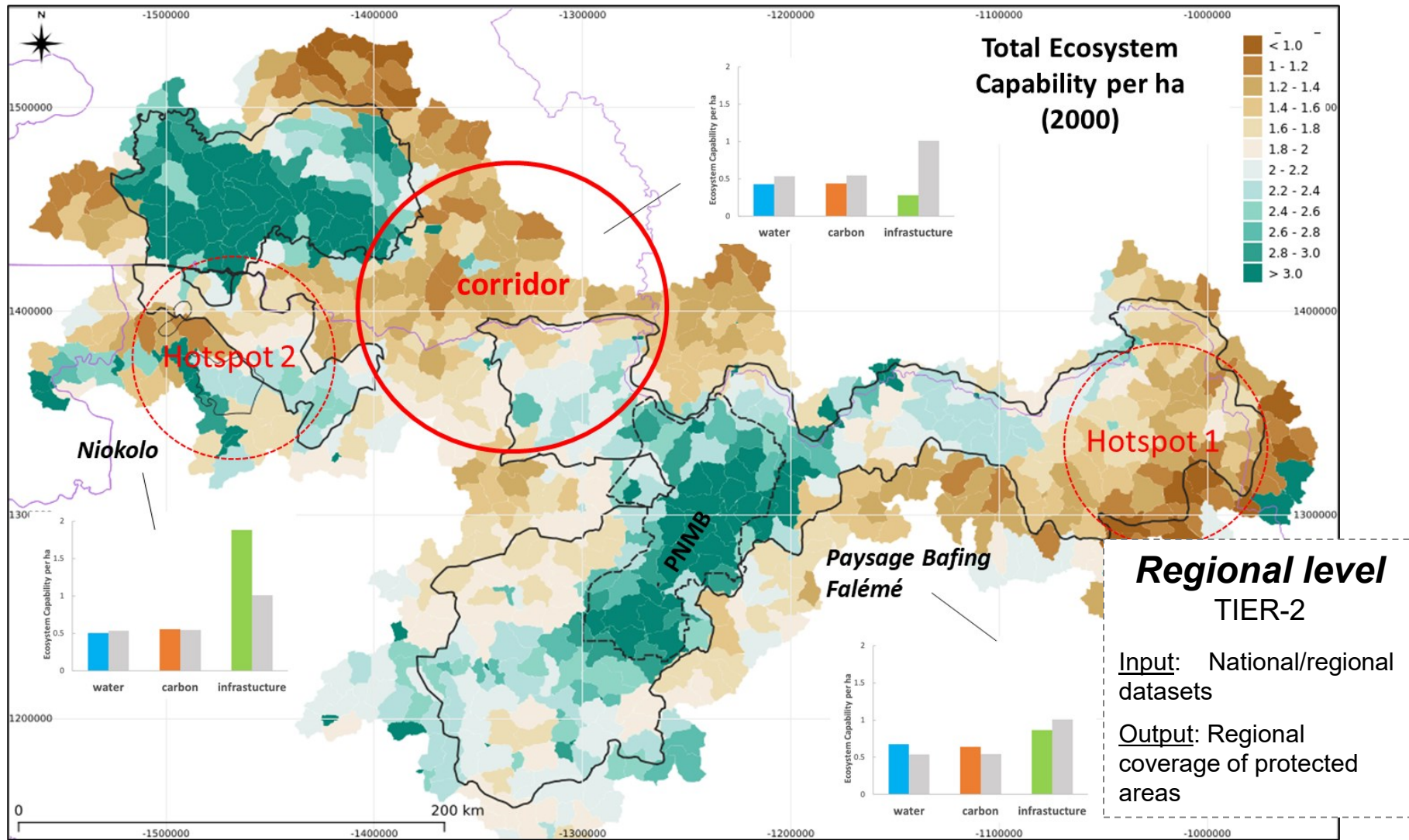
Ecosystem Capability per Component



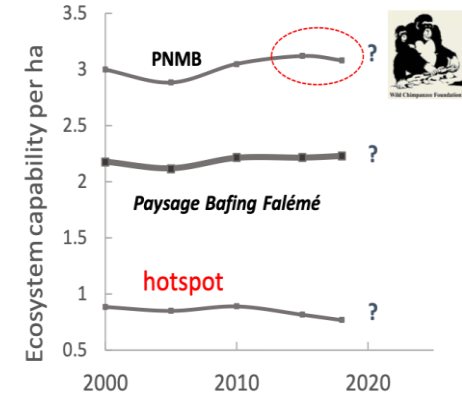
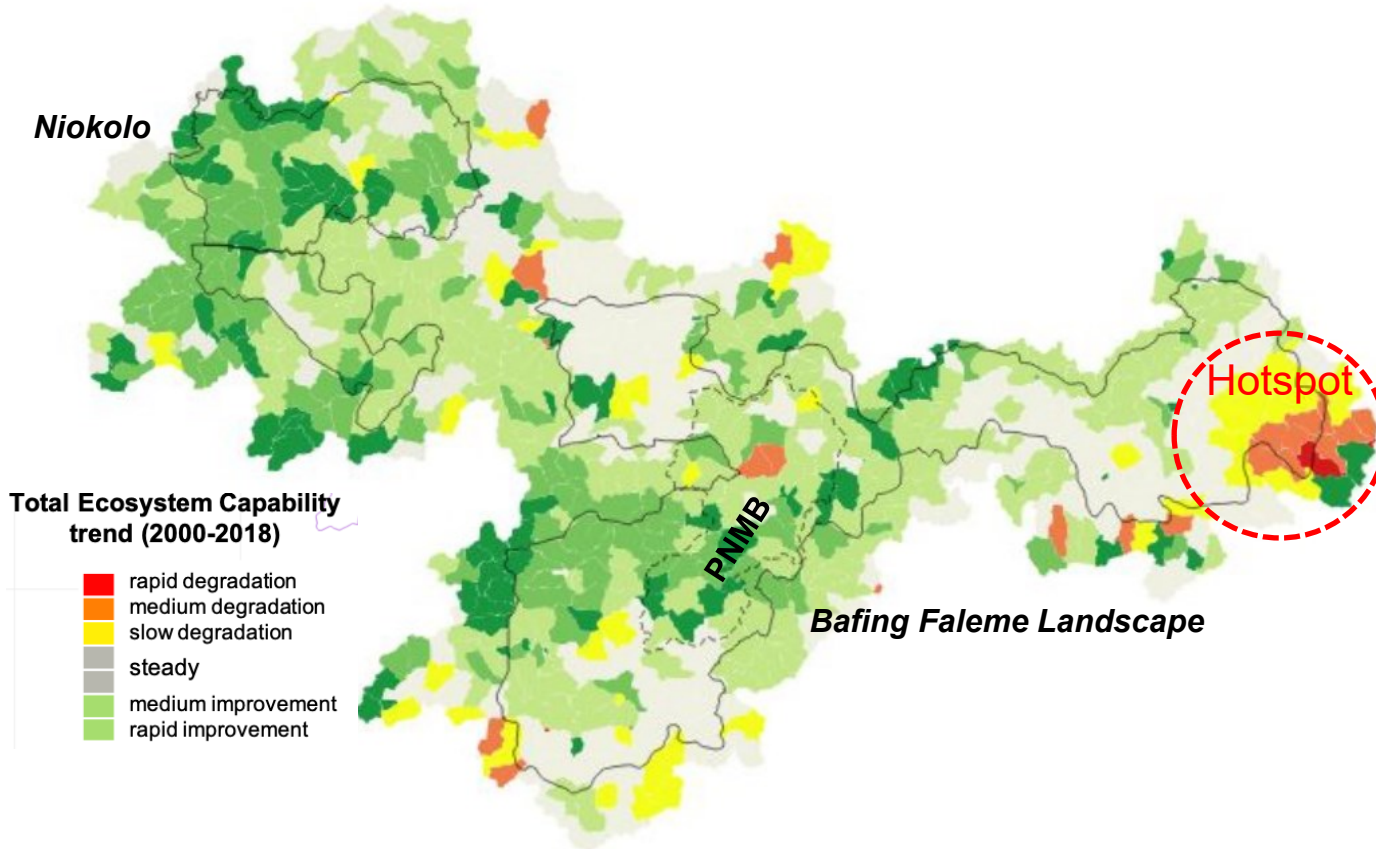
Total Ecosystem Capability



The Accounting flags Hotspots



Pressure on Land induces Degradation



➤ The tool allows to assess the evolution of the ecosystem value and to anticipate the required management to avoid further degradation or to take recover actions.

Tier-3 to highlight parc heterogeneity

- Landcover (10 - 30m)
- Population statistics (villages & roads)
- Fire repetition
- Fauna density (2016)
- Mining permissions

National Park level

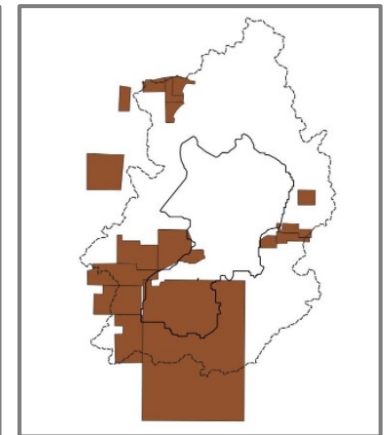
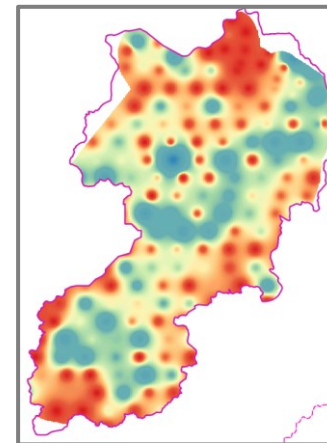
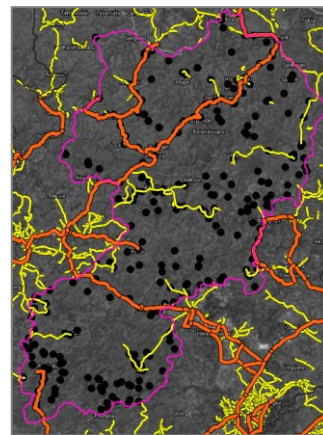
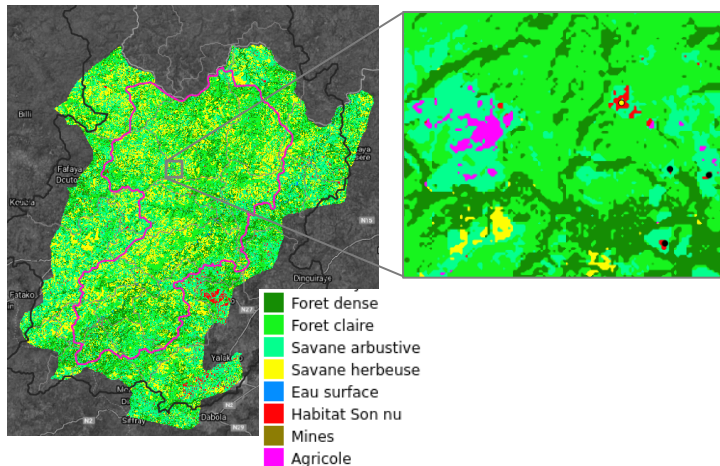
TIER-3



Input: Local datasets

Output: local coverage

-> **Moyen-Bafing National Park (MBNP)**

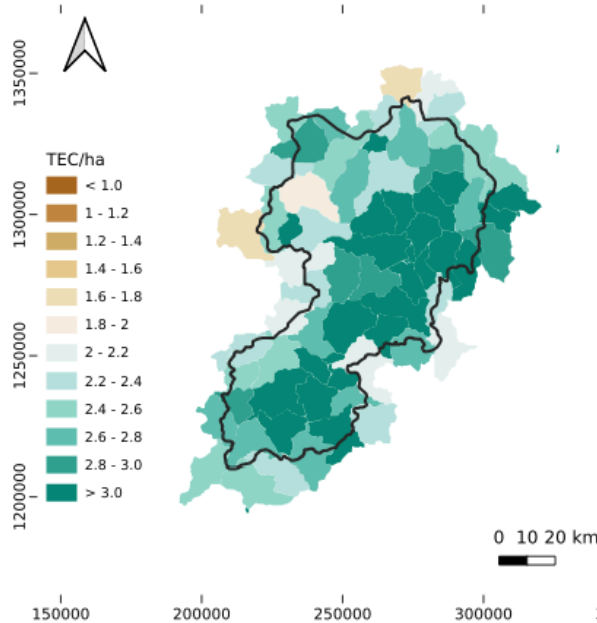


▷ Availability & understanding of local datasets.

Selective parc management

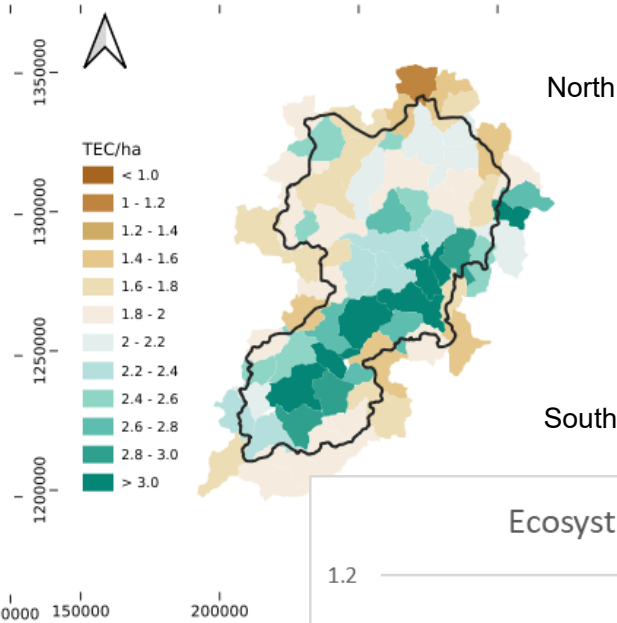
TIER-2

2000



TIER-3

2000



National Park level

TIER-3



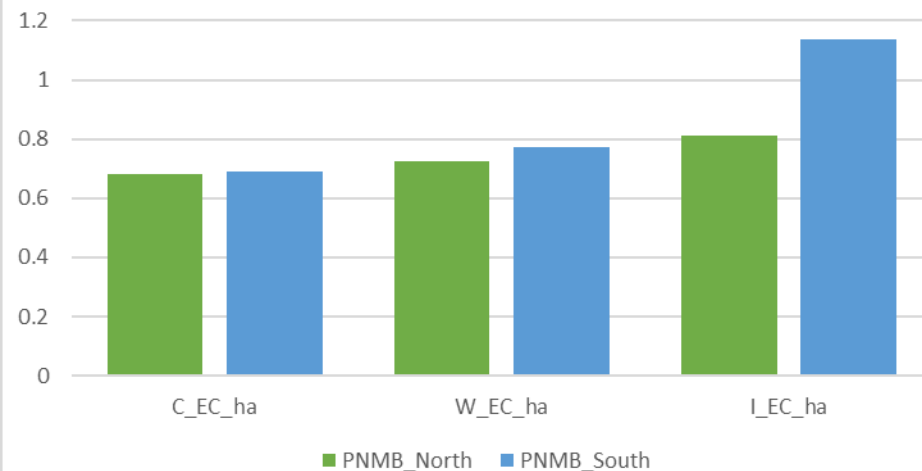
Input: Local datasets

Output: local coverage

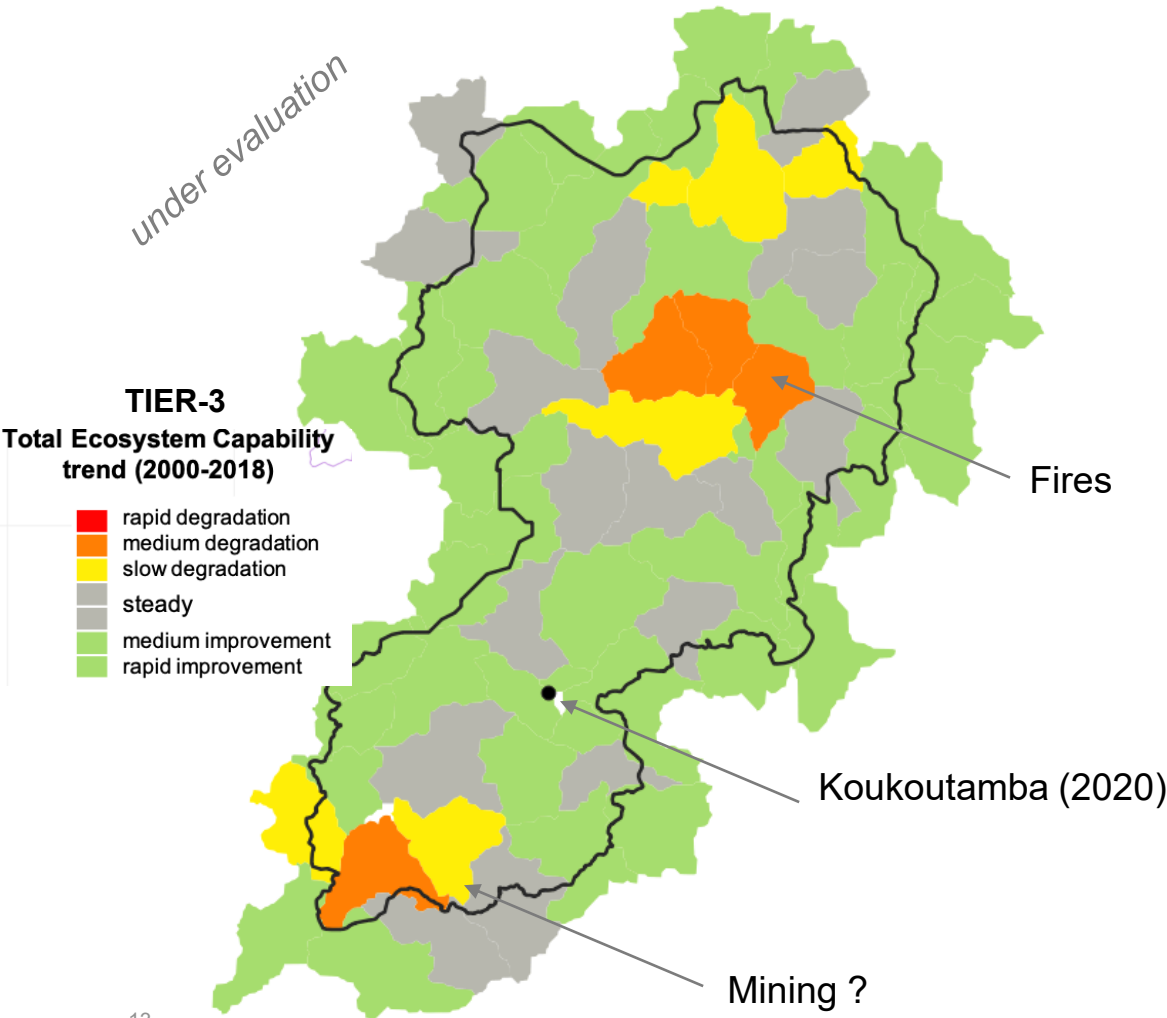
-> **Moyen-Bafing National Park (MBNP)**

Ingest local data into the model ▷ this allows for the accounting at local scale.

Ecosystem Capability per zone (2000)



Pressures affecting sustainability



National Park level

TIER-3



Input: Local datasets

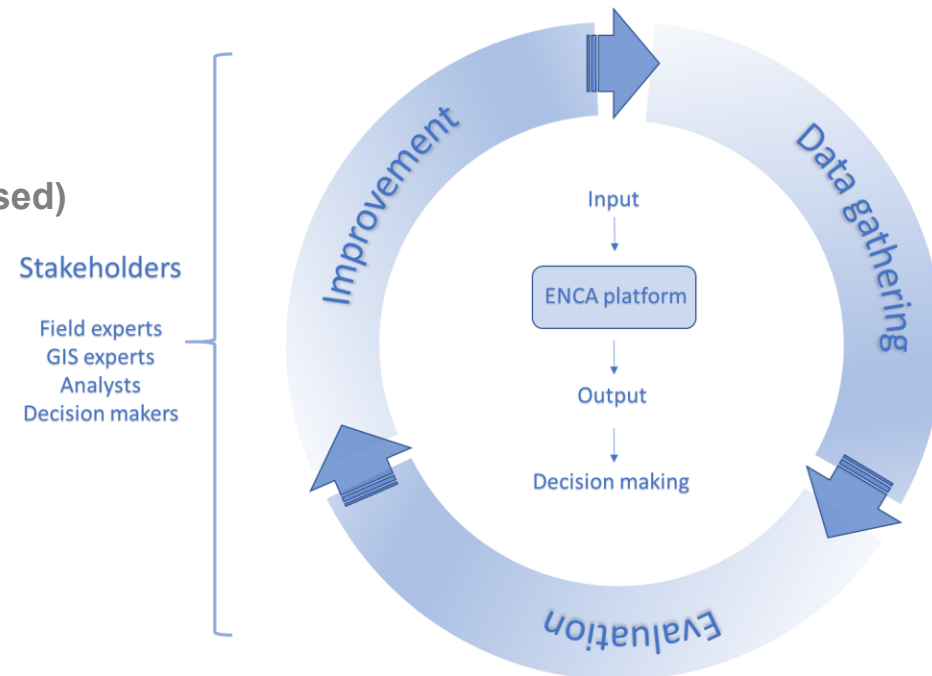
Output: local coverage

-> *Moyan-Bafing National Park (MBNP)*

Assess the evolution of the ecosystem value ▷ potential to evaluate scenario's

Summary

- ENCA-tool provides an integral view on natural capital of PA
 - National level can contribute to evaluate climate change (Tier-1)
 - Regional level provides contextual information (Tier-2)
 - Local level supports selective parc management (Tier-3)
- Ecological value per ha combines quantitative and qualitative information
- Local knowledge of PA is key
 - Local data
 - Evaluate model outputs (evidence based)
 - Future scenarios
- Iterative continuous process
 - Multi-disciplinary (collaboration)
 - Stakeholders involvement



Next steps

Capacity building in collaboration with OSS (Copernicea)



Improve local (Tier-3) PNMB account, in collaboration with WCF

- Fire management
- Water management
- Agriculture impacts
- Annual accounts of ecological value



Ease interpretation of results by decision makers

- Integration in existing decision support systems
- Exploratory study towards monetary valuation

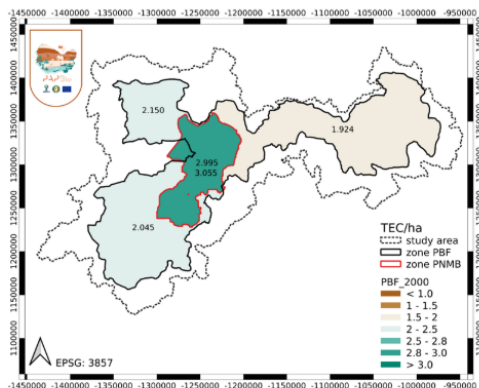
Demonstrate applicability of local approach to other (transboundary) PA

- Create account for WAP-complex



giz
(tbc)

PAPBIO – CECN



Ecosystem Account BAFING

(CECN BAFING)

Deliverable 3.2, V5.0

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Contract No. FED/2018/399-509

Submitted by

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Thank you!

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