QUICK SCAN APPROACH: SUPPORT AND STRENGTH CAPACITIES FOR APPROPRIATE ASSESSMENT(S) AND DECISION(S)

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The problem(s) …

The context(s) …

The framework(s) …

Lessons learned …

Application(s) …

The problem(s)…

THE GAP BETWEEN OFFER AND DEMAND…

- **Tools offer and demand:**

Some selected tools… for expert support, detailed assessments, powerful modelling, research driven, implementing solutions…

Scenarios: IMAGE 2; NEMESIS; AIM; PRELUDE; EURURALIS
Land use/land cover: LEAC; ATEAM; SENSOR/SIAT;CLUE-S; LUMOS; MOLAND/METRONAMICA; LUMOCAP; GEONAMICA
Goods and services: ALARM; ARIES; InVEST
Sectoral: GLOBIO (Biodiversity); CAPRI (Agriculture); SEAMLESS (Agriculture/Forestry); EFISCEN (Forests); ESPON (Infrastructure/Accessibility); FLOODS (Disasters); SWAT (Water)

THE NEEDS FOR DECISION SUPPORT…

Policy step
A Screening
B Scoping
C Consultation
D Prioritization/Targeting
E Impact assessment

Decision step
a Diagnose
b Now-casting
c Exploration
d Hotspot
e Evaluation

Key outputs:
Explore options/alternatives
Find hotspot areas/sectors/services
Define problems/issues
Assess policies or directives
Change/explore the assumptions
Analyse trade-offs across scales of resources and levels of decision

The context(s)…

1. REGIONAL/NATIONAL DECISIONS (1998-2002)

Spatial scale: Central America/Mexico; Time scale: 1990-2030; Schedule: 2 weeks

Regional: Strategies **Integration:**	ALIDES (Policies) SICA/CCAD (Economy, Society, Environment) INFODEV (Information) SICAP (National Parks) CEPREDENAC (Natural Disasters)
National: Policies **Decentralization:**	Ministries of Environment, Agriculture and Planning (Policies) CONADES (Economy, Society, Environment) SINIA - INFODEV (Information) National Parks Services (Environment) National Committees to Prevent Disasters (Natural Disasters)
Local: Actions **Participation:**	NGO (Policies, Economy, Environment) Private sector (Economy, Environment) Farmers (Economy, Society, Environment) National Parks Services (Environment) National Committees to Prevent Disasters (Natural Disasters)

Source: Winograd, 2003

2. STRENGTH NATIONAL CAPACITIES (2004-2006)

Spatial scale (Asia, LAC, Africa); Time scale: 1990-2050; Schedule: 1 week

Global	**International conventions**		**Development assistance**
		Implementation	
National	**APF**		**NAPA**
	Policies	**Resources Sectors**	**Projects**
Local	*Measures*	*Communities Households Target groups*	*Urgent actions*

Source: Winograd, 2005

3. REGIONAL POLICIES/ACTIONS (2008-2011)

Spatial scale: Europe; Time scale: 1990-2010; Schedule: 2 days

Thematic… ASSESS URGENT ISSUES

Intensification/extensification = LAND CHANGES

Restoration/rehabilitation = CARBON DYNAMICS

Use/conservation = ECOSYSTEM SERVICES

Policy… EVALUATE (IN)CONVENIENT RESPONSES

CAP reform = AGRICULTURE SUSTAINABILITY/SECURITY

Habitat directive = GREEN/GREY INFRASTRUCTURE

Water directive, CO_2 reduction = MITIGATION/ADAPTATION

Emerging issues… EXPLORE (IN)COVENIENT IMPLICATIONS

Systemic crises = RESOURCES EFFICIENCY

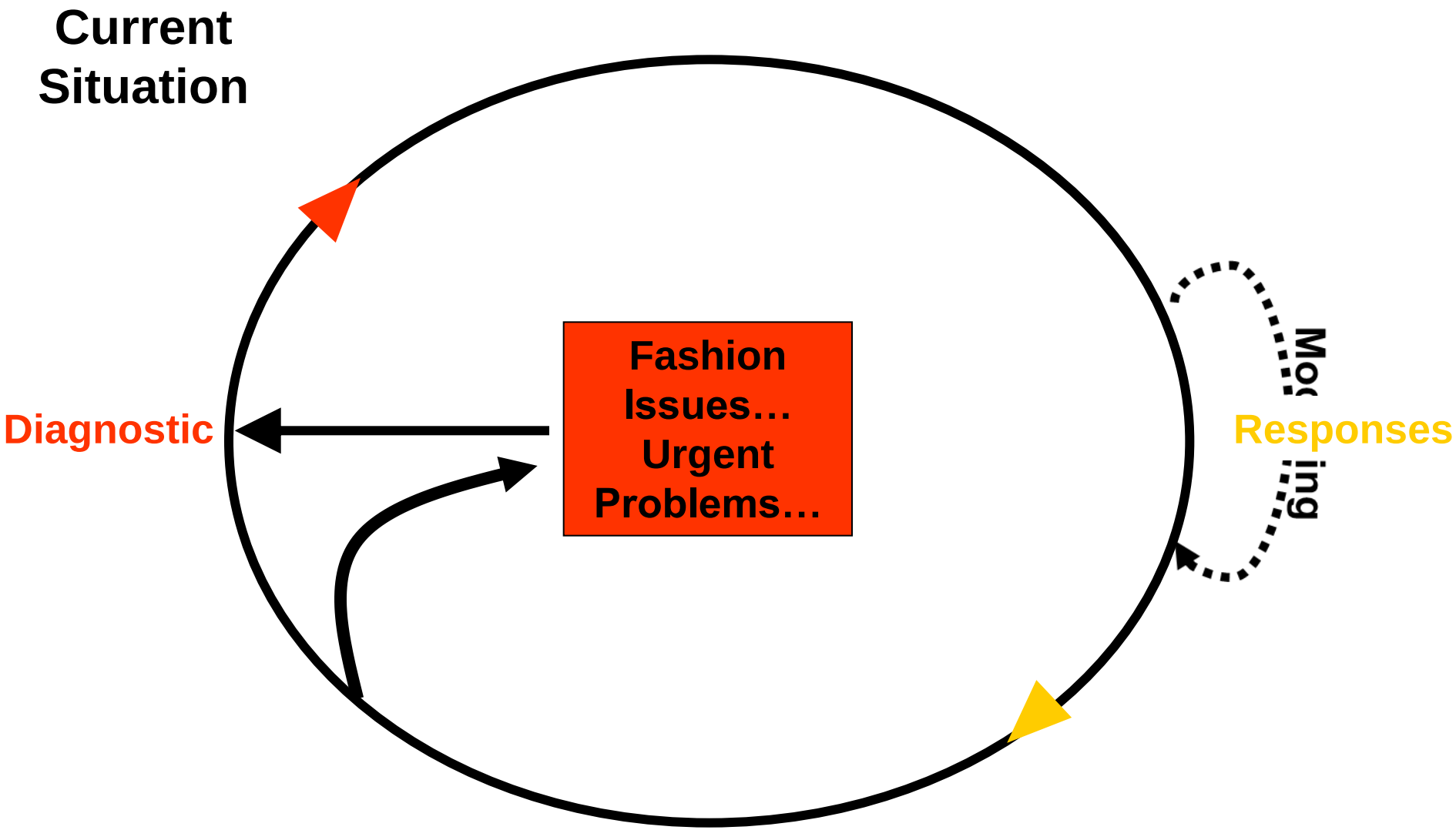
Multiple perspectives = EUROPE IN THE WORLD

Confronting decisions = CLIMATE VARIABILITY/CHANGE

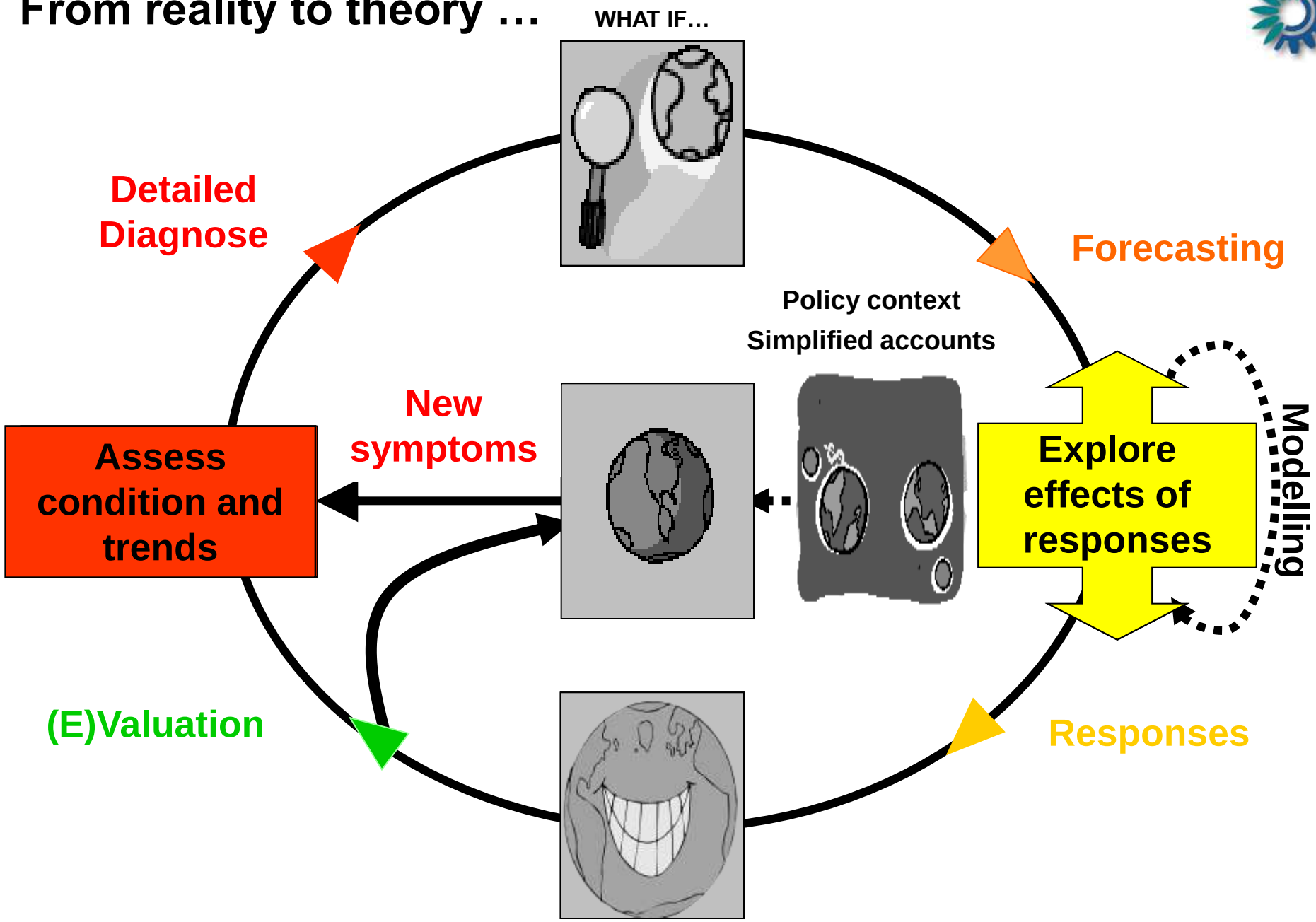
Source: Winograd, 2010

The framework(s)…

From theory to reality …



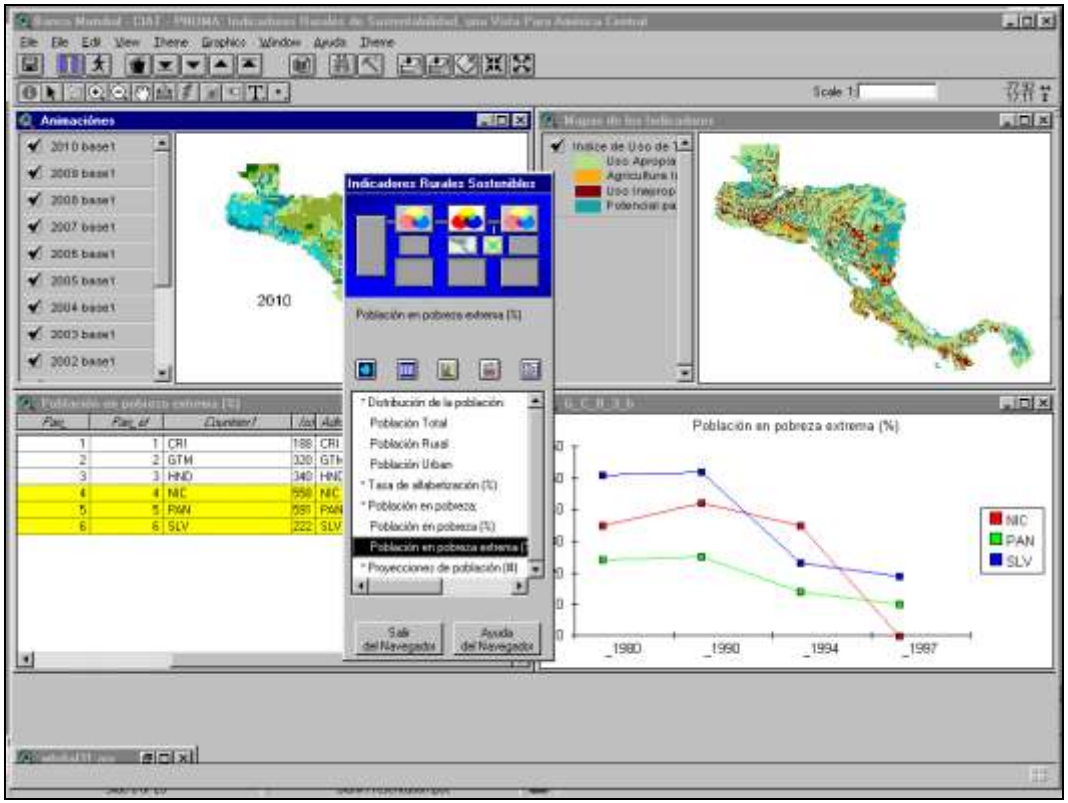
From reality to theory …

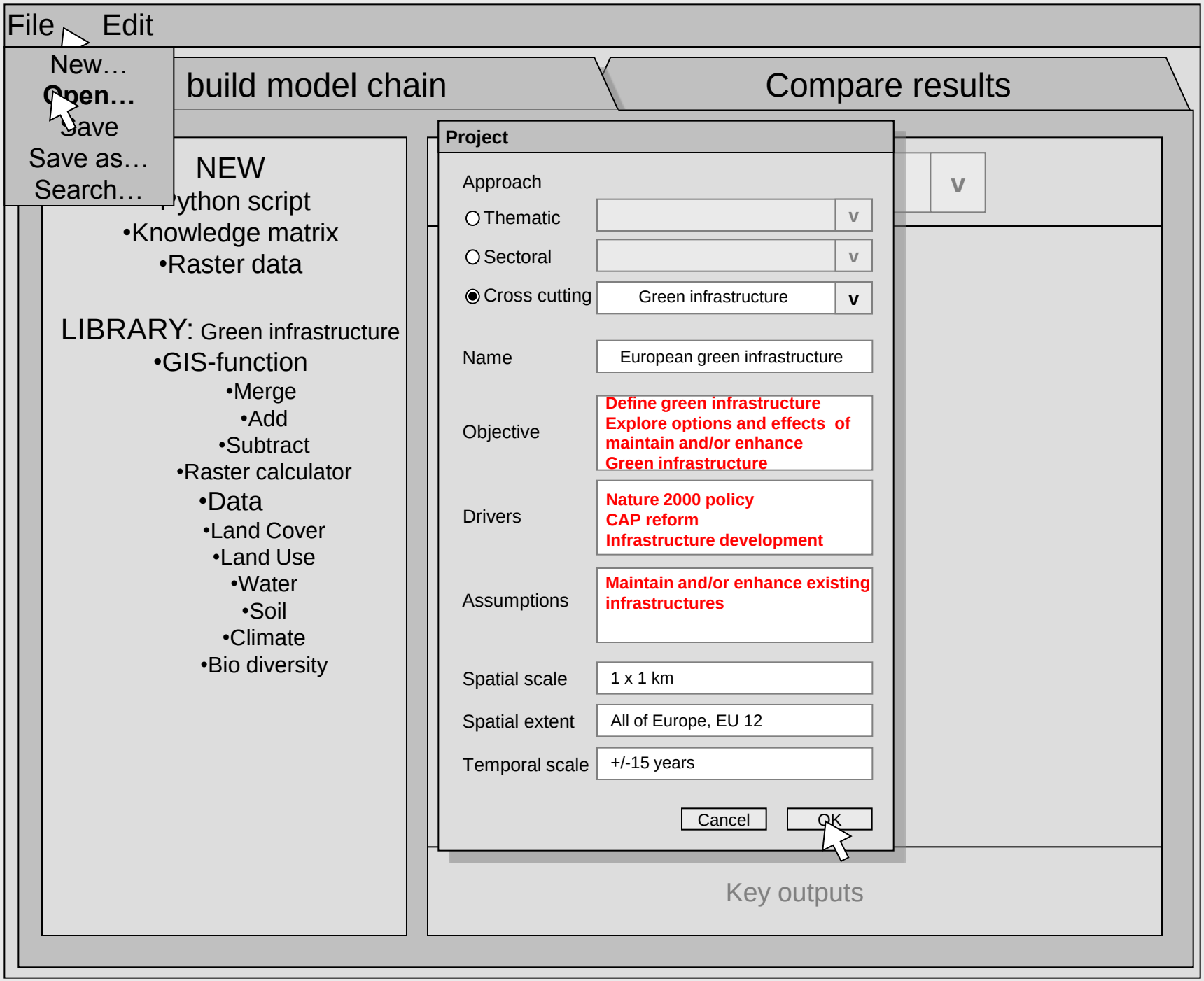


Source: Winograd, 2003


Indicadores de sustentabilidad rural
Indices por problemas
Uso de Tierras
Bosques
Aguas dulces
Biodiversidad
Recursos Marinos/Costeros
Atmósfera
Energía
Dinámica Social
Dinámica Económica
Infraestructura
Eventos naturales
Indicadores Rurales Sostenibles
Indices por componentes
Social
S-E
S-A
Económico
E-A
Ambiental
Salir del Navegador
Ayuda del Navegador


Indicadores Rurales Sostenibles
Indice de Desarrollo Humano
* Indice de Desarrollo Humano
Indicadores Rurales Sostenibles
Mapas Básicos -
Indices por componentes
Administrativos
Ambientales
Salir del Navegador
Ayuda del Navegador


Animaciones
2010
Población en pobreza extrema (%)
1980
1990
1994
1997
NIC
PAN
SLV


File
Edit
New…
Open…
Save
Save as…
Search…
build model chain
Compare results
NEW
Python script
•Knowledge matrix
•Raster data
LIBRARY: Green infrastructure
•GIS-function
•Merge
•Add
•Subtract
•Raster calculator
•Data
•Land Cover
•Land Use
•Water
•Soil
•Climate
•Bio diversity
Project
Approach
Thematic
Sectoral
Cross cutting
Green infrastructure
Name
European green infrastructure
Objective
Define green infrastructure
Explore options and effects of maintain and/or enhance Green infrastructure
Drivers
Nature 2000 policy
CAP reform
Infrastructure development
Assumptions
Maintain and/or enhance existing infrastructures
Spatial scale
1 x 1 km
Spatial extent
All of Europe, EU 12
Temporal scale
+/-15 years
Cancel
OK
Key outputs

Training on vulnerability and adaptation strategies assessment

Lessons learned …

From theories to realities: Tools/Methods

 **Toolbox** not aimed at more **high tech** development, but more on **translating/combining/ exploring** results into **understandable/usable/ changeable** outputs **for decision support.**

 Avoid **complicated and sophisticated tools**, cunning **substitution** of the **technique** (e.g. models, GIS) for the **problem** (e.g. explore options and support decisions).

From theories to realities: Processes/Costs

Case 1. (CA) Develop tools and create capacities:
1.5 million US$ for 3 years tools development project and 0,05 millions US$ for 1 year strength capacities.

Case 3. (EU) Create capacities building toolbox:
0,75 millions US$ for a 3 year process.

Case 2. (AA) Create/strength capacities to use tools:
0,375 millions US$ for a 3 years process.

From theories to realities: Users/Uses

Case 1 (CA).

- **Tools developed, capacities strengthen, planning processes changed.**
- **Tools not used/installed, maps became the reality, capacity building not supported.**

Case 2 (AA).

- **Capacities created/strengthen, trainees trained, decentralized process.**
- **Too cheep to be true!!!, to much similar processes, need changes in decision processes.**

Case 3 (EU).

- **Open source toolbox available, short time to build applications, response to policy demands.**
- **Development/Application, if easy not credible…if complex not used, data quality/needs.**

In conclusion, the pragmatic approach…

✓ **More than models and tools…**

Start from real problems and actors/institutions needs not our models and tools capacities.

✓ **Create users driven processes to go from science based assessments to policy/socially appropriate responses…**

Start from diagnosis to identify causes and effects not from forecasting to solve the consequences.

✓ **Facilitate actors participation to improve empowerment…**

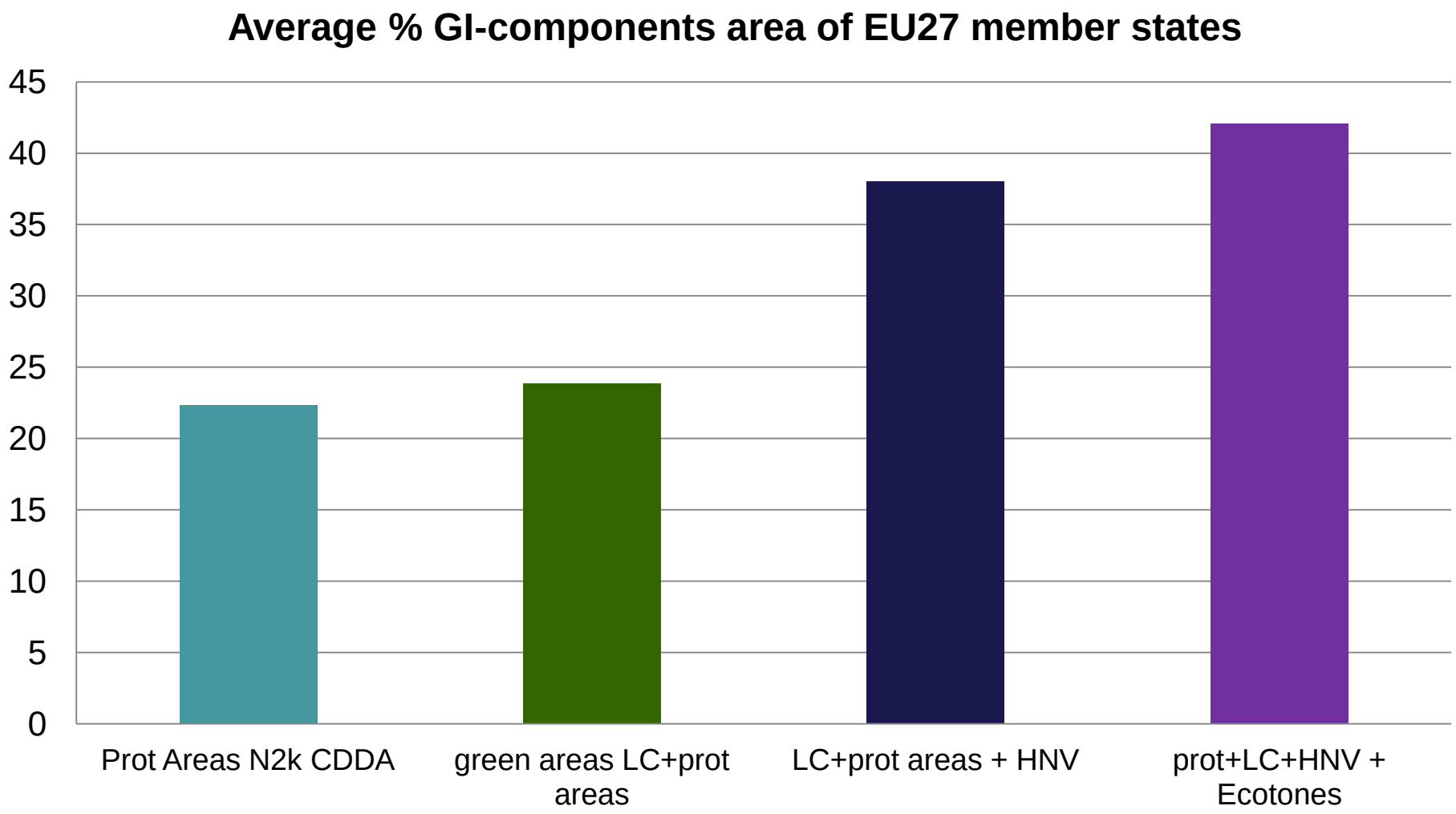
Start with effective capacity strengthening to respond to the users needs and support the actual running process.

✓ **Build and improve insight and common sense…**

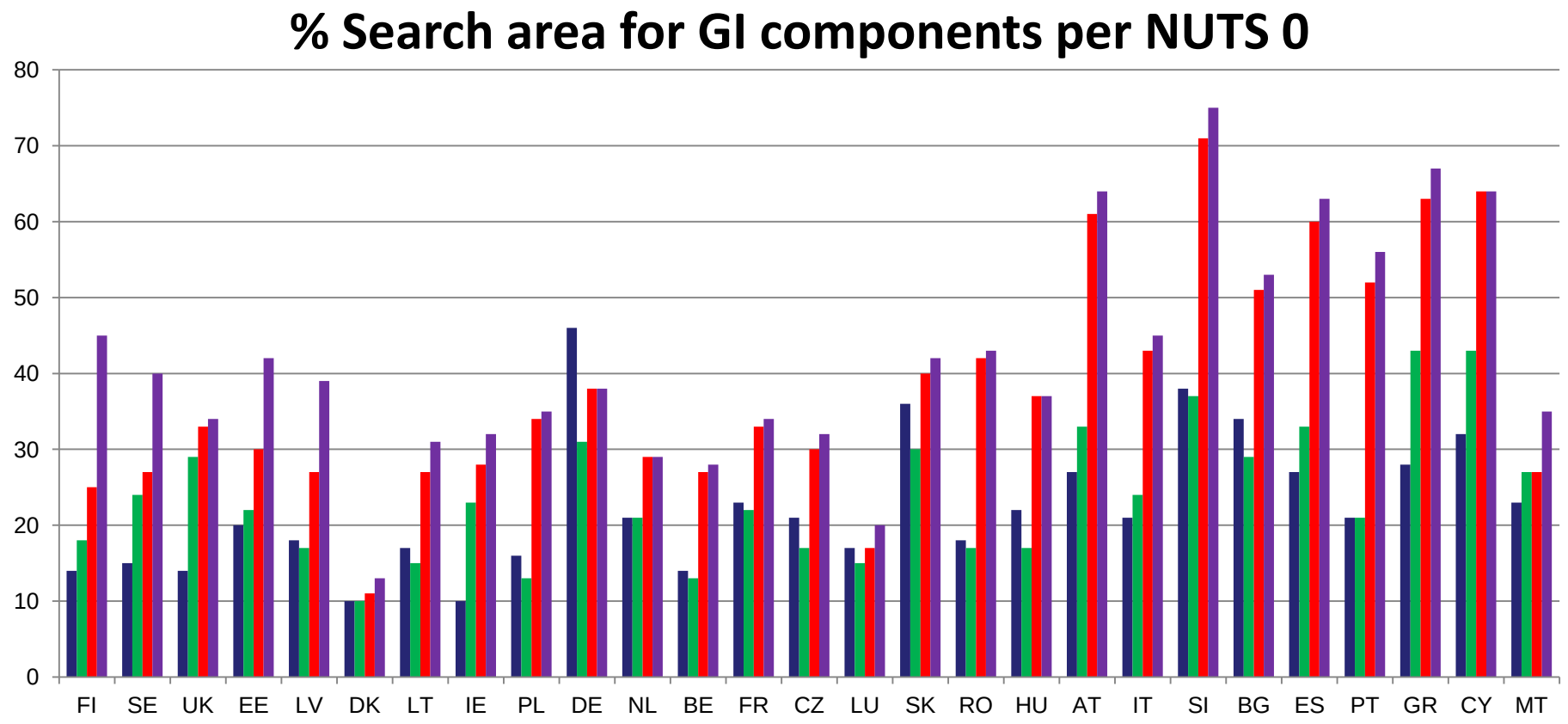
Start strengthening institutional capacities to integrate different knowledge and applications at different policy/decision making levels.

Application(s)… your choice:
Case 1. CA
Case 2. LDC
Case 3. Europe

Graph Comparison of alternatives for EU27



Graph Comparison of alternatives at NUTS 0 resolution



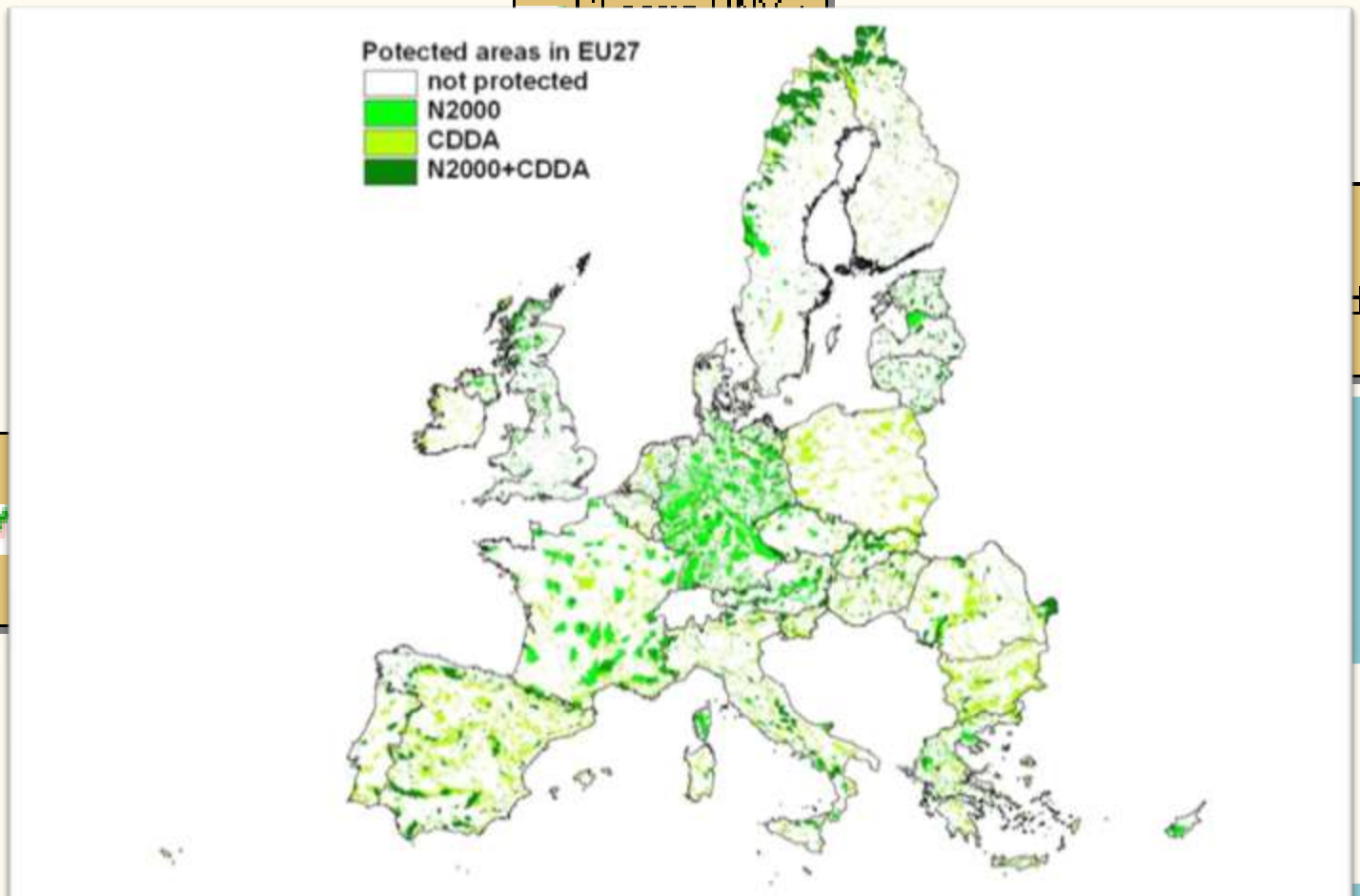
% Search area GI components per NUTS 0

- Protected areas N2000 + CDDA
- Green areas Land cover + protected areas
- Land cover + protected areas + HNV
- Land cover +protected areas + HNV + Ecotones

Step 1: select total protected area in EU27 (N2000 + CDDA)

GI comp ecotones + HNV + protected + LC

Natural ecotones



Step 2: select green components (protected + CLC)

View source

Knowledge matrix

Matrix | Theme | Description

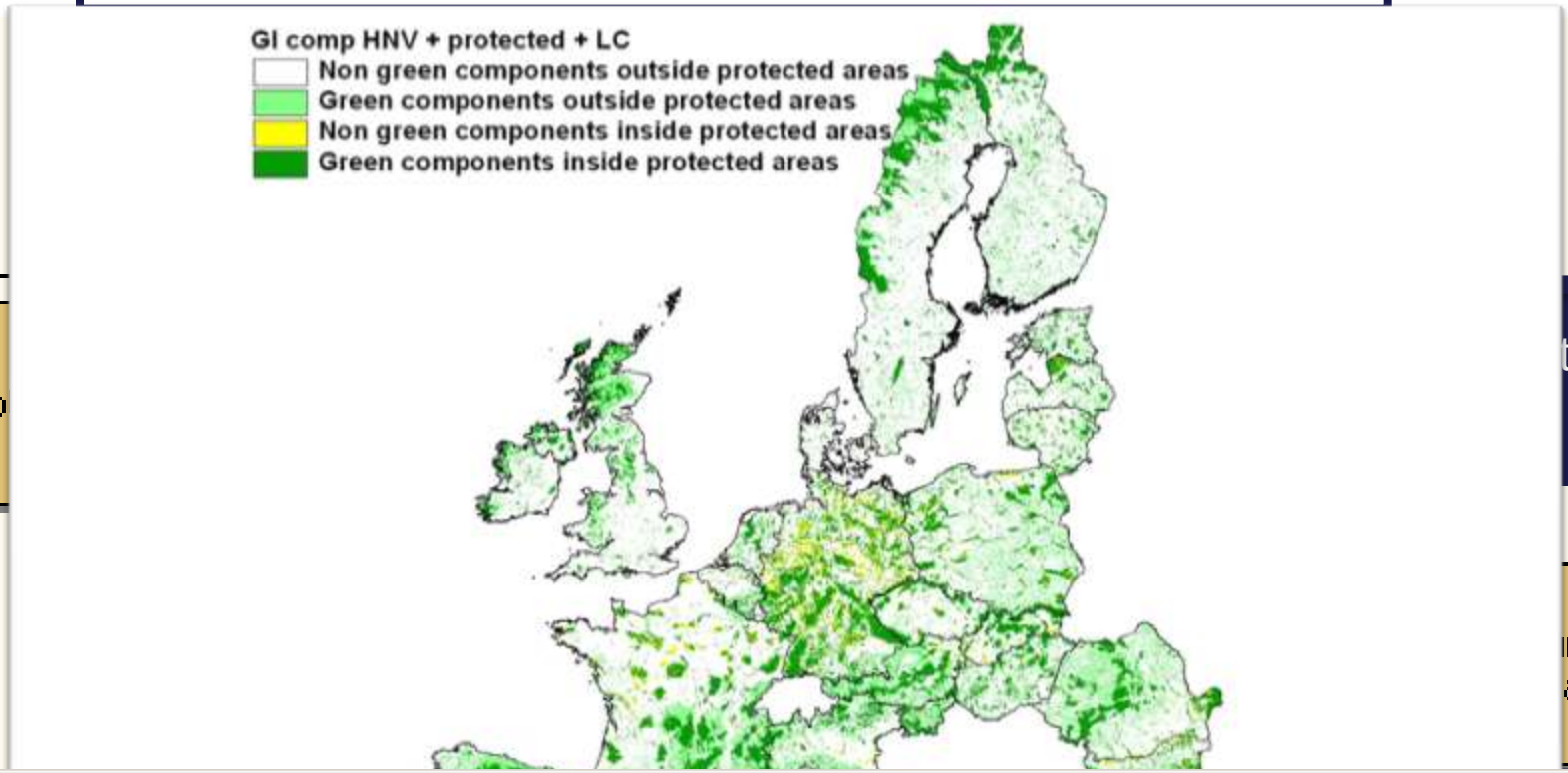
Name: LC - ProtNature G.I. comp

Name	Axis	Diameter
Land cover (aggregation for accounting)	Y-axis	
N2000 and CDDA	X-axis	

This knowledge matrix creates a new GI map from two maps: CLC and protected areas: N2000 and CDDA

	none	Designated areas (=CDDA) only	Natura2000 only	Natura2000, and designated area
Artificial surfaces	Non green components outside	Non green components inside prot	Non green components inside	Non green components inside protected areas
Arable land and permanent crops	Non green components outside	Non green components inside prot	Non green components inside	Non green components inside protected areas
Pastures and mosaic farmland	Non green components outside	Green components inside protecte	Green components inside prot	Green components inside protected areas
Forests and transitional woodland shrub	Non green components outside	Green components inside protecte	Green components inside prot	Green components inside protected areas
Natural grassland, heathland, sclerophylus vegetation	Green components outside prot	Green components inside protecte	Green components inside prot	Green components inside protected areas
Open space with little or no vegetation	Green components outside prot	Green components inside protecte	Green components inside prot	Green components inside protected areas
Wetlands	Green components outside prot	Green components inside protecte	Green components inside prot	Green components inside protected areas
Water bodies	Non green components outside	Green components inside protecte	Green components inside prot	Green components inside protected areas
Green urban areas	Green components outside prot	Green components inside protecte	Green components inside prot	Green components inside protected areas

Step 3: include High Nature Value farmland



Natural eco

to

re
and

View source

Knowledge matrix

Matrix | Theme | Description

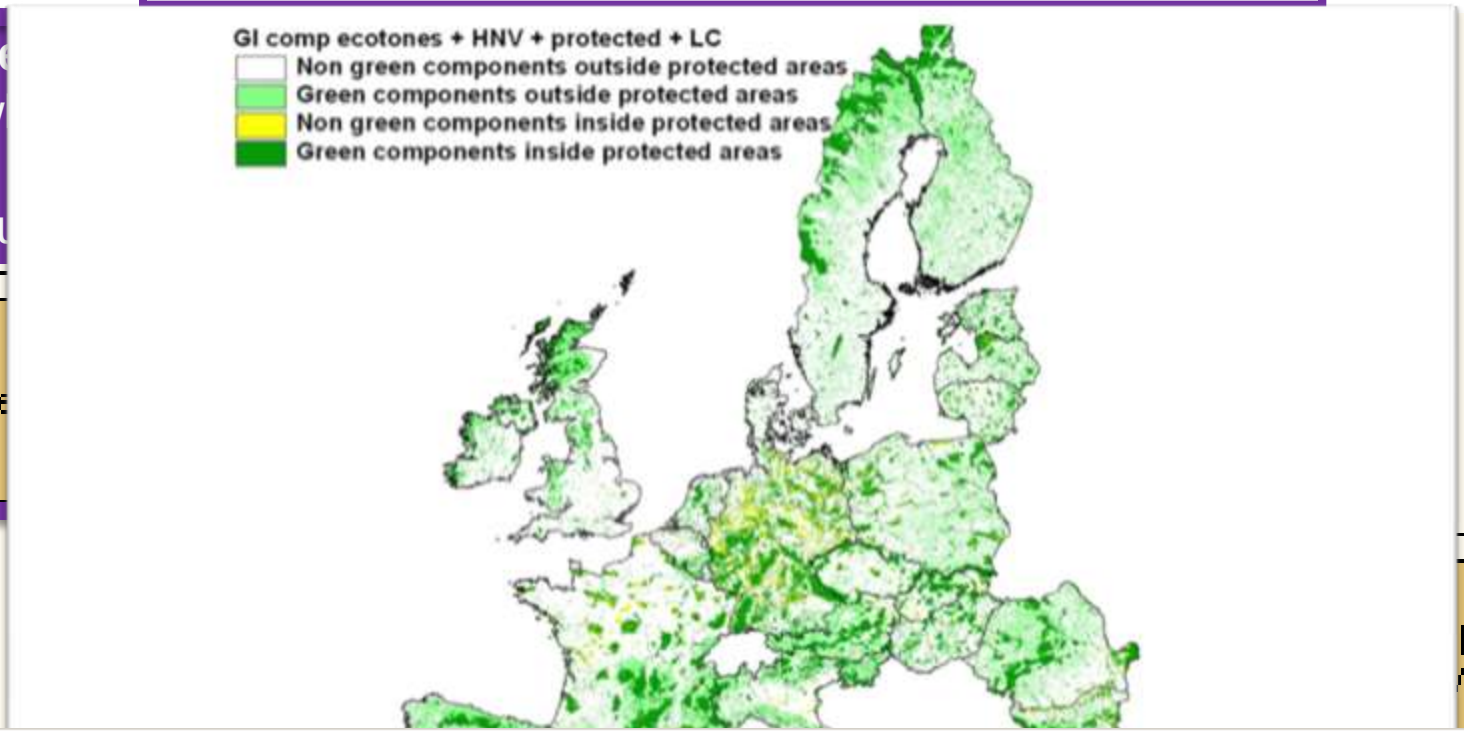
Name: HNV - LC+ProtNature G.I. comp

Name	Axis	Diameter
Potential G.I. components	Y-axis	
High Nature Value farmland	X-axis	

This knowledge matrix creates a new GI map from two maps: result of step 2 and High Nature Value farmland

	0 - 25 %	25 - 50 %	50 - 75 %	75 - 100%
Non green components outside protected areas	Non green components outside protecte	Green components outside prot	Green components outside prot	Green components outside protected areas
Green components outside protected areas	Green components outside protected ar	Green components outside prot	Green components outside prot	Green components outside protected areas
Non green components inside protected areas	Non green components inside protected	Green components inside protec	Green components inside protec	Green components inside protected areas
Green components inside protected areas	Green components inside protected area	Green components inside protec	Green components inside protec	Green components inside protected areas

Step 4: include natural Ecotones



View source

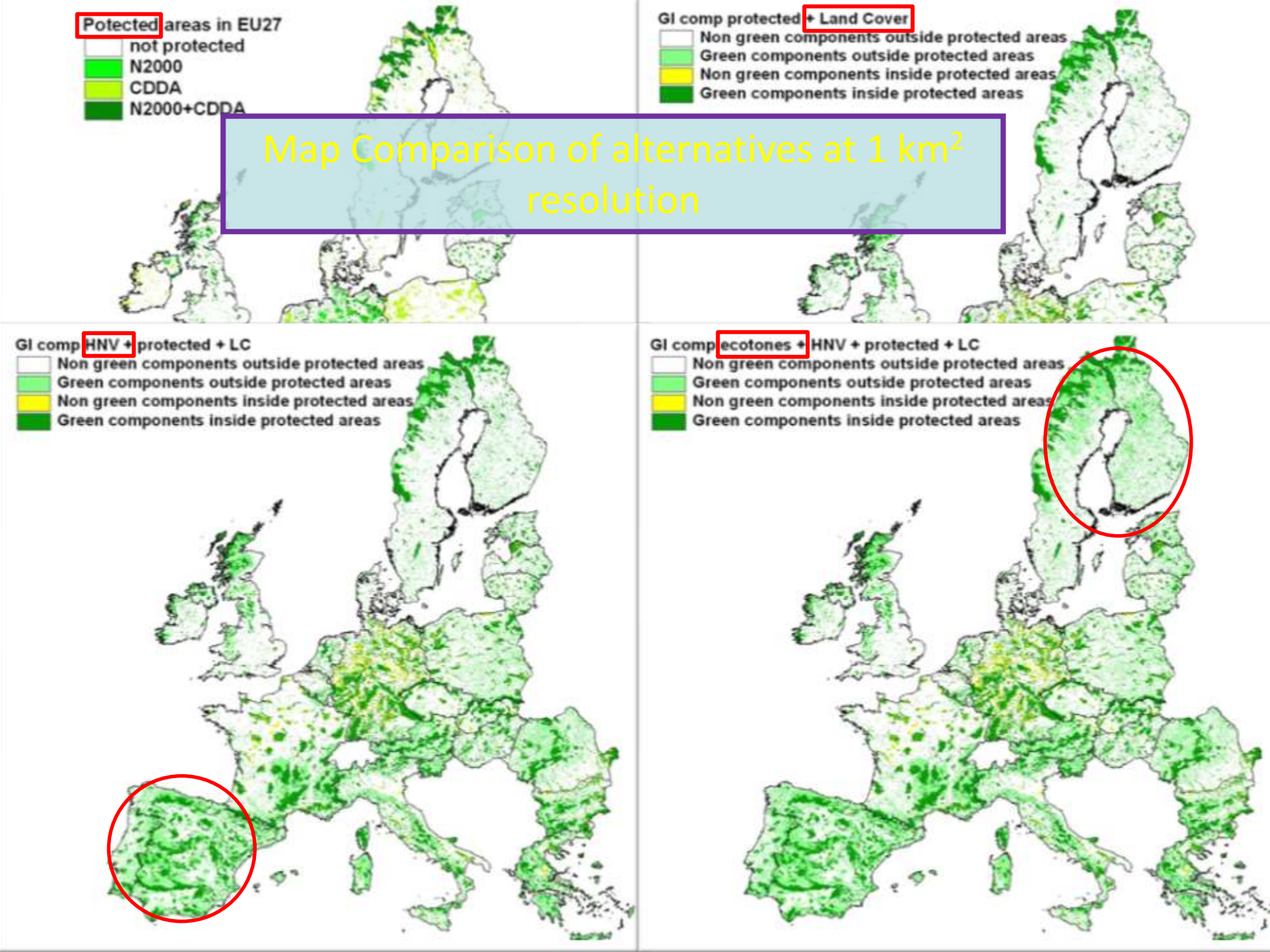
Knowledge matrix

Name: Ecotones - HNV+LC+ProtNat G.I. comp

Name	Axis	Diameter
Ecotones	Y-axis	
Potential G.I. components	X-axis	

This knowledge matrix creates a new GI map from two maps: result of step 3 and Natural Ecotones

	Non green components outside protected a	Green components outside protected areas	Non green components inside protected areas	Green components inside protected areas
Lowest	Non green components outside protected a	Green components outside protected areas	Non green components inside protected areas	Green components inside protected areas
Low	Non green components outside protected a	Green components outside protected areas	Non green components inside protected areas	Green components inside protected areas
Medium	Green components outside protected area:	Green components outside protected areas	Green components inside protected areas	Green components inside protected areas
High	Green components outside protected area:	Green components outside protected areas	Green components inside protected areas	Green components inside protected areas
Highest	Green components outside protected area:	Green components outside protected areas	Green components inside protected areas	Green components inside protected areas


Potected areas in EU27
not protected
N2000
CDDA
N2000+CDDA
Map Comparison of alternatives at 1 km2 resolution
GI comp protected + Land Cover
Non green components outside protected areas
Green components outside protected areas
Non green components inside protected areas
Green components inside protected areas
GI comp HNV + protected + LC
Non green components outside protected areas
Green components outside protected areas
Non green components inside protected areas
Green components inside protected areas
GI comp ecotones + HNV + protected + LC
Non green components outside protected areas
Green components outside protected areas
Non green components inside protected areas
Green components inside protected areas

APPLICATION(S)…

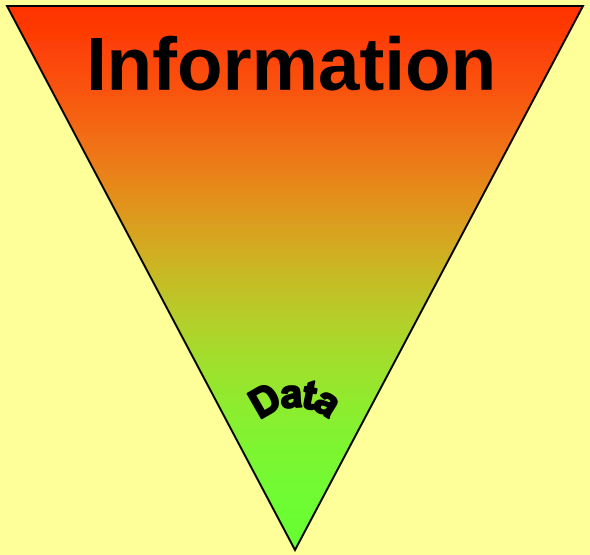
Theory vs. Reality…

Information for vulnerability and adaptation assessment:

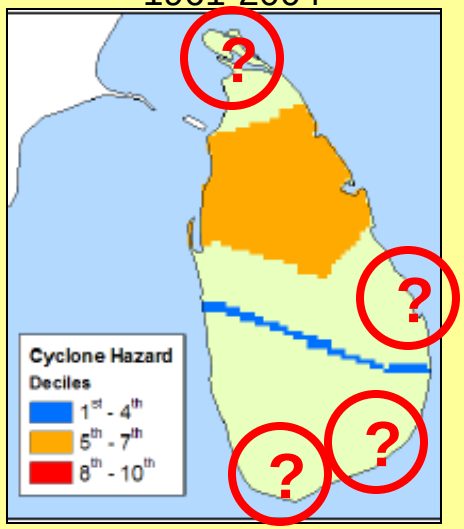
An example from Sri Lanka

Reality…

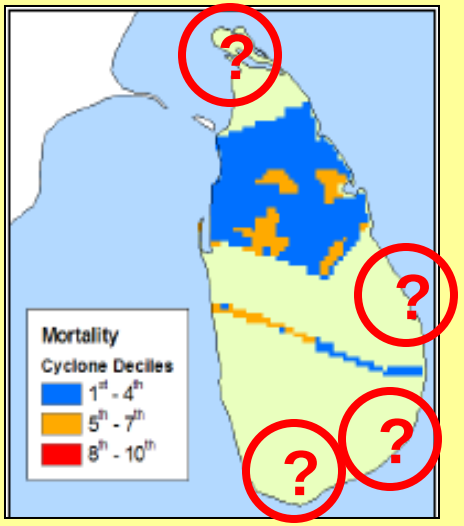
Abundant information produced with few useful data.



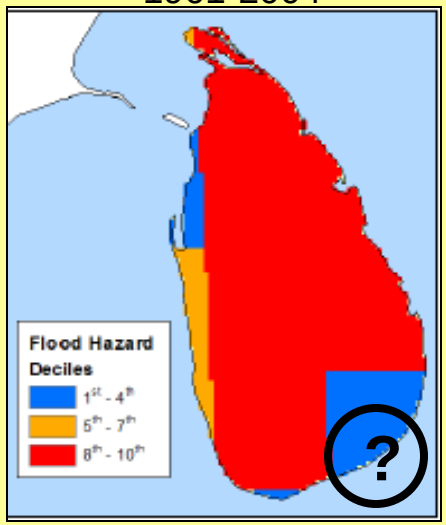
Risk of cyclones
1961-2004



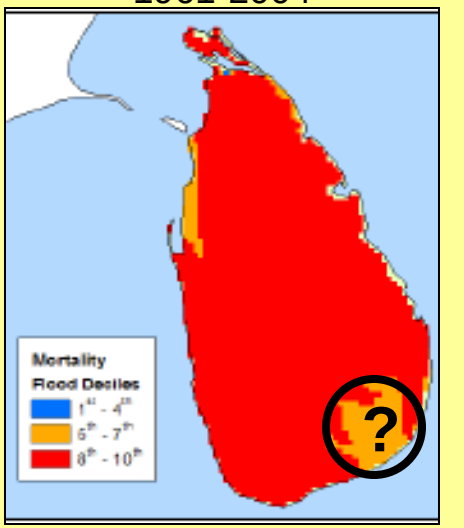
Risk of cyclones
weighted by mortality
1961-2004



Risk of inundations
1961-2004



Risk of inundations
weighted by mortality
1961-2004



Sources: UNOSAT, 2004 http://unosat.web.cern.ch/unosat/freeproducts/Tsunami/
IWMI, 2004 http://www.iwmi.cgiar.org/tsunami/index.asp
Diley, Chen, Deichman et al, 2005, http://www.ldeo.columbia.edu/chrr/research/hotspots/

Theory vs. Reality…

Adaptation assessment to climate variability and change:

An example in the Niayes (Senegal)

Adaptation benefits and costs:

- ✓ Irrigation vs. rain-fed agriculture
  Benefits: Increase agriculture production value by **7**.
  Costs: **75** to **150** millions USD, risk of marine water intrusion and salinisation.

- ✓ Live hedge vs. other land uses
  Benefits: **19 T/ha** of wood production, increase soils productivity and carbon sequestration (**15 T of C/ha**)
  Costs: Low costs for carbon sequestration (**10 USD/T of C**), actives dunes threaten irrigated basin even with the plantation of a green belt of 180 km.

Adaptation strategy and actions:

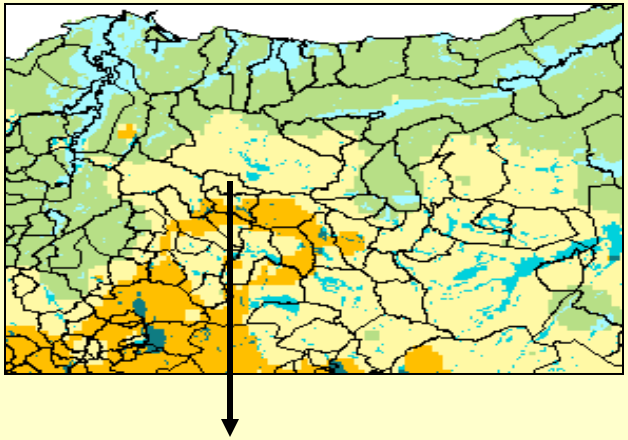
- **Conversion of rain-fed agriculture to irrigated agriculture**
- **Cut wind gust with live hedge**
- **Production of environmental goods and services instead of natural resources consumption**

Source: Seck and Na Abou, 2005

Reality and user needs…

Adaptation assessment to climate variability:

An example in the Yoro Province (Honduras)



Yorito, Honduras

1. Les agriculteurs de Yorito sont vulnérables aux problèmes de sécheresse et doivent s'adapter.

2. Ils disposent d'options pour les espèces fourragères pour le bétail. Mais ils ignorent quelles sont les plus adaptées aux conditions de leur environnement.

3. Où peuvent ils aller chercher des solutions et comment explorer les options spécifiques à leurs besoins ?. Avec les chercheurs, les techniciens, les voisins ?

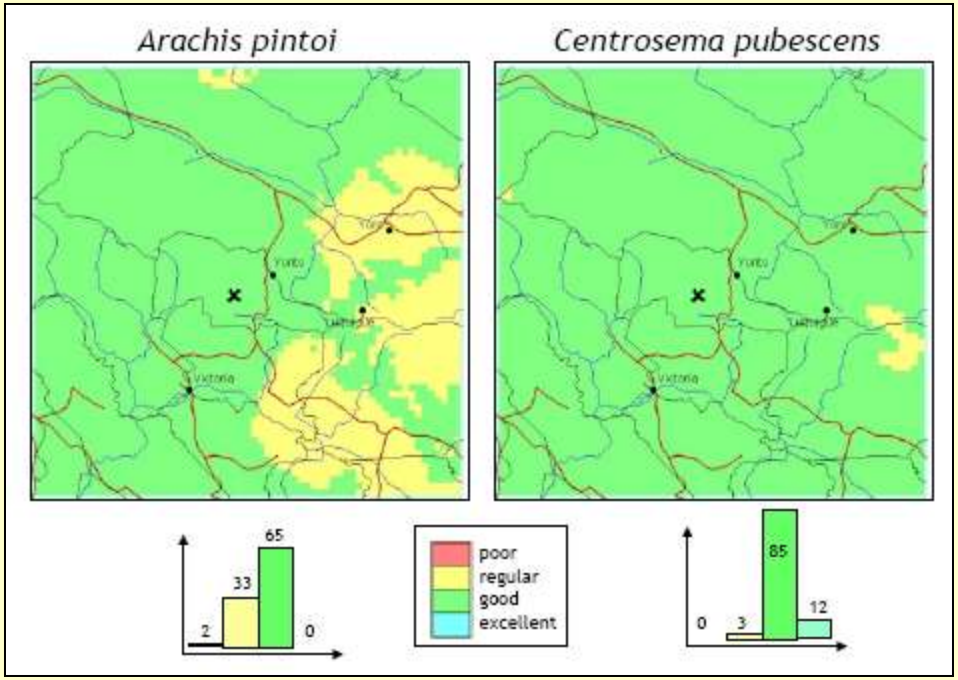
4. Les données et les connaissances existantes sont incomplètes, inconsistantes et partielles pour les options d'adaptation.

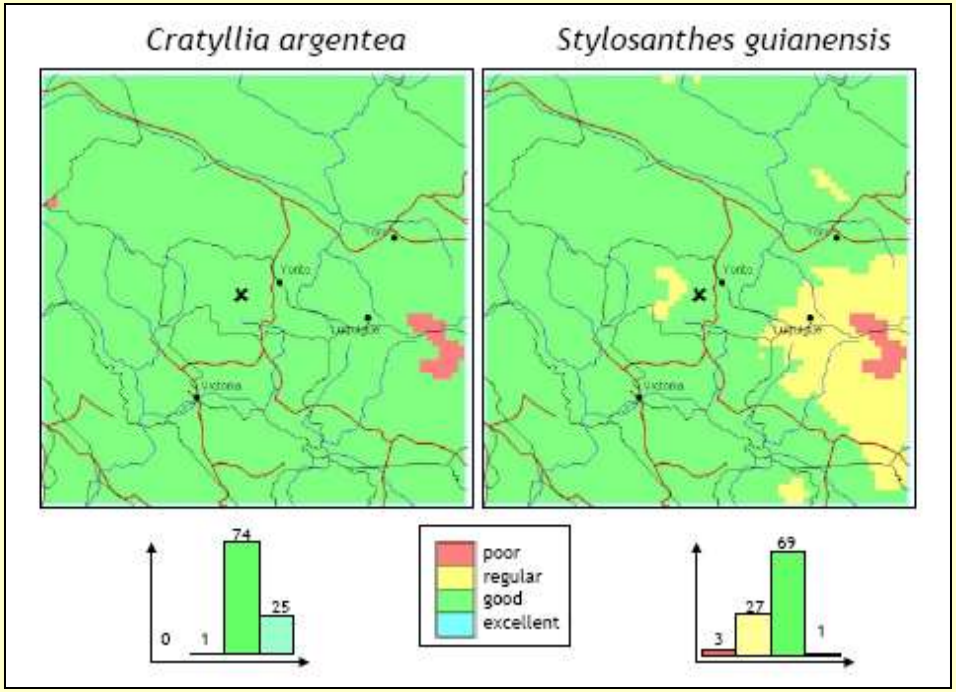
5. Comment combiner les différentes connaissances en fonction d'options floues (fuzzy) mais spécifiques au site ?

Source: O'Brian, Peters, Cook and Corner, 2003

La modélisation ‘Bayesienne’ permet de:

- Actualiser les probabilités à partir des données et connaissances.
- Explorer les conditions dans lesquelles les options sont les plus adaptées.
- Actualiser avec la cartographie, les probabilités sur la base des données nouvelles .
- Expliciter l’incertitude liée aux données et connaissances partielles.



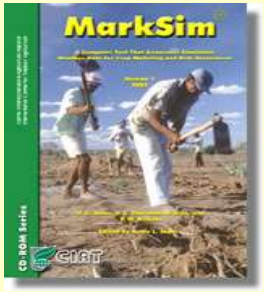


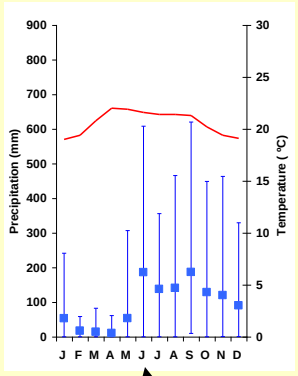
Source: O’Brian, Peters, Cook and Corner, 2003

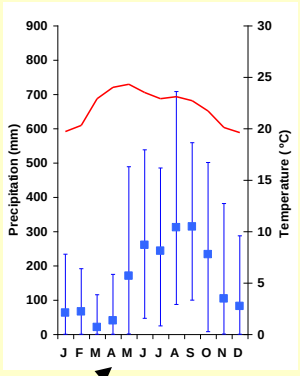
Reality and user needs…

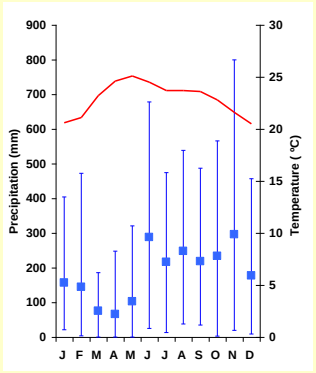
Adaptation assessment to climate change:

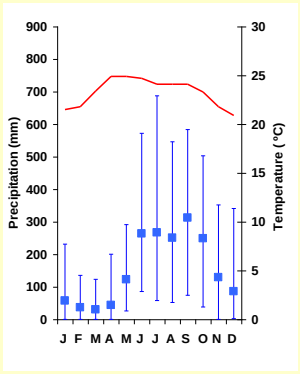
An example in Honduras

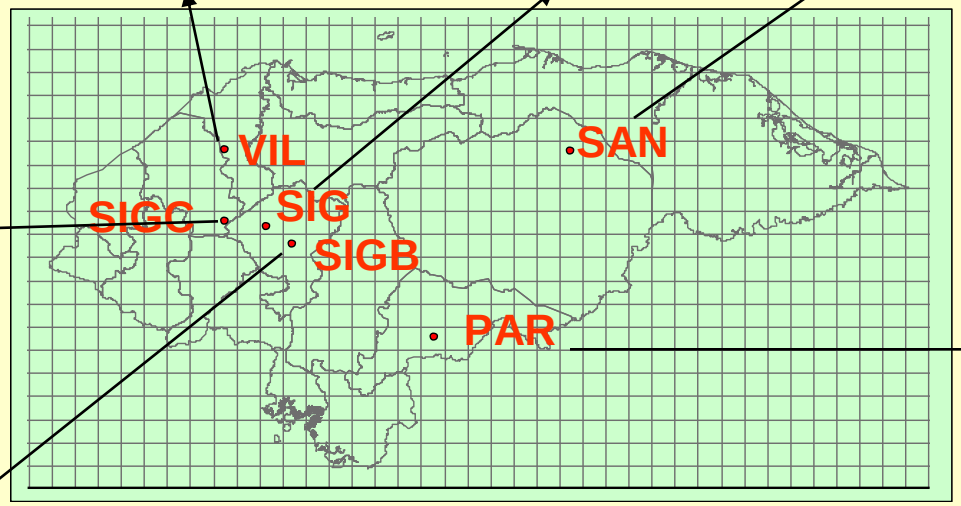


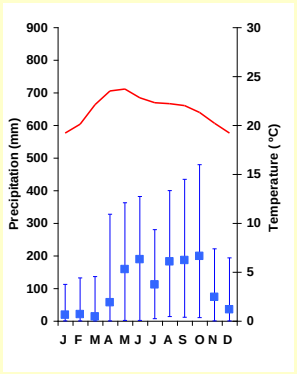


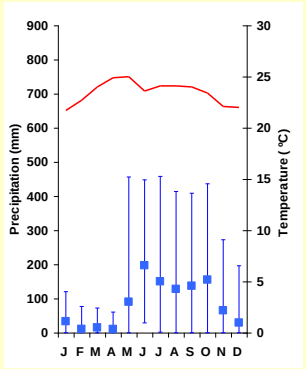












Génération du climat et probabilité de sécheresse avec logiciel MarkSim

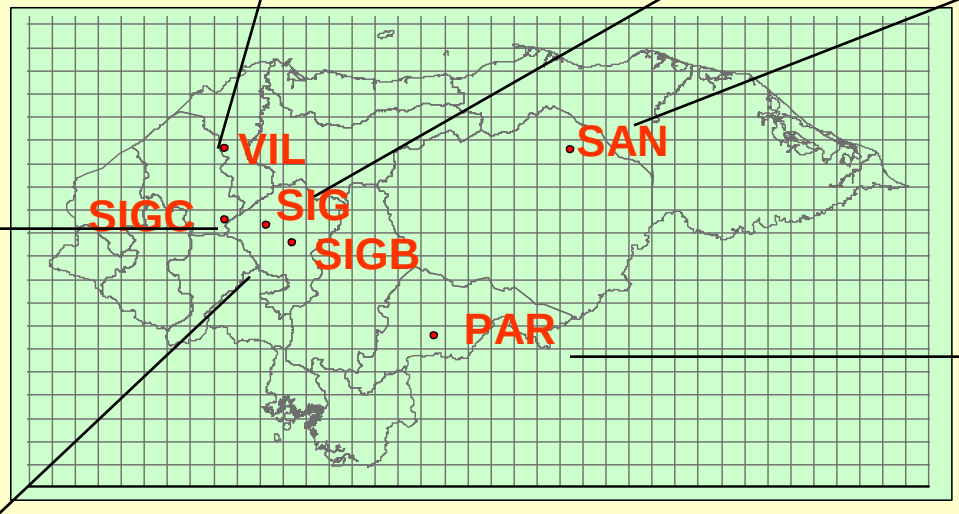
Source: Diaz-Nieto J., S. Cook, A. Gijsman, P. Jones, 2004

Villaparaiso
Prob' sécheresse
= *0.60*
Prime/ha
= *$30.30*

Siguatepeque 1
Prob' sécheresse
= *0.45*
Prime/ha
= *$22.73*

San Esteban
Prob' sécheresse
= *0.30*
Prime/ha
= *$14.6*

Siguatepeque 3
Prob' sécheresse
= *0.11*
Prime/ha
= *$14.65*



El Paraiso
Prob' sécheresse
= *0.48*
Prime/ha =
$24.24

Siguatepeque 2
Prob' sécheresse
= *0.07*
Prime/ha
= *$3.5*

Génération des primes d'assurance par hectare cultivé et par site climatique spécifique en fonction de probabilité de sécheresse

Source: Diaz-Nieto J., S. Cook, A. Gijsman, P. Jones, 2004

APPLICATION(S)…

Nowcasting: Exploring policy options in the short term at regional/national level (i.e. MBC in

The Costs in the next 15 years:

S.
JS.
S.
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S.
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Co
TOT

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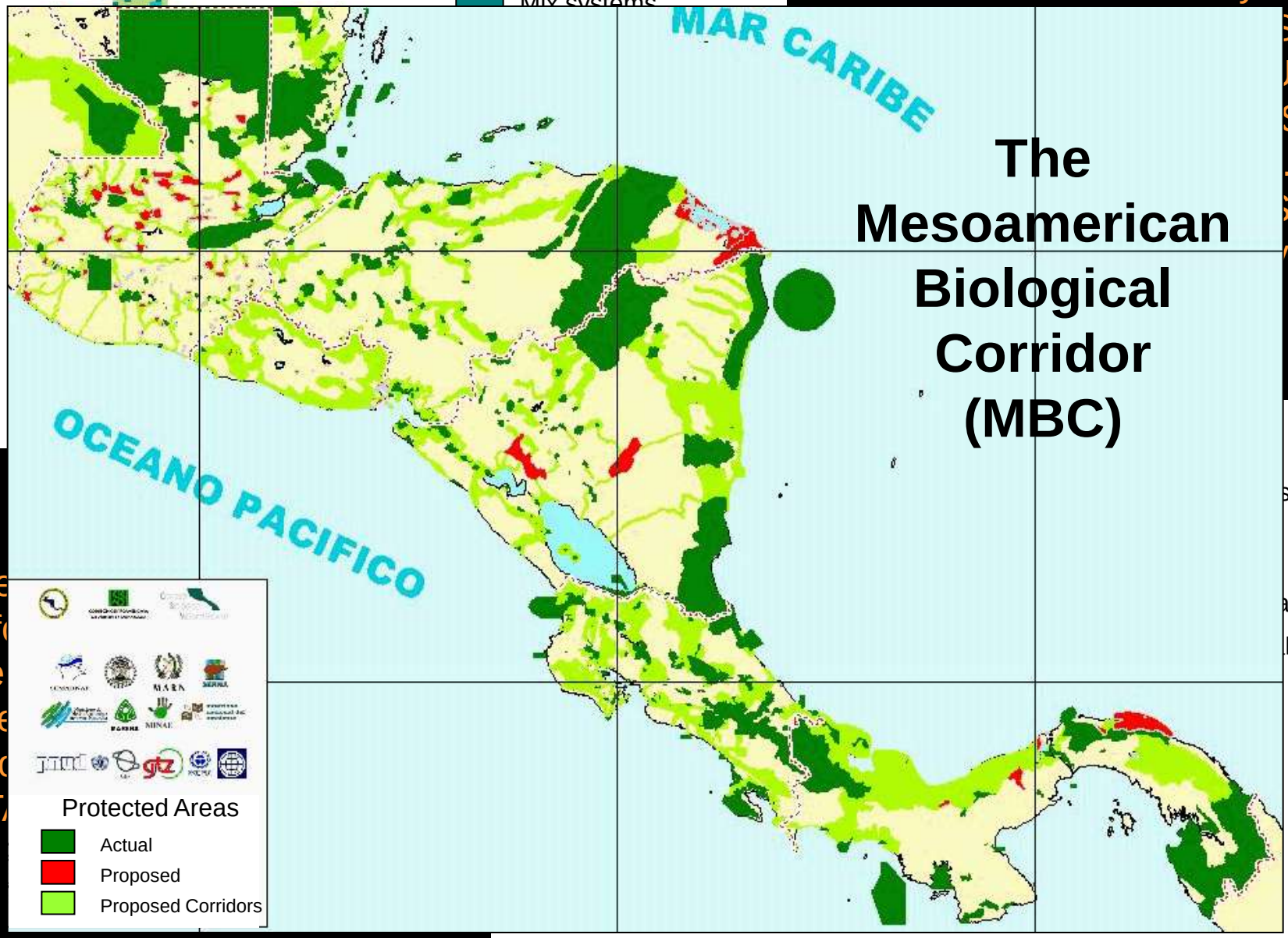
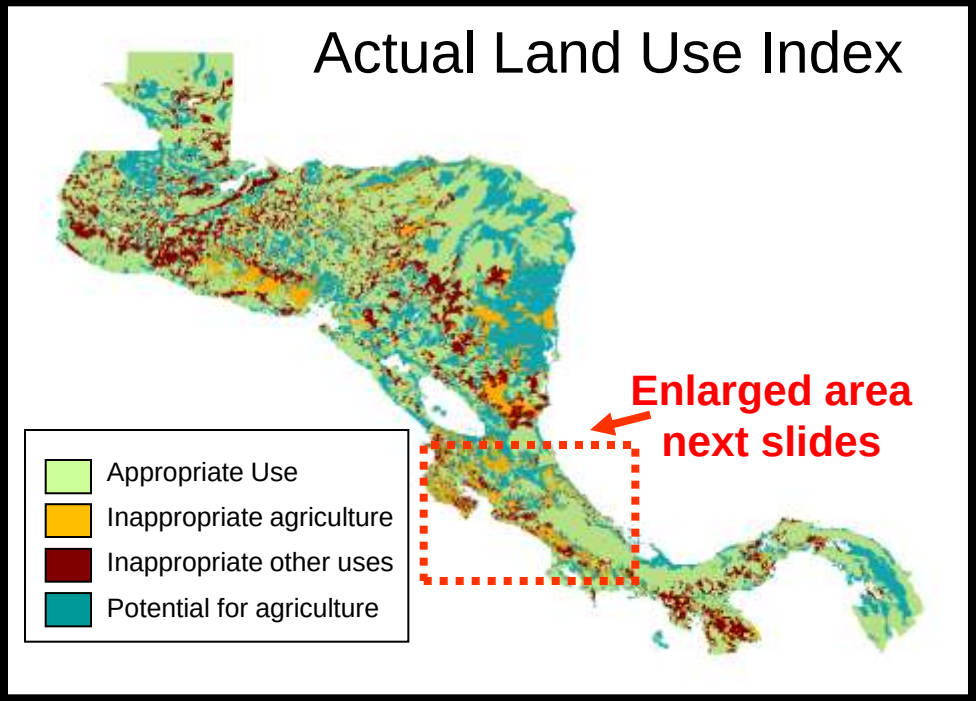
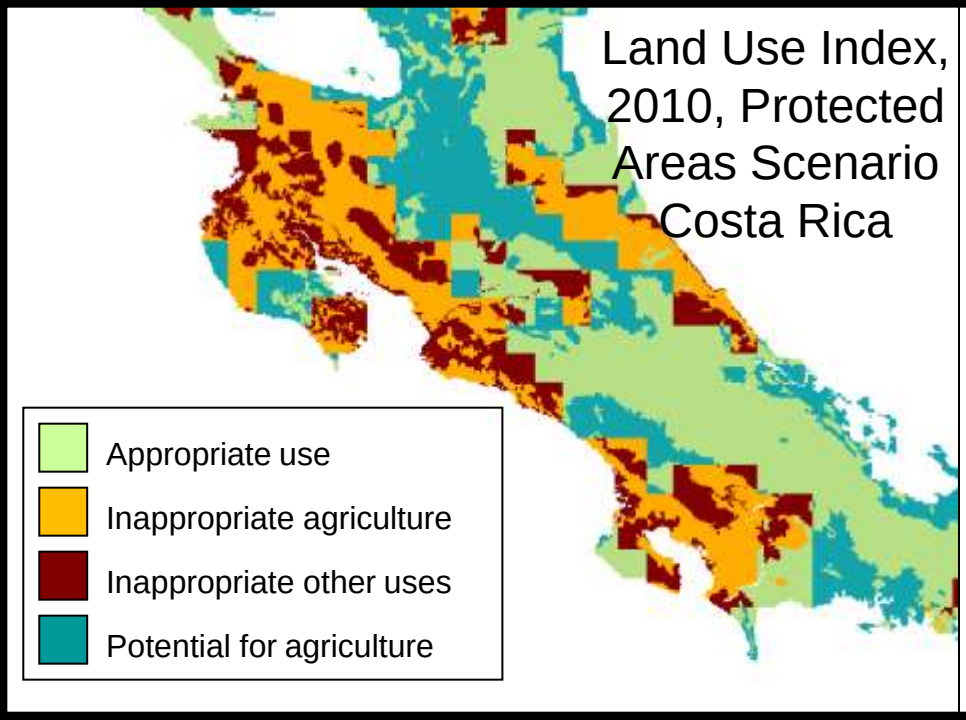
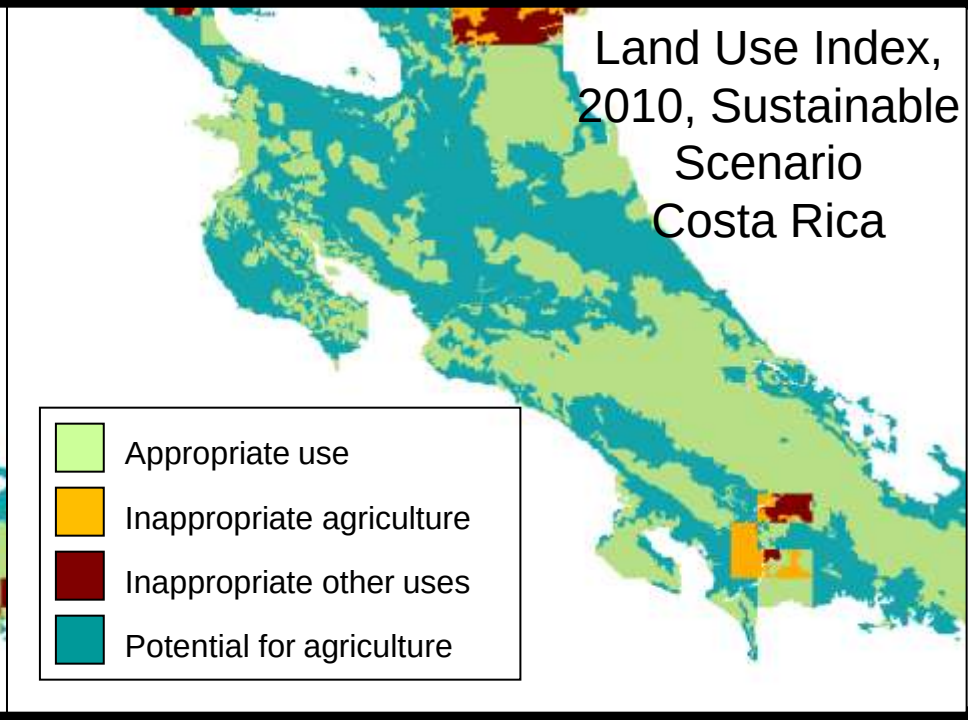


The Implications…



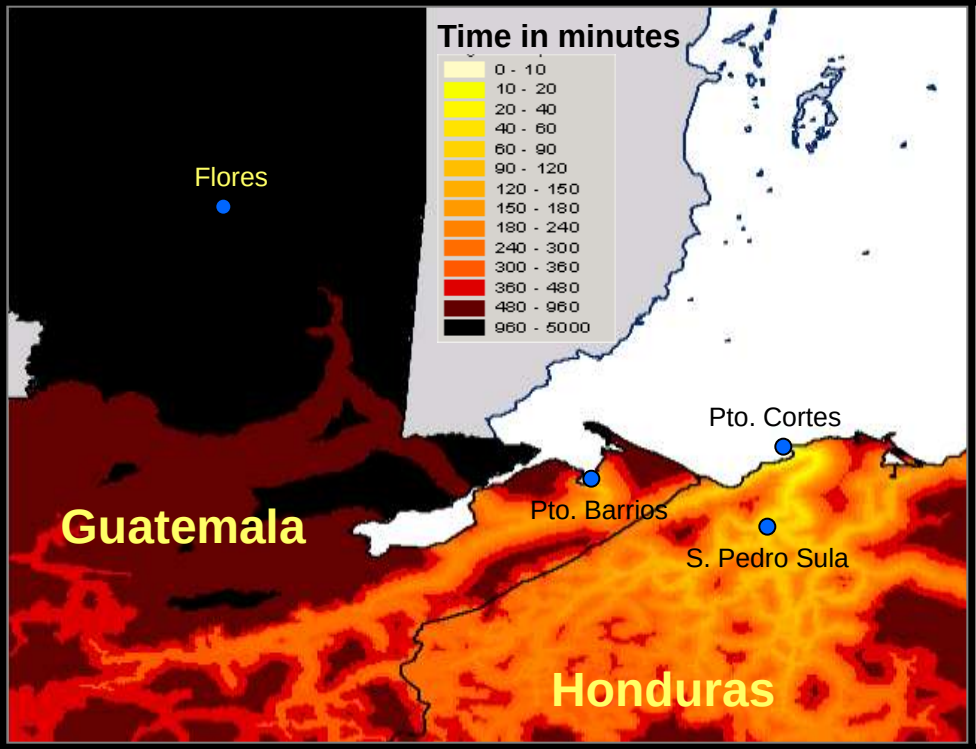




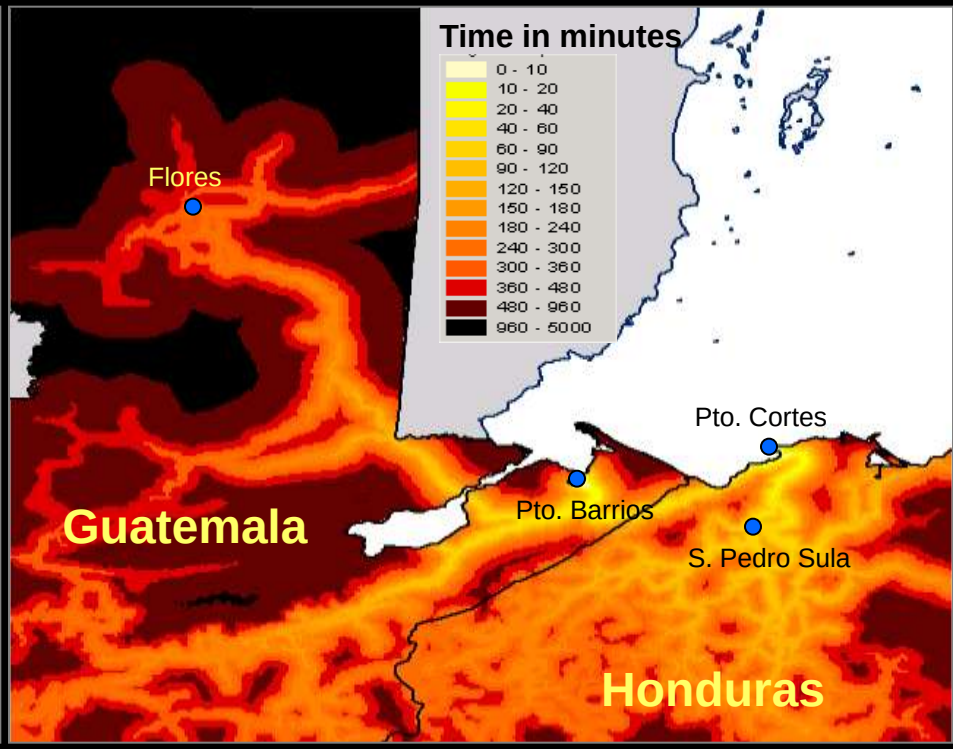
Forecastin edium term
at national 20 years).

The Benefits:
- Increase regional and national integration (El Salvador, Mexico, Guatemala, Belize and Honduras).
- Improve the access to markets and ports, good and services.
- Reduce transport costs and time.

Actual Accessibility

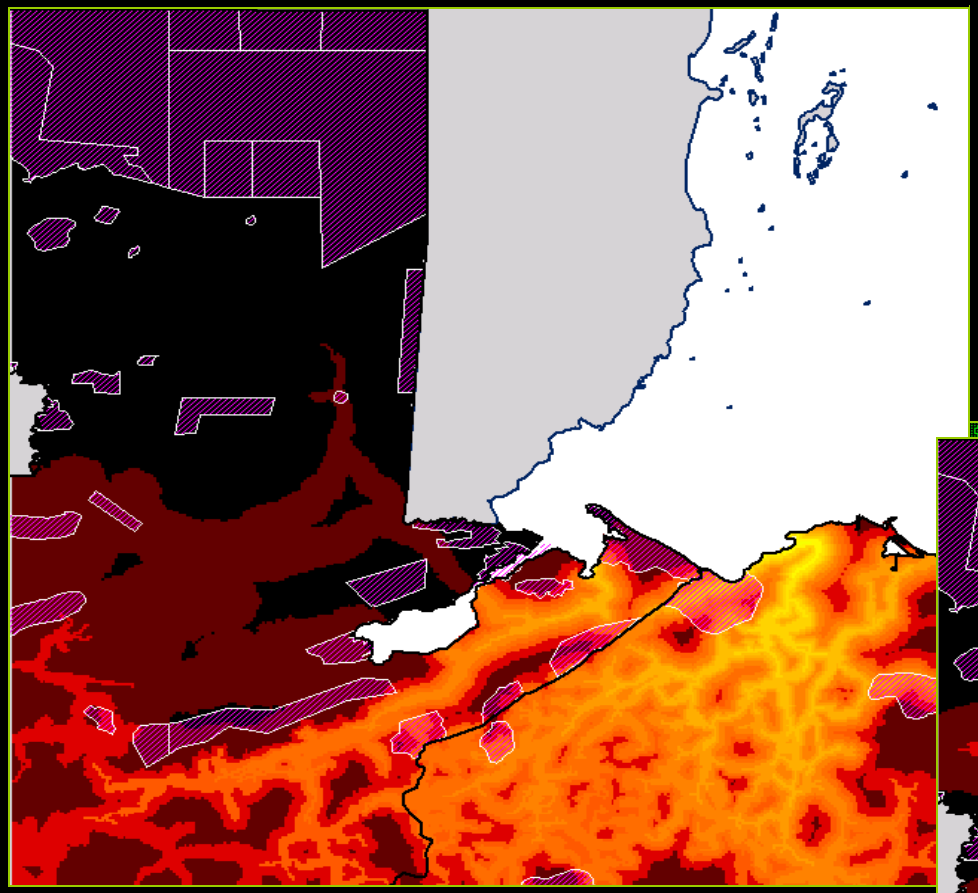


Future Accessibility

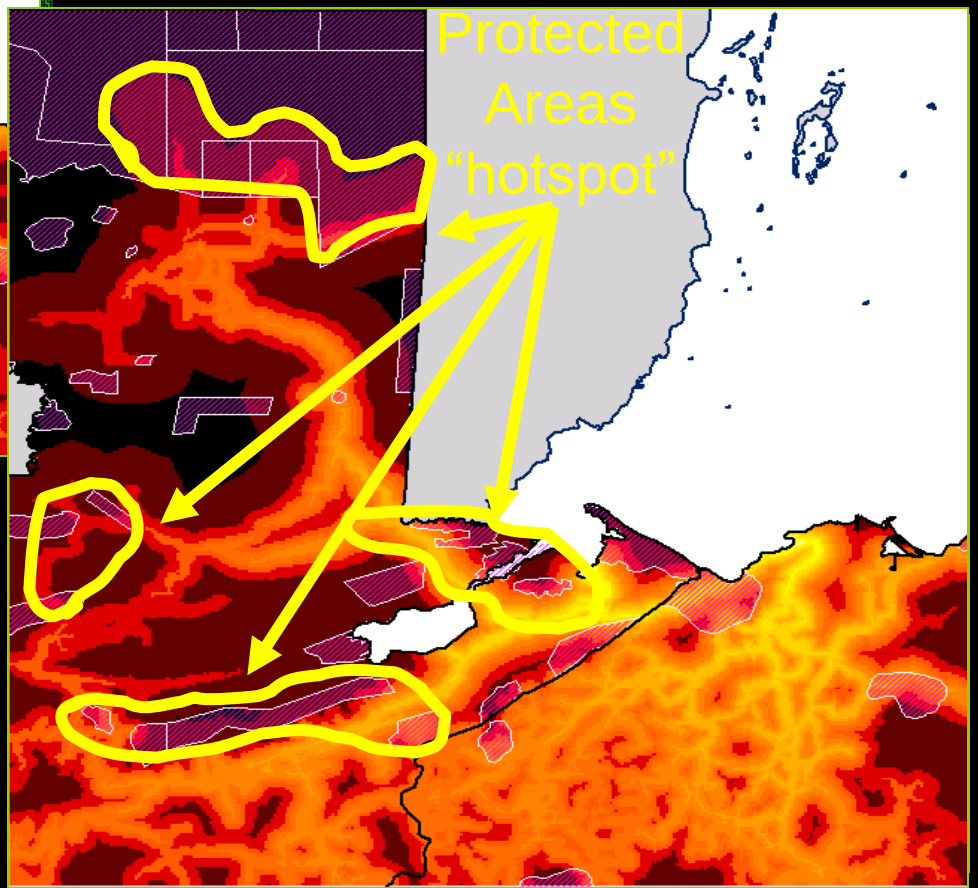


The Implications on the Environment…

Actual Accessibility and Protected Areas



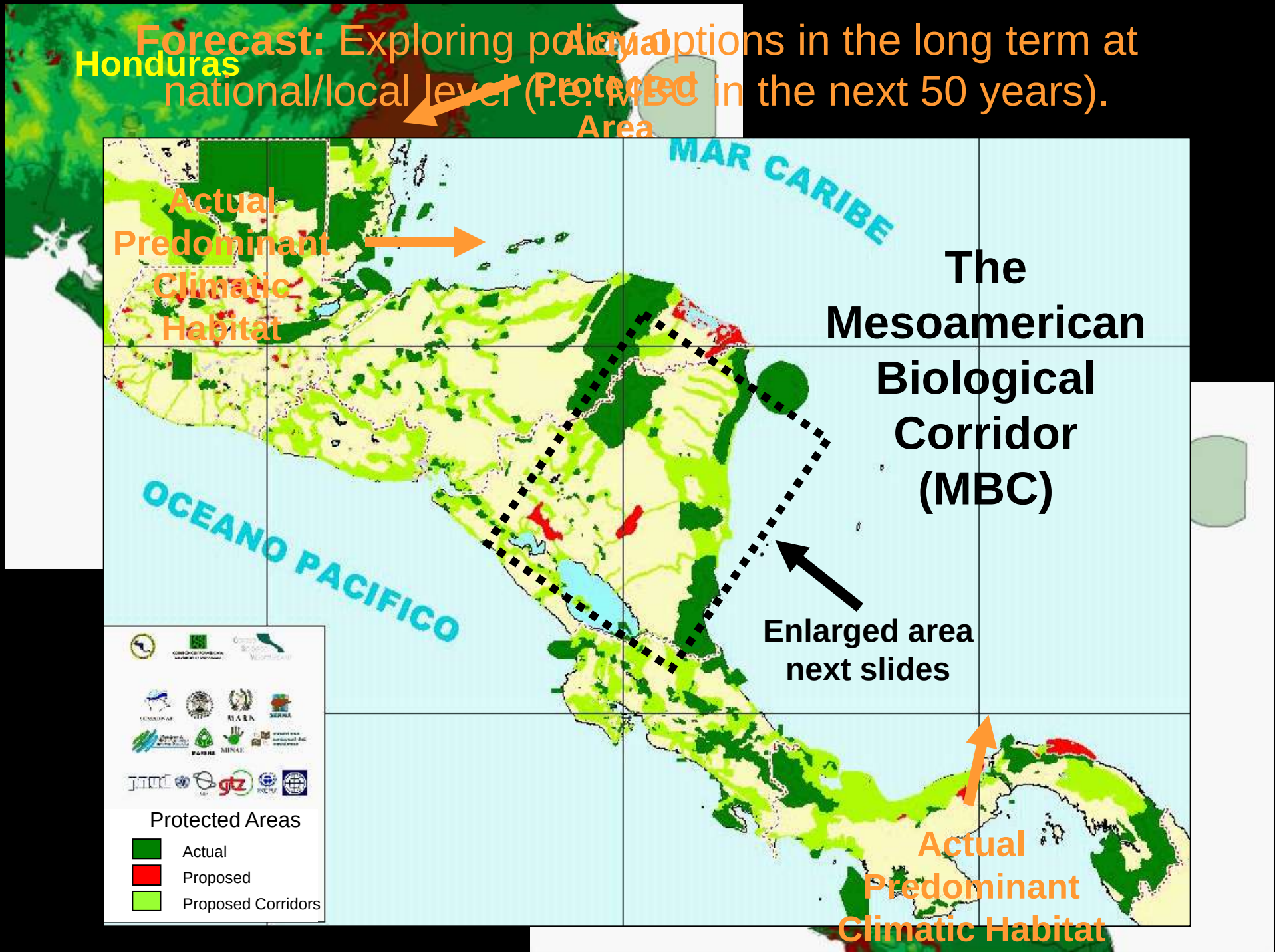
Future Accessibility and Protected Areas

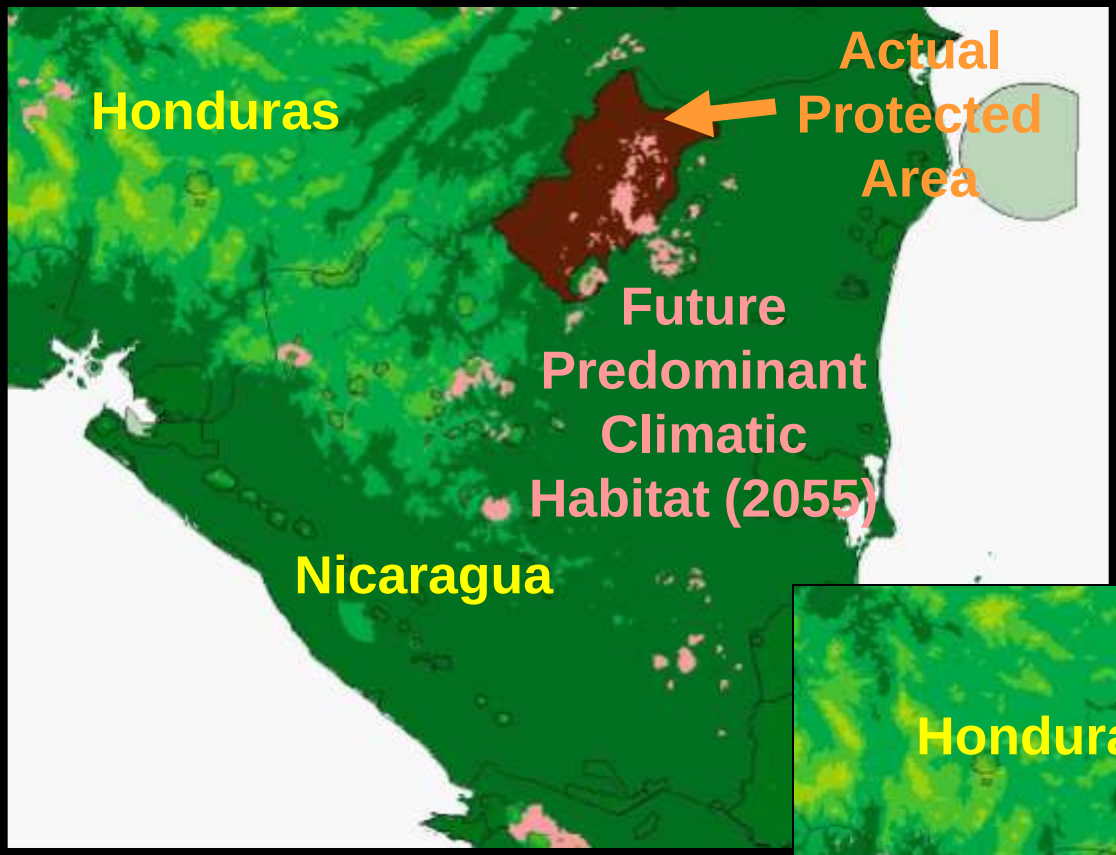


The Impacts:

- Increase in deforestation.
- Increase in forests fragmentation.
- Increase in access to natural resources.

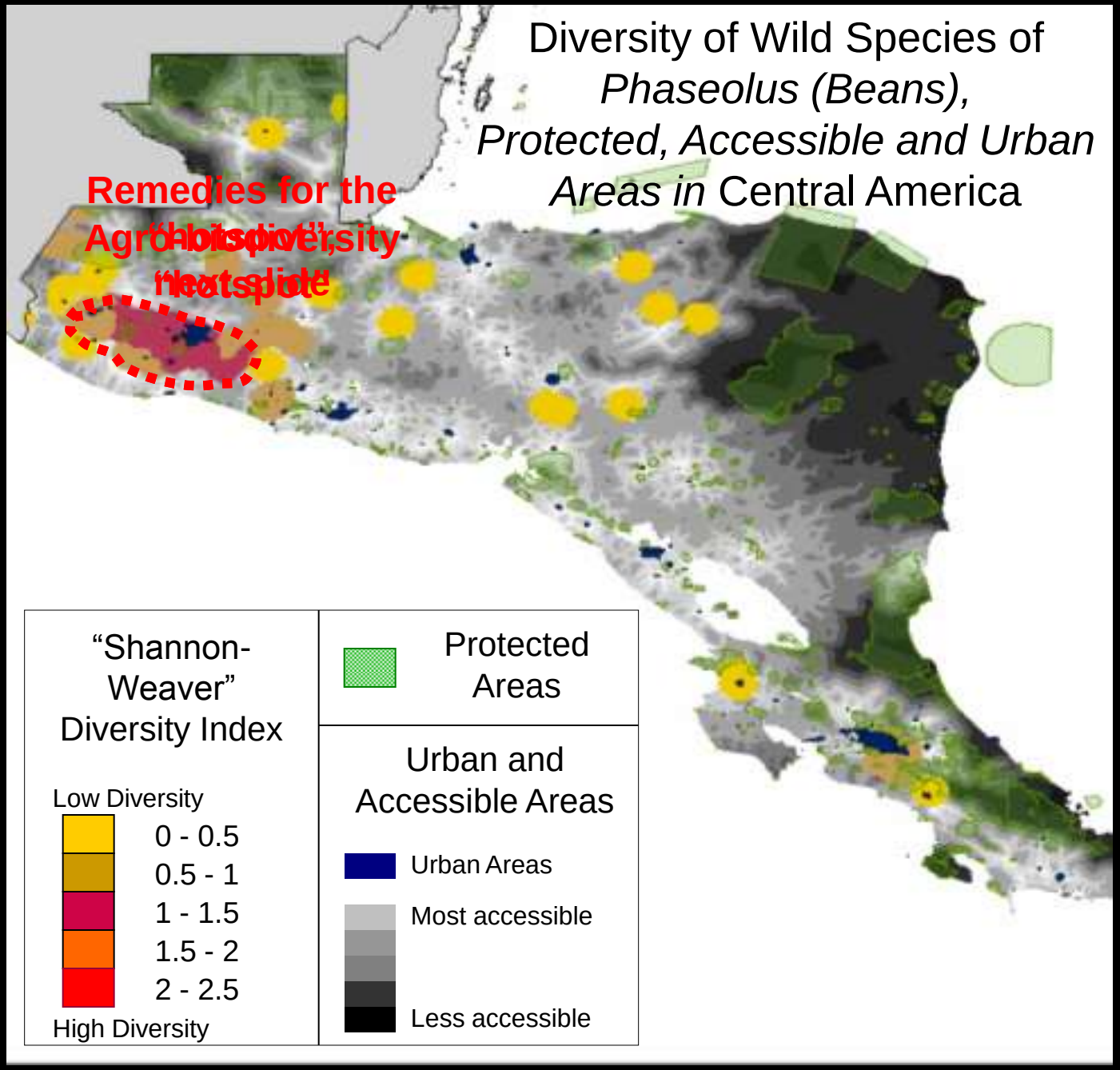
Forecast: Exploring policy options in the long term at national/local level (i.e. MBC in the next 50 years).





The Implications of Future Situation… Climatic Change Scenario (year 2055)

Therapies: Biodiversity assessment and conservation



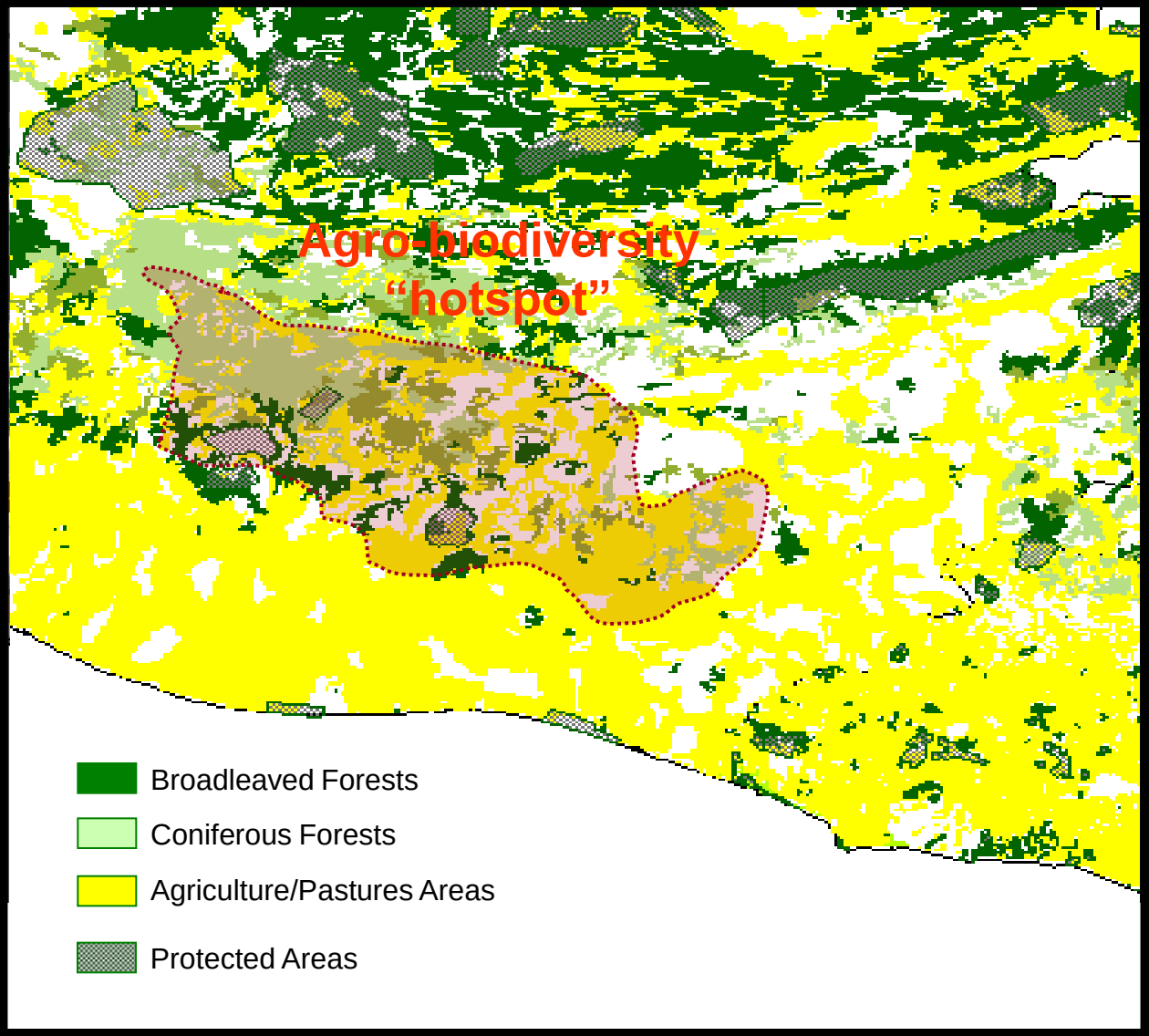
For example, the distribution of wild species of beans, shows that the majority of areas with high diversity of beans are actually located in urban, accessible and not protected areas, exposing agro-biodiversity to loss and degradation.

This spatial patterns need to be take into account to plan protected areas and define biodiversity conservation strategies and actions.

One of the most important and used, as well unknown, components of biodiversity is the "agro-biodiversity". Agro-biodiversity allows agricultural systems to preserve stability, increase adaptability and maintain resistance.

The establishment of protected areas the urban growth and the changes in agriculture practices have important and irreversible effects on "agro-biodiversity".

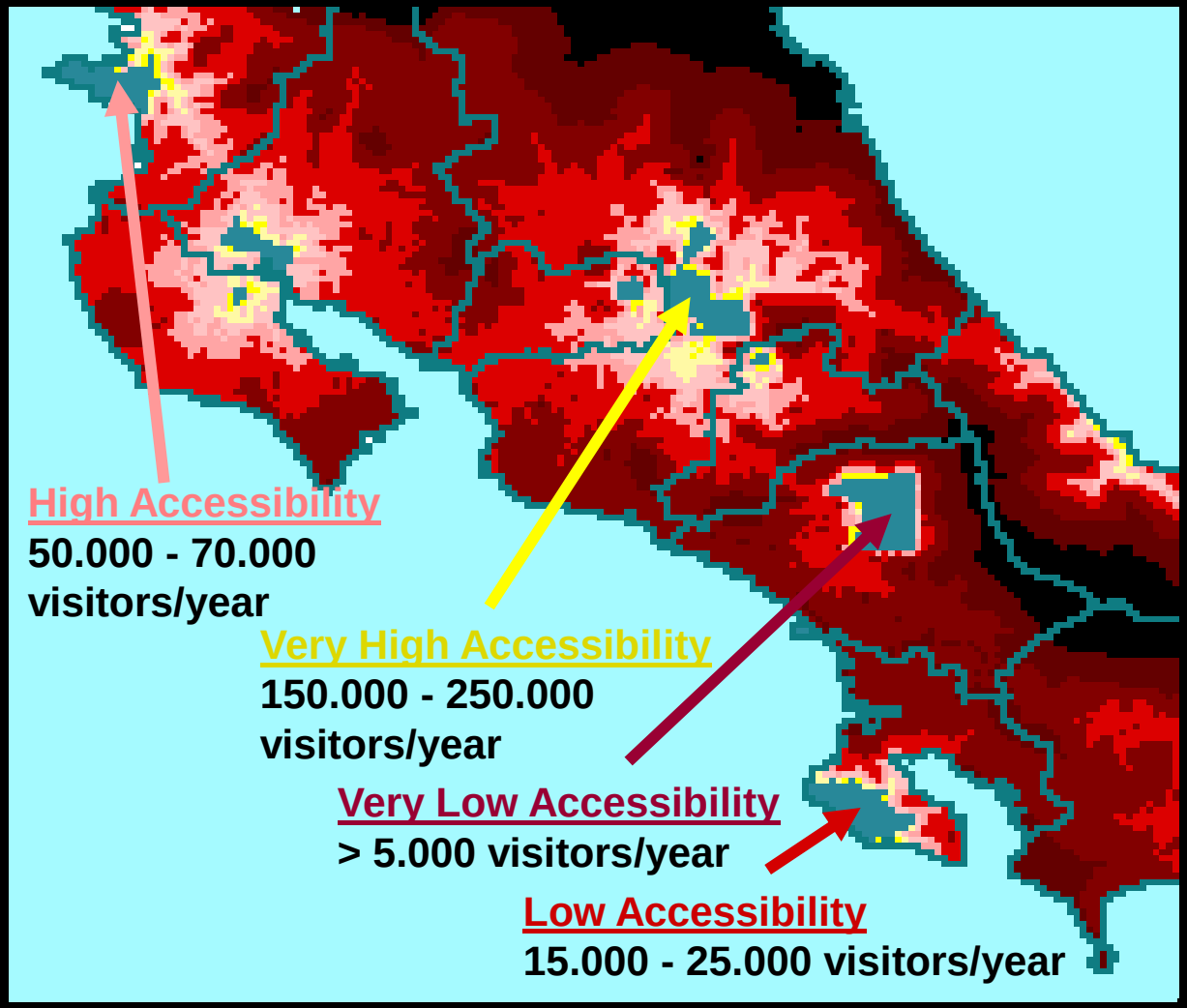
Remedies: Agro-biodiversity conservation



Remedies:

- In/situ conservation (i.e. germoplasm collections, germoplasm evaluation, managing protected areas);
- Ex/situ conservation (i.e. collections, botanical gardens, banc seeds)

Evaluation: Policies at regional/national level (i.e. Accessibility and protected areas)



Accessibility is a critical aspect since it affects the movement of people and the availability of goods and services. At the same time accessibility could create news pressure on the environment and protected areas facilitating the exploitation of natural resources and the augmentation of tourism. It imply the definition and application of new conservation strategies, policies and actions.