

Rediam ●●●

AS

SW



Projet cofinancé par le Fonds Européen de Développement Régional (FEDER)
Project cofinanced by the European Regional Development Fund (ERDF)



ACCION PLAN, SWOT ANALYSIS, SCENARIOS.

Environment Regional Ministry , Andalucía
Consejería de Medio Ambiente. Junta de Andalucía

Enerscapes' meeting.
Volos, october, 9/10

INDEX

- 1. SWOT ANALYSIS**
2. ACTION PLAN
3. SCENARIOS



SWOT analysis

STRENGTHS

Economic:

- Consolidated international trade's activities of Algeciras' Port
- Consolidated industry, tourist activity and services
- Quality of the agricultural local products
- Tarifa's beaches are included in the "wind and water" sports' international route (windsurfing, surfing, kite, etc.).
- Euro has Increased the international level of the regional economy

Social:

- There are citizen initiatives against the new industries' installation
- Family cohesion is strong and very important

Territorial:

- Unique geostrategic situation: crossroads between Mediterranean and Atlantic sea and in-between two continents: Africa and Europe.
- Sound amount of protected territory: national park, cultural heritage, etc.

Environmental:

- Sound amount of landscape, natural and cultural resources
- High ecological value
- Good air and marine water quality
- Good weather





Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam

SWOT analysis

WEAKNESSES

Economic:

- Reduced levels of GDP per capita.
- Too many traditional business.
- Unemployment
- No industrial diversification
- Few professional qualification among young people

Social:

- Low population increase
- Low entrepreneurship
- Civil society is not involved in a collective territorial development project
- Limited sense of belonging in some municipalities
- Weak political influence at the regional, provincial, and national levels

Territorial:

- Unbalanced coast / inland territory
- Concentration of services and population on the coast
- Poor road infrastructure and public transport.
- Poor quality of public services (provision and maintenance).
- Insufficient treatment of urban waste water

Environmental:

- Pollution from industrial and maritime activities and port.
- Pollution from urban areas by the absence of adequate sewage treatment plants



SWOT analysis

OPPORTUNITIES

Economic:

- High potential market for technological development
- Increased international level of regional economy through new trade agreements with Morocco
- Renewable energy industry
- Development of quality tourism
- Development opportunities through European funding
- Development of traditional crafts and food production
- Development of quality local branding to market traditional products

Social:

- Cooperation and joint development in two strait's shores
- Multicultural society due to the geographical proximity to Morocco
- Young Population

Territorial:

- Geo-strategic location
- Two sub-regional plans in elaboration
- New project: Algeciras' technology campus, logistic area of Algeciras ' bay ' and the Almoraima action plan (rural tourism, green products, sustainable development)

Environment:

- Sustainable use of cultural, natural and landscape's resources





Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam

SWOT analysis

THREATS

Economic:

- New international markets conditions for competitiveness
- Massive import of cheaper products from Morocco
- Low quality tourist exploitation model
- Neglecting traditional agriculture and forest degradation

Social:

- Emigration of the best qualified population
- Illegal immigration route between Africa and Europe and drug trafficking

Territorial:

- Uncontrolled urban development

Environmental :

- High pressure on natural endogenous resources
- Climate change: increased soil erosion and desertification
- Deterioration of water quality
- Depletion of fish stocks
- Low and erratic rainfall
- Impact of wind turbines on the landscape and on biodiversity
- Maritime traffic in the strait





Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam

SWOT analysis



SWOT analysis

THREATS

Economy:

New international markets conditions for competitiveness
Massive imports of low-cost products by Morocco
The tourist exploitation model is by low quality
Abandonment of traditional agriculture and forest degradation

Society:

Best qualified population emigration
Illegal immigration route between Africa and Europe and drug trafficking

Territory:

Urban development uncontrolled

Environment:

High pressure on natural endogenous resources
Climate change: increased soil erosion and desertification
Deterioration of water quality
Depletion of fish stocks
Low and erratic rainfall
Impact of wind turbines on the landscape and biodiversity
Maritime traffic in the strait





Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam

SWOT analysis

<http://www.atposition.com/atlanticsource/sat/>





INDEX

1. SWOT ANALYSIS
- 2. ACTION PLAN**
3. SCENARIOS



Action plan

The goals of our action plan are:

To test the methodology:

- To test the visual impact assessment methodology
- To test the tool
- To test the visual indicators

To provide local plans with impartial studies:

- To provide “locals” plans and programs with impartial writing studies (Sub-regional territorial plans; Intermunicipal wind resource plan, Urban plans, etc.).

To monitorise local wind farm development:

- To elaborate and make available a study for the adjustment of existing “absurd” situation in the area (saturation and unregulated wind farm developments).
- To elaborate a study on the projected wind farms impact (scenarios).

Global
scale

Generic
action

Local
scale

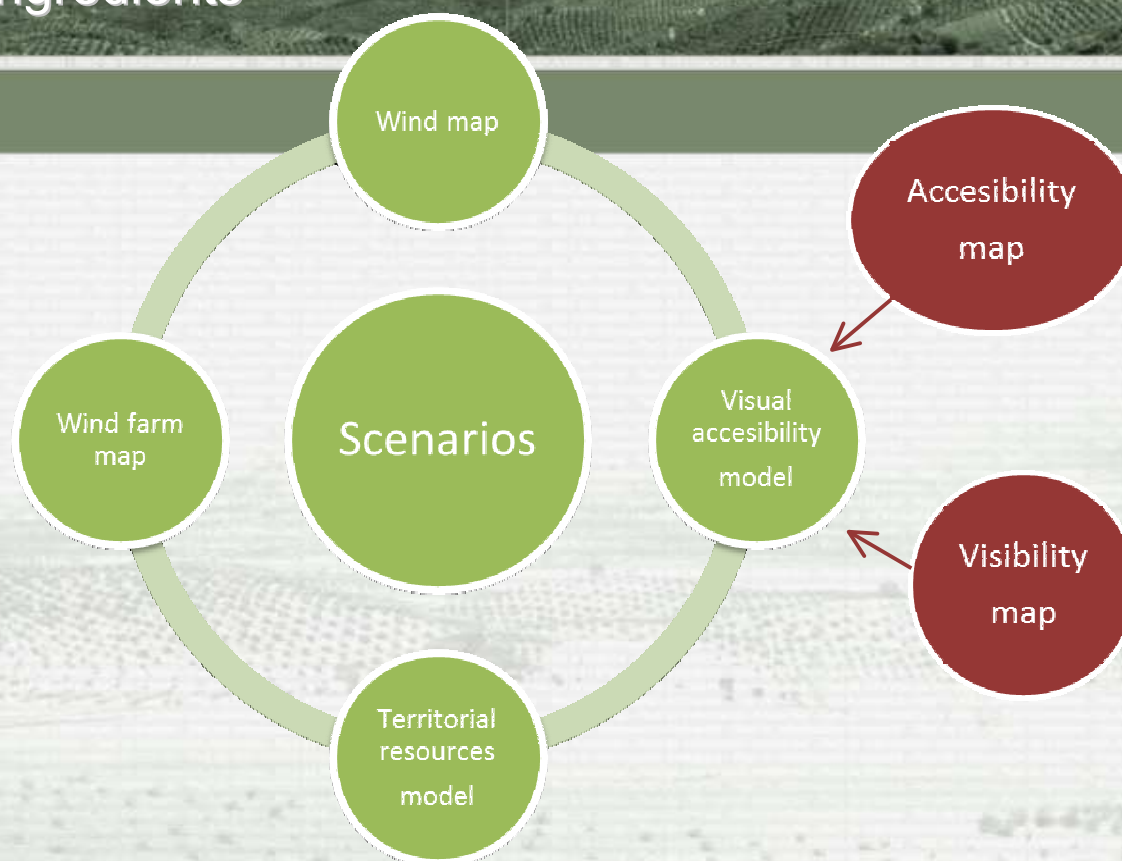
Concrete
action

INDEX

1. SWOT ANALYSIS
2. ACTION PLAN
- 3. SCENARIOS**



Scenarios – Ingredients





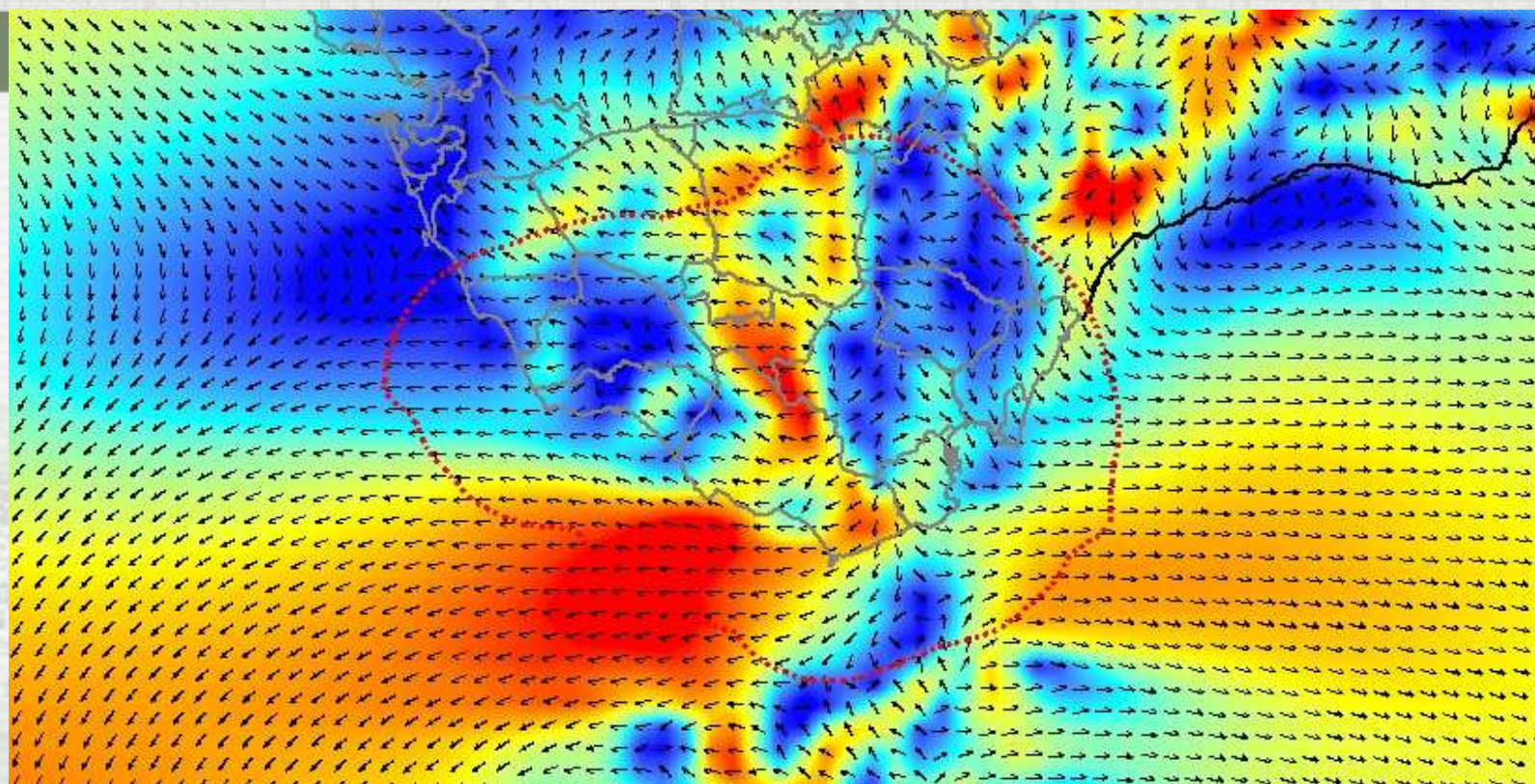
Unión Europea

Fondo Europeo
de Desarrollo Regional

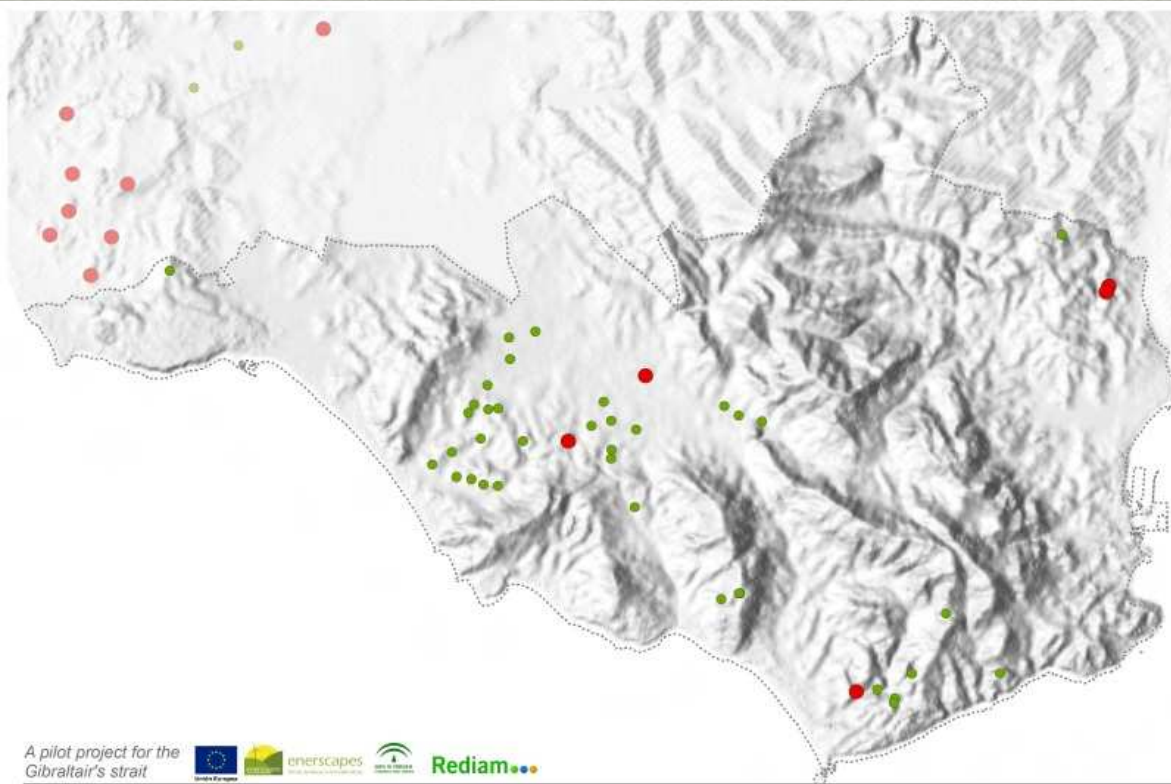


Rediam

Scenarios – 1st Ingredient: wind potential map



Scenarios. 2th ingredient: Expected wind farm develop



- Projected Wind farm
- Existing Wind farm

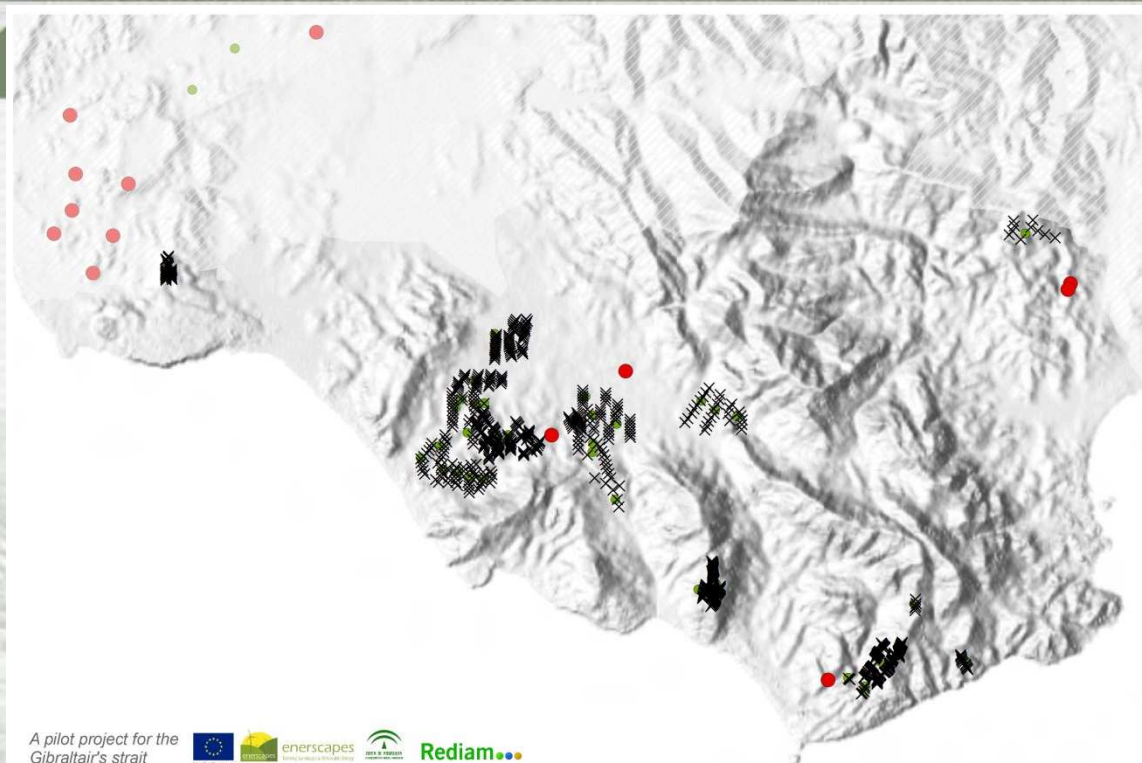
EXISTING WIND FARM	
36	MW
TOTAL	583.26

PROJECTED WIND FARM	
NAME	MW
GUADACORTE I	12.00
GUADACORTE II	16.00
IRUELAS	21.00
LEVANTERA (AMPLIACIÓN)	13.80
TURCO (EL)	21.47
TOTAL	84.27

AS SW AN

enerscapes

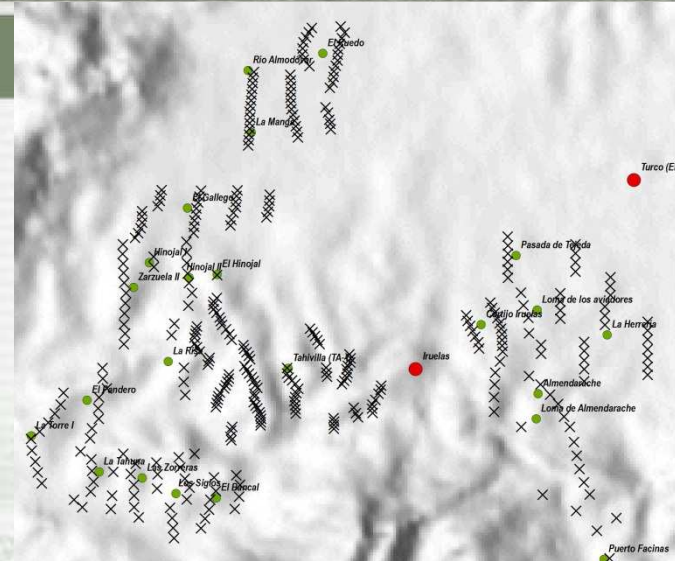
Scenarios. 2th ingredient: Wind turbine location



A pilot project for the Gibraltar's strait

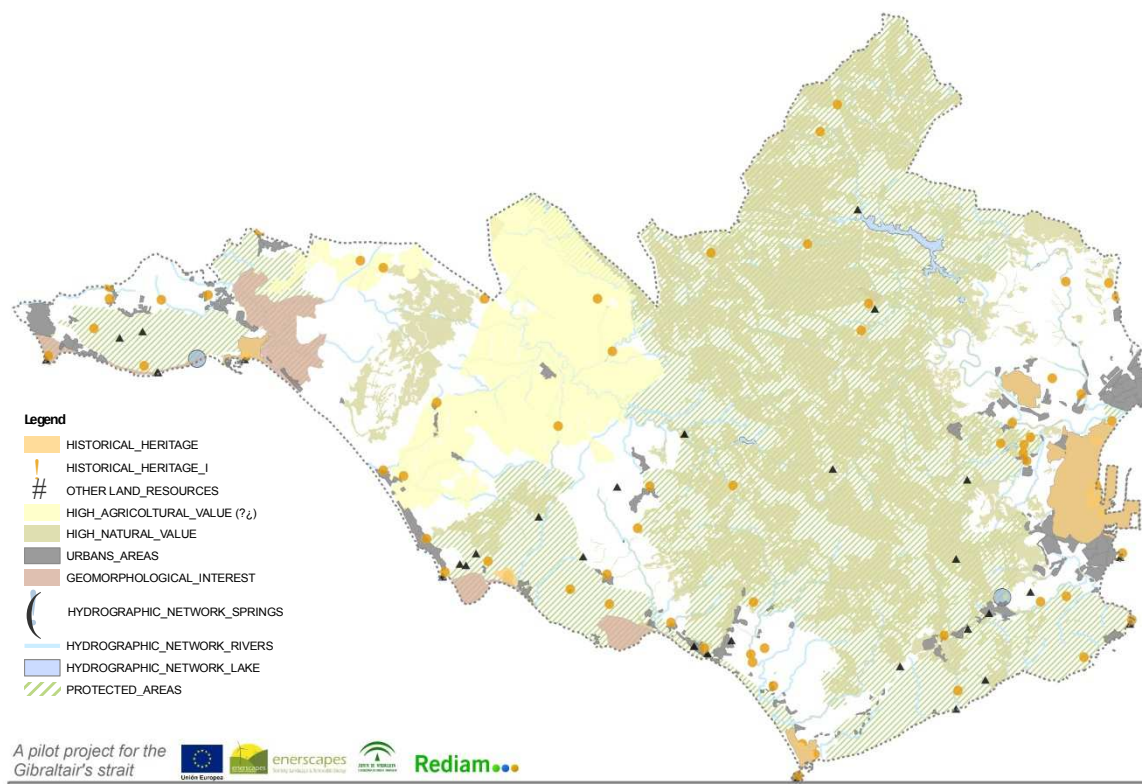


WIND TURBINE



610 WIND TURBINE GEORREFERENCED

Scenarios. 3th ingredient: territorial resources' map



Resources	Citizen value	Expert value
Historical heritage Archaeological sites, historical towns, valuable rural buildings, historical monuments	20x	20x
Other land resources Viewer points, lighthouses, observatories, pic-nic zones, visitors centres, zoos.	20x	10x
High value agricultural land Non irrigated arable land, permanently irrigated land	5x	50x
High natural value Broad level forest, transitional woodland-scrub Mixed forest, Agro-forestiers areas	40x	50x
Urban areas	5x	20x
Geo-morphological interest land Lagoons, dunes, marshes, cliffs, etc.	5x	10x
Hydrographic networks Spring, reservoirs, rivers, etc.	5x	10x
Protected areas Sites of community importance, natural Parks, natural monuments, etc.	40x	20x
Rest	0x	2x



Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios. 4th ingredient: visibility model

Two components make up the visual accessibility model, an application of multi-parameter visibility model

**MULTI-PARAMETER
VISIBILITY MODEL**

Visual
accessibilit
y
model

Visibility
map

Accessability
map



Unión Europea

Fondo Europeo
de Desarrollo Regional



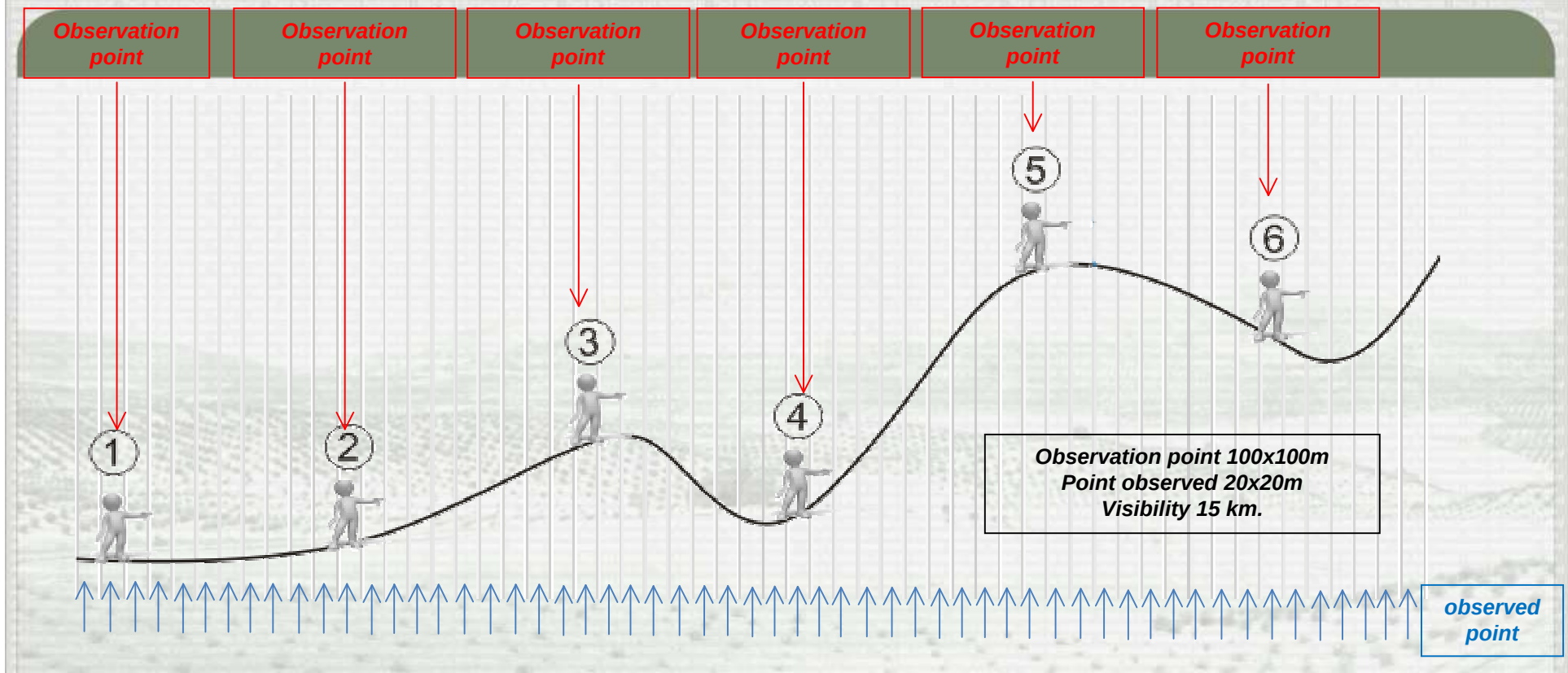
JUNTA DE ANDALUCÍA

CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: "Ubiquity"





Unión Europea

Fondo Europeo
de Desarrollo Regional



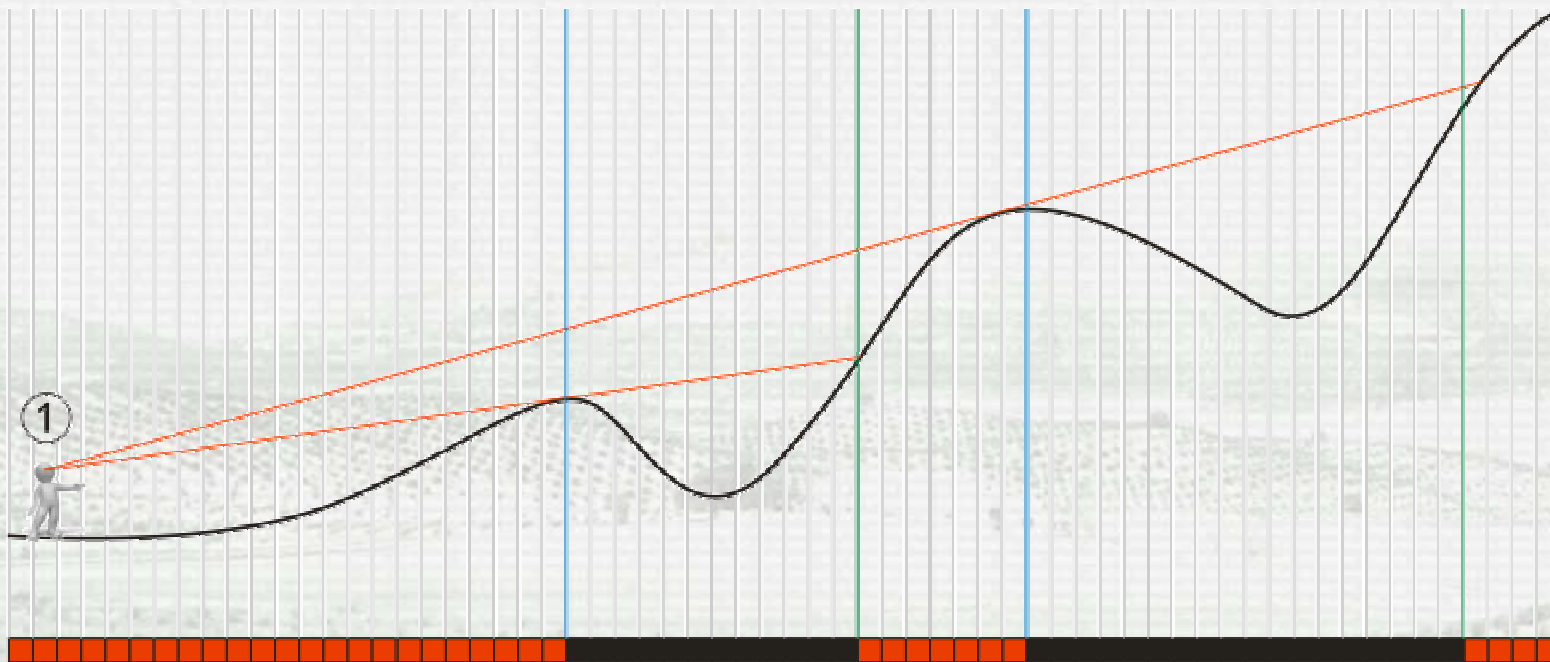
JUNTA DE ANDALUCÍA

CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: "Ubiquity"





Unión Europea

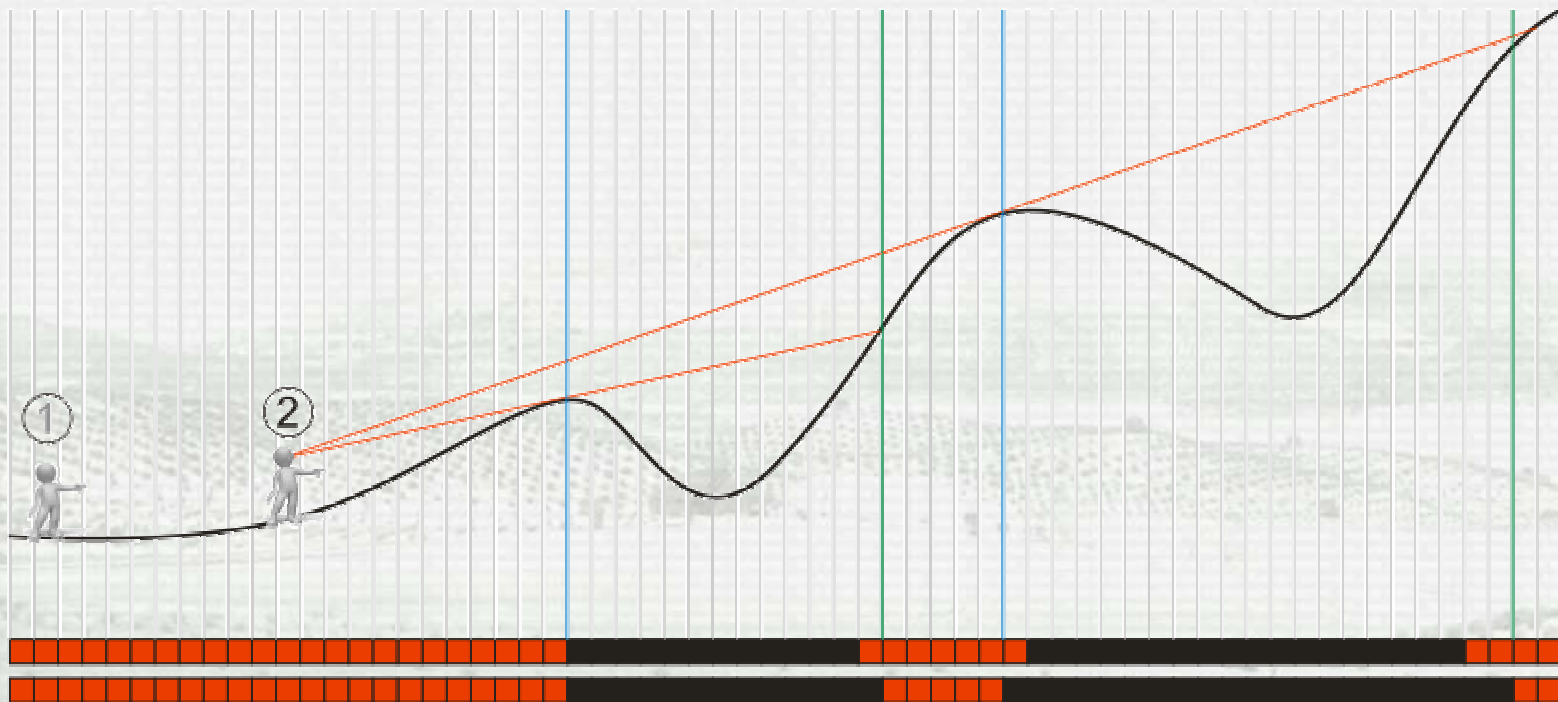
Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: "Ubiquity"





Unión Europea

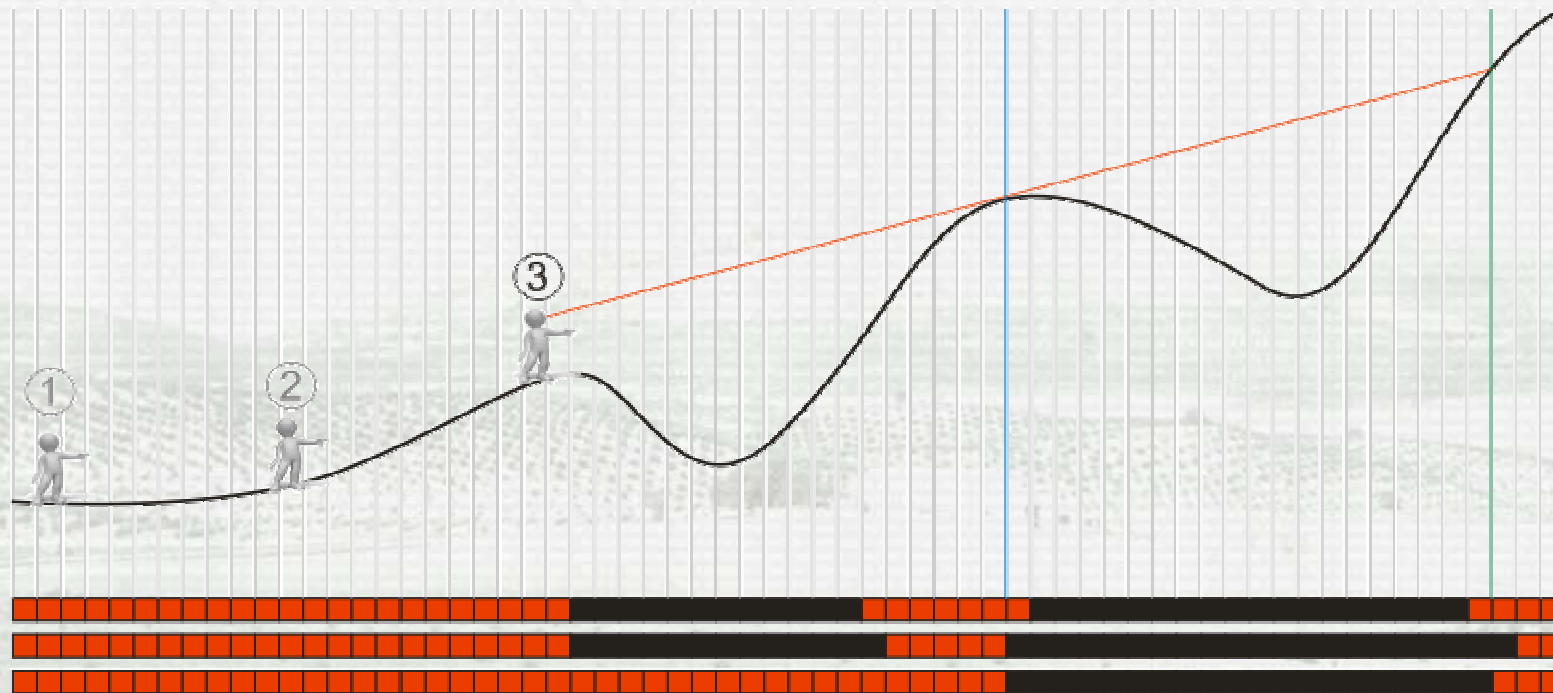
Fondo Europeo
de Desarrollo Regional



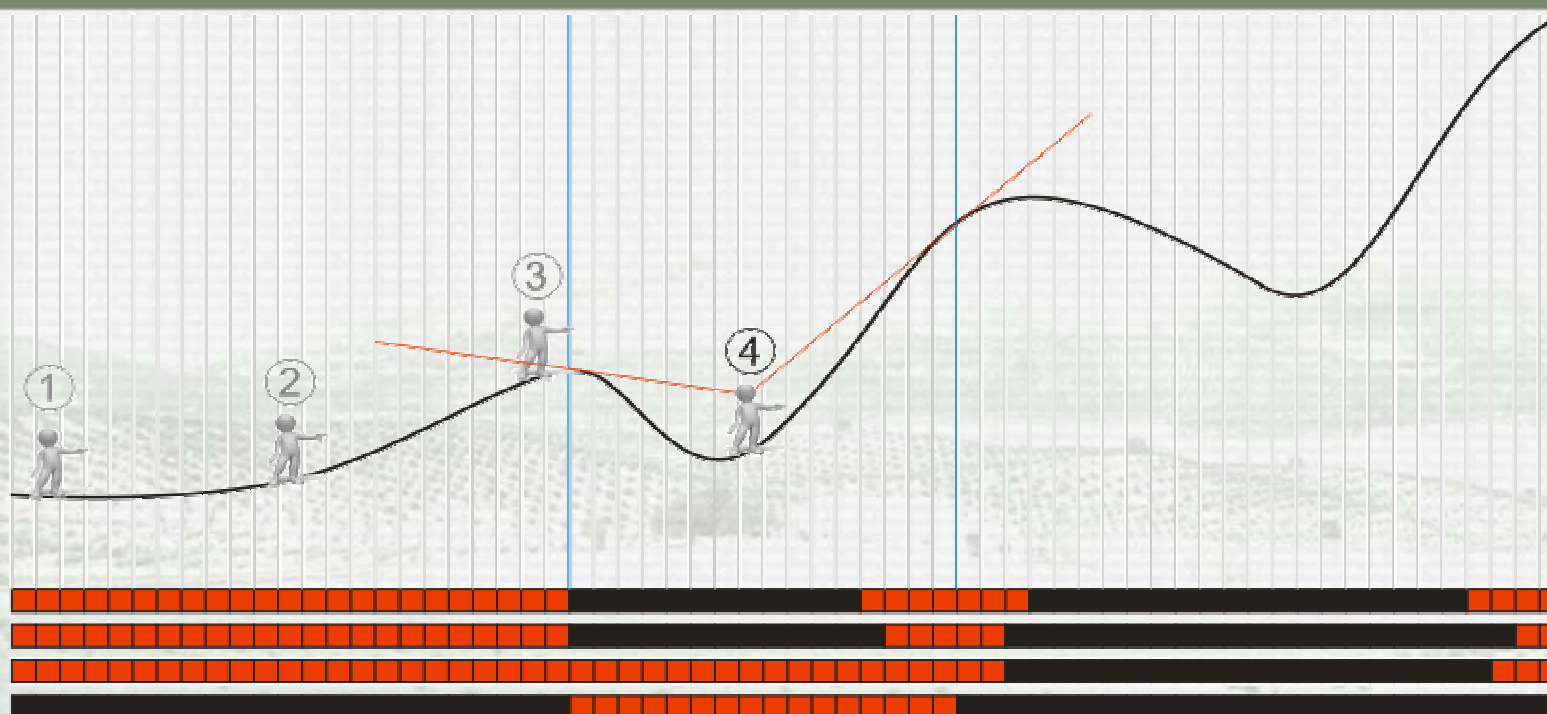
Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: "Ubiquity"



Scenarios. 4.1 ingredient: visibility model. Concepts: “Ubiquity”



A 2D platformer game scene. A black wavy line represents a path or a series of platforms. Five small grey figures are positioned along this path, each with a number in a circle above them: 1, 2, 3, 4, and 5. The path starts at a low point, rises to a peak at checkpoint 3, dips to a valley at checkpoint 4, rises to a higher peak at checkpoint 5, and then dips again before rising further. The background is a light green, hazy landscape. The bottom of the image shows a series of red and black rectangular blocks, likely representing the ground or other platforms.



Unión Europea

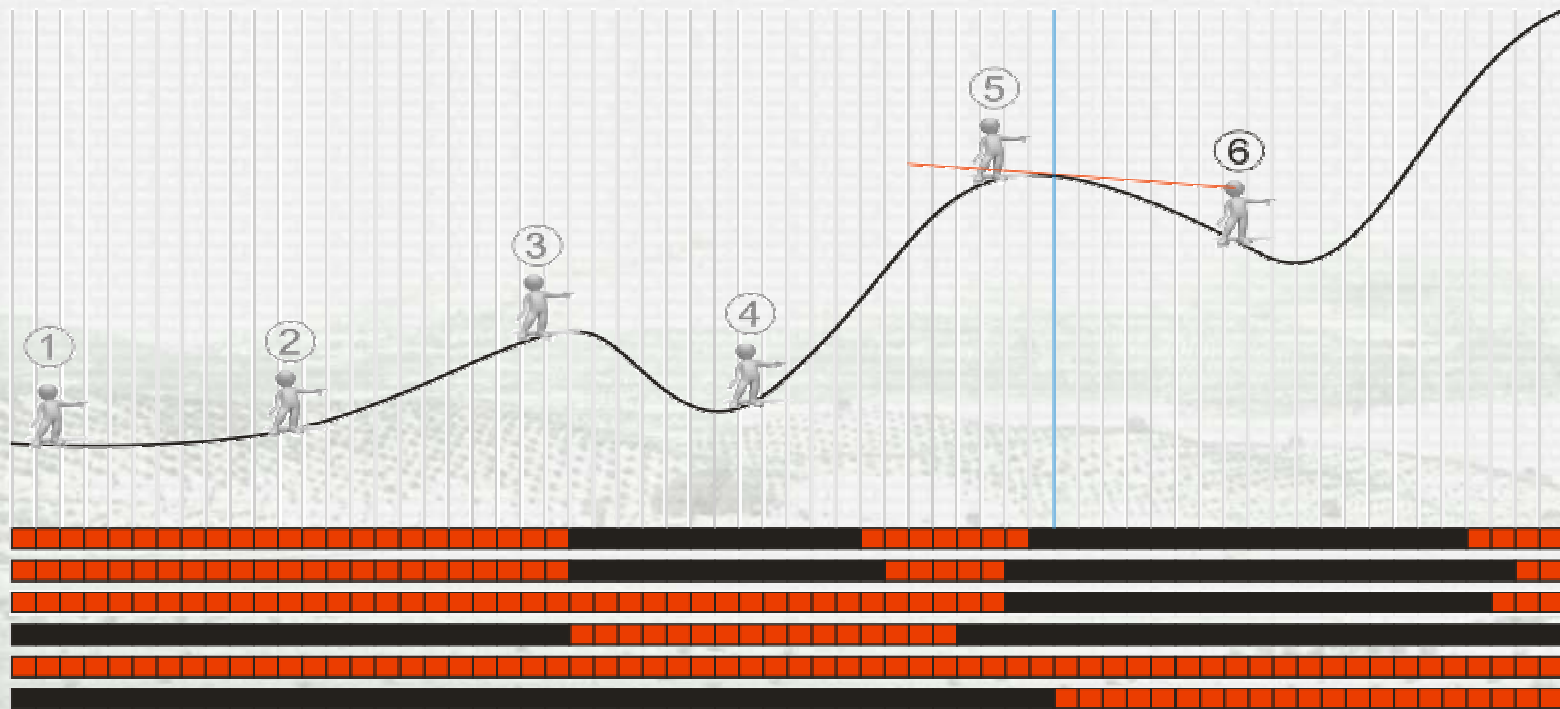
Fondo Europeo
de Desarrollo Regional



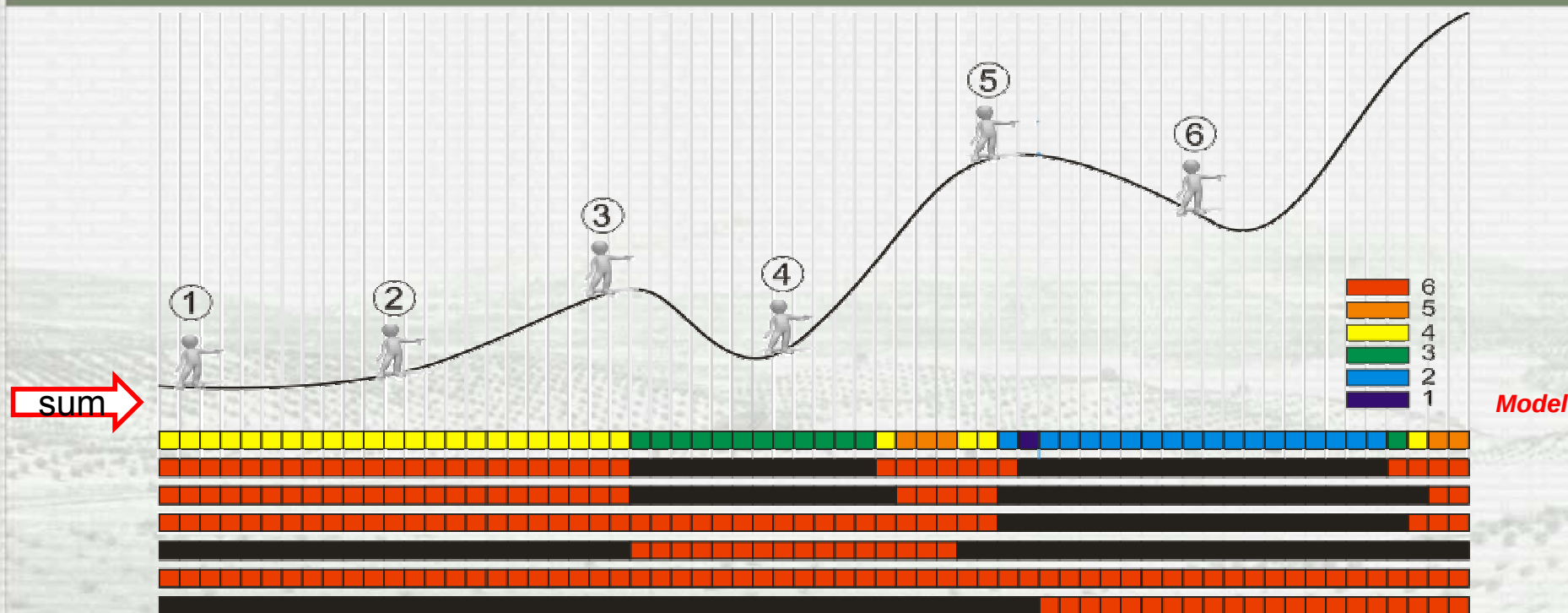
Rediam



Scenarios. 4th ingredient: visibility model. Concepts: "Ubiquity"



Scenarios. 4.1 ingredient: visibility model. Concepts: “Ubiquity”





Unión Europea

Fondo Europeo
de Desarrollo Regional



JUNTA DE ANDALUCÍA

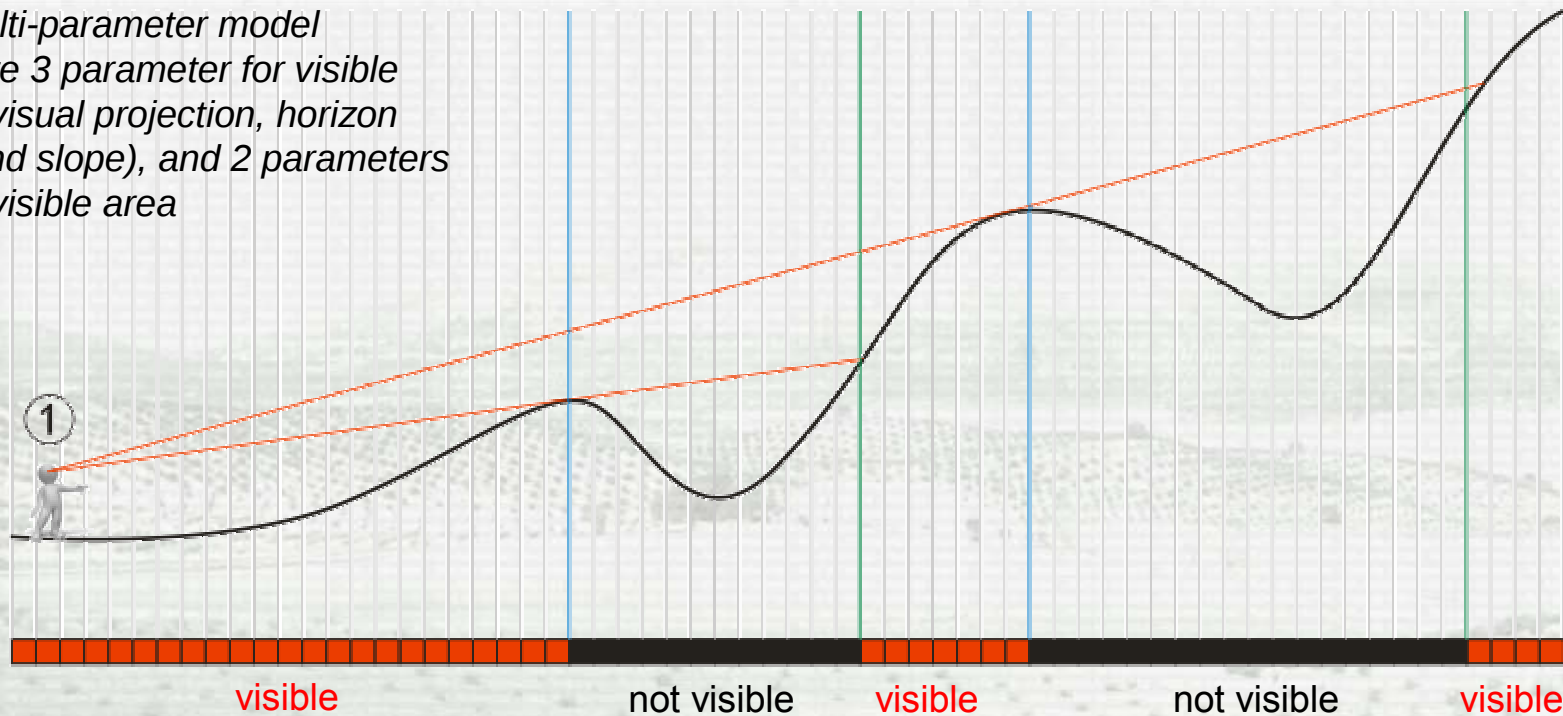
CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: parameters definition.

The multi-parameter model calculate 3 parameter for visible areas (visual projection, horizon point and slope), and 2 parameters for not visible area





Unión Europea

Fondo Europeo
de Desarrollo Regional



JUNTA DE ANDALUCÍA

CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

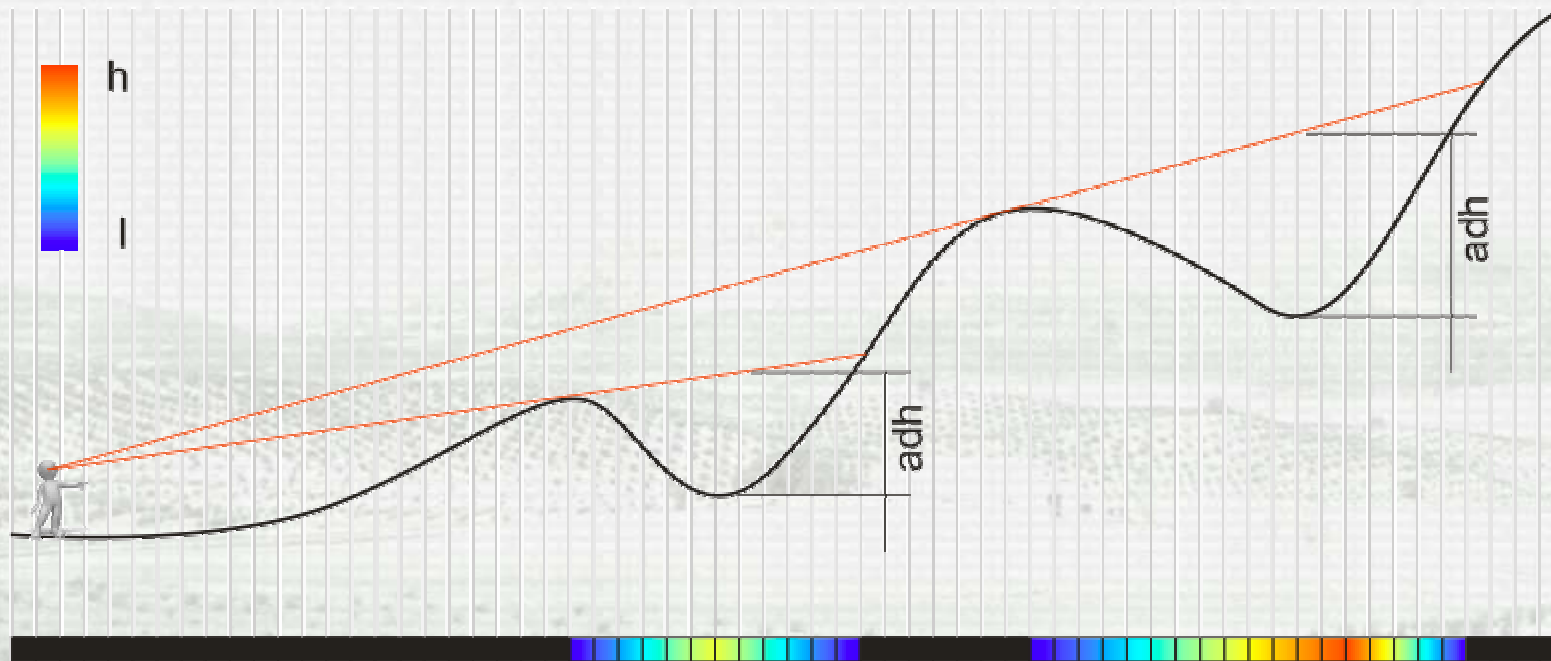
Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: parameters definition.

Additional height needed (non-visible points)

- Define the needed height for a point to be visible from the observation point.





Unión Europea

Fondo Europeo
de Desarrollo Regional

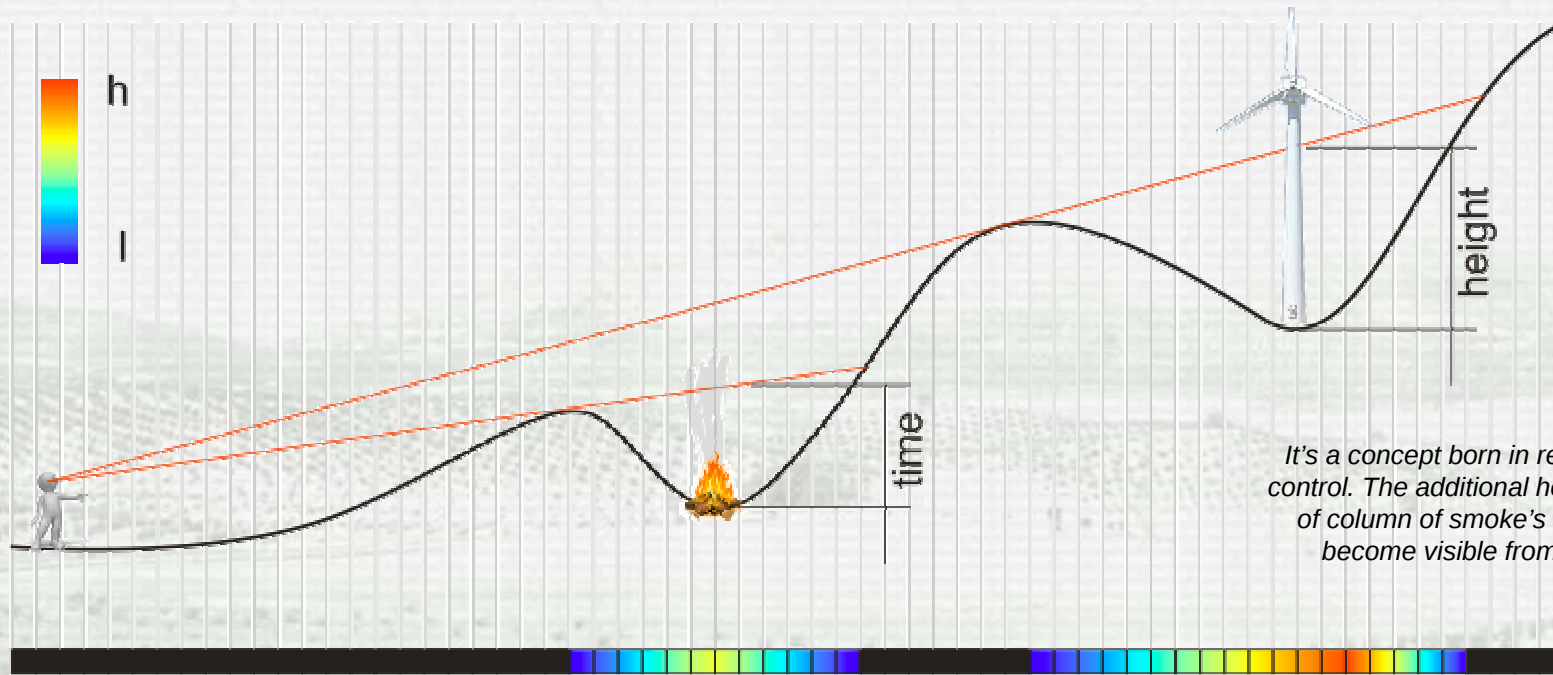


Rediam



Scenarios. 4.1 ingredient: visibility model. Concepts: parameters definition.

Additional height needed (to become visible)





Unión Europea

Fondo Europeo
de Desarrollo Regional



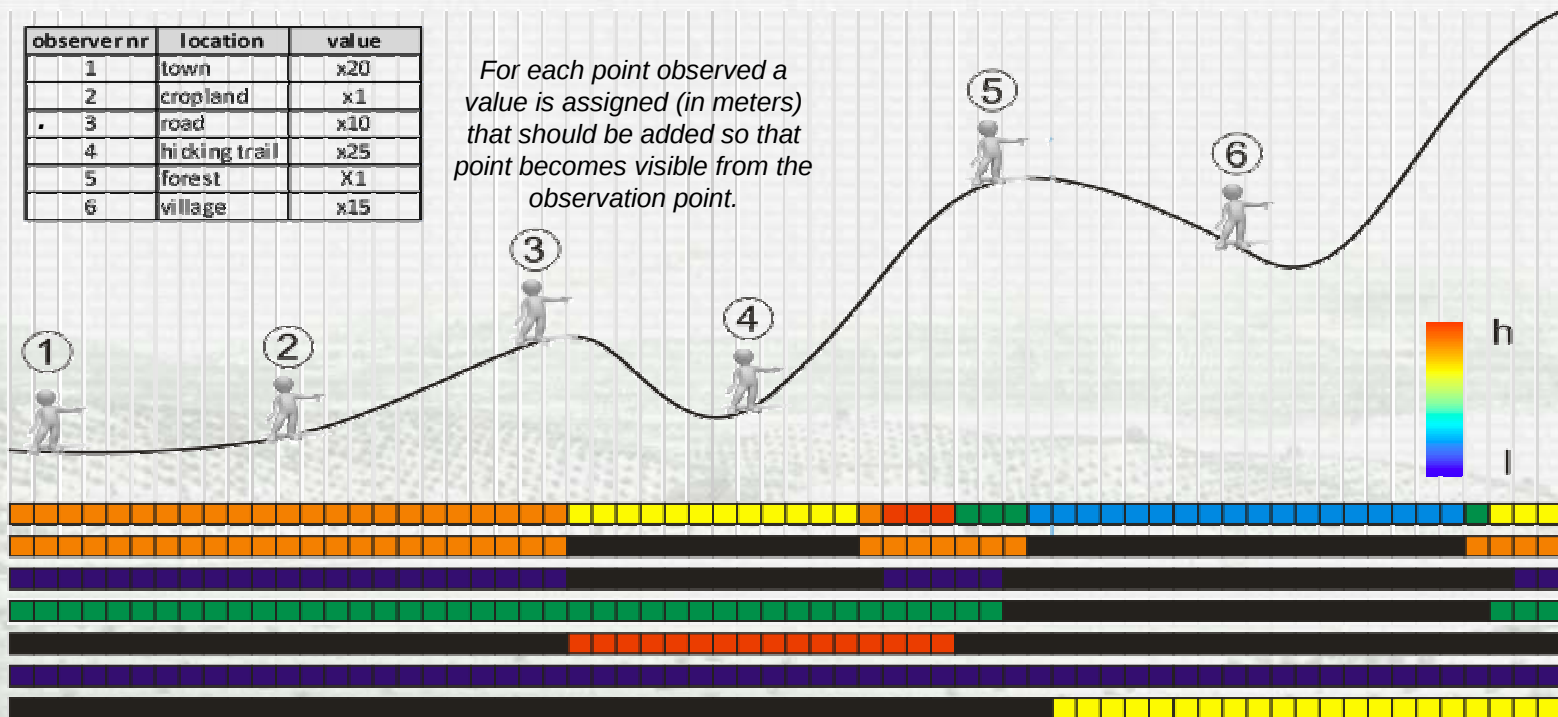
Rediam



Scenarios. 4.1 ingredient: visibility model. Concept: ubiquity & accessibility

observernr	location	value
1	town	x20
2	cropland	x1
3	road	x10
4	hiking trail	x25
5	forest	x1
6	village	x15

For each point observed a value is assigned (in meters) that should be added so that point becomes visible from the observation point.





Unión Europea

Fondo Europeo
de Desarrollo Regional



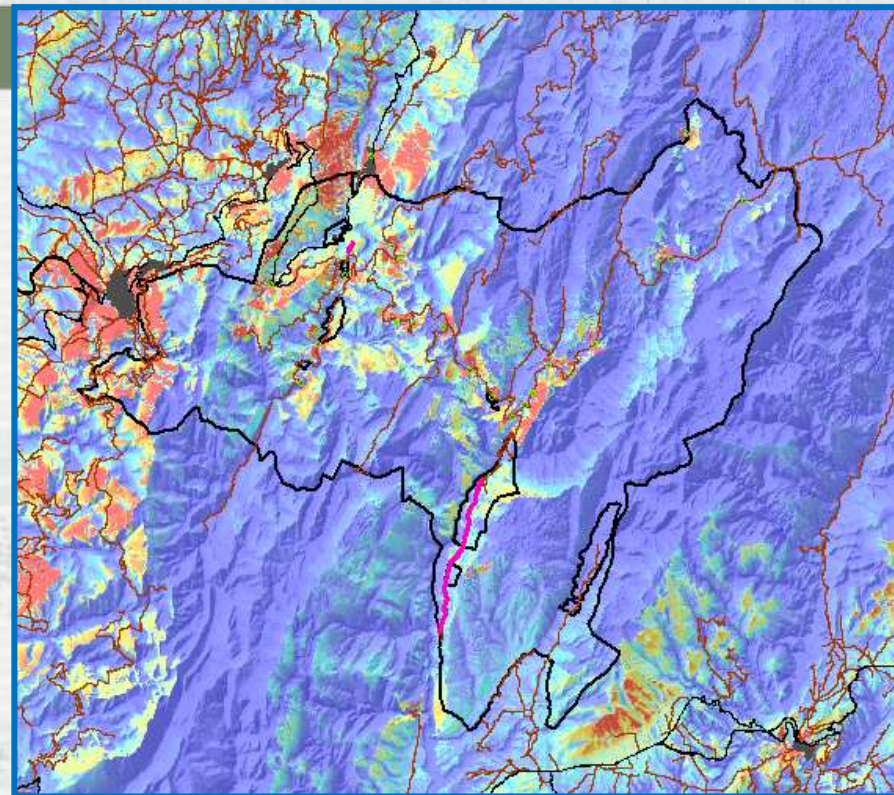
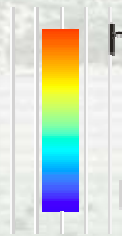
Rediam



Scenarios. 4.1 ingredient: visibility model results

Calculation of additional height based on some stretches of similar height to the wind turbine or PV plant: 0, 20, 40, 60, 80, 100, 120 m.

*The product will be a collection of **182 rasters**: 2 raster (intervisibility simple and intervisibility divided by distance) for each level of intervention (tot.7) and local accessibility category (tot.13).*



Scenarios. 4.2 ingredient: accessibility model

TERRITORY'S CLASSIFICATION BASED ON LOCAL ACCESSIBILITY

Large groups	Type	Constituents
Human settlements	Urban areas of special interest	Historic and tourist cities
	Residential areas	Urban land, including the agricultural/residential land and isolated buildings.
	No residential urban areas	Industrial and commercial zone, sporting and recreational facilities, building sites (vacant lot).
Rustic land	Non-urban altered or agricultural solis	Agricultural land, crops, wetlands, dumps and landfills, mining areas, airports and other technical infrastructure, agricultural facilities.
	Natural or forest land	Forest land and natural woodland, scrub, grassland.
Road network	Railways	In use railways
	Motorway system	Motorways, dual carriageways
	Road	Other roads
	Rural roads	Livestock trail, rural road, pathways
	Turist pedestrian route	Cycling routes, greenways, footpath
Tourism resorces	High frequentation	High potential tourism resources (ex.: Baelo Claudia's archaeological site, beaches, viewer point, etc.).
	Medium frequentation	"Highlights" cultural and natural elements (monuments, castles, etc..) and nature's facilities (visitors centres, recreational areas, etc.).
	Low frequentation	Little-known Cultural and natural elements (ex.: rural buildings, caves and shelters, archaeological sites, etc..), golf courses, etc..



Unión Europea

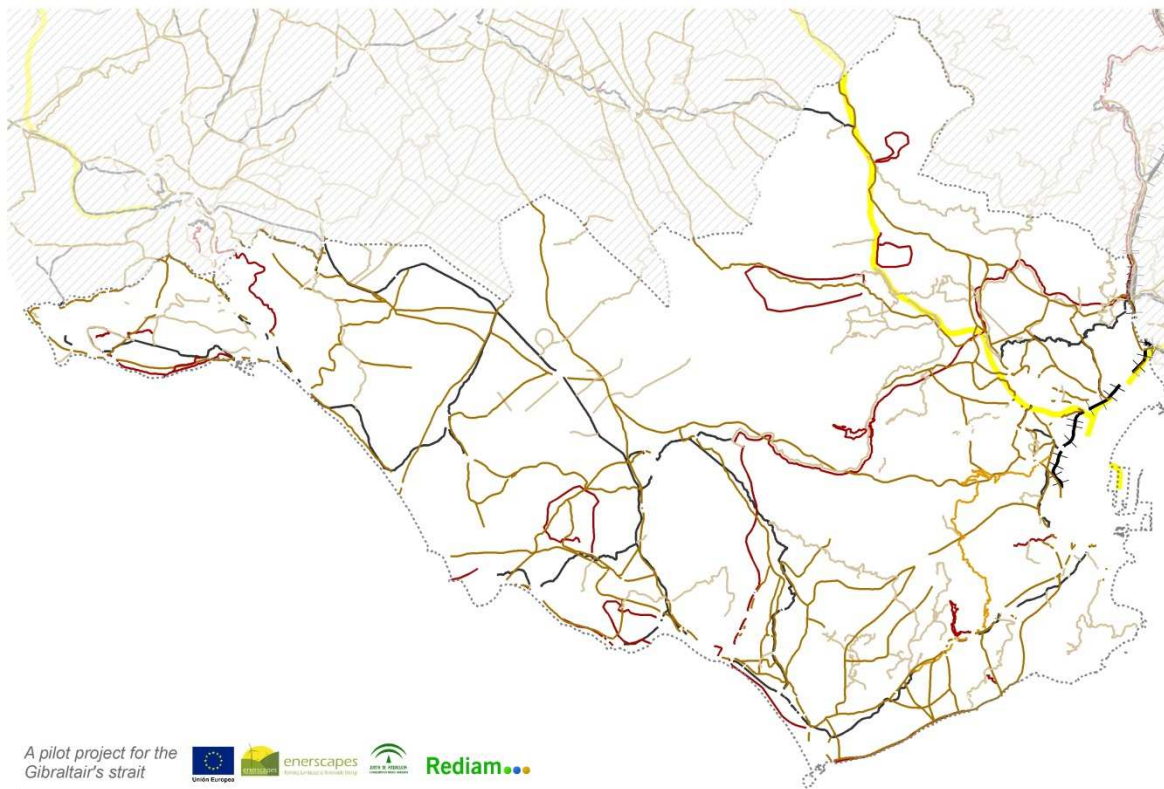
Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios. 4.2 ingredient: accessibility model: Road network



A pilot project for the
Gibraltar's strait



Rediam

LOCAL ACCESSIBILITY MAP. ROAD TYPE

AUTOPISTAS Y AUTOVIAS Carretera convencional FFCC VVPP CAMINO RUTA CICLOTURISTICA SENDERO SEÑALIZADO

- Motorway
- Conventional roads
- Railway
- Livestock trail
- Rural road
- Cycling routes
- Footpath





Unión Europea

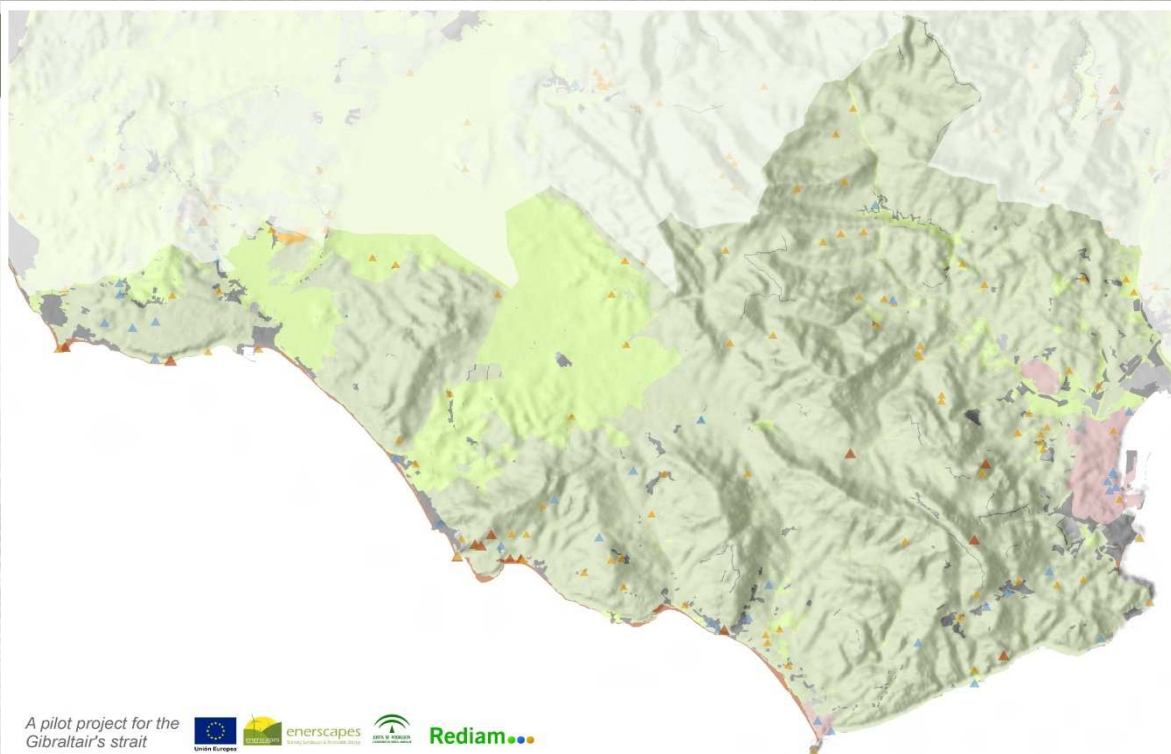
Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios. 4.2 ingredient: accessibility model. Soils' type



A pilot project for the
Gibraltar's strait



Rediam

LOCAL ACCESSIBILITY MAP, SOILS' TYPE ▲ High frequency ▲ Medium frequency ▲ Low frequency Urban areas of special interest Non-urban altered or agricultural soils Natural or forest soils Residential areas No residential urban areas

Human settlements

- Urban areas of special interest
- Residential areas
- No residential urban areas

Rustic soils

- Natural or forest soils
- Non-urban altered or agricultural soil

Tourism resources *Recursos turísticos*

- # High frequency
- # Medium frequency
- # Low frequency





Unión Europea

Fondo Europeo
de Desarrollo Regional



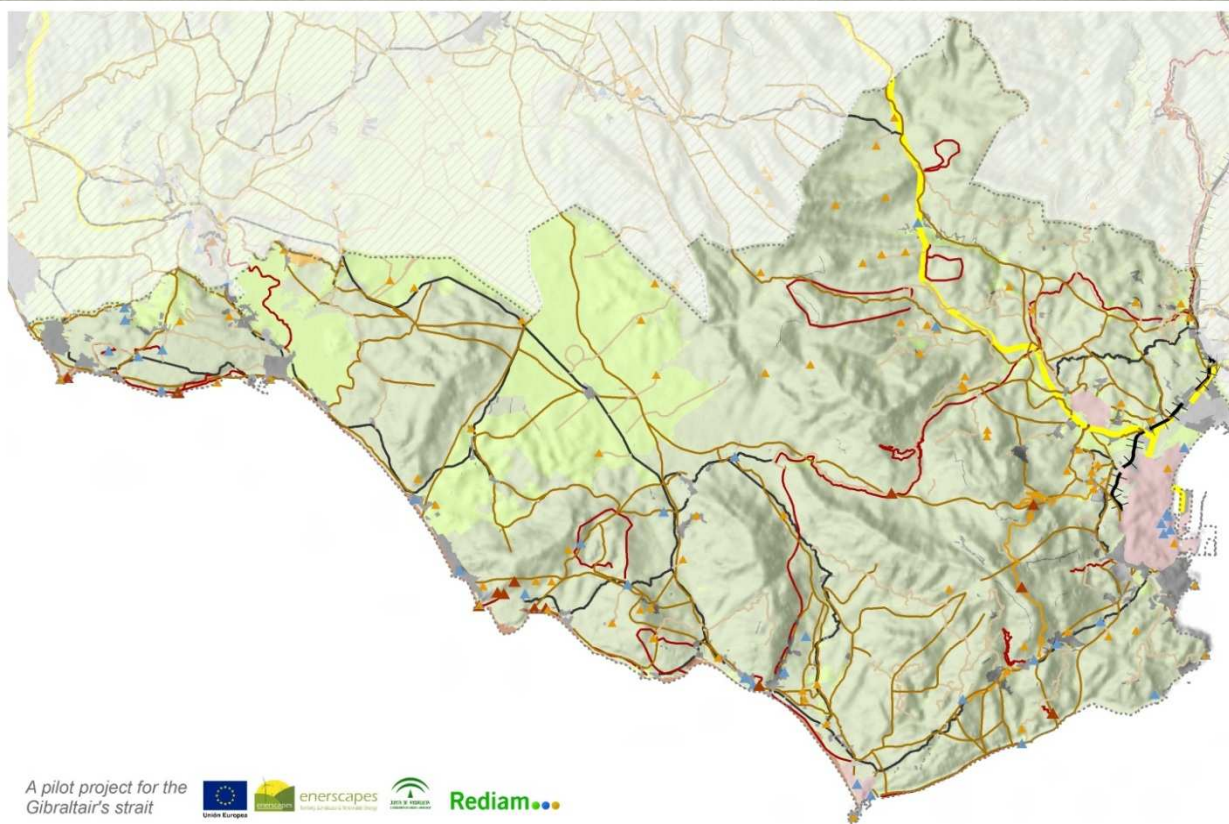
JUNTA DE ANDALUCÍA

CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

Rediam



Scenarios. 4.2 ingredient: accessibility model. Total map



symbol	land use	value
	towns	x20
	villages	x10
	leisure points	x15
	hiking trails	x25
	viewpoints	x50
	roads	x8
	tracks	x5
	forests	x1
	crops	x2
...	...	...

The map's objective is not the identification of a "good territory" or "bad territory". It is just the "most frequently visible territory" or the "visual inaccessible territory". It does not express any value judgments, just the number of times observed.

A pilot project for the
Gibraltar's strait



Rediam



Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios' goals



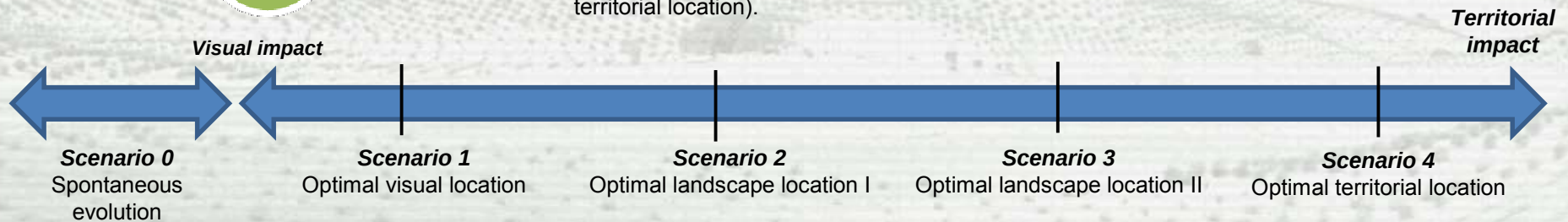
Scenario 0. Evaluation of the impact generated by the construction of 5 new wind farms in locations provided (spontaneous evolution).

Scenario 1: Impact assessment generated if the minimum visual impact is prioritised (Minimum visual accessibility).

Scenario 2: Impact assessment generated if a balance between high visual accessibility and optimal geographical location is seek, focused on the first. (Location optimum landscape II)

Scenario 3: Impact assessment generated if a balance between a high visual accessibility and excellent territorial location is prioritised, focused on the latter. (Location optimum landscape I)

Scenario 4: Impact generated if the conservation of land resources is prioritised (optimal territorial location).





Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam



Scenarios' steps

STATE OF THE ART

- | | |
|---|--|
| 1.- To identify the scenarios' goals | |
| 2.- To georeference wind turbines | |
| 3.- To generate a accessibility model | |
| 4.- To generate a territorial resources' map | |
| 5.- To make the necessary calculations, as seen above: visibility model results..... | |
| 6.- Generate scenarios | |
| 5.- Compare the results with the experts' approach , and take them to public trial – broadcasting ... | |



Unión Europea

Fondo Europeo
de Desarrollo Regional



Rediam



Thanks!