AELCLIC

AELCLIC Pathfinder project

DELIVERABLE 2

Climate Change Impacts, Opportunities, Solutions and Obstacles in all Pilot Landscapes

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eit Climate-KIC

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AUTHORS:

Bas Pedroli (University of Wageningen)
Juanjo Galan (Aalto University)
Daniele Torregiani (University of Bologna)
Ludovica Marinaro (University of Bologna)
Francisco Galiana (Polytechnic University of Valencia)
Emilio Servera (Polytechnic University of Valencia)

INTRODUCTION

Background

This DELIVERABLE 2 compiles the results from those workshops held by the AELCLIC local networks (see Deliverable 1) that co-defined strategic topics to address Climate Change Adaptation and co-identified Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics in the AELCLIC leading and multiplier pilot landscapes.

Objectives

The AELCLIC-PATHFINDER defines, tests and disseminates proactive and catalysing models for the configuration of regional/local consortia with the social, financial, administrative and technical capacity to co-define in the future Landscape Adaption Plans to Climate Change (LACAPs hereafter). A LACAP would include regional/local policies, strategies, pilot actions and initiatives to promote Climate Change adaptation and mitigation (see produced inputs for potential LACAPS in Deliverable 3).

This DELIVERABLE 2 aims to give an overview of the co-identified Climate Change Impacts, Opportunities, Solutions and Obstacles at have been put forward in the various pilot landscapes during the preparation of the key contents or inputs for potential future LACAPs.

RESULTS

Climate Change Impacts, Opportunities, Solutions and Obstacles

Key Impacts

Given that the main issues of climate change are increasing the incidence of wet and dry spells, and of periods with more precipitation or less, with warmer or colder weather, and with more extreme weather conditions, the impacts of climate change are felt strongly all over Europe. The climate impacts as perceived vary over the pilot landscapes, but some key impacts are mentioned in almost all pilot landscapes.

The Table 1a gives a summary of these **key impacts** and links them with the Climate Change impacts identified by the European Environmental Agency (EEA) (connect the acronyms of the Table 1a with the ones of the Table 1b) and with the Climate Change Risks listed in the 5th assessment report of the Intergovernmental Panel on Climate Change Climate (IPCC) 2014 (connect the acronyms of the Table 1a with the ones of the Table 1c).

The connection between the Climate Change Impacts co-identified by the AELCLIC local networks in the 15 AELCLIC Pilot landscapes and the impacts listed by the EEA for different European regions and for different topics is quite evident since the discussions on the AELCLIC workshops were activated by sharing with the participants a synthesis of the materials produced by the EU, EEA, national goveranments and regional/local administrations.

Table 1a | Types of Climate Change Impacts as perceived by the Local Networks in the geographical areas of the AELCLIC-Pathfinder project and connection to Climate Change Impacts detected by the European Environmental Agency (see Table1b, 2012) and the Climate Change Risks identified by the IPCC (see Table 1c, 2014)

	Key impact	*North*	*Atlantic*	*Alpine*	*South west*	*South east*
CLIMATE	**Temperature**	**XX** CLI1 ARC-1, NOR-1	**X** CLI1	**XX** CLI1 ALP-1	**XXX** CLI1 MED-1	**XXX** CLI1 CEE-1, CEE-3, MED-1
	Precipitation & Storms	**X** CLI2, CLI3	**XX** CLI2, CLI3	**X** CLI2, CLI3	**XXX** CLI2, CLI3 MED-2	**XXX** CLI2, CLI3 CEE-2, MED-2
SOIL	**Soil Degradation**	**X** SOI1, SOI3	**XX** SOI1, SOI3	**XX** SOI1, SOI2, SOI3	**XXX** SOI1, SOI2, SOI3	**XXX** SOI1, SOI2, SOI3
CRYOSPHERE	**Snow cover and glaciers**	**XX** CRY1, CY2 ARC-2, NOR-2	-	**XXX** CRY1, CRY2, CRY5 ALP-2	-	XX
	Permafrost	**XX** CRY5 / ARC-4	-	**XX** CRY5 / ALP3	-	-
ECOSYSTEMS	**Terrestrial Ecosystems & Biodiversity**	**XX** ECO1, ECO2, ECO3, ECO4 ARC-5, NOR-4 IPCC-A3, IPCC-H2	**X** ECO1, ECO2, ECO3, ECO4 NEW-3 IPCC-A1, IPCC-A2, IPCC-A3, IPCC-H2	**XX** ECO1, ECO2, ECO3, ECO4 ALP-4, ALP-5 IPCC-A1, IPCC-A2, IPCC-A3, IPCC-H2	**XX** ECO1, ECO2, ECO3, ECO4 MED-4 IPCC-A1, IPCC-A2, IPCC-A3, IPCC-H2	**X** ECO1, ECO2, ECO3, ECO4 MED-4 IPCC-A1, IPCC-A2, IPCC-A3, IPCC-H2
	Oceans and marine environments	**XX** OCE3, OCE4, OCE5 IPCC-B1, IPCC-B3	**XX** OCE3, OCE4, OCE5 IPCC-B1, IPCC-B3		**X** OCE3, OCE4, OCE5 IPCC-B1, IPCC-B3	**X** OCE3, OCE4, OCE5 IPCC-B1, IPCC-B3
	Invasive Species, diseases and pests	**X** NOR-4 IPCC-A1, IPCC-A2,	**X** IPCC-A1, IPCC-A2,	**XX** IPCC-A1, IPCC-A2,	**XX** IPCC-A1, IPCC-A2,	**XX** IPCC-A1, IPCC-A2,
SEA AND FRESH WATER SYSTEMS	**Flood risk (river or sea)**	**XXX** NOR-3 IPCC_G2	**XXX** NEW-2, SEA-1 IPCC_G2	**XX** IPCC_G2	**XX** MED-3 IPCC_G2	**XX** MED-3 IPCC_G2, IPCC_G9
	Coastal zones	**X** COA1 SEA-1, SEA-2, SEA-4	**XXX** COA1, COA2, COA3 NEW-5, SEA-1, SEA-4, SEA-6		**XX** COA1, COA3 SEA-1, SEA-2, SEA-4, SEA-6	**X** COA1, COA3 SEA-1, SEA-2
	Water Infrastructure and Sewage system	**XX** WAT1, WAT2, WAT4	**XX** WAT1, WAT2, WAT4	**X** WAT1, WAT2, WAT4	**XX** WAT1, WAT2, WAT3, WAT4	**XXX** WAT1, WAT2, WAT3, WAT4
	Surface water quality and pollution	**X** WAT5, WAT6	**X** WAT6	**X** WAT6	**XX** WAT6	**XX** WAT6
PUBLIC HEALTH & SOCIAL ISSUES	**Public health**	**XX** HUM1, HUM4 IPCC-G4, IPCC-F1, IPCC-F3	**X** HUM1 IPCC-G4, IPCC-F1	**X** HUM1 IPCC-G4, IPCC-F1	**XX** HUM1, HUM4 MED-10 IPCC-G4, IPCC-F1, IPCC-F3	**XX** HUM1, HUM4 MED-10 IPCC-G4, IPCC-F1, IPCC-F3
	Water supply	-	**X** IPCC-D3		**XXX** IPCC-D3, IPCC-H1	**XX** IPCC-D3, IPCC-H1
	Extreme temperatures and Heat waves	**X** HUM2	**XX** HUM2	**X** HUM2	**XXX** HUM2 MED-9 IPCC_D2	**XX** HUM2 MED-9 IPCC_D2
	Life in cities	**X** IPCC-D2, IPCC-D5, IPCC-D6, IPCC.D7, IPCC-D8,	**XX** IPCC-D2, IPCC-D5, IPCC-D6, IPCC.D7, IPCC-D8, IPCC-D9	-	**XXX** HUM3 IPCC-D1, IPCC-D2, IPCC-D3, IPCC-D4, IPCC-D5, IPCC-D6, IPCC.D7, IPCC-D8, IPCC-D9, IPCC-D10	**XXX** HUM3 IPCC-D1, IPCC-D2, IPCC-D3, IPCC-D4, IPCC-D5, IPCC-D6, IPCC.D7, IPCC-D8, IPCC-D9, IPCC-D10
	Livelihood, cultural identity and poverty	**XX** IPCC_G4, IPCC_G5	**X** IPCC_G5	**XX** IPCC_G4, IPCC_G5	**XX** IPCC_G3, IPCC_G4, IPCC_G5, IPCC_G6; IPCC_G9	**XX** IPCC_G3, IPCC_G4, IPCC_G5, IPCC_G6, IPCC_G9
LAND-USE	**Land abandonment**	**X** IPCC-G4	**XX** IPCC-G4	**XXX** IPCC-G4	**XX** MED-8 IPCC D9I, PCC-G4	**XX** MED-8 IPCC D9I, PCC-G4
	Desertification	-	-	-	**XXX** MED-5, , MED-8 IPCC_A1, IPCC D9	**XX** MED-5, MED-8 IPCC_A1, IPCC D9
ECONOMY	**Agriculture & Forestry**	**XXX** AGRO1, AGRO2, FOR1 NOR-5 IPCC-C1, IPCC-E3, IPCC-J2, IPCC_G4, IPCC_G7	**XXX** AGRO1, AGRO2, AGRO3, FOR1 IPCC-C1, IPCC-E3, IPCC-J2, IPCC_G4, IPCC_G7	**XXX** AGRO1, AGRO2, AGRO3, FOR1 IPCC-C1, IPCC-E3, IPCC-J2, IPCC_G4, IPCC_G7	**XXX** AGRO1, AGRO2, AGRO3, AGRO4, FOR1 MED-6, MED-7, MED-8 IPCC-C1, IPCC-E3, IPCC-J2, IPCC_G1, IPCC_G4, IPCC_G7	**XXX** AGRO1, AGRO2, AGRO3, AGRO4, FOR1 MED-6, MED-7, MED-8 IPCC-C1, IPCC-E3, IPCC-J2, IPCC_G1, IPCC_G4, IPCC_G7
	Forest fires	**X** FOR2	**X** FOR2	**XX** FOR2	**XXX** FOR2 MED-8	**XXX** FOR2 CEE-1, MED-8
	Local products	**XX** IPCC-E3	**X** IPCC-E3	**XXX** IPCC-E3	**X** IPCC_C2, IPCC-E3	**X** IPCC_C2, IPCC-E3
	Tourism	**X** TOU1 NOR-9	**X** TOU1	**XXX** TOU1 ALP-7	**XX** TOU1 MED-12	**X** TOU1 MED-12 IPCC-F3
	Failures in interconnected sectors	**X** IPCC-J1				
INFRASTRUCTURES	**Infrastructures / Mobility / Public transport**	**XX** TRA1	**X** TRA1	**XX** TRA1	**X** TRA1 IPCC-D6	**X** TRA1 IPCC-D6
ENERGY	**Energy consumption and production**	**X** ENE1 ARC-6, NOR6, NOR-7 IPCC-J3	**X** ENE1	**X** ENE1	**XX** ENE1	**XX** ENE1

X moderate, XX strong, XXX very strong impacts perceived by AELCLIC local networks (see Tables 1b and 1c for the acronyms)

Table 1b | Main climate change, impacts and vulnerability in europe 2012 (EEA (European Environmental Agency) report no 12/2012) .(*) indicates the impacts raised and discussed in the AELCLIC workshops

CLIMATE CHANGE, IMPACTS AND VULNERABILITY IN EUROPE 2012 (EEA REPORT NO 12/2012)			
Changes in the climate system, environmental systems, socio-economic systems and human health	**code**	**Key observed and projected climate change and impacts for the main regions in Europe**	**code**
Key Climatic Variables		**Artic**	
(*) Temperature	CLI1	(*) Temperature rise much larger than global average	ARC-1
(*) Precipitation	CLI2	(*) Decrease in Arctic sea ice coverage	ARC-2
(*) Storms	CLI3	Decrease in Greenland ice sheet	ARC-3
Cryosphere		(*) Decrease in permafrost areas	ARC-4
(*) Snow cover	CRY1	(*) Increasing risk of biodiversity loss	ARC-5
Greenland ice sheet	CRY2	(*) Intensified shipping and exploitation of oil and gas resources	ARC-6
(*) Glaciers	CRY3	**Northern Europe**	
(*) Arctic and Baltic Sea ice (N)	CRY4	(*) Temperature rise much larger than global average	NOR-1
(*) Permafrost	CRY5	(*) Decrease in snow, lake and river ice cover	NOR-2
Oceans and marine environment		(*) Increase in river flows	NOR-3
Ocean acidification	OCE1	(*) Northward movement of species	NOR-4
Ocean heat content (N)	OCE2	(*) Increase in crop yields	NOR-5
(*) Sea surface temperature	OCE3	(*) Decrease in energy demand for heating	NOR-6
(*) Phenology of marine species	OCE4	(*) Increase in hydropower potential	NOR-7
(*) Distribution of marine species	OCE5	Increasing damage risk from winter storms	NOR-8
Coastal zones		(*) Increase in summer tourism	NOR-9
(*) Global and European sea-level rise	COA1	**North-western Europe**	
(*) Storm surges	COA2	Increase in winter precipitation	NEW-1
(*) Coastal erosion	COA3	(*) Increase in river flow	NEW-2
Freshwater quantity and quality		(*)Northward movement of species	NEW-3
(*) River flow	WAT1	Decrease in energy demand for heating	NEW-4
(*) River floods	WAT2	(*) Increasing risk of river and coastal flooding	NEW-5
(*) River flow drought	WAT3	**Mountain areas**	
(*) Water temperature	WAT4	(*) Temperature rise larger than European average	ALP-1
(*) Lake and river ice cover	WAT5	(*) Decrease in glacier extent and volume	ALP-2
(*) Freshwater ecosystems and water quality	WAT6	(*) Decrease in mountain permafrost areas	ALP-3
Terrestrial ecosystems and biodiversity		(*) Upward shift of plant and animal species	ALP-4
(*) Plant and fungi phenology	ECO1	(*) High risk of species extinction in Alpine regions	ALP-5
(*) Animal phenology	ECO2	Increasing risk of soil erosion	ALP-6
(*) Distribution of plant species	ECO3	(*) Decrease in ski tourism	ALP-7
(*) Distribution and abundance of animal species	ECO4	**Coastal zones and regional seas**	
Soil		(*) Sea-level rise	SEA-1
(*) Soil organic carbon	SOI1	(*) Increase in sea surface temperatures	SEA-2
(*) Soil erosion	SOI2	Increase in ocean acidity	SEA-3
(*) Soil moisture	SOI3	(*) Northward expansion of fish and plankton species	SEA-4
Agriculture		Changes in phytoplankton communities	SEA-5
(*) Growing season for agricultural crops	AGRO1	(*) Increasing risk for fish stocks	SEA-6
(*) Agrophenology	AGRO2	**Central and eastern Europe**	
(*) Water-limited crop productivity	AGRO3	(*) Increase in warm temperature extremes	CEE_1
(*) Irrigation water requirement	AGRO4	(*) Decrease in summer precipitation	CEE_2
Forests and forestry		(*) Increase in water temperature	CEE_3
(*) Forest growth	FOR1	(*) Increasing risk of forest fire	CEE_4
(*) Forest fires	FOR2	Decrease in economic value of forests	CEE_5
Fisheries and aquaculture	FOR3	**Mediterranean region**	
Human health		(*) Temperature rise larger than European average	MED-1
(*) Floods and health	HUM1	(*) Decrease in annual precipitation	MED-2
(*) Extreme temperatures and health	HUM2	(*) Decrease in annual river flow	MED-3
(*) Air pollution by ozone and health	HUM3	(*) Increasing risk of biodiversity loss	MED-4
(*) Vector-borne diseases	HUM4	(*) Increasing risk of desertification	MED-5
Water- and foodborne diseases	HUM5	(*) Increasing water demand for agriculture	MED-6
Energy		(*) Decrease in crop yields	MED-7
(*) Energy consumption (e.g. cooling)	ENE1	(*) Increasing risk of forest fire	MED-8
Transport		(*) Increase in mortality from heat waves	MED-9
(*) Disturbances in transport system and mobility	TRA1	(*) Expansion of habitats for southern disease vectors	MED-10
Tourism		Decrease in hydropower potential	MED-11
(*) Change in tourism patterns	TOU1	(*) Decrease in summer tourism and potential increase in other seasons potential increase in other seasons	MED-12

(*): Discussed and addressed in the AELCLIC workshops

Table 1c | Main RISKS associated to climate change according to the *Climate Change 2014: impacts, adaptation, and vulnerability. part a: global and sectoral aspects. contribution of working group II to the fifth assessment report of the intergovernmental panel on climate change* .(*) indicates the impacts raised and discussed in the AELCLIC workshops

HAZARDS, KEY VULNERABILITIES, KEY RISKS, AND EMERGENT RISKS	code
KEY RISKS_Terrestrial and Inland Water Systems	
(*) Loss of native biodivesity, increase non-native organism dominance	**IPCC_A1**
(*) Novel and/or much more severe pest and pathogen outbreaks	**IPCC_A2**
(*) Changes in plant functional type mix leading to biome change with respective risks for ecosystems and ecosystem services	**IPCC_A3**
KEY RISKS_Ocean Systems	
(*) Loss of endemic species, mixing of ecosystem types, increased dominance of invasive organisms	**IPCC_B1**
Loss of coral cover and associated ecosystem with reduction of biodiversity and associated ecosystem services	**IPCC_B2**
(*) Unknown productivity and services of new ecosystem types	**IPCC_B3**
Loss of larger animals and plants, shifts to hipoxia-adapted, largely microbial communities with reduced biodiversity	**IPCC_B4**
Enhanced frequency o dinoflagellate blooms and respective potential losses and degradations of coastal ecosystems and ecosystem services	**IPCC_B5**
KEY RISKS_Food Security and Food Production Systems	
(*) Crop failures, breakdown of food distribution and storage processes	**IPCC_C1**
(*) Crop failure, risk of limited food access and quality	**IPCC_C2**
KEY RISKS_Urban Areas	
(*) Deaths and injuries and disruptions to livelihoods/incomes, food supplies, and drinking water	**IPCC_D1**
(*) Mortality and morbidity increasing, including shifts in seasonal patterns and concentrations due to hot days with higher or more prolonged high temperatures or unexpected cold spells. Avoiding risks often most difficult for low-income groups	**IPCC_D2**
(*) Constraints on urban water provision services to people and industry with human and economic impacts. Risk of damage and loss to urban ecology and its services including urban and peri-urban agriculture.	**IPCC_D3**
(*) Lowered quality of life, decreased competitiveness of global cities to attract key workers and investment	**IPCC_D4**
(*) Damage to networked infrastructure. Risk of loss of human life and property	**IPCC_D5**
(*) Damage to dwellings, businesses, and public infrastructure. Risk of loss of function and services. Challenges to recovery, especially where insurance is absent	**IPCC_D6**
(*) Potential of psychological shock from unanticipated risks	**IPCC_D7**
(*) Failures within coupled systems, e.g., reliance of drainage systems on electric pumps, reliance of emergency services on roads and telecommunications.	**IPCC_D8**
(*) Damage to or degradation of soils, water catchment capacity, fuel wood production, urban and peri-urban agriculture, and other productive or protective ecosystem services. Risk of knockon impacts for urban and peri-urban livelihoods and urban health	**IPCC_D9**
(*) Risk due to increases in exposure to diseases (food-borne, water-borne, malaria dengue and other vector-borne diseases influenced by climate change)	**IPCC_D10**
KEY RISKS_Rural Areas	
Famine. Risk of loss of revenues from livestock trade	**IPCC_E1**
(*) Economic losses for artisanal fisherfolk, due to declining catches and incomes and damage to fishing gear and infrastructure	**IPCC_E2**
(*) Reduced agricultural productivity of rural people, including those dependent on rainfed or irrigated agriculture,or high-yield varieties, forestry, and inland fisheries.	**IPCC_E3**
KEY RISKS_Human Health	
(*) Risk of increased mortality and morbidity during hot days and heat waves, particularly among manual workers in hot climates	**IPCC_F1**
Risk of a larger burden of disease and increased food insecurity for particular population groups.	**IPCC_F2**
(*) Increasing health risks due to changing spatial and temporal distribution of diseases strains public health systems, especially if this occurs in combination with economic downturn	**IPCC_F3**
Progress to date in reducing childhood deaths from diarrheal disease is compromised	**IPCC_F4**
KEY RISKS_Livelihoods and Poverty	
(*) Irreversible harm due to short time for recovery between droughts, approaching tipping point in rainfed farming system and /or pastoralism	**IPCC_G1**
High morbidity and mortality due to floods and flash floods. Factors that further increase risk may include a shift from transient to chronic poverty due to eroded human and economic assets (e.g., labor market) and economic losses due to infrastructure damage.	**IPCC_G2**
(*) Shift populations from transient to chronic poverty due to persistent and irreversible socioeconomic and political marginalization. The lack of governmental support, as well as limited effectiveness of response options, increase the risk	**IPCC_G3**
(*) Loss of rural livelihoods, severe economic losses in agriculture, and damage to cultural values and identity; mental health impacts (including increased rates of suicide).	**IPCC_G4**
(*) Risk of severe harm and loss of livelihoods. Potential loss of common-pool resources; of sense of place, belonging, and identity	**IPCC_G5**
(*) Increased morbidity and mortality due to heat stress, among male and female workers, children, and the elderly, limited protection due to socioeconomic discrimination and inadequate governmental responses	**IPCC_G6**
(*) Risks of crop failure and food shortage	**IPCC_G7**
Harm and loss of livelihoods for some rural residents due to soaring demand for biofuel feedstocks and insecure land tenure and land grabbing	**IPCC_G8**
(*) Loss of livelihoods and harm due to shorter time for recovery between extremes. Pastoralists restocking after a drought may take several years; in terraced agriculture, need to rebuild terraces after flood, which may take several years	**IPCC_G9**
Emergent Risks and Key Vulnerabilities	
(*) Harm and loss due to livelihood degradation from systematic constraints on water resource use that lead to supply falling far below demand. In addition, limited coping and adaptation options increase the risk of harm and loss.	**IPCC_H1**
(*) Risk of large-scale species richness loss over most of the global land surface. 57 ± 6% of widespread and common plants and 34 ± 7% of widespread and common animals are expected to lose ≥50% of their current climatic range by the 2080s leading to loss of services	**IPCC_H2**
Europe (specific Key Risks)	
(*) Risk of new systemic threats due to stress on multiple and interconnected sectors. Risk of failure of service provision of one or more sectors	**IPCC_J1**
(*) Risk of increases in crop losses and animal diseases or even fatalities of livestock	**IPCC_J2**
(*) Increasing risk of power shortages due to limited energy supply, e.g., of nuclear power plants due to limited cooling water during heat stress	**IPCC_J3**
(*): Discussed and addressed in the AELCLIC workshops	

Opportunities

Many opportunities and solutions to counteract the perceived impacts have been put forward in the workshops. Some opportunities apply to all pilot landscapes, such as new land use types and multifunctionality. Still, depending on the impacts identified, most opportunities and solutions vary across Europe. In the Northern and Atlantic regions, much importance is attributed to Local circularity to prevent large distances of energy transport. Also community supported agriculture seems to have large opportunities particularly in these areas. Combatting heat waves, extreme events such as floodingsand forest fires is particularly acute in the Mediterranean regions, although also elsewhere, all over Europe, forest fires are more frequent.

The below table gives a summary of the opportunities for climate adaptation and mitigation identified.

Table 2 | Main types of opportunities arising from climate adaptation and mitigation as identified by the Local Networks in the geographical areas of the AELCLIC-Pathfinder project.

Opportunity	*North*	*Atlantic*	*Alpine*	*South west*	*South east*
Local circular energy provision	XXX	X	XXX	X	XX
Increase energy efficiency	XXX	XX	XXX	XX	XXX
Community supported agriculture	XXX	XX	XXX	XX	XX
New land use types and crop varieties	XXX	XXX	XXX	XXX	XXX
Increase resilience by multifunctionality	XXX	XXX	XXX	XXX	XXX
Diversification of local products	XX	XX	XXX	XX	XX
Forest management to decrease fires	X	X	XX	XXX	XX
Introduce (or adapt) irrigation systems	-	XX	XX	XXX	XXX
Better water management and use	XX	XXX	XX	XX	XXX
Public awareness raising	XX	XX	XX	XX	XXX
Green for thermal regulation	X	X	X	XXX	XXX
Increase efficiency of spatial planning	X	X	XX	XXX	XXX
Increase water retention	XX	XXX	XXX	XXX	XXX
Promote more effective governance	XX	XX	XX	XXX	XXX
X moderate, XX medium, XXX high potential perceived					

Obstacles and Barriers

Where opportunities are being identified they cannot always be implemented, because of cultural, economic, juridical or political barriers. At the same time, funding the solutions can also be a tough challenge. In general, the market mechanism is felt strongly all over Europe, while governance is less adequate in the Alpine and especially South-eastern regions. The lack of funding is being felt very strongly all over Europe. This applies both to public funding and to commercial investment.

Table 3 | Main types of obstacles and barriers for climate adaptation and mitigation as identified by the Local Networks in the geographical areas of the AELCLIC-Pathfinder project.

Obstacles and Barriers	*North*	*Atlantic*	*Alpine*	*South west*	*South east*
Inadequate governance	X	X	XX	XXX	XXX
Decreasing level of local knowledge	X	XX	XXX	XX	XX
Decreasing awareness of landscape values	X	XX	XXX	XXX	XXX
Market mechanism, profit orientation	XX	XX	XX	XX	XX
Inadequate management of private property	XX	XX	XXX	XXX	XXX
Reluctance to adopt technological solutions	XX	X	XX	XX	XX
Lack of funding (public or private)	XX	XXX	XXX	XXX	XXX
X moderately strong , XX strong, XXX very strong obstacle					

CONCLUSION

Various conclusions regarding the co-identification of Climate Change Impacts, Opportunities, Solutions and Barriers can be drawn from the large variety of findings in the various pilot landscapes. At the same time, those co-identified inputs can be analysed from the perspective of the Feasibility, Legitimacy, Governance and Relation to Existing Policies of the proposed "programmatic documents or inputs" for future LACAPS. First, the main findings of the AELCLIC PATHFINDER can be mentioned as regards the impacts of climate change on the landscape and the opportunities to overcome the negative effects of climate change.

Main findings

1. **The impacts of climate change on the landscape are felt strongly by the local communities in 15 pilot landscapes all over Europe**
2. **The continuing climate change is perceived as a strong threat for environmental, economic and societal sustainability, including the future of agriculture, forestry, tourism, ecosystem functioning, wellbeing and quality of life**
3. **At the same time many opportunities are identified to adapt to and to mitigate climate change**
4. **Generally, local solutions are preferred, and many ideas were put forward to organise climate adaptation and mitigation at a local or regional scale**
5. **The support of both market mechanisms and national/international public policies is generally perceived as largely insufficient.**
6. **Incentives to foster the identification of funding opportunities for climate–friendly solutions should be promoted more strongly by the regional and national authorities.**

As explained in the Deliverables 1, 3, 4, 5 and 6 of the AELCLIC project, the legitimacy of the works developed by the 15 AELCLIC Local Networks in their respective pilot landscapes, the feasibility and implementability of the proposed outlines for Landscape Adaptation Plans to Climate Change (LACAPs) as well as the possible utility of the findings from the AELCLIC_pathfinder project in the definition of more adequate models for Climate Change governance, were all crucial aspects in the development of all the phases of the AELCLIC project. Accordingly, these concepts also determined the methods and approaches used for the local co-identification of Climate Change Impacts.

Feasibility

Even in the co-identification of Climate Change impacts, it was detected that in most pilot landscapes one could find reference to governmental climate policies, but these references were generally very poorly formulated, and often budgets were not available to foster these policies on local and regional level. In this respect, feasibility of the identified measures and action plans is limited. Two exceptions can be mentioned. On one hand, the Dutch Pilot Case can be mentioned, which shows that the National Delta Plan on Spatial Adaptation is translated by the Provinces into a series of (cyclical) processes to arrive at concrete action plans: from Climate Stress Test, through Vulnerability Assessment and Area-specific Dialogues to Environmental Visions and Implementation. On the other hand, and concerning every pilot landscape in the WP4, the Spanish National Adaptation Plan to date, has focused in providing a broad and deep knowledge base that can be used in any adaptation plan or project in the country rather than in establishing general policies. Therefore, data and findings from the Spanish National Adaption Plan should be considered the basis for the development of any of the potential LACAPs in the WP4 pilot landscapes.

Legitimacy

The information produced in the AELCLIC workshops was an activator for the development of future Plans or for the incorporation in other Spatial or Sectorial Plans (see Deliverable 3). These plans will be expected to include the official participation processes foreseen in the local or regional planning system. The qualitative contribution of the diagnosis process conducted within the AELCLIC project was particularly useful and appreciated. It demonstrated its importance and necessary complementarity to most common quantitative surveys in restoring a more faithful picture of the landscape transformations due to Climate Change. In most of the cases, in fact, the local or regional authorities actively supported the participatory activities.

Governance

Adequate governance has often been mentioned as a failing instrument in supporting participatory local dialogues on climate change impacts and opportunities to combat these. If governance would be more pro-active in this sense, many participants stated that they would be ready to take more (economic) risks to adapt to climate change, or contribute to mitigation measures. A strong participatory process as well as the "Local network" or consortium approach, as implemented in the AELCLIC project, were proposed in many landscapes as key components of an adequate governance model for Climate Change adaptation (see Deliverables 1, 3, 4 and 5).

Relation to Existing Policies

National Adaptation Strategies and Plans

National Adaptation Strategies and Plans are a key instrument in developing local adaptation strategies, including landscape quality. The November 2018 evaluation package of the EU Adaptation Strategy contains an Adaptation Preparedness Scoreboard (see https://ec.europa.eu/clima/policies/adaptation/what_en) with assessments for each of the Member States national adaptation strategies. A horizontal assessment is reported in https://ec.europa.eu/clima/sites/clima/files/adaptation/what/docs/horizontal_assessment_en.pdf: the current state of affairs concerning National Adaptation Strategies (NAS) and National Adaptation Plans (NAP) in the countries covered by AELCLIC is as follows (see Table 4).

Table 4 | Adaptation Preparedness Scoreboard as presented in the November 2018 evaluation package of the EU Adaptation Strategy (European Commision, 2018)

Year	***Adoption of 1st NAS***	***Adoption of 1st NAP***
2005	FI	
2006	ES, FR	ES (1st NAP)
2007	NL (1st NAS)	
2009		ES (2nd NAP)
2011		FR
2012	IE (1st NAS)	
2013	RO (1st NAS)	ES (3rd NAP)
2014		FI
2015	IT	
2016	NL (2nd NAS)	RO
2018	IE (2nd NAS)	IE, NL
To be adopted/ Draft available		IT

National Energy and Climate Plans

According to the governance of the energy union and climate action rules, which entered into force on 24 December 2018, EU countries are required to

- develop integrated National Energy and Climate Plans (NECPs) that cover the five dimensions of the energy union for the period 2021 to 2030 (and every subsequent ten year period) based on a common template
- submit a draft NECP by 31 December 2018 and be ready to submit the final plans by 31 December 2019 to the European Commission
- report on the progress they make in implementing their NECPs, mostly on a biennial basis

The Commission will monitor EU progress (as a whole) towards achieving these targets, notably as part of the annual state of the energy union report. The new governance rules underline the importance of effective public participation and regional cooperation in the development and implementation of these NECPs, ensuring that the views of citizens and businesses as well as regional and local authorities are heard.

Once submitted, the NECPs were assessed and analysed by the Commission. On 18 June 2019, the Commission published a Communication assessing the 28 draft NECPs as a whole, together with specific recommendations and a detailed "Staff Working Document" for each Member State.

These National Energy and Climate Plans largely refer to national measures; landscape is hardly mentioned in any of them, nor is there any emphasis on integrated assessments at landscape level. In their assessment of the NECPs the Commission, however, emphasises the importance of broad stakeholder involvement.

The outlines of LACAPs as reported by the AELCLIC Pathfinder (see Deliverable 3) might very well support National Adapation Stragies and Plans as well as National Energy and Climate Plans with concrete implementation steps, and possibly quantifiable effectiveness.

Appendix

WP2

Northern Europe

ACTIVITY: Workshop2_MALMI DISTRICT CENTER_PILOT LANDSCAPE
DATE and TIME: 12.6.2019, 9:00-12:00
PLACE: Malmi Talo (Malmi District)
ORGANIZERS:

- Juanjo Galan / Aalto University
- Susanna Kankaanpää / Helsinki City
- Kirsi Hutri-Weintraub / Aalto University

PARTICIPANTS:

- Susanna Kankaanpää / Helsinki City
- Satu Tarula / Helsinki City
- Kirsi Rantama / Helsinki City
- Niina Kylliäinen / HSY
- Hossam Hewidy /Aalto University
- Sauli Rouhinen / Finnish Association of Landscape Industries
- Sirpa Lamminluoto / Special Investment Fund eQ Finnish Real Estate, Malmin Nova
- Jarmo Pulliainen /Redito, Malmin tori
- Merja Carlander / Entrepreuners of Helsinki, North Helsinki
- Maria Laurila / Malmi association, neighbour
- Hanna Maidell / neighbour
- Sari Möttönen / neighbour

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Co-definition of key strategic topics to address Climate Change Adaptation in the Malmi District Center (Helsinki)
- Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors

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AGENDA:

1. WELCOME / TERVETULOA
2. PRESENTATION OF PARTICIPANTS
3. INTRODUCTION TO THE AELCLIC PROJECT by Juanjo Galan (Aalto University)
4. CONCLUSIONS from THE WORKSHOP1 by Juanjo Galan (Aalto University)
5. CLIMATE CHANGE IN EUROPE, FINLAND AND HELSINKI by Juanjo Galan (Aalto University) & Susanna Kankaanpää (City of Helsinki)

Coffee break

6. TEAMWORK
    a. TASK 1: Co-definition of key strategic topics to address Climate Change Adaptation in the Malmi District Center
    b. TASK2: Co-identification of Climate Change impacts and opportunities
    c. TASK3: Co-identification of potential solutions and barriers for the identified impacts and opportunities
7. NEXT STEPS: Future Workshop and Visibility of the Local Network (webpage)

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1. WELCOME

- Welcoming words by Juanjo Galan and Kirsi Hutri-Weintraub (Aalto University.)

2. PRESENTATION OF PARTICIPANTS

NAME OF CONTACT	INSTITUTION	TYPE OF STAKEHOLDER
Susanna Kankaanpää	Urban Environment Division	LOCAL/REGIONAL ADMINISTRATION
Satu Tarula	Urban Environment Division	LOCAL/REGIONAL ADMINISTRATION
Kirsi Rantama	Urban Environment Division	LOCAL/REGIONAL ADMINISTRATION
Niina Kylliäinen	HSY	LOCAL/REGIONAL ADMINISTRATION
Hossam Hewidy	Aalto_Department of Architecture	RESEARCH
Sauli Rouhinen	Viherympäristöliitto	PRIVATE SECTOR
Sirpa Lamminluoto	Malmi Nova shopping centre/Enterpreuner	PRIVATE SECTOR
Jarmo Pulkainen	REDITO Property Investors Oy / Malmintorin kiinteistö- osakeyhtiö	PRIVATE SECTOR
Merja Carlander	Pohjois-Helsingin yrittäjät/Enterpreuner	PRIVATE SECTOR
Maria Laurila	Malmi-seura	SOCIETAL GROUP
Hanna Maidell	neighbour	SOCIETAL GROUP
Sari Möttönen	neighbour	SOCIETAL GROUP

CONCLUSIONS:

- The initial local network has expanded and it has a balanced representation of all the key sectors (governmental, economic, social and academic). It would be important to increase the presence of cultural and ethnical minorities, youth associations, local businesses, etc.
- Aalto University and the members of the local network will work to increase the number and diversity of participants

3. INTRODUCTION TO THE AELCLIC PROJECT

- Juanjo Galan (Aalto University) summarizes the goals, methods, structure, schedule and expected outcomes of the AELCLIC-pathfinder project and the reasons that led to the selection of the Malmi District center as one of the 16 European Pilot Landscapes of the project.

4. CONCLUSIONS from THE WORKSHOP1

- Juanjo Galan summarizes the RESULTS of the WORKSHOP1. This information is distributed between the participants in order to help them to develop the practical part of the Workshop, especially the sections about key Landscape Values and Climate Change Impacts and Opportunities in the Malmi district:
  - **What are the main values of the Malmi District?**
    - URBAN AND CULTURAL DIVERSITY
    - HISTORY, MIX OF OLD & NEW
    - URBAN NATURE
    - TRANSPORT & CONNECTIONS
    - PUBLIC SERVICES
    - COMPACT AND MULTIFUNCTIONAL CENTER
    - LONGINOJA & VANTAA RIVER
    - WALKABILITY & MOBILITY
    - COMMERCE AND SMALL SHOPS
    - RAILWAY STATION

What is important in Malmi District for you or for the sector/community you are representing?

- SERVICES & URBAN STRUCTURE
- MOBILITY
- GREENERY
- GENERAL QUALITIES: Versatility, functionality, etc.
- DIVERSITY

- EXISTING PROBLEMS

What do you know about climate change?

- EMISSIONS
- POLITICS
- WASTE MANAGEMENT & RECYCLING
- IMPACTS
- CONSTRUCTION & ENERGY SECTORS
- URGENT
- COMPLEX

How might Climate Change affect the Malmi District and your daily life?

- CLIMATE CHANGE
- WAYS OF LIVING
- PSYCHOLOGICAL AND PHYSICAL HEALTH
- DEMOGRAPHY AND SOCIETY
- NATURE & ECOLOGY
- LOCAL ECONOMY
- TECHNOLOGY & CONSTRUCTION
- TRANSPORT & MOBILITY

How do you think that the AELCLIC-project can contribute to the HYYPÄNJOKI CULTURAL LANDSCAPE CONSERVATION & MANAGEMENT PLAN?

- PUBLIC PARTICIPATION AND BOTTOM-UP APPROACHES
- ADDING TO URBAN PLANNING
- ACTIONS AND PERSONAL INVOLVEMENT
- LEARNING FROM & SHARING WITH OTHER AREAS
- LONG VISION AND A POSITIVE IMAGE FOR MALMI

5. CLIMATE CHANGE IN EUROPE, FINLAND AND HELSINKI

- Juanjo Galan (Aalto University) summarizes the main Climate Change Effects in Europe as defined by the European Environmental Agency and Susanna Kankaanpää (City of Helsinki) explains the main expected impacts in the Helsinki region.
- The presented materials are distributed in printed copies in order to help the participants develop the practical part of the workshop.

6. TEAMWORK

- Three multi-stakeholder teams are defined for the development of the practical part of the workshop. These teams include in general representatives from local administrations, neighbours and representatives from the economy and the academic sectors.

6.2. CO-DEFINITION OF KEY STRATEGIC TOPICS TO ADDRESS CLIMATE CHANGE ADAPTATION IN THE HYYPPÄ RIVER VALLEY

TEAM1_Proposed TOPICS

- Buildings and materials, green buildings
- Small companies, diverse trades
- Image

TEAM2_Proposed TOPICS

- Built environment
- Smart mobility
- Green areas /constructions (towards a climate friendly Malmi)

TEAM3_Proposed TOPICS

- New Buildings
- Building versus Preserving
- Areas to preserve (agriculture, urban green)
- Green/Blue Infrastructure and Green Buildings (control of storm water)

The following broad strategic TOPICS are defined for the development of the next tasks:

- **TOPIC 1: BUILT AND NATURAL ENVIRONMENT**
- **TOPIC 2: SOCIO-CULTURAL ENVIRONMENT, WELLBEING, WAYS OF LIVING AND IDENTITY**
- **TOPIC 3: SMART MOBILITY AND LOCAL ECONOMY**

6.2. CO-IDENTIFICATION OF CLIMATE CHANGE IMPACTS AND OPPORTUNITIES (in grey and italics, Impacts and Opportunities detected in the WORKSHOP1 that have been included in the results of the WORKSHOP2)

6.2.1. TOPIC 1: IMPACTS & OPPORTUNITIES IN BUILT AND NATURAL ENVIRONMENT

1) IMPACTS

1.1. BUILDINGS

- Need of green buildings
- Need of adapting existing buildings
- Preparing for storm water management + delay & absorption needed
- *Decrease in indoor temperatures*
- *Need of renovating buildings (e.g. energy efficiency in houses, blocks)*

1.2. PUBLIC SPACE

- Need of more permeable yards and roads
- Need of adapting public space
- Preparing for storm water management + delay & absorption needed

1.3. GREEN SPACE

- Densification? Where? > Valuable green areas must be conserved
- Need of adapting green spaces
- Preparing for storm water management + delay & absorption needed
- *Effect on species and ecosystems eg. few birds*
- *Need of improving/adapting urban green & nearby nature*
- *Longinoja (nearby nature) – runoff*
- *In the landscape it may mean a decrease in the flow of Longinoja. That is why Longinoja should get more water.*

1.4. PUBLIC SERVICES

- Use of public buildings may change (heat, sick people)

2) OPPORTUNITIES

2.1 BUILDINGS

- New construction technology: energy efficiency, cooling, etc.
- Denser city, high buildings (in the center)
- Hybrid buildings
- *New technologies for energy improvements (houses, blocks)*
- *New construction might be done in an energy efficient way*
- *New regulation and techniques to build, comprehensively*
- *New available energy solutions…*
- *Materials and coated surfaces*
- *Energy production and consumption can, for example, insure facades and streets*
- *Water consumption meter per every apartment*

2.2. PUBLIC SPACE

- *Storm water control → more streets and parks with permeable surfaces*

2.3. GREEN SPACE

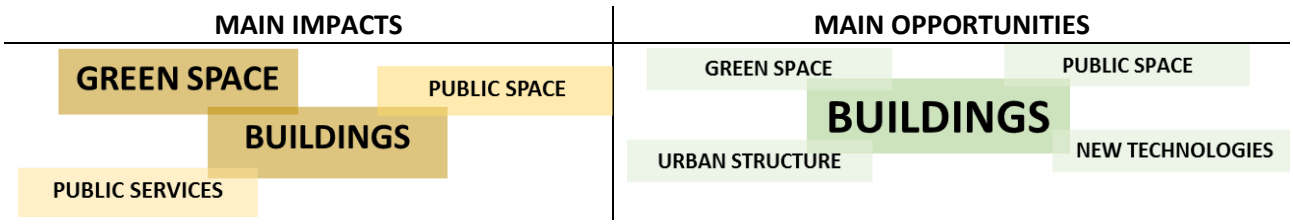
- Increasing the value of green areas

2.4.URBAN STRUCTURE

- Denser city, high buildings (in the center)

2.5. NEW TECHNOLOGIES

- Technological development



6.2.2. TOPIC 2: IMPACTS & OPPORTUNITIES IN SOCIO-CULTURAL ENVIRONMENT, WELLBEING, WAYS OF LIVING AND IDENTITY

1) IMPACTS

1.1. URBAN ENVIRONMENT

- Weather phenomena and to pay attention to that in public space
- *Densification: More people (efficiency?)*
- *Evacuee Place? If water level rises?*

1.2. PSYCHOLOGICAL AND PHYSICAL HEALTH

- Darkness > affects to mood
- Heat
- Darkness > depression, insecurity, anxiety > people don't move
- rainfall will increase, winter time will become darker and summer heat waves will increase. Especially the rainy, dark winter is a challenge that may change the landscape of Malmi. Slippery will increase, which will affect the safety of the movement
- *Personal adaptation*
- *Health, e.g. epidemics*
- *Black ice – barrier to movement?!*

1.3. SOCIAL & CULTURAL DIVERSITY

- *Increasing immigration?*
- *Climate refugees*

2) OPPORTUNITIES

2.1 URBAN & GREEN ENVIRONMENT

- Historical layers encourages to variety of new things
- Climate Change Information Center
- Green environment with higher quality

2.2. NEW WAYS OF LIVING

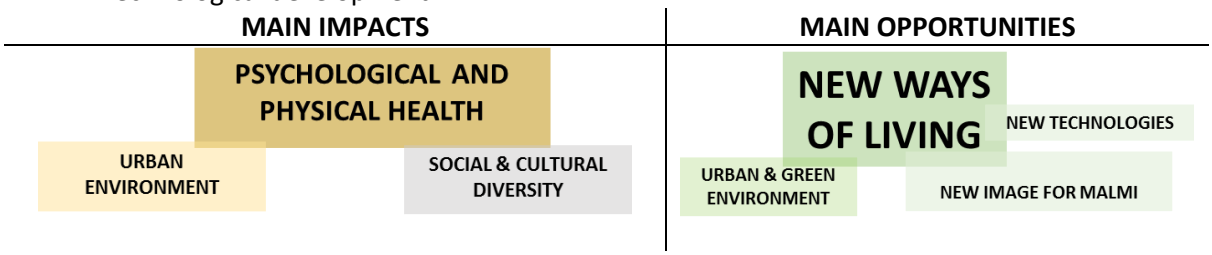
- "The whole life" near: home, shops, schools, work, recreational possibilities
- A living street culture
- More efficient land use
- Everyday life becomes easier
- Healthiness
- *Own resources, communality, neighbor support, diversity*
- *Environmental regulations & requirements rise, recycling, etc.*

2.3. NEW IMAGE FOR MALMI

- Defining the Malmi Image "I'm x"

2.4. NEW TECHNOLOGIES

- Technological development



6.2.3. TOPIC 3: IMPACTS & OPPORTUNITIES IN SMART MOBILITY AND LOCAL ECONOMY

1) IMPACTS

1.1. MOBILITY

- Driving must be reduced
- Emissions must be reduced
- Better public transport needed
- Need for different ways to move/go/transport

1.2. URBAN SPACE & STRUCTURE

- Needs of space (f.eg. parking areas) are going to change
- Need of defining a more compact urban structure as the mobility changes
- Lifecycle & adaptability
- *"City-Sortti" to the station*
- *Friendly services of climate*

1.3. LOCAL ECONOMY

- Need of changes in Consumption and purchase patterns
- New economic crises?

2) OPPORTUNITIES

2.1 MOBILITY

- The importance of rail and light traffic (bike) is strengthened
- Traffic and transport are developing
- Better public transport
- New ways and equipment of moving
- Rail & express tram > full benefit!
- Rail support services +++
- Cycling center

2.2. LOCAL ECONOMY

- Sharing and sharing economy
- Maybe more local production opportunities are needed
- *The importance of Malmi increases – e.g.. a traffic hub*
- *Changes in Consumption and purchase patterns*
- *More customers*
- *Own resources, communality, neighbor support, diversity*
- *Environmental requirements rise, recycling, etc.*

2.3. NEW TECHNOLOGIES

- Technological development
-

• MAIN IMPACTS	MAIN OPPORTUNITIES
	

6.3. CO-IDENTIFICATION OF POTENTIAL SOLUTIONS AND BARRIERS FOR THE IDENTIFIED IMPACTS AND OPPORTUNITIES

6.3.1. TOPIC 1: SOLUTIONS & BARRIERS IN BUILT AND NATURAL ENVIRONMENT

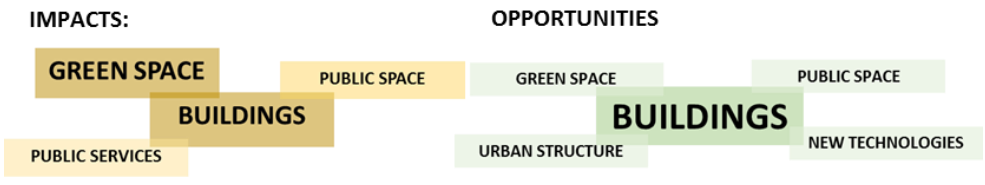
IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Need of green buildings and need of adapting existing buildings	The current structure becomes more compact, high buildings (in the center)	Densification of buildings	Money
		Enabling the centralization of services through construction	Increase of population Too strong migration
		Raising old buildings → Save green areas	
		Using the Green Area Factor	
		Natural flower meadows → insects	
Densification? Where? > Valuable green areas must be conserved	Increasing the value of green areas	Special treatment to Longinoja valley → open	Money
			People and planners do not see the recreational value of nearby areas
Need of more permeable yards and roads		Ponds for storm water →wetlands →stony streams	
		Preparing for storm water management + delay & absorption needed	
Need to improve sites and buildings	New construction technology: energy efficiency, cooling, etc.		Too much emphasis in energy efficiency?
Use of public buildings may change (heat, sick people)	Hybrid buildings		

SOLUTIONS:

- DENSIFICATION
- CENTRALIZATION OF SERVICES
- RAISING OLD BUILDINGS
- GREEN AREA FACTOR
- NATURAL MEADOWS
- DEPAVE AREAS
- LONGINOJA VALLEY

BARRIERS:

- MONEY & RESOURCES
- INCREASE OF POPULATION
- TOO MUCH EMPHASIS IN ENERGY EFFICIENCY
- LOW USE OF NEARBY AREAS



SOLUTIONS:

- DENSIFICATION
- CENTRALIZATION OF SERVICES
- RAISING OLD BUILDINGS
- GREEN AREA FACTOR
- NATURAL MEADOWS
- DEPAVE AREAS
- LONGINOJA VALLEY

BARRIERS:

- MONEY & RESOURCES
- INCREASE OF POPULATION
- TOO MUCH EMPHASIS IN ENERGY EFFICIENCY
- LOW USE OF NEARBY AREAS

6.3.2. TOPIC 2: SOLUTIONS & BARRIERS IN SOCIO-CULTURAL ENVIRONMENT, WELLBEING, WAYS OF LIVING AND IDENTITY

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Weather phenomena and their consideration in public space		Protect from the weather, cool, shady, sheltered public spaces, places	
Darkness		Lights	
Heat			
Darkness → depression, insecurity, anxiety → people don't move		Reducing Geography of Fear	
	Light period (weather)		
	A living street culture	New way to think public and private space Win-win owner-user -resident Modularity, flexibility of the spaces	Property ownership and maintenance. Fragmentation of ownership (fragmentation) Anonymous public space
	Green environment with high quality		
	"The whole life" near: home, shops, schools, work, recreational possibilities		
	Historical layers encourages to variety of new things		
	More efficient land use	Hybrid buildingS: Forum, workshop/think corner to "all"	
	Climate Change Information Center		

SOLUTIONS:

- CLIMATE –CHANGE FRIENDLY DESIGN OF THE PUBLIC SPACE
- LIGHTING
- NO DANGEROUS AREAS
- FLEXIBLE & VERSATILE SPACES
- HYBRID BUILDINGS: "Forum", "Think Corner" for all

BARRIERS:

- PROPERTY OWNERSHIP AND MAINTENANCE.
- FRAGMENTATION OF OWNERSHIP (FRAGMENTATION)
- ANONYMOUS PUBLIC SPACE
- MONEY

IMPACTS:

OPPORTUNITIES

SOLUTIONS:

- CLIMATE –CHANGE FRIENDLY DESIGN OF THE PUBLIC SPACE
- LIGHTING
- NO DANGEROUS AREAS
- FLEXIBLE & VERSATILE SPACES
- HYBRID BUILDINGS: "Forum","Think Corner" for all

BARRIERS:

- PROPERTY OWNERSHIP AND MAINTENANCE.
- FRAGMENTATION OF OWNERSHIP (FRAGMENTATION)
- ANONYMOUS PUBLIC SPACE
- MONEY

6.3.3. TOPIC 3: SOLUTIONS & BARRIERS IN SMART MOBILITY AND LOCAL ECONOMY

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Need of reducing driving and use of private car	New ways and equipment of moving Healthiness	Financial Support Policy (Taxes, Grants)	People's attitudes / desire for comfort / resistance to change
Emissions must be reduced			The price of energy is rising
Need of improving public transport	New Public Transport Users Rail & express tram →full benefit!	New special service trains (tramway) compare the trains during the wartime.	We don't know what kind of vehicles will be developed.
Need of Rail "support services" +++	Cycling center	Cycling center Improving the accessibility of the station.	
	Sharing and circular economy Technological development	Malmi's "ridesharing"	Rapid changed in technology may frighten
Needs of space (f.eg. parking areas) are going to change	New image for Malmi "I'm x"	Planning Inclusion of Climate Change criteria in the ongoing Malmi-Vision/Plan Entrepreunership & co-operation	Not taken into account in Malmi's design
The urban structure becomes more compact as the mobility changes	Everyday life comes easier		Funding Change of investor

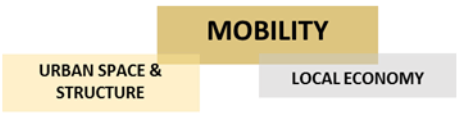
SOLUTIONS:

- FINANCIAL SUPPORT
- IMPROVED PUBLIC TRANSPORT
- COMMUTING CULTURE (INCLUDING BYCICLES)
- MALMI "RIDESHARING"
- PLANNING
- ENTREPREUNERSHIP & COOPERATION

BARRIERS:

- PEOPLE'S ATTITUDES / DESIRE FOR COMFORT / RESISTANCE TO CHANGE
- WHICH VEHICLES WILL BE DEVELOPED?
- TECHNOLOGICAL CHANGES MIGHT FRIGHTEN
- MONEY & FUNDING
- CLIMATE CHANGE NOT INCLUDED IN THE MALMI VISION

IMPACTS:



OPPORTUNITIES

SOLUTIONS:

- FINANCIAL SUPPORT
- IMPROVED PUBLIC TRANSPORT
- COMMUTING CULTURE (INCLUDING BYCICLES)
- MALMI "RIDESHARING"
- PLANNING
- ENTREPREUNERSHIP & COOPERATION

BARRIERS:

- PEOPLE'S ATTITUDES / DESIRE FOR COMFORT / RESISTANCE TO CHANGE
- WHICH VEHICLES WILL BE DEVELOPED?
- TECHNOLOGICAL CHANGES MIGHT FRIGHTEN
- MONEY & FUNDING
- CLIMATE CHANGE NOT INCLUDED IN THE MALMI VISION

6.4. SUMMARY: IMPACTS, OPPORTUNITIES, SOLUTIONS & BARRIERS

BUILT AND NATURAL ENVIRONMENT

SOLUTIONS:
- DENSIFICATION
- CENTRALIZATION OF SERVICES
- RAISING OLD BUILDINGS
- GREEN AREA FACTOR
- NATURAL MEADOWS
- DEPAVE AREAS
- LONGINOJA VALLEY

BARRIERS:
- MONEY & RESOURCES
- INCREASE OF POPULATION
- TOO MUCH EMPHASIS IN ENERGY EFFICIENCY
- LOW USE OF NEARBY AREAS

SOCIO-CULTURAL ENVIRONMENT, WELLBEING, WAYS OF LIVING AND IDENTITY

SOLUTIONS:
- CLIMATE –CHANGE FRIENDLY DESIGN OF THE PUBLIC SPACE
- LIGHTING
- NO DANGEROUS AREAS
- FLEXIBLE & VERSATILE SPACES
- HYBRID BUILDINGS: "Forum", "Think Corner" for all

BARRIERS:
- PROPERTY OWNERSHIP AND MAINTENANCE.
- FRAGMENTATION OF OWNERSHIP (FRAGMENTATION)
- ANONYMOUS PUBLIC SPACE
- MONEY

SMART MOBILITY AND LOCAL ECONOMY

SOLUTIONS:
- FINANCIAL SUPPORT
- IMPROVED PUBLIC TRANSPORT
- COMMUTING CULTURE (INCLUDING BYCICLES)
- MALMI "RIDESHARING"
- PLANNING
- ENTREPREUNERSHIP & COOPERATION

BARRIERS:
- PEOPLE'S ATTITUDES / DESIRE FOR COMFORT / RESISTANCE TO CHANGE
- WHICH VEHICLES WILL BE DEVELOPED?
- TECHNOLOGICAL CHANGES MIGHT FRIGHTEN
- MONEY & FUNDING
- CLIMATE CHANGE NOT INCLUDED IN THE MALMI VISION

7. NEXT STEPS: Future Workshops and Visibility of the Local Network (webpage)

- It is agreed to organize the third and last Workshop in late August or the first week of September. The third workshop will focus on the co-definition of the goals and basic structure (table of contents) of a potential LACAP (Landscape Adaptation Plan to Climate Change) for the Malmi District center. This workshop will also address the conformation of a solid and competitive local network in order to include the Malmi District Center as one of the Pilot landscapes in the application for a Climate-KIC demonstrator project.
- Some additional local stakeholders express their interest and availability to be visible in the webpage of the AELCLIC project.

ECONOMIC REPORT:

TYPE OF COST (approximate)	**COST (€)**
- Travel & Accommodation Costs for the partner(s) members	
- Goods, materials and external services	73
TOTAL	**73**

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - CONNECTIONS WITH OTHER PLANS & PROGRAMMES: The implementation of the ***Helsinki Climate Change Adaptation & Mitigation Programme*** in the Malmi District and the generation of additional inputs in the local scale (***Malmi Vision***) should be two of the most important outcomes of the AELCLIC project in Malmi. Therefore, this Programme should inform and guide the development of the Workshop Workshop3 (co-definition of goals and structure of a future LACAP (Landscape Adaptation Plan to Climate Change). / ACTION: Develop in a LOCAL SCALE during the Workshop3 the key actions and proposals of the Helsinki´s Climate Change Adaptation and Mitigation Programme. Relate these local proposals with the development of the Malmi Vision (for instance, by analyzing the existing diagnosis and proposals from a Climate Change Adaptation and Mitigation (Helsinki´s Programme) point of view
  - TOPICS TO ADDRESS CLIMATE CHANGE ADAPTATION: The proposed strategic topics can frame a holistic discussion about Climate Change Adaptation but at the same time they might be too broad to facilitate the connection of the participants. There were significant differences between the topics proposed for urban (e.g. Malmi) and rural landscapes (e.g. Hyyppä). These differences might be primarily caused by the different characteristics of the landscape but also by the collective imagery and connection of locals to their landscape / ACTIONS: Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities. Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - CLIMATE CHANGE IMPACTS & OPPORTUNITIES: The co-identification of impacts and opportunities by the multi-stakeholders groups for all the proposed topics revealed the importance of Buildings, Mobility, Public Space, Image and Physical & Psychological Health in the Malmi District. Strangely, many of the impacts and opportunities identified in the workshop1 were not considered in the workshop2/ ACTIONS Study the connections between impacts and opportunities in different topics. Invite explicitly the participants to consider and include the impacts and opportunities identified by the EU, Finnish Government, local agencies and by the participants of previous workshops.
  - CLIMATE CHANGE SOLUTIONS & BARRIERS: The proposed solutions and the identified barriers for the implementation of the proposed solution, show a good understanding of global trends, technological advances, etc. Interestingly, the answers are in general quite systemic although some responses concentrate in very specific solutions and barriers / ACTIONS Present more clearly in the Workshop3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc). Discuss with experts the identified SOLUTIONS and BARRIERS and detect the missing ones.
  - IMPACT+OPPORTUNITIES > SOLUTIONS and BARRIERS: The proposed solutions relate partially to the detected impacts and opportunities. A more consistent connection between impacts, opportunities, solutions and barriers is needed. How many of these impacts and opportunities are actually linked to Climate Change?. ACTIONS: Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions.
  - WORKSHOP3: Will be scheduled in the beginning of September / ACTIONS: Aalto University will open a Doodle Poll to set the best possible date and time
  - RESULTS of the WORKSHOP2 and visibility of the Local Network in the webpage of the project / ACTION: The results will be processed by Aalto University and displayed in the Webpage of the AELCLIC-pathfinder project (www.aelclicpathfinder.com)

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Malmi District Center). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors). LEVEL OF ACHIEVEMENT: 4
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - It was difficult to identify broad strategic topics to frame Climate Change Adaptation in the Malmi District. It was also difficult for the stakeholders to incorporate in the identification of Climate Change Impacts and opportunities all the information provided in the introductory lectures of the workshop2 and in the results of the workshop1. In addition, the members of the multi-stakeholder teams had some minor problems to understand their different points of view, concerns and expectations.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Deep involvement and commitment of the participants
  - Viable tasks for the allocated time
  - Clear guidelines and effective methods
  - Support from Susanna Kankaanpää (Climate Change expert))
  - The definition of different topics and their distribution amongst different multi-stakeholders teams increased the capacity of the whole group to generate information.
  - The possibility given to all the participants of adding inputs to the work produced by other teams, permitted to all the participants to contribute (Impacts, Opportunities, Solutions and Barriers) to all the topics
- **Learnt lessons and recommendations for similar activities in other places:**
  - See Shortcomings and Barriers and See main reasons for the successful achievement of the expected Outcomes.
  - Predefine the “key topics” in advance on the base of the values detected in the Whorkshop1?
  - Require the participants to include in their proposals all the impacts and opportunities identified by the EU, Finnish Government, local agencies and by the participants of previous workshops (use the printed copies distributed during the workshop2).
  - Present more clearly some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.
- **Learnt lessons and recommendations for future activities in the same place**:
  - Increase the connection between the AELCLIC project and:
    - The strategic actions proposed for Climate Change Adaptation and Mitigation in Helsinki
    - The analyzed layers and the initial proposals for the renovation of the Malmi district center
  - Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities.
  - Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - Discuss in the workshop3 the connections between impacts and opportunities in different topics.
  - Present more clearly in the workshop 3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.)
  - Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions
  - Increase the dissemination of the project and planned activities (use the AELCLIC webpage and the webpages of the collaborative institutions)
  - Contact in a bilateral way some crucial stakeholders (e.g. economic actors and social groups)
  - Prepare and print some informative materials (flyers)
- **Level of influence of the local characteristics (social, geographical, etc.) in the development of the activity:**
  - The urban character of the area creates a different connection between local inhabitants and their landscape. They concentrate more in abstract and functional qualities since their capacity or agency to modify or manage their physical environment is relatively limited in comparison with people living in rural areas. This situation generates also bolder proposals since the participants feel that they are basically transmitting their ideas to the authorities rather than implementing them themselves. These remarks could be probably applied to other urban areas but in the Malmi case are intensified by the ongoing transformation and by the expectation of upgrading the image of Malmi and making of the district a national reference in sustainable urban planning.

ACTIVITY: Workshop2_HYPPÄNJOKI VALLEY_PILOT LANDSCAPE
DATE and TIME: 14.6.2019, 9:00-12:00
PLACE: Town of Kauhajoki (Finland), Town hall
ORGANIZERS:

- Juanjo Galan / Aalto University
- Kirsi Hutri-Weintraub / Aalto University
- Linda Leinonen / Kauhajoki town

PARTICIPANTS:

- Susanna Tyrväinen / Seinäjoki Museum
- Jussi Parviainen / Metsänhoitoyhdistys Lakeus
- Jeremias Laitamäki / Kauhajoki Youth Council
- Yrjö Ojaniemi / MTK
- Matti Seppälä / villager
- Neea Leppälä / 4H Kauhajoki
- Timo Lakso / Regional Council of South Ostrobothnia
- Niina Tuovinen / The Suupohja Area Health and Social Services Joint Municipal Board / Environmental protection
- Asko Ojala / villager, Hyyppä village
- Laura Koivumäki / Geopark
- Erkki Vihonen / ProAgria
- Riikka Asunmaa / ProAgria
- Mikko Rotola-Pukkila / villager, Hyyppä village
- Merja Rikala / Finnish Association for Nature Conservation, Pohjanmaa

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Hyyppä river valley
- Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors

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AGENDA:

1. WELCOME / TERVETULOA
2. PRESENTATION OF PARTICIPANTS
3. INTRODUCTION TO THE AELCLIC PROJECT by Juanjo Galan (Aalto University)
4. CONCLUSIONS from THE WORKSHOP1 by Juanjo Galan (Aalto University)
5. CLIMATE CHANGE IN EUROPE, FINLAND AND THE HYYPPÄ RIVER VALLEY by Juanjo Galan (Aalto University), Kirsi Hutri-Weintraub (Aalto University) & Erkki Vihonen (Pro Agria)

Coffee break

6. TEAMWORK
    a. TASK 1: Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Hyyppä river valley
    b. TASK2: Co-identification of Climate Change impacts and opportunities
    c. TASK3: Co-identification of potential solutions and barriers for the identified impacts and opportunities
7. NEXT STEPS: Future Workshop and Visibility of the Local Network (webpage)

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1. WELCOME

- Welcoming words by Juanjo Galan and Kirsi Hutri-Weintraub (Aalto University.).

2. PRESENTATION OF PARTICIPANTS

NAME OF CONTACT	INSTITUTION	TYPE OF STAKEHOLDER
TImo Lakso	Etelä-Pohjanmaan liitto	LOCAL/REGIONAL AUTHORITY
Niina Tuovinen	Suupohjan perus-palveluliikelaitoskuntayhtymä	PUBLIC SECTOR
Susanna Tyrväinen	Seinäjoen museot	PUBLIC SECTOR
Jeremias Laitamäki	Kauhajoki Youth Council	SOCIETAL ORGANIZATION
Merja Rikala	Luonnonsuojelupiiri	SOCIETAL ORGANIZATION
Neea Leppälä	4H (Youth Association)	SOCIETAL ORGANIZATION
Asko Ojala	Farmer, Hyyppä village society	PRIVATE SECTOR / SOCIETAL ORGANIZATION
Mikko Rotola-Pukkila	Farmer, Hyyppä valley conservation board	PRIVATE SECTOR / SOCIETAL ORGANIZATION
Matti Seppälä	farmer - coming to workshop	PRIVATE SECTOR / SOCIETAL ORGANIZATION
Jussi Parviainen	Metsänhoitoyhdistys LAKEUS	PRIVATE SECTOR
Laura Koivumäki	Geopark	PRIVATE SECTOR
Yrjö Ojaniemi	MTK	PRIVATE SECTOR
Riikka Asunmaa	Pro Agria	PRIVATE SECTOR
Erkki Vihonen	Pro Agria	PRIVATE SECTOR

CONCLUSIONS:

- The initial local network has expanded and it counts now with more representatives from the civil society, local associations, youth associations and private sector. It would be important to increase the presence of farmers, food industries, services, tourism sector, etc.
- Aalto University and the members of the local network will work to increase the number and diversity of participants

3. INTRODUCTION TO THE AELCLIC PROJECT

- Juanjo Galan (Aalto University) summarizes the goals, methods, structure, schedule and expected outcomes of the AELCLIC-pathfinder project and the reasons that led to the selection of the Hyyppä river valley as one of the 16 European Pilot Landscapes of the project.

4. CONCLUSIONS from THE WORKSHOP1

- Juanjo Galan summarizes the RESULTS of the WORKSHOP1. This information is distributed between the participants in order to help them to develop the practical part of the Workshop, especially the sections about key Landscape Values and Climate Change Impacts and Opportunities in the Hyyppä river valley:
  - **What are the main values of the Hyypänjoki river valley?**
    - A VALLEY! ROLLING LANDFORM / OPENESS + ENCLOSURE / VIEWS
    - DIVERSITY and VARIETY: A UNIQUE COMBINATION OF NATURE & CULTURE
    - CLEAN AND TIDY LANDSCAPE
    - GEOLOGY
    - AGRICULTURE
    - CULTURAL HERITAGE
    - BUILDINGS & SETTLEMENTS

What is important in the Hyypänjoki landscape for you or for the sector/community you are representing?

- PROTECTED AND RECOGNIZED LANDSCAPE
- SUSTAINABLE, INHABITED AND CARED LANDSCAPE
- COMMUNITY & SOCIAL CAPITAL
- TRADE
- TYPICAL BUILDINGS
- BIODIVERSITY

What do you know about climate change?

- CLIMATE CHANGES
- CO2 EMISSIONS
- LOCAL IMPACTS
- COMPLEX & UNCLEAR
- AGRICULTURE

How might Climate Change affect the Hyyppä river valley and your daily life?

- CLIMATE & LANDSCAPE:
- AGRICULTURE + NATURE
- PERSONAL LIFE & SAFETY
- LOCAL ECONOMY
- ENERGY AND INFRASTRUCTURES
- DOUBTS

How do you think that the AELCLIC-project can contribute to the HYYPÄNJOKI CULTURAL LANDSCAPE CONSERVATION & MANAGEMENT PLAN?

- NEW IDEAS, INFORMATION AND EXAMPLES
- NEW POINTS OF VIEW FOR PLANNING & MANAGEMENT
- NEW NETWORKS & PARTNERSHIPS
- RAISING AWARENESESS
- MORE VISIBILITY & RESOURCES
- MORE DIALOGUE

5. CLIMATE CHANGE IN EUROPE, FINLAND AND THE HYYPPÄ RIVER VALLEY

- Juanjo Galan (Aalto University) summarizes the main Climate Change Effects in Europe as defined by the European Environmental Agency. Kirsi Hutri-Weintraub (Aalto University) presents the main expected effects in Finland as identified by VTT and the Finish Government. Finally, Erkki Vihonen (Pro Agria) explains the main expected impacts in the Hyyppä area with an special emphasis in agriculture, soil, water and vegetation.
- The presented materials are distributed in printed copies in order to help the participants develop the practical parts of the workshop.

6. TEAMWORK

- Four multi-stakeholder teams are defined for the development of the practical part of the workshop. These teams include in general representatives from local administrations, farmers and other representatives of the economy sector as well as youngsters and researchers.

6.2. CO-DEFINITION OF KEY STRATEGIC TOPICS OR ACTORS TO ADDRESS CLIMATE CHANGE ADAPTATION IN THE HYYPPÄ RIVER VALLEY

TEAM1:

- Proposed TOPICS:
  - Agriculture and forestry
  - Building
- Proposed ACTORS:
  - City Planners
  - Residents, owners

TEAM2:

- Proposed TOPICS:
  - Agriculture and forestry
  - Energy production
- Proposed ACTORS:
  - Land owners and farmers

- Consumers
- People working in the industry and trade sectors

TEAM3:

- Proposed TOPICS:
  - Agriculture and forestry
  - Tourism
- Proposed ACTORS:
  - Primary producers
  - People working in the industry sector

TEAM4:

- Proposed TOPICS:
  - Agriculture
  - Land use
- Proposed ACTORS:
  - Farmers
  - Residents
  - Processors, distributors, consumers
  - Authorities

It is agreed to work with TOPICS rather than with ACTORS. The following broad strategic TOPICS are defined for the development of the next tasks:

- **TOPIC 1: AGRICULTURE AND FORESTRY & NATURAL ENVIRONMENT**
- **TOPIC 2: PLANNING, BUILT ENVIRONMENT & INFRASTRUCTURES**
- **TOPIC 3: ENERGY, PEOPLE & WAYS OF LIVING**
- **TOPIC 4: NEW ECONOMIES? INDUSTRY AND SERVICE SECTOR**

6.2. CO-IDENTIFICATION OF CLIMATE CHANGE IMPACTS AND OPPORTUNITIES (in grey and italics, Impacts and Opportunities detected in the WORKSHOP1 that have been included in the results of the WORKSHOP2)

6.2.1. TOPIC 1: IMPACTS & OPPORTUNITIES IN AGRICULTURE, FORESTRY & NATURAL ENVIRONMENT

1) IMPACTS

1.1. ECONOMIC IMPACTS

- More extreme phenomena > production > economy
- *Extreme weather phenomena may have a strong impact into agriculture*
- *Changing of cultivation conditions*
- *Drought will affect to cultivation and complicates it*
- *Decreasing ground frost (ROUTA) complicates f.eg. cultivation of potatoes*
- *Mild winters and rains > erosion, insect pests and diseases are coming more common, the natural biological control decreases*
- *There is going a general "attack" against agriculture and specially against cattle breeding*
- *Increasing risk of pests*

1.2. ECOLOGICAL IMPACTS

- *Leaching of nutrients*
- *Impacts to biodiversity? > alien species*
- *Can species adapt to changes?*
- *Impacts also to other species as the distribution areas are changing*
- *Forest damages*
- *Increasing of new and alien plant species*
- *Through the increasing rainfall, the actual river basin may return closer to its original state, but global warming will change the biology of the area and may endanger the survival of the original species.*

1.3. LANDSCAPE IMPACTS

- *Rainfall + floods ?*
- *Loss of snow in the wintertime, landscape*
- *Impacts of drought and floods can be seen in landscape*
- *Impacts of climate change can be seen in the landscape in long scale, alien plant species, erosion etc.*

2) OPPORTUNITIES

2.1. SPATIAL & LAND-USE PLANNING

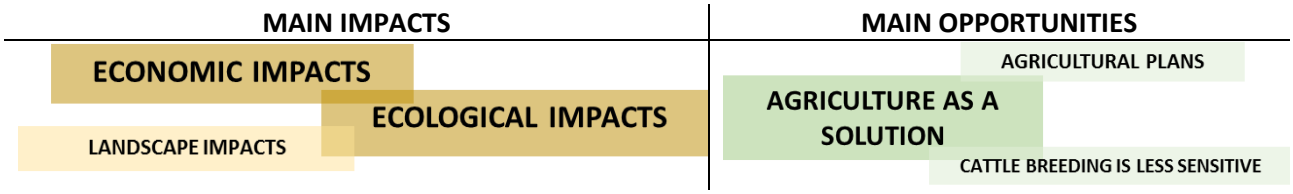
- Network of nature and green areas

2.2. NEW ARCHITECTURES

- Structural design, architecture
- Wood construction, log (carbon binding)

2.2. NEW ENERGY AND TRANSPORT SYSTEMS

- Biogas, hybrid, robot bus



6.2.2. TOPIC 2: IMPACTS & OPPORTUNITIES IN PLANNING, BUILT ENVIRONMENT & INFRASTRUCTURES

1) IMPACTS

1.1. LAND-USE PLANNING

- Need of more effective land use planning

1.2. INFRASTRUCTURES & MOBILITY

- Traffic problems, challenges
- Road network, condition & maintenance
- *Mobility and transport + use of energy*
- *Difficult road conditions and increasing slipperiness in the winter*
- *Power cuts caused by storms*

1.3. BUILDINGS

- Construction challenges

1.4 CARBON EMISSIONS

- Need to reduce carbon emissions

2) OPPORTUNITIES

2.1. SPATIAL & LAND-USE PLANNING

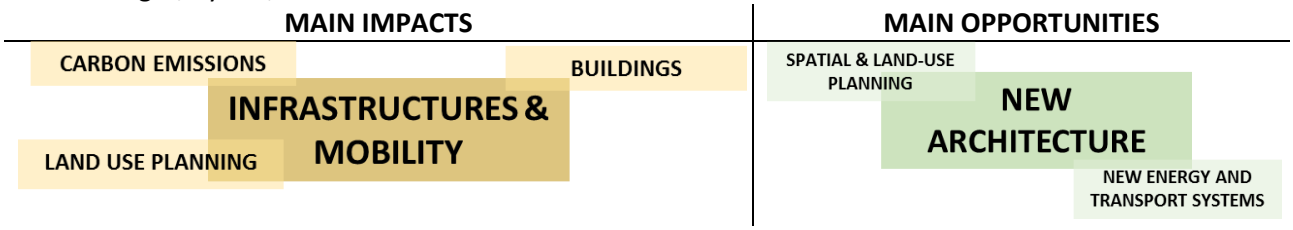
- Network of nature and green areas

2.2. NEW ARCHITECTURES

- Structural design, architecture
- Wood construction, log (carbon binding)

2.2. NEW ENERGY AND TRANSPORT SYSTEMS

- Biogas, hybrid, robot bus



6.2.3. TOPIC 3: IMPACTS & OPPORTUNITIES IN ENERGY, PEOPLE & WAYS OF LIVING

1) IMPACTS

1.1. ENERGY

- Traffic, mobility: public transport, private motoring, electricity enable housing, necessity
- Energy supply: housing, leisure, working

1.2. PERSONAL LIFE & SAFETY

- *In the winter the darkness experience feels stronger*
- *Heavy rains & storms > erosion, falling trees and electricity power problems along the village roads & field roads etc. (must prepare with cutting trees forward etc.)*
- *Skiing decreases as a hobby*
- *Vegetarianism as a trend is a consequence of preparing to climate change*
- *Variation of the quantity and quality of drinking water*
- *Increasing flood risk*
- *Increasing risk of diseases*
- *Power cuts caused by storms*
- *Decrease in indoor temperatures*
- *Need of renovating buildings (e.g. energy efficiency in houses, blocks)*

2) OPPORTUNITIES

2.1 RENEWABLE ENERGIES

- Renewable energy; solar, geothermal, production, wood, energy crops
- Local energy from biogas
- Energy self-sufficiency and zero CO2 emissions

2.2 DIGITAL SOCIETIES

- Remote work
- Digitalization

• MAIN IMPACTS	MAIN OPPORTUNITIES
ENERGY PERSONAL LIFE & SAFETY	RENEWABLE ENERGIES DIGITAL SOCIETIES

6.2.4. TOPIC 4: TOPIC 4: IMPACTS & OPPORTUNITIES IN NEW ECONOMIES, INDUSTRY AND SERVICE SECTOR

1) IMPACTS

1.1. AGRICULTURE, CATTLE BREEDING & FORESTRY

- In public there is going a common “attack” against agriculture and specially against cattle breeding
- Vegetarianism as a trend is a consequence of preparing to climate change
- Affects to the trades of countryside (e.g. agriculture and farming)

1.2. NEED OF NEW ENERGY SOURCES

- carbon neutral Hyyppäriver valley?

1.3. TOURISM

- No more Hyyppä-skiing > affects to community

1.4. NEED OF NEW ECONOMIC ACTIVITIES

- -Need of Logistical services
- Define targets!, Green Economy & Ecology
- How to maintain the industry and service sector?

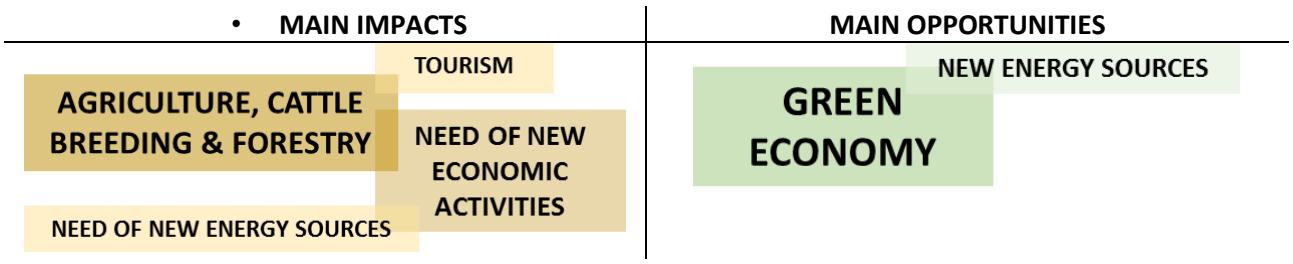
2) OPPORTUNITIES

2.1. NEW ENERGY SOURCES

- Carbon neutral Hyyppäriver valley co-operation

2.2. GREEN ECONOMY

•Versatile service opportunities
•Green economy, eco-tourism, environmental services



6.3. CO-IDENTIFICATION OF POTENTIAL SOLUTIONS AND BARRIERS FOR THE IDENTIFIED IMPACTS AND OPPORTUNITIES

6.3.1. TOPIC 1: SOLUTIONS & BARRIERS IN AGRICULTURE, FORESTRY & NATURAL ENVIRONMENT

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
More extreme phenomena →production →economy	Can be a controller or a ruler of climate change	Basic drainage solution Soil structure to condition Plant breeding Crop rotation Grass growing Grass growing →ruminants Organic farming Mixed forests More (accurate) information	The lack of financial resources Does the general public understand the carbon cycle?
Need of renewable energies	Bioenergy →carbon capture ++	Restoring / favoring natural environments -→biological control	
	Improvement is needed to strengthen business	Binding of carbon (crop, root system)	

SOLUTIONS:

- RESTORING/FAVORING NATURAL ENVIRONMENTS
- CARBON SEQUESTRATION THROUGH AGRICULTURE & FORESTS
- AGRICULTURAL TECHNIQUES (DRAINAGE, SOIL MANAGEMENT, CROP ROTATION, MEADOWS)
- ORGANIC FARMING
- MIXED FORESTS
- MORE INFORMATION

BARRIERS:

- FINANCE & RESOURCES
- LACK OF INFORMATION
- LACK OF UNDERSTANDING OF THE CARBON CYCLE AND WHAT CARBON NEUTRALITY MEANS

6.3.2. TOPIC 2: SOLUTIONS & BARRIERS IN PLANNING, BUILT ENVIRONMENT & INFRASTRUCTURES

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Construction challenges	Conservation of heritage building Wood construction, log (carbon binding) Structural design, architecture	Construction regulations	Financing
Will / need to bind carbon	Cultivation plans → new varieties, crops Ground water reservoirs	Organic farming Crop rotation	Attitude
Network of nature and green are	Network of nature and green are	Nature strategy	Attitude
Traffic problems, challenges Road network, condition & maintenance	Biogas, hybrid, robot bus	Technical development Telecommunication networks Optical fibers	Financing

SOLUTIONS:

- CONSTRUCTION REGULATIONS
- AGRICULTURAL PRACTICES & PLANS
- STRATEGY FOR THE NATURAL ENVIRONMENT
- TECHNICAL AND DIGITAL DEVELOPMENT

BARRIERS:

- FINANCE & RESOURCES
- ATTITUDES

6.3.3. TOPIC 3: SOLUTIONS & BARRIERS IN ENERGY, PEOPLE & WAYS OF LIVING

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Energy supply: housing, leisure, working	Renewable energy; solar, geothermal, production, wood, energy crops Remote work Digiltalization Local energy from biogas Energy self-sufficiency and zero CO^2 emissions	New energy technologies	Costs and availability Attitudes Prejudices
Traffic, mobility: public transport, private motoring, electricity enable housing, necessity	Remote work Digitalization	Remote work Digitalization Shared vehicles	Work's limitations Problems when using Distances

SOLUTIONS:

- NEW ENERGY TECHNOLOGIES
- REMOTE WORK
- DIGITALIZATION
- SHARED VEHICLES AND SHARING ECONOMY

BARRIERS:

- FINANCE & RESOURCES
- ATTITUDES & PREJUDICES
- LIMITATIONS OF REMOTE WORK, DIGITALIZATION AND SHARED VEHICLES

6.3.4. TOPIC 4: SOLUTIONS & BARRIERS IN NEW ECONOMIES? INDUSTRY AND SERVICE SECTOR

IMPACTS	OPPORTUNITIES	SOLUTIONS	BARRIERS
Targets! Ecology	Eco-tourism, environmental services	Green Economy Community Innovations	Leader, inspiration Cost, +/- Innovations Bureaucracy
Logistical services		Marketing	Location
How to maintain?	Versatile service opportunities	Project → financing	Ego Fears Envy pos. or neg.?
Carbon neutral Hyyppäriver valley co-operation	Carbon neutral Hyyppäriver valley co-operation	Carbon neutral Hyyppäriver valley co-operation	

SOLUTIONS:

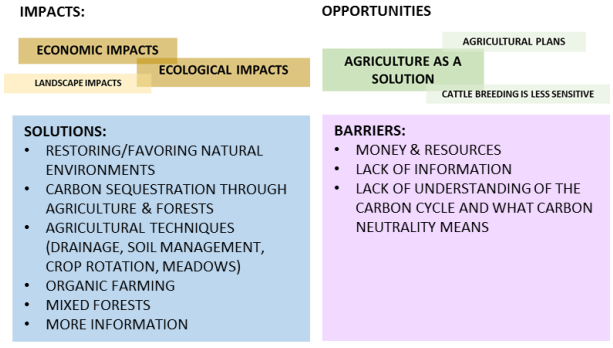
- GREEN ECONOMY
- COMMUNICATION & MARKETING
- INNOVATIONS
- FINANCING GOOD PROJECTS
- CARBON NEUTRAL HYYPPÄRIVER VALLEY

BARRIERS:

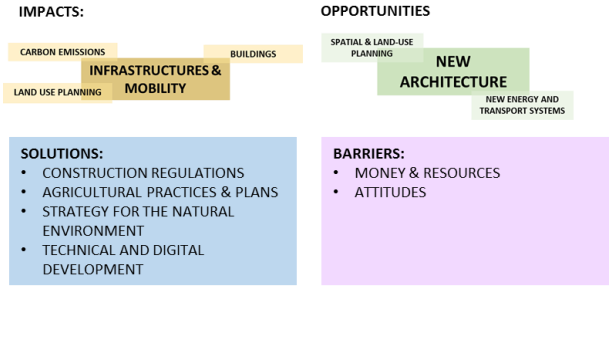
- FINANCE & RESOURCES
- LACK OF INNOVATION
- REMOTE LOCATION
- BUREUCRACY
- EGO, FEARS, ENVY (positive or negative?)

6.4. SUMMARY: IMPACTS, OPPORTUNITIES, SOLUTIONS & BARRIERS

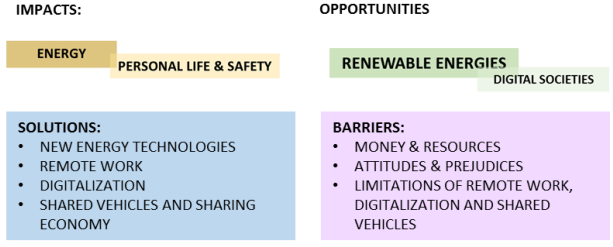
AGRICULTURE AND FORESTRY & NATURAL ENVIRONMENT



PLANNING, BUILT ENVIRONMENT & INFRASTRUCTURES



ENERGY, PEOPLE & WAYS OF LIVING



NEW ECONOMIES? INDUSTRY AND SERVICE SECTOR

7. NEXT STEPS: Future Workshops and Visibility of the Local Network (webpage)

- It is agreed to organize the third and last Workshop in late August or the first week of September. The third workshop will focus on the co-definition of the goals and basic structure (table of contents) of a potential LACAP (Landscape Adaptation Plan to Climate Change) for the Hyyppä river valley. This workshop will also address the conformation of a solid and competitive local network in order to include the Hyppäa river valley as one of the Pilot landscapes in the application for a Climate-KIC demonstrator project.
- Some additional local stakeholders express their interest and availability to be visible in the webpage of the AELCLIC project (e.g. Geopark).

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - TOPICS TO ADDRESS CLIMATE CHANGE ADAPTATION: The proposed strategic topics can frame a holistic discussion about Climate Change Adaptation but at the same time they might be too broad to facilitate the connection of the participants. There were significant differences between the topics proposed for urban (e.g. Malmi) and rural landscapes (e.g. Hyyppä). These differences might be primarily caused by the different characteristics of the landscape but also by the collective imagery and connection of locals to their landscape / ACTIONS: Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities. Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - CLIMATE CHANGE IMPACTS & OPPORTUNITIES: The co-identification of impacts and opportunities by the multi-stakeholders groups for all the proposed topics revealed the importance of agriculture, farming and local economy in the Hyyppä river valley. Agriculture was at the center of the impacts but also at the core of the new opportunities for the local economy and for the sustainable development of the region. Strangely, many of the impacts and opportunities identified in the workshop1 were not considered in the workshop2/ ACTIONS Study the connections between impacts and opportunities in different topics. Invite explicitly the participants to consider and include the impacts and opportunities identified by the EU, Finnish Government, local agencies and by the participants of previous workshops.
  - CLIMATE CHANGE SOLUTIONS & BARRIERS: The proposed solutions and the identified barriers for the implementation of the proposed solution, show a good understanding of global trends, technological advances, etc. Some participants highlight the importance of knowing the precise meaning of some key concepts (e.g. carbon neutrality). Interestingly, the answers are in general quite systemic although some responses concentrate in very specific solutions and barriers / ACTIONS Present more clearly in the workshop2 and 3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc). Discuss with experts the identified SOLUTIONS and BARRIERS and detect the missing ones.
  - IMPACT+OPPORTUNITIES > SOLUTIONS and BARRIERS: The proposed solutions relate partially to the detected impacts and opportunities. A more consistent connection between impacts, opportunities, solutions and barriers is needed. How many of these impacts and opportunities are actually linked to Climate Change?. ACTIONS: Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions.
  - WORKSHOP3: Will be scheduled in end of August o beginning of September / ACTIONS: Aalto University will open a Doodle Poll to set the best possible date and time
  - RESULTS of the WORKSHOP2 and visibility of the Local Network in the webpage of the project / ACTION: The results will be processed by Aalto University and displayed in the Webpage of the AELCLIC-pathfinder project (www.aelclicpathfinder.com)

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Hyyppä river valley). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors). LEVEL OF ACHIEVEMENT: 4
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - It was difficult to identify broad strategic topics to frame Climate Change Adaptation in the Hyyppä river valley. It was also difficult for the stakeholders to incorporate in the identification of Climate Change Impacts and opportunities all the information provided in the introductory lectures of the workshop2 and in the results of the workshop1. In addition, the members of the multi-stakeholder teams had some minor problems to understand their different points of view, concerns and expectations
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Deep involvement and commitment of the participants
  - Viable tasks for the allocated time
  - Clear guidelines and effective methods
  - The definition of different topics and their distribution amongst different multi-stakeholders teams increased the capacity of the whole group to generate information.
  - The possibility given to all the participants of adding inputs to the work produced by other teams, permitted to all the participants to contribute (Impacts, Opportunities, Solutions and Barriers) to all the topics
- **Learnt lessons and recommendations for similar activities in other places:**
  - See Shortcomings and Barriers and See main reasons for the successful achievement of the expected Outcomes.
  - Predefine the “key topics” in advance on the base of the values detected in the Whorkshop1?
  - Require the participants to include in their proposals all the impacts and opportunities identified by the EU, Finnish Government, local agencies and by the participants of previous workshops (use the printed copies distributed during the workshop2).
  - Present more clearly some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.
- **Learnt lessons and recommendations for future activities in the same place**:
  - Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities.
  - Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - Discuss in the workshop3 the connections between impacts and opportunities in different topics.
  - Present more clearly in the workshop2 and 3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.)
  - Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions
  - Increase the dissemination of the project and planned activities (use the AELCLIC webpage and the webpages of the collaborative institutions)
  - Contact in a bilateral way some crucial stakeholders (e.g. economic actors and social groups)
  - Prepare and print some informative materials (flyers)
- **Level of influence of the local characteristics (social, geographical, etc.) in the development of the activity:**
  - The rural character of the area might explain the special emphasis on productive processes associated to the landscape (agriculture, farming and rural heritage concentrate many of the comments about Climate Change Impacts, Opportunities, Solutions and Barriers). This can apply probably to other rural areas but in the Hyyppä case might be intensified by the official recognition of the Hyppänjoki valley as one of the valuable cultural landscapes of Finland since this gives to the local community a role of stewards of a unique landscape.

ACTIVITY: Workshop2_TORNIO RIVER VALLEY_PILOT LANDSCAPE
DATE and TIME: 30.8.2019, 12:30-16:00
PLACE: Bothnian Business House, kokoustila Kaari, Pakkahuoneenkatu 1, Tornio
ORGANIZERS:

- Juanjo Galan / Aalto University
- Kirsi Hutri-Weintraub / Aalto University
- Sampo Kangastalo/ Tornio City
- Göran Wigren / Haaparanta Cityi

PARTICIPANTS:

- Markku Vaaraniemi / Fisher, Pro Siika
- Tero Mustonen / IPCC
- Kaisu Mustonen / Snowchange co-op
- Virve Sallisalmi / Transboundary river comission
- Göran Wigren / Haaparanta Cityi
- Bertil Segerlund / Haaparanta
- Sanna Tyni / Lapland's school for applied sciencies
- Stina Almkvist /Region Norrbotten
- Jarmo Lokio / Tornio City
- Aapo Mäenpää / Tornio City
- Markus Kannala / Tornio City
- Risto Koskinen /YLE, Kemi
- Jouni Valikainen / Lounais-Lappi
- Hanna Lakkala / Finland Future Research Center, University of Turku
- Pekka Pelttari / Fisher, Tornioriver
- Birgitta Tamminen / Provincia Bothniensis, Tornio Haparanda
- Katariina Huikari / Tornio City, Team Botnia Oy
- Anne Anttila / Outokaira tuottamahan ry / Leader
- Minna Heljala / Museum of Tornio river valley
- Anne-Mari Söderström / MTK-Tornio (representative of local farmers)
- Teija Ylimartimo / Museum of Tornio river valley
- Sampo Kangastalo/ Tornio City

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Tornio river valley
- Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors

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AGENDA:

- 12:30 – 12:35 WELCOME – prof. Juanjo Galan (Aalto University), Sampo Kangastalo (Tornio City), Göran Wigren (Haaparanta City)
- 12:35 – 12:45 PRESENTATION OF NEW PARTICIPANTS
- 12:45 – 13:00 SUMMARY OF THE RESULTS OF THE FIRST WORKSHOP – Juanjo Galan (Aalto yliopisto)
- 13:00 – 13:30 CLIMATE CHANGE IN EUROPE, FINLAND AND TORNIO RIVER VALLEY – Juanjo Galan (Aalto yliopisto), Kirsi Hutri-Weintraub (Aalto yliopisto) & Markus Kannala/Jarmo Lokio (Tornion kaupunki)
- 13:30 – 15:50 TEAMWORK:
    - TASK 1: Co-definition of key-topics for the Tornio river valley community
    - TASK 2: Co-identification of Climate Change impacts for the selected topics
    - TASK 3: CO-DESIGN of Climate Change Transitions (for the selected topics and in response to the Identified impacts and opportunities)
- 15:50 – 16:00 Scheduling the third workshop (September/October 2019)

1. WELCOME

- Welcoming words by Juanjo Galan and Kirsi Hutri-Weintraub (Aalto University.).

2. PRESENTATION OF PARTICIPANTS

NAME OF CONTACT	INSTITUTION	TYPE
Sampo Kangastalo	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Markus Kannala	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Minna Karhunen	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Jarmo Lokio	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Aapo Mäenpää	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Timo Nousiainen	Tornio City,	REGIONAL/LOCAL ADMINISTRATION
Birgitta Tamminen	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Anu Rautiala	Tornio City	REGIONAL/LOCAL ADMINISTRATION
Göran Wigren	Haparanda City	REGIONAL/LOCAL ADMINISTRATION
Jimmy Henriksson	Haparanda City	REGIONAL/LOCAL ADMINISTRATION
Sofia Rosendahl	Haparanda City	REGIONAL/LOCAL ADMINISTRATION
Robert Ekholm	Haparanda City	REGIONAL/LOCAL ADMINISTRATION
Stina Almkvist	Region Norrbotten	REGIONAL/LOCAL ADMINISTRATION
Niina Karjalainen	ELY-centre	REGIONAL/LOCAL ADMINISTRATION
Tiina Elo	Lapin Liitto	REGIONAL/LOCAL ADMINISTRATION
Tuula Ajanki	Tornionlaakson neuvosto	REGIONAL/LOCAL ADMINISTRATION
Minna Heljala	The Museum of Tornio Valley	PUBLIC BODY
Riikka Pyykkö	The Museum of Tornio Valley	PUBLIC BODY
Teija Yli-Martimo	The Museum of Tornio Valley	PUBLIC BODY
Virve Sallisalmi	Tranboundary river comission	PUBLIC BODY
Tero Mustonen	Lumi, IPCC	RESEARCH
Marika Saranne	Lapin ammattikorkeakoulu	RESEARCH
Sanna Tyni	Lapin ammattikorkeakoulu	RESEARCH
Anne Anttila	Outokaira	ECONOMY SECTOR
Anne-Mari Söderström	MTK	ECONOMY SECTOR
Petri Leinonen	Farmer	ECONOMY SECTOR
Martti Isto	Farmer	ECONOMY SECTOR
Johannes Mäkitaavola	Farmer	ECONOMY SECTOR
Markku Vaaraniemi	Fishers	ECONOMY SECTOR
Pekka Pelttari	Fishers/Tornio City	ECONOMY SECTOR
Jarno Niskala	Pro Siika	SOCIETAL GROUP/CIVIL ORGANIZATION
Eija Tervahauta	Village- / city distric associations	SOCIETAL GROUP/CIVIL ORGANIZATION
Anu Davidila	4H	SOCIETAL GROUP/CIVIL ORGANIZATION

CONCLUSIONS:

- The initial local network has expanded and it counts now with more representatives from the civil society, local associations, and private sector. It would be important to increase the presence of industries, services, tourism sector, youth associations, etc.
- Aalto University and the members of the local network will work to increase the number and diversity of participants

3. INTRODUCTION TO THE AELCLIC PROJECT

- Juanjo Galan (Aalto University) summarizes the goals, methods, structure, schedule and expected outcomes of the AELCLIC-pathfinder project and the reasons that led to the selection of the Tornio river valley as one of the 16 European Pilot Landscapes of the project.

4. CONCLUSIONS from THE WORKSHOP1

- Juanjo Galan summarizes the RESULTS of the WORKSHOP1. This information is distributed between the participants in order to help them to develop the practical part of the Workshop, especially the sections about key Landscape Values and Climate Change Impacts and Opportunities in the Tornio river valley:

What are the main values of the Tornio river valley?

- RIVER & WATER
- OPEN and NATURAL LANDSCAPE
- LIVING IN THE FAR NORTH
- CULTURE & NATURE
- TOWNS & VILLAGES
- LIVING BETWEEN BORDERS
- THE SEA

What is important in the Tornio river landscape for you or for the sector/community you are representing?

- CULTURAL LANDSCAPE/ENVIRONMENT
- CLEAN & CONTROLLED TOWNS & VILLAGES
- LIVING BETWEEN BORDERS
- OPEN and NATURAL LANDSCAPE
- FEELINGS, PEOPLE & COMMUNITY:
- RIVER & WATER
- SUSTAINABILITY
- LOCAL ECONOMY

What do you know about climate change?

- CLIMATE CHANGES
- CAUSES & MITIGATION
- SOLUTIONS: POLITICS, ECONOMY & WAYS OF LIVING
- EFFECTS IN ECOSYSTEMS
- DOUBTS
- EFFECTS IN WELLBEING & HEALTH
- EFFECTS IN THE RIVER
- EFFECTS IN THE SEA

How might Climate Change affect the Tornio river valley and your daily life?

- LOCAL ECONOMY
- ECOLOGY AND ECOSYSTEMS
- PEOPLE, WELLBEING, HEALTH & SAFETY
- CONSTRUCTION AND TECHNOLOGY
- WATER & RIVER SYSTEM
- DOUBTS

How do you think that the AELCLIC-project can contribute to the existing or future PLANS OF TORNIO AND HAPARANDA

- LEARNING & SHARING
- AWARENESS RAISING AND ACTIVATION OF LOCAL COMMUNITY
- MAKING TORNIO MORE VISIBLE
- ADAPTATION OF LOCAL ECONOMY
- HEALTH & WELLBEING
- AGGRAVATING THE PROBLEM

5. CLIMATE CHANGE IN EUROPE, FINLAND AND THE TORNIO RIVER VALLEY

- Juanjo Galan (Aalto University) summarizes the main Climate Change Effects in Europe as defined by the European Environmental Agency. Kirsi Hutri-Weintraub (Aalto University) presents the main

expected effects in Finland as identified by VTT and the Finish Government. Finally, Markus Kannala and Jarmo Lokio (Tornion kaupunki) explain the expected impacts in storm water management and in building regulations and land-use regulations.

- The presented materials are distributed in printed copies in order to help the participants develop the practical parts of the workshop.

6. TEAMWORK

- Four multi-stakeholder teams are defined for the development of the practical part of the workshop. These teams include in general representatives from local administrations, farmers and other representatives of the economy sector as well as youngsters and researchers.

6.2. CO-DEFINITION OF KEY STRATEGIC TOPICS TO ADDRESS CLIMATE CHANGE ADAPTATION IN THE TORNIO RIVER VALLEY

TEAM1_ Proposed TOPICS:

- Culture environment, living in the north
- Tornio river (river + water)

TEAM2_ Proposed TOPICS:

- Transboundary co-operation
- Sustainable trades

TEAM3_ Proposed TOPICS:

- Preserving of the biodiversity of northern nature
- People and ways of living

TEAM4_ Proposed TOPICS:

- Floods
- Land use planning

The following broad strategic TOPICS are defined for the development of the next tasks:

- **TOPIC 1: NATURE AND BIODIVERSITY**
- **TOPIC 2: SUSTAINABLE ECONOMY & TRADES**
- **TOPIC 3: CULTURAL ENVIRONMENT, PEOPLE AND WAYS OF LIVING (LIFE IN THE NORTH)**
- **TOPIC 4: WATER SYSTEMS, FLOODS AND TORNIO RIVER**

Interestingly, **SUSTAINABILITY and TRANSBOUNDARY CO-OPERATION** were understood as the overarching goal and overarching way of working for future actions and for addressing the proposed topics.

6.2. CO-IDENTIFICATION OF CLIMATE CHANGE IMPACTS AND OPPORTUNITIES (in grey and italics, Impacts and Opportunities detected in the WORKSHOP1 that have been included in the results of the WORKSHOP2)

6.2.1. TOPIC 1: IMPACTS AND OPPORTUNITIES IN NATURE AND BIODIVERSITY

1) IMPACTS

1.1. SEASONAL CHANGES, SNOW, SOILS AND RIVER

- Decline in seasons?
- Run-off and impact in water quality
- Reduction of snow cower and effect in permanent frost (routa) / no permanent frost
- *No more distinct seasons*
- *Season of the snow cover may shorten and the river may stay unfrozen even in the winter*

1.2. ECOLOGY AND ECOSYSTEMS

- Arctic species are receding
- *Distribution areas of plants will change - a negative thing*
- *Impoverishment of nature?*
- *Forest growth accelerates*

1.3. ALIEN SPECIES, DISEASES AND PESTS
- Alien species, diseases, pests

1.4. FISHES
- Survival of salmonids

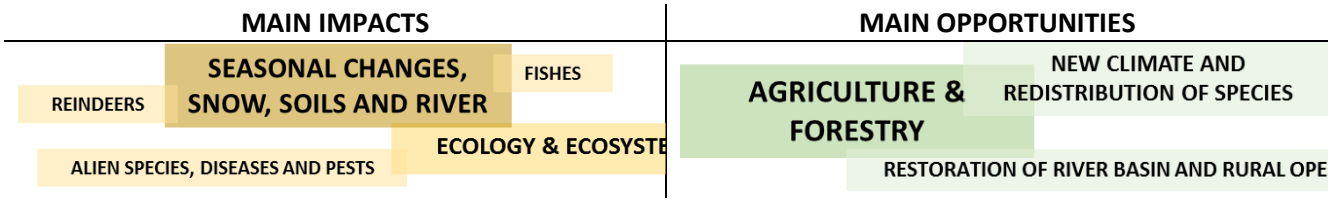
1.5. REINDEERS
- Reindeer food, pasture of lichens

2) OPPORTUNITIES

2.1 AGRICULTURE & FORESTRY:
- The growing season is getting longer
- New crops
- Forest growth is accelerating

2.2 RESTORATION OF RIVER BASIN AND RURAL OPENESS
- restoration of the river basin
- Rural openness will be restored

2.3 NEW CLIMATE AND REDISTRIBUTION OF SPECIES
- Birds, fauna
- *Distribution areas of plants will change - a positive thing*



6.2.2. TOPIC 2: IMPACTS & OPPORTUNITIES IN SUSTAINABLE ECONOMY & TRADES

1) IMPACTS

1.1. AGRICULTURE & FORESTRY
- More flexibility in farming (changes in crop varieties or harvest season depending on weather conditions)
- Pests / attacks
- *Agriculture and forestry benefit?*
- *Forestry - pests, storms, soft, wet forestland and roads, harvest/cutting time shortens*
- *The difference between the seasons (no clear differences between the seasons). This will affect northern Finland, there is going to be warmer summers and winters, also the soil and its vegetation and organisms will also change. This may allow, for example, the cultivation of novel plants in the area, but may also mean increasing pests.*

1.2. INFRASTRUCTURES & SAFETY
- Damage to infrastructure / costs
- *The need for deepening the sea-lane is diminished due to rising sea levels*
- *Carbon sinks*
- *Winter will delay, affects also to tourism as trade*
- *More floods and more often big/wide floods*

1.3. BUILDINGS AND CONSTRUCTION:
- Built places/buildings to high places
- *Construction becomes more difficult on the riverside*
- *The need for maintenance of buildings and infrastructure - humidity, wind*
- *Regulations of construction become tighter*

1.4. FISHING
- Effects to fishing
- *Fish does not rise (to river) / The condition of the salmons, the warm water - the negative thing*
- *Winters are no longer as before, plants change, the river warms up and is no longer suitable for salmon*

1.5. TOURISM

- Fishing tourism?
- *Winter will delay, affects also to tourism as trade*

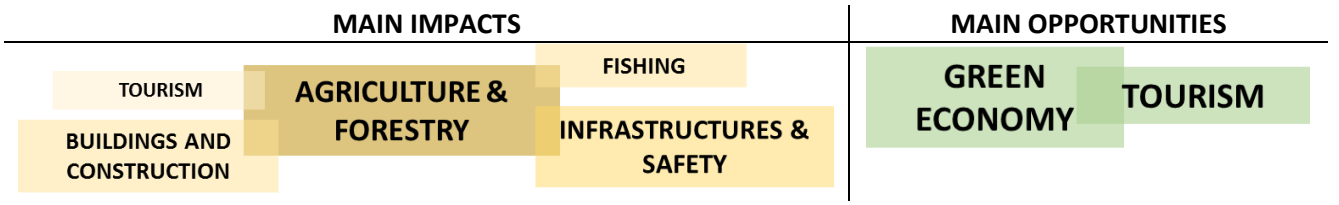
2) OPPORTUNITIES

2.1. TOURISM

- ”Cooling” tourism
- Summer travel >> incomes

2.2. GREEN ECONOMY

- Green trades, ”new” business and existing ones
- Agriculture increases >> open landscape



6.2.3. TOPIC 3: IMPACTS & OPPORTUNITIES IN CULTURAL ENVIRONMENT, PEOPLE AND WAYS OF LIVING (LIFE IN THE NORTH)

1) IMPACTS

1.1. LANDSCAPE CHANGES: RIVER, FARMING, ROADS, BUILDINGS

- Change of landscape
- Construction techniques
- Built places/buildings to high places
- Roads
- Farming
- Wood construction, birds, fauna
- *Season of the snow cover may shorten and the river may stay unfrozen even in the winter*

1.2. WAYS OF LIVING, TOURISM AND WARMER SUMMERS

- Change in fish species: tourism, diet, hobby
- Summer travel >> more flying
- Summer travel >> sufficient infrastructure
- *Different weather phenomena can be seen in daily life - walking, living, dressing*
- *The ski season becomes shorter – a horrible idea*

1.3. HEALTH & SAFETY

- Floods
- Diseases and pests
- *The fight against slipperiness is increasing*
- *Snow season shortens - The amount of light does not increase - mental nausea*

1.4. PEOPLE & SOCIO-CULTURAL STRUCTURE

- Immigration?
- Languages and dialects as nature information (meä-language, Saami)
- Climate refugees >> multicultural environment
- *Climate refugees*

1.5 DOUBTS: TIME SCALE AND SPEED OF CHANGE

- What is the time scale?
- *Absurd decisions*
- *Speed of Change cp. Adaptation - conflict?*
- *Changes have also occurred in Finland due to climate change.*

2) OPPORTUNITIES

2.1 PEOPLE & SOCIO-CULTURAL STRUCTURE

- Climate refugees >> population growth
- Climate refugees >> multicultural environment

2.2. SUMMER TOURISM

- Summer travel >> incomes
- Summer travel >> infrastructure

2.3. ECONOMIC DEVELOPMENT

- Agriculture increases >> open landscape
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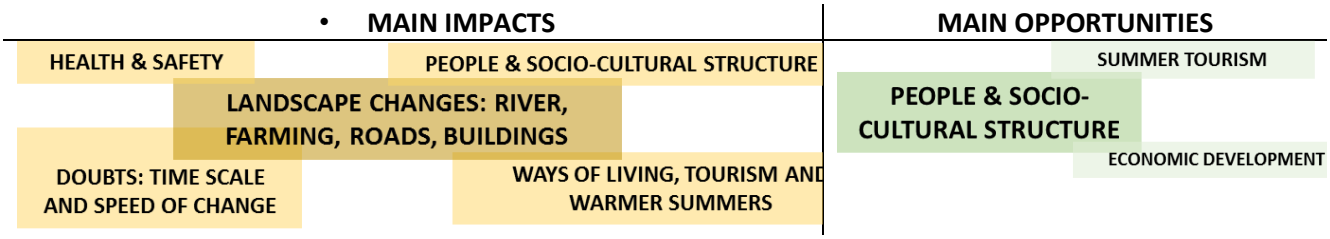


6.2.4. TOPIC 4: IMPACTS & OPPORTUNITIES IN WATER SYSTEMS, FLOODS AND TORNIO RIVER

1) IMPACTS

1.1. FLOODS AND DAMAGES

- Erosion of the river banks
- The peaks of the floods are rising, becomes more extreme
- The predictability of floods will decline as extreme events increase
- Beach construction becomes more difficult
- *More floods and more often big/wide floods*
- *In addition to the spring and midsummer floods, also autumn flood in the future*
- *The water level varies*

1.2. WATER QUALITY, QUANTITY & DROUGHTS

- Nutrient runoff >> water quality
- Water supply, drinking water, clean water
- Regional drought
- *Nutrient runoff > water quality?*

1.3. RIVER ECOSYSTEMS & FISHING

- Water temperature rises >> e.g. ice formation
- Fishing (negative)
- Biodiversity is changing
- Alien species,: positive/negative

1.4. INFRASTRUCTURES

- Existing infrastructure
- Water and wastewater management

2) OPPORTUNITIES

2.1 LESS ICE FLOODS & MORE FLOOD CONTROL

- Ice floods (jääpatotulvat) are decreasing
- Only once a year a real flood?
- Flood control

2.2. HYDROPOWER AND NEW TECHNOLOGIES

- Floating constructions
- Power – flood power station
- New innovations and technologies

2.3. RIVER ECOSYSTEMS AND FISHING

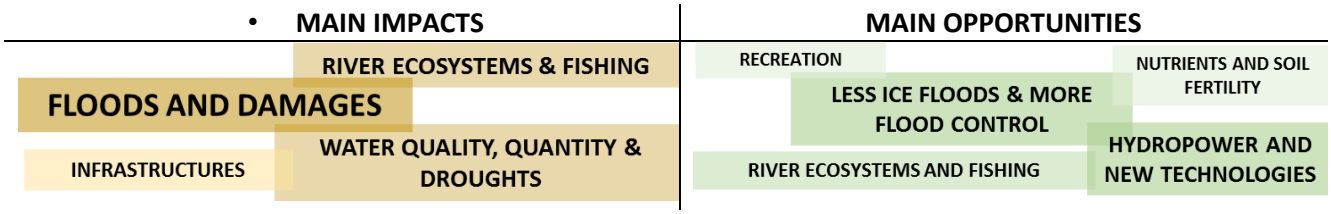
•Alien species,: positive/negative
•Fishing (positive)

2.4. RECREATION

•The bathing season becomes longer

2.5 NUTRIENTS AND SOIL FERTILITY

•Increase in nutrient content of the river valley (fertility)



6.3. CO-IDENTIFICATION OF POTENTIAL SOLUTIONS AND BARRIERS FOR THE IDENTIFIED IMPACTS AND OPPORTUNITIES

6.3.1. TOPIC 1: SOLUTIONS & BARRIERS IN NATURE AND BIODIVERSITY

IMPACT	OPPORTUNITY	SOLUTION	BARRIER
Reindeer food, pasture of lichens		Supplementary feeding	
Survival of salmonids		Seal hunting	Regulations /restrictions
Decline in seasons?			
Reduction of snow cower - →permanent frost (routa) / no permanent frost	Forest growth is accelerating The growing season is getting longer New crops Rural openness will be restored	Selection of crops, techniques and machines	Small farms
Run-off → water quality	Restoration of river basin		Money
Aliens species, diseases, pests Arctic species are receding		Control of alien species	

SOLUTIONS:

- SELECTION OF CROPS, TECHNIQUES AND MACHINES
- SUPLEMENTARY FEEDING FOR REINDEERS
- SEAL HUNTING
- CONTROL OF ALIEN SPECIES

BARRIERS:

- REGULATIONS /RESTRICTIONS FOR FISHING
- SMALL FARMS
- LACK OF RESOURCES

6.3.2. TOPIC 2: SOLUTIONS & BARRIERS IN SUSTAINABLE ECONOMY & TRADES

IMPACT	OPPORTUNITY	SOLUTION	BARRIER
Effects to fishing Fishing tourism?		Research Aim to reduce emissions of substances hazardous to the environment Reduce nutrient runoff: lands, swamps, forests, agriculture → ditches, technology	Lack of resources, for example financing
	Green trades, "new" business and existing ones "Cooling" tourism		
Pests / attacks More flexibility in farming (changes in crop varieties or harvest season depending on weather conditions)		Environmental friendly biological control methods Agriculture needs information on new crops and their possibilities (crop/hectare) + EU regulation to be more flexible in order to make changes possible during the harvest season	EU directives
Damage to infrastructure / costs Lack of the permanent frost (routa) changes the structure of the clayey soil → problems? Immigration? What is the time scale (of planning/thoughts)			

SOLUTIONS:

- RESEARCH
- AIM TO REDUCE EMISSIONS OF SUBSTANCES HAZARDOUS TO THE ENVIRONMENT
- REDUCE NUTRIENT RUNOFF: LANDS, SWAMPS, FORESTS, AGRICULTURE > DITCHES, TECHNOLOGY
- ENVIRONMENTAL FRIENDLY BIOLOGICAL CONTROL METHODS
- AGRICULTURE NEEDS INFORMATION ON NEW CROPS AND THEIR POSSIBILITIES (CROP/HECTARE) + EU REGULATION TO BE MORE FLEXIBLE IN ORDER TO MAKE CHANGES POSSIBLE DURING THE HARVEST SEASON

BARRIERS:

- LACK OF RESOURCES, FOR EXAMPLE FINANCING
- EU DIRECTIVES

6.3.3. TOPIC 3: SOLUTIONS & BARRIERS IN CULTURAL ENVIRONMENT, PEOPLE AND WAYS OF LIVING (LIFE IN THE NORTH)

IMPACT	OPPORTUNITY	SOLUTION	BARRIER
Change of landscape Construction Built places/buildings to high places			
Roads Floods		Flood walls	Money
Farming Diseases and pests		Biological pest control	
Change in fish species: tourism, diet, hobby		Artificial spawning places	Money
Wood construction Birds Fauna	Birds Fauna	Elimination of alien species	Endless task
Climate refugees →multicultural environment Languages and dialects as nature information (meä-language, Saami)	Climate refugees → population growth Climate refugees →multicultural environment	Provision: strategy, more European co-operation , openness	Politics
Summer travel → more flying Summer travel →sufficient infrastructure	Summer travel → incomes Summer travel → infrastructure Agriculture increases → open landscape	Travelling over land Development of train services	Politics Money

SOLUTIONS:

- FLOOD WALLS
- BIOLOGICAL PEST CONTROL
- ARTIFICIAL SPAWNING PLACES
- ELIMINATION OF ALIEN SPECIES
- PROVISION: STRATEGY, MORE EUROPEAN CO-OPERATION, OPENNESS
- TRAVELLING OVER LAND
- DEVELOPMENT OF TRAIN SERVICES

BARRIERS:

- MONEY & RESOURCES
- ENDLESS TASKS
- POLITICS

6.3.4. TOPIC 4: SOLUTIONS & BARRIERS IN WATER SYSTEMS, FLOODS AND TORNIO RIVER

IMPACT	OPPORTUNITY	SOLUTION	BARRIER
Water temperature rises → e.g. ice formation Fishing (negative)	The bathing season is coming longer Ice floods (jääpatotulvat) are decreasing	Development of (tourism) trade	
Biodiversity is changing Fishing (positive) Nutrient runoff→ water quality	Alien species,: positive/negative Increase in nutrient content of the river valley (fertility)	Development od environmental programs Development of agriculture	Money Politics
Erosion of the river banks The predictability of floods will decrease as extreme events increase The peaks of the floods are rising, becomes more extreme	A real flood only once a year?	Protection of river sides Flood control	Reactions peed
Water supply, drinking water, clean water		Water and waste water management	Money
Regional drought		Storm water control/delay	
Building/construction to the riverside becomes more difficult Existing infrastructure	Floating construction Power – flood power station New innovations and technologies	New innovations and technologies	Norms Slowness

SOLUTIONS:

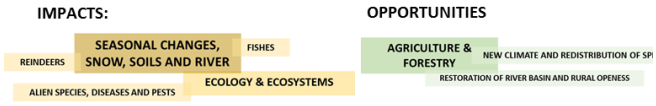
- DEVELOPMENT OF (TOURISM) TRADE
- DEVELOPMENT OF ENVIRONMENTAL PROGRAMS
- AGRICULTURE
- PROTECTION OF RIVER SIDES + FLOOD CONTROL
- WATER AND WASTE WATER MANAGEMENT
- STORM WATER CONTROL/DELAY
- NEW INNOVATIONS & TECHNOLOGIES

BARRIERS:

- MONEY
- POLITICS
- REACTIONS PEED
- NORMS
- SLOWNESS

6.4. SUMMARY: IMPACTS, OPPORTUNITIES, SOLUTIONS & BARRIERS

NATURE AND BIODIVERSITY



SOLUTIONS:
- SELECTION OF CROPS, TECHNIQUES AND MACHINES
- SUPLEMENTARY FEEDING FOR REINDEERS
- SEAL HUNTING
- CONTROL OF ALIEN SPECIES

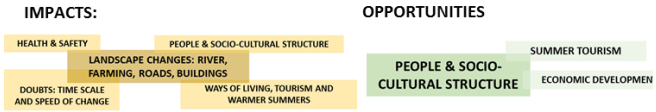
BARRIERS:
- REGULATIONS /RESTRICTIONS FOR FISHING
- SMALL FARMS
- LACK OF RESOURCES

SUSTAINABLE ECONOMY & TRADES

SOLUTIONS:
- RESEARCH
- AIM TO REDUCE EMISSIONS OF SUBSTANCES HAZARDOUS TO THE ENVIRONMENT
- REDUCE NUTRIENT RUNOFF: LANDS, SWAMPS, FORESTS, AGRICULTURE > DITCHES, TECHNOLOGY
- ENVIRONMENTAL FRIENDLY BIOLOGICAL CONTROL METHODS
- AGRICULTURE NEEDS INFORMATION ON NEW CROPS AND THEIR POSSIBILITIES (CROP/HECTARE) + EU REGULATION TO BE MORE FLEXIBLE IN ORDER TO MAKE CHANGES POSSIBLE DURING THE HARVEST SEASON

BARRIERS:
- LACK OF RESOURCES, FOR EXAMPLE FINANCING
- EU DIRECTIVES

CULTURAL ENVIRONMENT, PEOPLE AND WAYS OF LIVING (LIFE IN THE NORTH)



SOLUTIONS:
- FLOOD WALLS
- BIOLOGICAL PEST CONTROL
- ARTIFICIAL SPAWNING PLACES
- ELIMINATION OF ALIEN SPECIES
- PROVISION: STRATEGY, MORE EUROPEAN CO-OPERATION , OPENNESS
- TRAVELLING OVER LAND
- DEVELOPMENT OF TRAIN SERVICES

BARRIERS:
- MONEY & RESOURCES
- ENDLESS TASKS
- POLITICS

WATER SYSTEMS, FLOODS AND TORNIO RIVER

SOLUTIONS:
- DEVELOPMENT OF (TOURISM) TRADE
- DEVELOPMENT OF ENVIRONMENTAL PROGRAMS
- AGRICULTURE
- PROTECTION OF RIVER SIDES + FLOOD CONTROL
- WATER AND WASTE WATER MANAGEMENT
- STORM WATER CONTROL/DELAY
- NEW INNOVATIONS & TECHNOLOGIES

BARRIERS:
- MONEY
- POLITICS
- REACTIONS PEED
- NORMS
- SLOWNESS

7. NEXT STEPS: Future Workshops and Visibility of the Local Network (webpage)

- It is agreed to organize the third and last Workshop in the first days of October. The third workshop will focus on the co-definition of the goals and basic structure (table of contents) of a potential LACAP (Landscape Adaptation Plan to Climate Change) for the Tornio river valley. This workshop will also address the conformation of a solid and competitive local network in order to include the Tornio river valley as one of the Pilot landscapes in the application for a Climate-KIC demonstrator project.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - TOPICS TO ADDRESS CLIMATE CHANGE ADAPTATION: The proposed strategic topics can frame a holistic discussion about Climate Change Adaptation but at the same time they might be too broad to facilitate the connection of the participants. There were significant differences between the topics proposed for urban (e.g. Malmi district in Helsinki) and rural landscapes (e.g. Tornio). These differences might be primarily caused by the different characteristics of the landscape but also by the collective imagery and connection of locals to their landscape / ACTIONS: Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities. Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - CLIMATE CHANGE IMPACTS & OPPORTUNITIES: The co-identification of impacts and opportunities by the multi-stakeholders groups for all the proposed topics revealed the importance of the river and fishing, the Northern Way of Life, the close connection to nature, the highly natural character of the landscape and the controlled presence of buildings and infrastructures in the landscape. Most of the indicated impacts were connected to the effects of climate impact in the values listed above and to the local ways of living. However, the participants detected also multiple opportunities derived from climate change and often understood that a social, demographic, cultural, economic or environmental change could be both a problem and an opportunity depending on the capacity of the local community to manage it properly. The river dynamics were at the core of all the discussions and the sustainability and trans-frontier cooperation were both perceived as the overarching frameworks for future actions and for addressing the proposed topics. ACTIONS: Study the connections between impacts and opportunities in different topics. Consider how SUSTAINABILITY AND TRANS-FRONTIER COOPERATION can be used as overarching frameworks for future actions and for addressing the proposed topics. NOTE: In this workshop, all the participants were reminded of the importance of including the impacts identified in the Workshop1. This resulted in a more clear connection between the workshop 1 and 2
  - CLIMATE CHANGE SOLUTIONS & BARRIERS: The proposed solutions and the identified barriers for the implementation of the proposed solution, show a good understanding of global trends, technological advances, etc. Some answers were quite specific and not very systemic since they were responding in a very concrete way to the detected impacts/ ACTIONS Present more clearly in the workshop2 and 3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.). Discuss with experts the identified SOLUTIONS and BARRIERS and detect the missing ones.
  - IMPACT+OPPORTUNITIES > SOLUTIONS and BARRIERS: The proposed solutions relate partially to the detected impacts and opportunities. A more consistent connection between impacts, opportunities, solutions and barriers is needed. How many of these impacts and opportunities are actually linked to Climate Change?. ACTIONS: Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions.
  - WORKSHOP3: Will be scheduled in the first days of October/ ACTIONS: Aalto University will open a Doodle Poll to set the best possible date and time
  - RESULTS of the WORKSHOP2 and visibility of the Local Network in the webpage of the project. The whole workshop was covered by a local newspaper and radio. Some participants were interviewed/ ACTION: The results will be processed by Aalto University and displayed in the Webpage of the AELCLIC-pathfinder project (www.aelclicpathfinder.com). Contact always the local media (newspapers, local radio stations, etc. (in general, the Communication experts of the involved municipalities can provide a priceless support in this)

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Co-definition of key strategic topics or actors to address Climate Change Adaptation in the Hyyppä river valley). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Co-identification of Climate Change Impacts, Opportunities, Solutions and Obstacles for the defined topics/actors). LEVEL OF ACHIEVEMENT: 4
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - The outcomes were highly achieved. The broad character of the selected TOPICS covered the classical pillars of sustainability and socio-ecological systems analysis but somehow were too extense to promote clear and complete discussions. It was also difficult for the stakeholders to incorporate in the identification of Climate Change Impacts and opportunities all the information provided in the introductory lectures of the workshop2 and in the results of the workshop1.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Deep involvement and commitment of the participants
  - Viable tasks for the allocated time
  - Clear guidelines and effective methods
  - The definition of different topics and their distribution amongst different multi-stakeholders teams increased the capacity of the whole group to generate information.
  - The possibility given to all the participants of adding inputs to the work produced by other teams, permitted to all the participants to contribute (Impacts, Opportunities, Solutions and Barriers) to all the topics
- **Learnt lessons and recommendations for similar activities in other places:**
  - See Shortcomings and Barriers and See main reasons for the successful achievement of the expected Outcomes.
  - Require the participants to include in their proposals all the impacts and opportunities identified by the EU, Finnish Government, local agencies and by the participants of previous workshops (use the printed copies distributed during the workshop2).
  - Define some overarching concepts connecting all the proposed TOPICS (e.g. sustainability)
  - Present more clearly some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.
- **Learnt lessons and recommendations for future activities in the same place**:
  - Use the proposed topics to start the discussion about the basic structure of a LACAP in the Workshop3 but try to define more precisely the meaning of the topics, their connections to the participants and the impacts and opportunities.
  - Discuss in the workshop3 the connections between the topics and the values detected in the Workshop1 and the overall expectations of the local community for the evolution of their landscape.
  - Discuss in the workshop3 the connections between impacts and opportunities in different topics.
  - Present more clearly in the workshop2 and 3 some key concepts connected to Climate Change Adaptation (IPCC, scenarios and models carbon neutrality, etc.)
  - Detect during the workshop3 the missing impacts, opportunities, solutions and barriers. Analyze critically how much the impacts and opportunities are connected to Climate Change. Discuss actions to overcome the barriers and to implement the solutions
  - Increase the dissemination of the project and planned activities (use the AELCLIC webpage and the webpages of the collaborative institutions)
  - Contact in a bilateral way some crucial stakeholders (e.g. economic actors and social groups)
  - Prepare and print some informative materials (flyers)
- **Level of influence of the local characteristics (social, geographical, etc.) in the development of the activity:**
  - The importance of the river and its dynamics, together with the highly natural character of the area might explain the special emphasis on natural processes and productive processes associated to the natural landscape (agriculture, forestry, fishing, etc.). This remark can be probably applied to other highly natural areas but in the Tornio case, this situation might be intensified by the wild character of the Tornio River and the connection of this wild character to the local identity.

WP3

Atlantic & Alpine Europe

ACTIVITY: Workshop2/3_Holland Lowland Peat Landscape_PILOT LANDSCAPE
DATE and TIME: Autumn 2019 (no physical workshop could be realised; several smaller meetings were held)
PLACE: Head Office of the Province of Zuid-Holland, The Hague (NL), and other places
ORGANIZERS:

- Bas Pedroli / Wageningen University *[1]
- Caroline Ammerlaan *

PARTICIPANTS:

- Caroline Ammerlaan / Province of Zuid-Holland *
- Werncke Husslage / Province of Zuid-Holland *
- Daan Willems / Water Authority Rivierenland *

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Assessment of Climate change impacts and Development of a Landscape Climate Adaptation Plan for the implementation of the AELCLIC-pathfinder project in the Holland Lowland Peat Landscape

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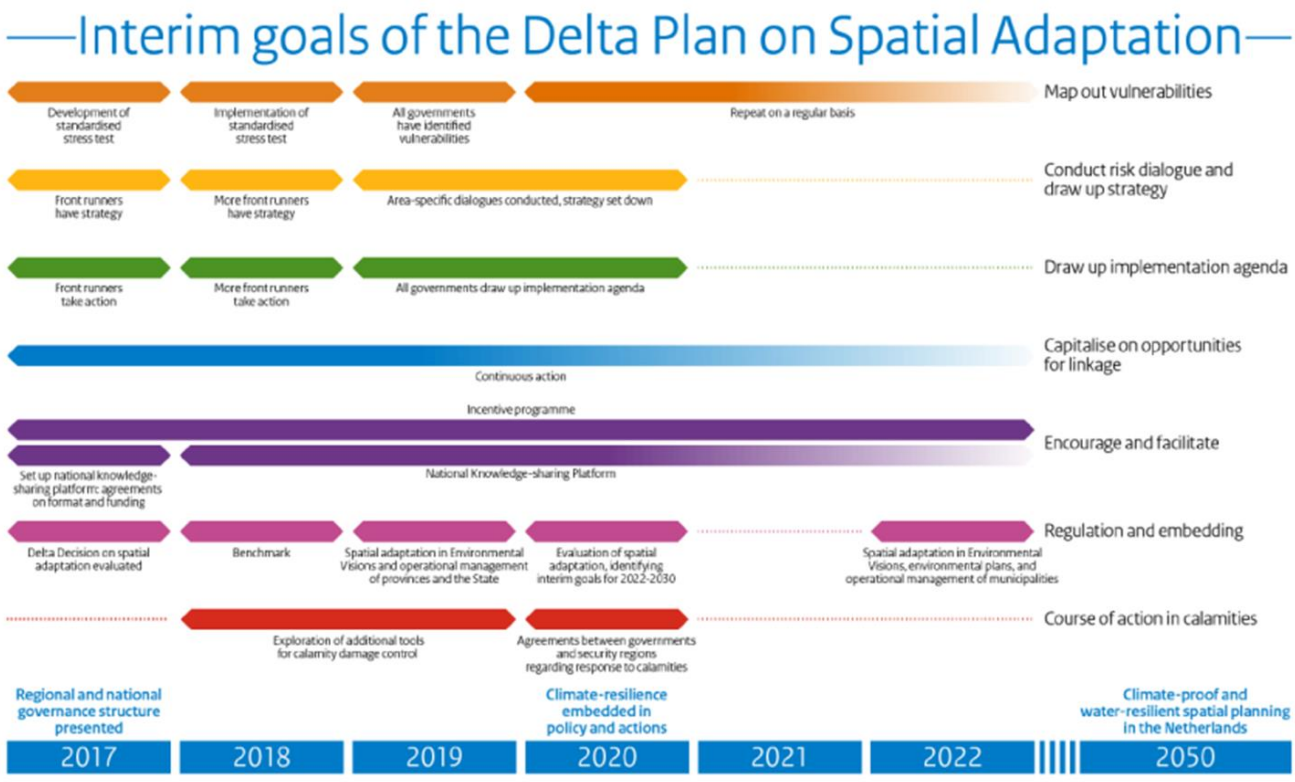
SPECIAL FOCUS: ALBLASSERWAARD - VIJFHEERENLANDEN

Based on existing developments in the process of Climate Stress Tests (the first interim goal of the Delta Plan on Spatial Adaptation, see figure below), the Alblasserwaard-Vijheerenlanden is chosen as the pilot area in the Holland Lowland Peat Area, because of the topicality of the adaptation challenges in this area.



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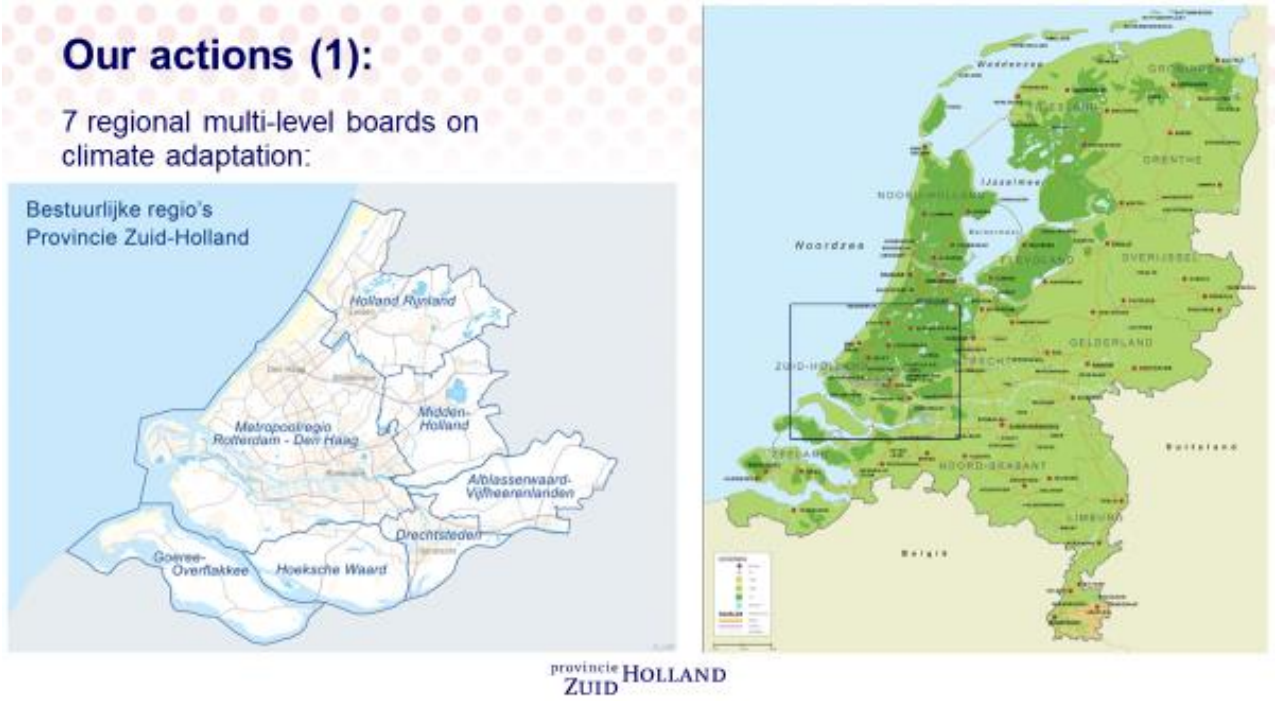
* Names of persons and logos of their affiliations may be used on the AELCLIC website

Location of Alblasserwaard-Vijfheerenlanden (easternmost region of the Province of Zuid-Holland)



STRESS TEST ALBLASSERWAARD -- VIJFHEERENLANDEN[2]

1. Starting points

In order to retain its character and make the area more resilient to the effects of a changing climate, deliberate choices must be made. As a client the Alblasserwaard-Vijfheerenlanden Regional Council indicated that it wants to take steps to ensure that the region's climate is robust. This command is one of the first steps to this ambition to achieve and align with national agreements made in the Delta Plan on Spatial Adaptation. In the Delta Plan on Spatial Adaptation (2018), all municipalities, water boards, provinces and central government agreed to have the vulnerabilities for climate and extreme weather mapped by 2019 at the latest. Climate change has consequences for the working region Alblasserwaard-Vijfheerenlanden (A5H). In addition to the sea level rise, we are faced with higher temperatures, wetter winters, more intense rain showers and drier summers. This entails risks such as rainwater nuisance, groundwater problems, heat stress, additional subsidence and problems with the freshwater supply. In line with the Delta Plan on Spatial Adaptation the A5H region wants to look at where challenges and opportunities will arise in the future, so that it can prepare for this. The Alblasserwaard work region Vijfheerenlanden includes the municipalities of Alblasserdam, Gorinchem, Hardinxveld-Giessendam, Molenlanden, Papendrecht, Sliedrecht and Vijfheerenlanden in cooperation with the Rivierenland Water Board, the provinces of Utrecht and South Holland.

2. Objectives

The purposes of the Climate Stress Test, together with the Alblasserwaard-Vijfheerenlanden work region and the main stakeholders of the area, are:

- To identify the bottlenecks and opportunities within the region for the four climate themes of flooding, heat, drought and floods.
- To formulate a first draft of the climate challenge, with which the ambition discussion can be conducted administratively.

[2] *Translated from " Resultaten klimaatstresstest Alblasserwaard-Vijfheerenlanden. Eindrapportage Stresstest Alblasserwaard-Vijfheerenlanden. In opdracht van: Gebiedsraad Alblasserwaard-Vijfheerenlanden Uitgevoerd door: Nelen & Schuurmans. Datum: 21 mei 2019*

- To develop an equivalent level of knowledge among the area partners and key stakeholders involved.

3. Threats and Opportunities

TOO MUCH WATER

Major bottlenecks and tasks:

• There is flooding in many urban centre locations.
• Heavy showers in urban areas often lead to water on the street (> 10 cm) and flooded tunnels. This plays a big part in the cores.
• Accessibility of emergency services.
• Water in homes and buildings with a social function in many centres.
• Potentially vulnerable fruit growing. Sequel research into expensive flooding desirable.
• Not all model results are recognized by based on current practical experience. If need is present, model update in certain cores with sewage.

Greatest opportunities:

• Lots of knowledge and experience with municipalities and water board about flooding in built-up areas surroundings. How to deal with provincial policy around housing? Extension and necessity for a climate-robust urban environment.
• In what way can the available storage capacity in urban and rural be used to prevent nuisance to go?
• A lot of 'unutilized' water due to extreme showers. Opportunities for energy extraction from, for example, water basins.
• Water storage on peaty soil in combination with e.g. meadow bird management (watering of lots).
• Change of use on peat soils to recreational areas and wet nature.

HEAT STRESS

Major bottlenecks and tasks:

• Industrial areas and compacted city centres most sensitive to heat stress. Point of attention for e.g. labour productivity.
• In residential areas based on public health attention for vulnerable population groups (elderly).
• Adverse effects on infrastructure (track / bridges).
• Attention to bathing water locations of water quality (blue-green algae) and safety (swimming in rivers).
• Heat stress for humans, livestock and plants.

Greatest opportunities:

• Trees along the roads: "cooling ribbons".
• Water circulation to cool the city area.
• Greening of roofs on business parks.
• Operation crushing stone in city link.
• Creating green structures at locations with transformation task from working to live.
• Cooling down the edge of the city link, the green heart of A5H and rivers to three sides of the area.
• Have a conversation with care locations, shopping centers and schools about greening.

DROUGHT

Major bottlenecks and tasks:

• Inclination and lowering of undefended houses.
• Water shortage for water level management, falling groundwater levels, subsidence and settlement.
• Higher salinity of river water with limited water inlet from the Lek.
• Worse harvests due to drought. Grass in particular vulnerable to drought in growing months (April until September).
• Poor quality surface water in relation to Watering.
• Validate soil subsidence with practice.

• Increase in development costs subsidence. Cables and pipes sensitive to settlement differences.

Greatest opportunities:

• New polder inlet at Groot Ammers. Opportunities for sufficient water.
• Large-scale research into region-specific solutions for subsidence. Connect to current RMA statement subsidence
• More research into the extraction of water from peat through trees in nature reserves and urban area.
• Opportunities for innovative due to subsidence pilots, such as pressure drainage, housing and natural water treatment.
• Use change: Opportunities for meadow bird management and recreation.

FLOOD RISK

Bottlenecks and tasks:

• Effects with a dyke breach from a river is very large at maximum flood depth. The chance is small to very small.
• Effects in the event of a breach of the quay can be overseen (up to 50 cm of water). The chance is small.
• Vulnerable to evacuation from the area (number roads), many livestock and vital infrastructure outage. Evacuation strategy known (time / duration)?
• Accessibility and recovery time.
• High-risk industry and hazardous presence fabrics. How do you handle this and how do you save it on?
• Supra-regional effects in the event of a flood of drinking water and energy infrastructure unclear.

Greatest opportunities:

• City link A5H: What can you do for a crisis phase adapt in infrastructure and buildings for evacuation and survival? Investigation Multi-layer Safety (MLV) / Flood Resilient Areas by Multi-lay Safety (FRAMES).
• Evacuation strategy: + 50 KV stations 2 meters raise up. New energy infrastructure at height and climate adaptive installation.
• Old ribbons and dikes. Opportunity for emergency services. Further research desirable.
• Flooding is mainly in rural areas conceivable.

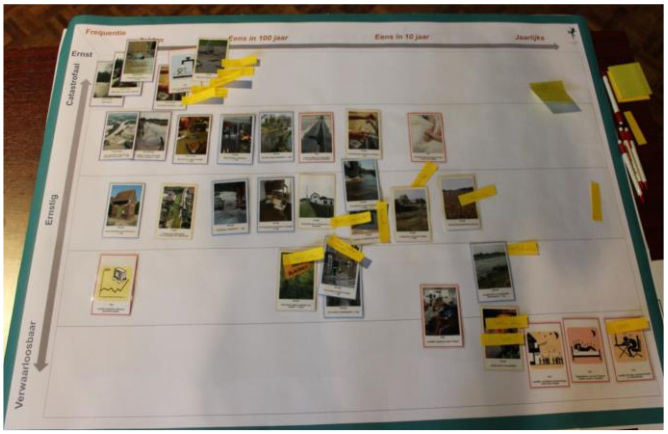
4. From climate Issue towards Spatial Quality

For each of the four climate stress issues Spatial Quality issues can be targeted:

- Urbanisation and healthy environment
- Agriculture and Nature
- Landscape and Recreation
- Infrastructure and vital objects

	Verstedelijking en gezonde leefomgeving	Landbouw en natuur	Landschap en recreatie	Infrastructuur en vitale objecten
WATER OVERLAST	• Gevolgen afvoeren van (overtollig) water uit stedelijk gebied en opvangen in landelijk gebied inventariseren. • Klimaat robuust inbreiden en transformeren.	• Potentieel kwetsbare fruitteelt. Verdiepend onderzoek naar duur wateroverlast. • Tijdelijke waterberging op veengrond toestaan (grasland).	• Leidende principes voor inpassing van een klimaat robuust watersysteem.	• Aanpakken onbegaanbaarheid verbindingswegen en tunnels. • Robuuste netwerken gas, water, elektriciteit, internet. • Energie terugwinnen uit water.
HITTE	• Watercirculatie inzetten voor verkoeling van het stedelijk gebied. • Operatie streenbreek in stedenband. • Vergroenen kwetsbare verzorgingslocaties. • Klimaat robust inbreiden en transformeren.	• Hittestress vee en planten.	• Aandacht voor zwemwaterlocaties ten aanzien van waterkwaliteit (blauwalg) en veiligheid (zwemmen in rivieren). • Bomen langs de wegen: 'linten' planten. • Groene rand langs stedenband en het groene hart inzetten voor verkoeling.	• Nadelige effecten op infrastrucuur (spoor en bruggen) inventariseren en in kaart brengen.
DROOGTE	• Regionale aanpak voor kwetsbare niet onderheide panden opstellen. • Rekening houden met toename in ontwikkelingskosten door bodemdaling.	• Mogelijkheden voor zoetwateraanvoer vergroten. • Gewasschade door watertekort beperken. • Meer onderzoek naar de onttrekking van water uit veen door bomen in natuurgebieden en stedelijk gebied. • Grootschalig onderzoek naar regiospecifieke oplossingen voor bodemdaling. • Waterkwaliteit verbeteren voor veedrenking.	• Link bodemdaling en weidevogelbeheer onderzoeken.	• Rekening houden met bodemdaling • Kabels en leidingen gevoelig voor zettingsverschillen.
OVER STROMING	• Stedenband A5H: Wat kan je voor een crisisfase aanpassen in de infrastructuur en bebouwing voor ontruiming en overleving? Onderzoek Meerlaagse Veiligheid (MLV) / Flood Resilient Areas by Multi-layEr Safety (FRAMES).	• Levende have kwetsbaar bij overstroming. Evacuatie van levende have bij een overstroming is belangrijke factor.	• Oude linten en dijken inzetten voor hulpdiensten.	• Veilige uitvalswegen bij overstroming • Informatie: wat moeten we doen bij overstromingen? • Risicovolle industrie en aanwezigheid gevaarlijke stoffen. Hoe ga je hier mee om en hoe sla je deze op? • Nieuwe energie infra op hoogte aanleggen.

5. The Risk Dialogue



A dialogue was conducted during the climate workshop on the basis of 32 examples of negative climate effects. A negative climate effect of drought is for example: "Management area subsidence> 2 cm per year" and of a flood: "Failure main stations vital infrastructure (gas, electricity, communication)> 1 week '. Those present indicated in four groups which climate effects they find the most serious, and how often they think that such effects should occur.

Result

A diagonal pattern is created on all four tables, which establishes a relationship between seriousness and display the desired repeat time:

• The consequences of flooding are considered the most serious and lie all within the red circle. About this category you will find when depositing the cards relatively little discussion takes place.

• Climate effects that result in natural and economic damage considered average and are within the orange circle. Within this circle shows the most variation in assessment when placing the cards relative to each other.

• "inconveniences" such as "poor sleep", "low labour productivity" and "noise nuisance" least serious. There is limited insight into the, often indirect, consequences of these climate effects. In addition, it is indicated that with some effects (such as "Sleeping problems due to heat") can be handled differently, such as loving "Siesta" and work longer in the evening. In other words, instead of the physical environment, behaviour can also be adjusted to the circumstances. Think here of tropical timetable at schools.

With different climate effects, there is a lively discussion about the seriousness and scope of the effect, such as:

• An increased national death rate for vulnerable people due to a heat wave.

• The consequences of water inflow into homes.

In addition to the dialogue, the parties present have indicated which climate risk they find, in the moment, the most relevant and where they themselves can possibly contribute to thinking along in opportunities or looking for solutions with regard to this risk. This is an indication overview and is in no way exhaustive because one could only choose one risk and one person does not represent a complete organization.

At the end of the climate workshop, all parties were asked what they considered important and with which parties they would like to talk. The answer to this provides insight into which parties should not be missing in a subsequent climate studio and is a first step and a first exploration of ambitions at parties and whoever wants to fight for it. It is important to invite other stakeholders to the discussions.

6. Recommendations

The purpose of this stress test is to gain joint insight into the greatest opportunities and bottlenecks within the region. For this we have made a first step with the first climate workshop where a broad group of stakeholders from the A5H region was present. The bottlenecks and opportunities have got outlines. This overview is not yet exhaustive, but it is a good start. Also environmental themes have been defined and an incentive for climate ambitions has been formulated. Finally retrieve information about which stakeholders to engage, and which dialogues.

Recommendations working region A5H

After the first regional risk dialogue (the climate workshop) we recommend:

• Look for administrative coordination on the results described in this memorandum and the start to use climate ambitions to conduct the ambition discussion.

• From there, continue to work on linking the climate bottlenecks and opportunities with current ones spatial visions and ambitions for the area. In this way a connection is made with environmental policy.

• Make connections with other developments in the area. A first step, which is not exhaustive, is made below:

• In the Regional Social Agenda of the Alblasserwaard-Vijfheerenlanden Region (municipalities of Molenlanden, Gorinchem and Vijfheerenlanden), 15 assignments have been named. Some of the tasks from this agenda have a relationship with climate adaptation. For the elaboration of the subsidence, energy transition and landscape developments tasks, there is close cooperation coordination of importance on both process and content.

• The Alblasserwaard-Vijfheerenlanden department of LTO-Noord has drawn up a new agricultural vision last year (Landbouwvisie Alblasserwaard-Vijfheerenlanden 2030) with ambitions in the field of landscape, soil and water, among other things. In discussions about regional opportunities and risks and an adaptation strategy to be formulated, the agricultural sector is a crucial link.

• The Rivierenland Water Board has drawn up a vision for the future with regard to the regional water system (storage basin system) and makes this concrete in an Area Program. The calls for close coordination with the water board to determine the substantive points and moments at which the elaboration of an adaptation strategy and the area program meet could affect.

• The "Green Deal Connect Area Deal" (http://www.gebiedsdeal.nl) contains a multi-year program in which opportunities are mentioned with regard to climate adaptation. There is one in this project included under the name "Blue-green foundation" in which connections are made between education, business and governments. This project is being drawn by the water working group of the Blauwzaam Foundation.

• In the context of the "Water safety and space 2017 - 2018" project, innovation tables have been organized to raise water awareness among businesses and to to build an innovation network. This can be a valuable network for the risk dialogues to be conducted.

As a follow-up to the stress test:

• Collect regional strategies in a second climate studio, focusing on parts where climate effects conflict with the intended visions and ambitions for the area.

• To summarize the result in a regional adaptation strategy and regional (spatial) implementation agenda, for administrative determination (see figure below).


Regional Process
Climate Stress Test
(ready by Q2 2019)
Risk Dialogue
Q3/4 2019
Adaptation Strategy
Q2 2020
Implementation Agenda
Q4 2020
Resultaten klimaatstresstest
Alblasserwaard-Vijfheerenlanden
provincie ZUID HOLLAND

ACTIVITY: Workshop 1
PLACE: Croagh Patrick Visitor Centre

ORGANIZERS:
Liam Carr & Kevin Lynch / National University of Ireland Galway (NUI Galway)
David Mellett / Climate Action Regional Office (CARO)

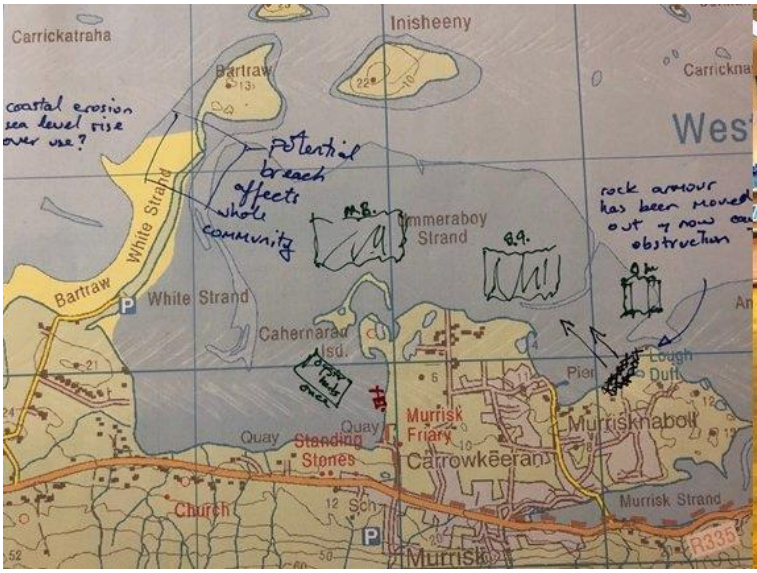
PARTICIPANTS:
Murrisk Development Association / Non-affiliated local residents / NUI Galway / CARO / National Parks and Wildlife Service

KEY OBJECTIVES OF THE ACTIVITY:
The purpose of this scoping workshop was: 1) to bring Bertra community members together with other stakeholders; 2) to discuss visions for Bertra Beach and, more broadly, Clew Bay; 3) to identify various possible opportunities as well as challenges.

STRUCTURE:
The workshop consisted of a series of facilitated "meeting tables" where participants were encouraged to share their thoughts on a number of linked themes. Representatives from NUI Galway facilitated each table, allowing participants (a mix of stakeholder groups at each table) to engage on the subject matter as they saw fit. The themes discussed were:

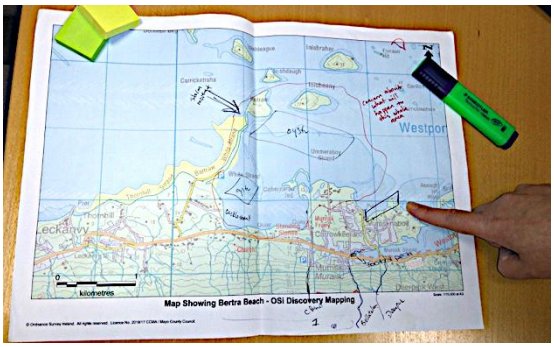
Clew Bay Area
- What do you like about the area? / Why do you like living or working in the area? / What makes the area special?

Long-Term Vision for Clew Bay and Bertra
- What will the Clew Bay area will look like 10-years' time? What *should* it look like?
- How might it be used? How might it be managed?
- How might your vision for Clew Bay area affect Bertra's future?



Challenges to the hopes and expectations for the future

- How might threats from the natural environment affect Bertra / Clew Bay?
- In what way might economic issues be important to Bertra / Clew Bay?
- What social & cultural issues may be relevant to the area's future?
- Are there any other issues that might affect Bertra / Clew Bay future?



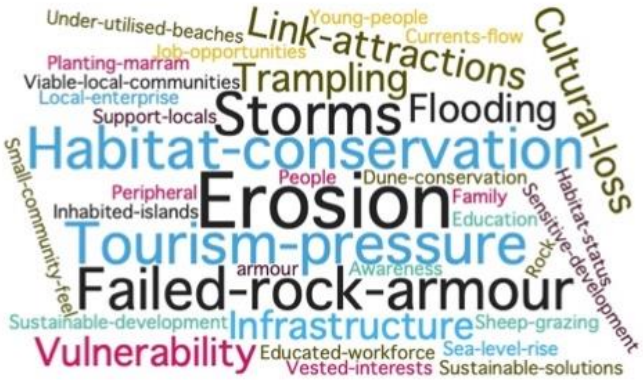
Human and other resource needs for ensuring Bertra's and Clew Bay's communities and environment are healthy and prosperous in the future

- What resources are necessary for achieving your vision(s)?
- What opportunities are there to fund your ideas?
- How should your vision(s) be funded?
- What are the necessary partnerships for achieving your vision?
  - Which stakeholders are currently active and helpful?
  - Which stakeholders are currently not active, but should be?
  - (or active but maybe not as effective as they could be)

SUMMARY:
The discussion of each topic is summarised below using a *wordle*. The larger words are those that were used most frequently in the conversations across the four tables. The workshop and the points it raised should be considered another layer in the information/knowledge contributing to the process, rather than being statistically representative of the views of all the local communities and stakeholders.

Landscape value:

Challenges and issues:



Resource needs:

ACTIVITY: Workshop 2

DATE and TIME: May 2019

PLACE: Clew Bay Hotel Westport

ORGANIZERS:
Liam Carr & Kevin Lynch / National University of Ireland Galway (NUI Galway)
Laura Dixon & David Mellett / Climate Action Regional Office (CARO)

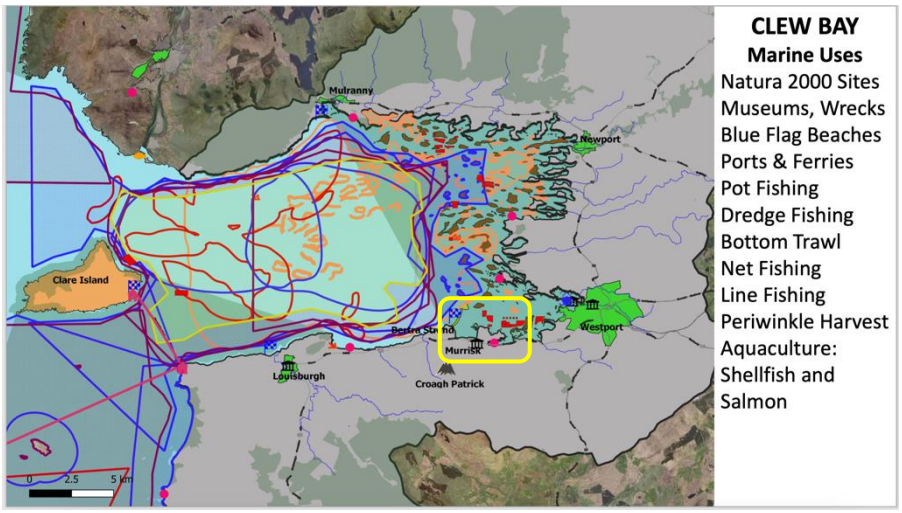
PARTICIPANTS:
Murrisk Development Association / Non-affiliated local residents / NUI Galway / CARO / National Parks and Wildlife Service

KEY OBJECTIVES AND STRUCTURE:
This workshop had a broad scope, looking at the marine side of the pilot landscape site. It consisted two talks: one on aspects of Marine Spatial Planning (MSP) for the area and one on how the Regional Climate Action Office (CARO) was implementing the national Adaptation Framework. These were followed by an informal discussion of the issues in the area in light of climate change. It was primarily run by the students and staff of NUI Galway's MSc in Coastal & Marine Environments. It extended the stakeholders engaged in the project's work, including a local sailing club, outdoor activity centre and aquaculture operations.

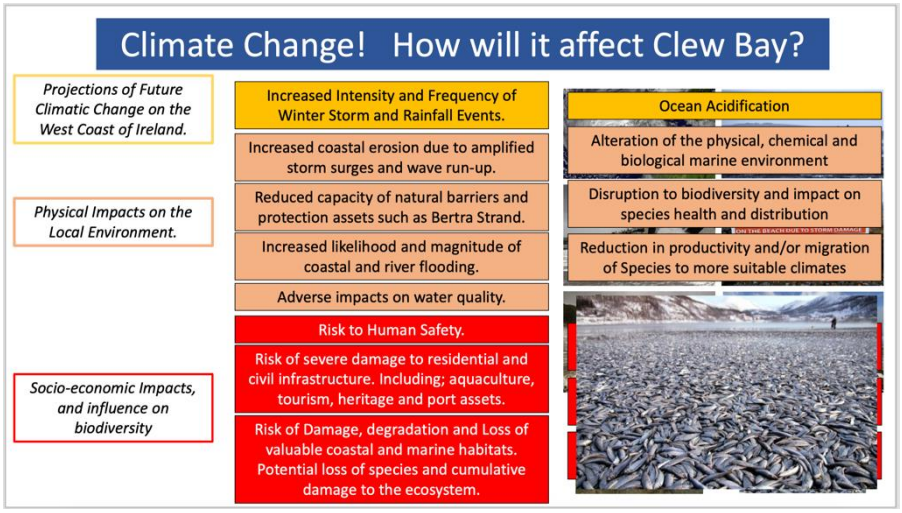
The stated objectives were to learn from stakeholders what they think regarding Clew Bay and its positive attributes? Where they see potential for economic growth? Where they would like to see further environmental conservation efforts? How you would like to see Clew Bay managed in the future, giving regard to climate change effects?

SAMPLES SLIDES FORM THE TALK:
The interaction between climate action, MSP and terrestrial planning:

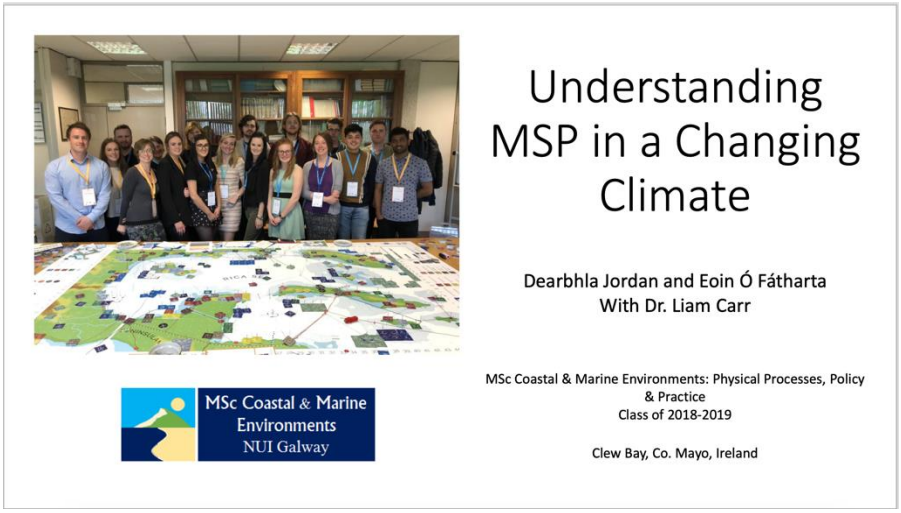
The complex overlapping activities that take place in the bay, with land-sea interactions an important aspect. The study site for the AELCLIC project is marked with a yellow box.



The projected climate change effects for Clew Bay.



The cover slide for the talk.



SUMMARY: The focus group consisted of 13 participants, with discussion focussed around how the implementation of a MSP for Clew Bay may compliment or duplicate any climate change adaptation actions. Participants were particularly interested in how the perspective of the academics differed, or aligned, with the views of the CARO staff present. In particular the main themes that arose from the event were around how to move forward:

1) Short-term action: What possible actions could be taken in the near future while more long-term plans were being developed?
2) Available support: In trying to develop community-led actions to what degree could academic institutions (NUI Galway in particular) and local government (the CARO in particular) be expected to support the work?
3) Communication: In developing any actions what *lines of communication* were best suited to facilitate a partnership approach between communities and local government.

The output from Workshops 1 & 2 (looking a two separate geographical scales) informed the design of Workshop 3 as an event that looked to solidifying the *trust* that had been built up between all the stakeholders over the period of the project's work. It was also intended to address the immediate needs of identifying 1) viable short-term actions, 2) a dedicated group of stakeholders to continue the project's work past its end in December 2019.

ACTIVITY: Workshop1/2_Haute Tarentaise_PILOT LANDSCAPE
DATE and TIME: Reconnaissance visit 2 – 3 September 2019 (Talks with many stakeholders in the Valley) / Workshop 9 October 2019
PLACE: Bourg St Maurice, Haute Tarentaise. Premises of the workshops of the Dairy Cooperative (Coopérative Laitière de Haute Tarentaise) in Bourg St. Maurice.
ORGANIZERS:

- Bas Pedroli / Wageningen University
- Agnès Patuano / Wageningen University
- Léonie Viallet, Chargé du Service Qualité, Coopérative Laitière de Haute Tarentaise

PARTICIPANTS 9 October 2019 | 16 :00 - 18 :30:

- Magali Borrel / Communauté de Communes de Haute Tarentaise
- James Merel / Bureau des Guides Bourg Saint Maurice, les Arcs
- Léonie Viallet / Coopérative Laitière de Haute Tarentaise

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Generation and Activation of a local network interested in working in Climate Change Adaptation through the AELCLIC-pathfinder project.
- Definition of an internal Work Plan for the implementation of the AELCLIC-pathfinder project in the Haute Tarentaise Multiplier Landscape

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1. INTRODUCTION

We had three very committed participants in the workshop; unfortunately some other people had had to cancel their participation but they promised to come the next workshop, for which we now have a good basis and more people to attend. Anyway, the issues at stake are getting very clear and we are pretty sure a local consortium could support a strong landscape pilot for an eventual Deep Demonstrator!

2. ISSUES PERCEIVED

1. Snow conditions:

The melting of glaciers leads to more random snow conditions. Sometimes the differences in temperature make the snow safer because it is better packed. But between 1000 and 2000m the snow does not hold anymore.

Effect on the landscape:
Terrain: Melting glaciers make slopes more fragile and more susceptible to erosion.

Affected Populations:
Ski resorts are using more and more artificial snow, even undercoat, to be able to ski all season. As soon as the temperatures are sufficiently low (November), the under layer is packed and prepared. This adaptation is as much linked to the temperature change as to the economic context of competition with the resorts in Austria and Italy which also use artificial snow. Haute Tarentaise is considered a privileged landscape because there is still natural snow. Moreover, some winter sports professionals leave regions such as the Pyrenees or the Massif Central to come and continue to work. However, the valley is also more isolated from larger cities and therefore has a more fixed season schedule, compared to other places that can keep stations open longer (or on a more adaptable schedule depending on the snow) knowing that they will still have visitors.
Mountain guides need to adapt to find alternative routes. The falling rocks and landslides make some glaciers too dangerous.
Tourists continue to visit the area but they now come for other reasons and activities than winter sports. They enjoy hot and long summers. Christmas visitors often come with their families and fall back on other

activities if there is no snow, but the tourists who come for New Year, more numerous and more individualistic, are sometimes less accommodating.
The inhabitants recognize the difference between the activities they could do in their childhood (luge) and those practiced by their own children who benefit less from the snow.

2. Drought
The heat lasts longer and longer and heat waves are now almost annual. Long periods of drought hurt vegetation and waterways. The water restrictions put in place by the French government during the heat waves are also felt.

Effect on the landscape:
Springs and streams: Some springs dry up earlier in the year. The temperature of the water has also increased.
Vegetation: The grass dries faster and loses in quality. Affected Populations:
Farmers use stream water to cool the milk but it is sometimes too warm or too low. Producers in the valley who do not have irrigation are in trouble, in addition to water restrictions decided by the government to produce good quality fodder.
The inhabitants recognize the difference between the activities they could do in their childhood (luge) and those practiced by their own children who benefit less from the snow.

3. Transport:
How to take tourists on a mountain holiday with more and more people on the road?
There is a lot of traffic in Bourg Saint Maurice, because the valley forms a funnel which with a large number of ski resorts popular with tourists. It is difficult to build new roads because of mountains and scree. The problem is very complicated and it is not new. In 1992, the Olympic Winter Games organized in Albertville allowed the renovation of infrastructure but it is no longer sufficient.
There are already many tunnels to pass under the mountain but they are not always usable.
The trains also stop in Bourg Saint Maurice but they do not go further so you have to take the car. There is only one train lane so there are no possible crossings. In winter the Eurostar arrives at Bourg Saint Maurice.
On weekends and in summer roads are often blocked. The winter is less problematic since the visitors, once arrived, remain in their station, but the transport infrastructure still suffer from the influx. Accommodation companies offer staggered bookings to relieve traffic on weekends. Out of season, it is the construction companies that clog roads.
Without being a consequence of climate change, these transport and infrastructure problems themselves create more pollution, which encourages global warming. These problems also apply to the dairy cooperative, which has to join several breeding sites by road to collect the milk.

Action Plan: More buses and better transportation options should be offered, especially between the station and the stations. The English are more efficient to get people on the slopes with commuter shuttle systems. Many visitors come from far away but the problem is the French (and Belgians who come by car) who are not necessarily ready to take public transport.

4. Dairy farming
The Beaufort has saved local agriculture, to the point where the region is very dependent on this product and its PDO. If the product is going well, but the challenges, in terms of water quality and mountain pastures, threaten the sustainability of this economy. The importance of livestock for the functioning of the local landscape goes beyond the product itself. The grazed grass holds the snow, which prevents avalanches and what ski resorts appreciate. Some stations rent their land for free during the summer to be used in pastures. At the same time, some breeders work in the resorts during the season to supplement their income. There is therefore a system of exchange between ski resorts and breeders in the region.

For the moment, pastoralists adapt less than they suffer the consequences of climate change. Before, cheese production mobilized the whole landscape (wood for heating, etc.). The small producers used the "montagnettes" (an intermediate stage between valley and alpage) before taking their flocks in communal pastures but it is now more rare.
It becomes impossible to anticipate at the beginning of the season how the season will unfold. Animals are more numerous in summer than in winter because it costs less and they sometimes come from outside. Thanks to cooperatives you can make milk and cheese all year long.
The spirit of the alp and Beaufort is the summer pastures. Summer products are therefore more valued and therefore more sought after and therefore more product but it is based on high quality pastures.
Some owners rent their alp, sometimes more than 600 ha of land including pasture, glacier etc. These owners are mostly local and from the area. In fact, land is passed on as a family rather than by purchase / sale. You cannot build a chalet on it if there are no existing walls so the only value is the alp. They do not necessarily have value for foreigners.

5. Rain and thunderstorms
Participants report an increase in thunderstorms and heavy rains that contrast with periods of drought.

Effect on the landscape:
Terrain: The contrast between drought and heavy rains on very dry ground leads to destabilization of the soil and the creation of ravines.
Infrastructure: Arbonne floods and floods can damage infrastructure. This year, a bridge has been torn off. In Tignes, snow hunts have been requisitioned to rid the city of hail.

6. Change of vegetation
The forests go back higher and encroach on the agricultural parcels, reducing the extent of pastures and cultures. This extension effect of forest cover is also linked to the decreasing number of farmers and small farmers.
In addition, abandoned plots are sometimes covered with an Alder species (*Alnus viridis*), a bushy and colonizing shrub that also threatens the persistence of alpine pastures by reducing pasture area.

3. Towards an Action plan
1. For mountain guides:
Currently no possibility of a coherent and unifying plan, but themselves adapt from year to year to propose new safer hiking routes and to propose other activities to the visitors. Everything is done voluntarily (too much bureaucracy) for the layout of the trails, climbing walls and so on. No existing subsidies.

2. For farmers:
The main issues are water and air. Water should be brought where there is none, perhaps by changing irrigation techniques (canals).
Subsidies exist for all breeders but they do not all benefit in the same way. An action plan would be useful, but it must consider all farmers fairly. Indeed, alpine pastures are fragmented. Some lands are private, others public and each has its own issues. It currently lacks decision-making power with a global point of view. The dairy cooperative (which groups around fifty breeders of all sizes, from 3 to 150 cows) has a key role in the valorisation and marketing of the final product but it is less involved in the operationalization of farms or collaboration with farmers. other stakeholders involved.

4. General notes
The consequences of global warming are not all felt in the same place or in the same way. Some pastures are better than others (depending, for example, on their irrigation system).
The production of electricity by hydraulic dams does not seem to be affected because several dams exist and offset each other. In general, electricity is mostly taken in winter, when drought is less problematic.

Other effects, more anecdotal, were also mentioned such as the wind.
Regarding *Biodiversity*: The flowering of vegetation appears either earlier or later than expected but all years or all places are not equal. Generally, the effects on biodiversity are not necessarily visible to the naked and untrained eye. A positive point: Griffon vultures introduced into the Verdon and Gorges du Tarn then migrated to the region.

Next Workshop: Tuesday, October 22 from 10am to 11.30am at the Coopérative Laitière Haute Tarentaise (ZA Colombières). Rgeistration at https://www.eventbrite.com/e/workshop-country-adaptation-to-change-climate-tickets-76033457117

Summary of major issues

Enjeu	*Impacts paysage*	*Parties concernées*	*Potentiel d'adaptation*	*Enjeux liées*	*Actions envisageables*	
Fonte des glaciers ; insécurité de neige	• Rends les pentes plus fragiles • Chute des pierres • Biodiversité	• Stations de ski • Guides de montagne • Touristes • Habitants	• Neige de culture • Adapter les sentiers et routes d'escalade • Développer autres formes de tourisme	• Compétition avec autres stations de ski • Pâturage pour mieux tenir la neige	Vision du paysage de la Vallée à 2050	• Identifier les intérêts des parties prenantes • Définir des routes réalistes vers le future souhaité • Identifier des financiers potentiels • Division des subventions plus équitable-ment • Etc.
Sècheresse	• Sources et ruisseaux tarissent • L'herbe sèche plus vite • Biodiversité • Abandon des alpages et des montagnettes	• Eleveurs • Habitants • Touristes	• Irrigation • Déplacer les alpages vers la hauteur • Diminuer le nombre de vaches	• Tourisme d'été • Patrimoine culturel		
Augmentation de situations extrêmes météo	• Erosion • Inondation • Déstabilisation des sols • Chute d'arbres	• Habitants • Eleveurs • Touristes	• Bassins de rétention • Mesures d'ingénierie	• Aménage-ment des services techniques		
(non-climat) **Manque de capacité de transport, particulière-ment les weekends en hiver**	• Pollution • Perte de temps • Durabilité	• Habitants • Touristes • Entrepre-neurs • Stations de ski	• Favoriser le transport publique • Améliorer les routes • Adapter l'arrivée et départ des touristes	• Gouvernance • Manque d'investisse-ments		

WP4

South Western Europe

ACTIVITY: Workshop1_HUERTA DE VALENCIA-ALBORAYA_PILOT LANDSCAPE
DATE and TIME: 17.6.2019, 16:00-19:30
PLACE: Valencia (Spain), Las Naves headquarters
ORGANIZERS:

- Lidia García / Las Naves
- Francisco Galiana / Universitat Politècnica de València
- Emilio Servera / Universitat Politècnica de València

PARTICIPANTS:

- Celsa Monrós / Climate-KIC Spain
- Joan Damià / Climate-KIC Spain
- Pilar Martínez / Climate-KIC Spain – AIJU
- María Vallés / Universitat Politècnica de València
- Antonio Lidón / Universitat Politècnica de València
- Raquel Aguilar / Official Association of Agricultural Engineers of Eastern Spain
- Miquel Jordà / Regional Department of Agriculture, Rural Development, Climate Emergency and Ecological Transition
- Miquel Minguet / Horta Viva
- Alba Herrero / Assut Foundation
- Pepe Castro / La Unió de Llauradors i Ramaders (Union of Farmers and Livestock Breeders)
- Andreu Escrivà / València Clima i Energía (Municipal Climate Change Foundation)
- Ángeles Calatayud / Valencian Institute of Agricultural Research (IVIA)
- José Miguel de Paz / Valencian Institute of Agricultural Research (IVIA)

REMOTE PARTICIPANTS (by online form):

- 1 anonymous participant (until 5 July 2019)

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):

- Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC.
- Creation of the local network for the Pilot Landscape Huerta de Valencia-Alboraya.
- Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing.
- Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop.

AGENDA:

1. Welcome and presentation.
2. Introduction to EIT-CLIMATE-KIC Spain (Valencia)
3. Introduction to the AELCLIC project.
4. Potential local climate scenarios.

Coffee break

5. Workshop presentation and organization. Presentation of participants.
6. TEAMWORK
    a. TASK 1: Identification of the Huerta de Valencia-Alboraya core values.
    b. TASK 2: Identification of climate change effects on the Huerta de Valencia-Alboraya landscape.
    c. TASK 3: Brainstorming about possible solutions to the identified effects and barriers.
7. Agenda and workplan proposal for the following Workshop 2.

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1. WELCOME

- Welcoming words by Francisco Galiana (UPV).

2. INTRODUCTION TO EIT-CLIMATE-KIC SPAIN

- Celsa Monrós (EIT Climate-KIC Spain) summarizes the origin, goals and operating methods of EIT Climate-KIC Spain

3. INTRODUCTION TO THE AELCLIC PROJECT

- Francisco Galiana (UPV) summarizes the goals, expected outcomes and structure of the project, as well as the location and reasons for the selection of the Huerta Pilot Landscape. The AELCLIC web page is presented.

CONCLUSIONS:

- The AELCLIC project is presented as a project with a strong focus on the user needs at each of the 16 selected pilot landscapes
- The main objective of the current project is the definition of a series of strong local networks, in order to co-define the structure and content definition for future Landscape Adaptation Plans to Climate Change (LACAP), which would be developed in a future Demonstrator project

4. POTENTIAL LOCAL CLIMATE SCENARIOS

- Emilio Servera (UPV) briefly reviews some existing datasets which already show some observed climate change effects at a regional, national and global level. Global and regional climate change scenarios are then introduced, and the most important expected changes over temperature, rainfall, river flows and sea level rise in the Huerta de Valencia-Alboraya pilot landscape are presented.

CONCLUSIONS:

- Climate change should be considered when deciding which should be the future of the Huerta de Valencia-Alboraya landscape
- The Huerta will be warmer, water availability will be lower and sea level rise is a very important threat which in principle will unfold more slowly
- At this work scale, the potential influence regarding the magnitude of the climate change that will happen in the Huerta is very small, but there is a very strong influence regarding the way we can react to such change.

5. WORKSHOP PRESENTATION AND ORGANIZATION.

- Lidia García (Las Naves) presents the workshop structure and work dynamics.

CONCLUSIONS:

- A single working group was established.
- Stakeholders would work individually, but dialogue and debate between the participants was encouraged.
- Each person will write in sticky notes their contributions to each Task. Notes will be later placed on several flipcharts, divided in several pre-defined areas.

6. PRESENTATION OF PARTICIPANTS.

PARTICIPANT	SECTOR	INSTITUTION
Miquel Jordà	LOCAL/REGIONAL AUTHORITY	Conselleria de Agricultura, Desarrollo Rural, Emergencia Climática y Transición Ecológica (Regional Department of Agriculture, Rural Development, Climate Emergency and Ecological Transition)
Andreu Escrivà	PUBLIC SECTOR	València Clima i Energía (Municipal Climate Change Foundation)
Celsa Monrós	PUBLIC SECTOR	Climate-KIC Spain
Joan Damià	PUBLIC SECTOR	Climate-KIC Spain
Pilar Martínez	PUBLIC SECTOR	Climate-KIC Spain – AIJU
Ángeles Calatayud	RESEARCH	Valencian Institute of Agricultural Research (IVIA)
José Miguel de Paz	RESEARCH	Valencian Institute of Agricultural Research (IVIA)
María Vallés	RESEARCH	Universitat Politècnica de València
Antonio Lidón	RESEARCH	Universitat Politècnica de València
Miquel Minguet	PRIVATE SECTOR	Horta Viva
Raquel Aguilar	SOCIETAL ORGANIZATION	Colegio Oficial de Ingenieros Agrónomos de Levante (Official Association of Agricultural Engineers of Eastern Spain)
Alba Herrero	SOCIETAL ORGANIZATION	Fundació Assut
Pepe Castro	SOCIETAL ORGANIZATION	La Unió de Llauradors i Ramaders (Union of Farmers and Livestock Breeders)
1 remote participant via online form*	UNKNOWN (ANONYMOUS)	

*Remote participation was allowed until 5 July 2019

CONCLUSIONS:

- The constituted local network in Valencia-Alboraya would benefit from an increase in representatives from the local/regional authorities and private sector.
- Some stakeholder groups (i.e. farmers) might be reluctant to take part in workshops.
- Some invited stakeholders couldn't attend because of last minute difficulties and/or prior commitments. Remote participation was encouraged but limited.

6. TEAMWORK

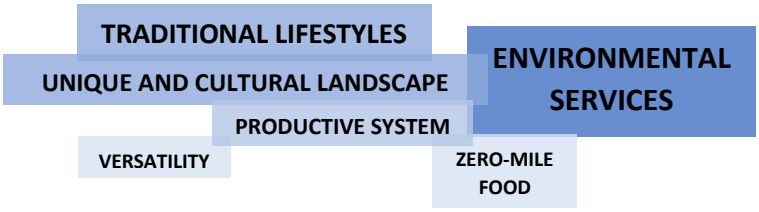
- **Task 1: Which are the values that better represent the Huerta de Valencia-Alboraya?**
  - ENVIRONMENTAL
    - Reduces soil degradation processes (soil fertility and salinity)
    - Carbon sequestration
    - Local market
    - Heat island mitigation
    - Reservoir of biodiversity
    - High agricultural soil suitability
    - Unique crops
    - Biodiversity sink
    - Health (healthy food)
    - Soil conservation (productive capacity)
    - City lungs

- Pollution reduction (zero-mile food)
- Heat island buffering
- Biodiversity
- Buffering from sea level rise impacts (land reserve)
- Crops (despite the loss of cultivars)
- Unique landscape
- Water management (environmental)
- Local knowledge (agroenvironmental). Present and recent past.
- Biggest green belt of a EU city

- SOCIAL
  - Maintenance of lifestyles
  - Environmental education
  - Social pressre
  - Identity
  - Zero-mile food
  - Leisure space (routes)
  - Food sovereignty (zero-mile food)
  - Social relationships
  - Driver of the Valencian economy
  - Linkage to city history and holidays
- CULTURAL
  - Water management (environmental)
  - Local knowledge (agroenvironmental). Present and recent past.
  - Lifestyle
  - Tradition and culture
  - Irrigation system layout. Water use
  - Clear landscape
  - Tradition
  - Valencian people heritage
  - Water infrastructure
  - Cultural landscape
  - Historical memory
  - Natural heritage
  - Ethnological materials
  - Representative of the Huerta
  - Educational (tool)
  - Water infrastructure (own rules)
  - Irrigation systems to be preserved
  - Local production (+ cultural)
  - Cultural origin
  - Traditional wisdom/knowledge systems of many cultures
- ECONOMIC
  - Food sovereignty (zero-mile food)
  - Irrigation systems to be preserved
  - Local production (+ cultural)
  - Job creation
  - Productive activity
  - Local food
  - Unique landscape (strengthen it)
  - Productive Huerta. Unique products
  - Rural/agrarian tourism
  - Job preservation

- Tourist appeal. Diversification
- Economic diversification
- Landscape in good condition (rarely abandoned)
- Main source of income for city
- Food supply

- OTHER
  - Proximity to Valencia
  - Aesthetic value
  - Biodynamic agriculture
  - Food forests
  - Permaculture
  - Ethnobotany
  - Holistic management (Allan Savory)
  - Environmentally sound agricultural practices
  - Local cultivars
  - Animal use
  - Recipes



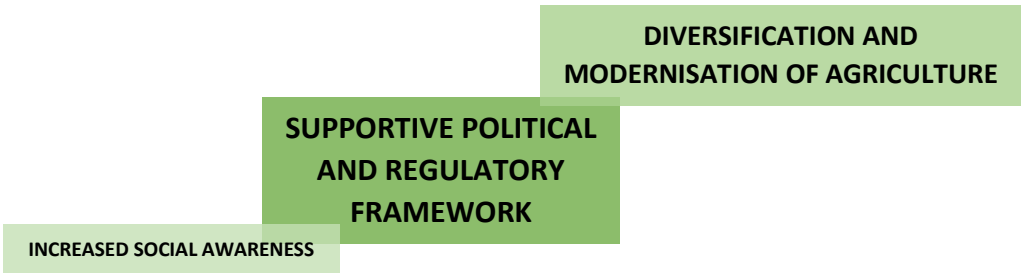
- **Task 2: Which are the Climate Change effects on the Huerta de Valencia- Alboraya?**
  - TEMPERATURE
    - Diversification (agricultural, tourism, gastronomy, cultural)
    - Changes in crop rotations
    - Higher CO_2 emissions
    - Famine
    - Product. Desert. Dry farming.
    - Crop changes
    - Crop and landscape changes
    - New crops
    - Lower yields.
    - Change in cultivars and products
    - New pests
    - Uncertainty in farm income
    - Lack of insurance cover
    - Shorter growing season
    - Pests increase
    - Lower land productivity
    - Higher yields?
    - Need for consumption/production of ultra-processed food
    - Abandonment of agricultural land and farm activities
    - Labor market imbalances
    - Species displacement/disappearance
    - Concentration of production

- Changes in crop cycles
- Agriculture Infrastructures
- Poorer quality diet
- Need for technology
- Species acclimatization and water needs

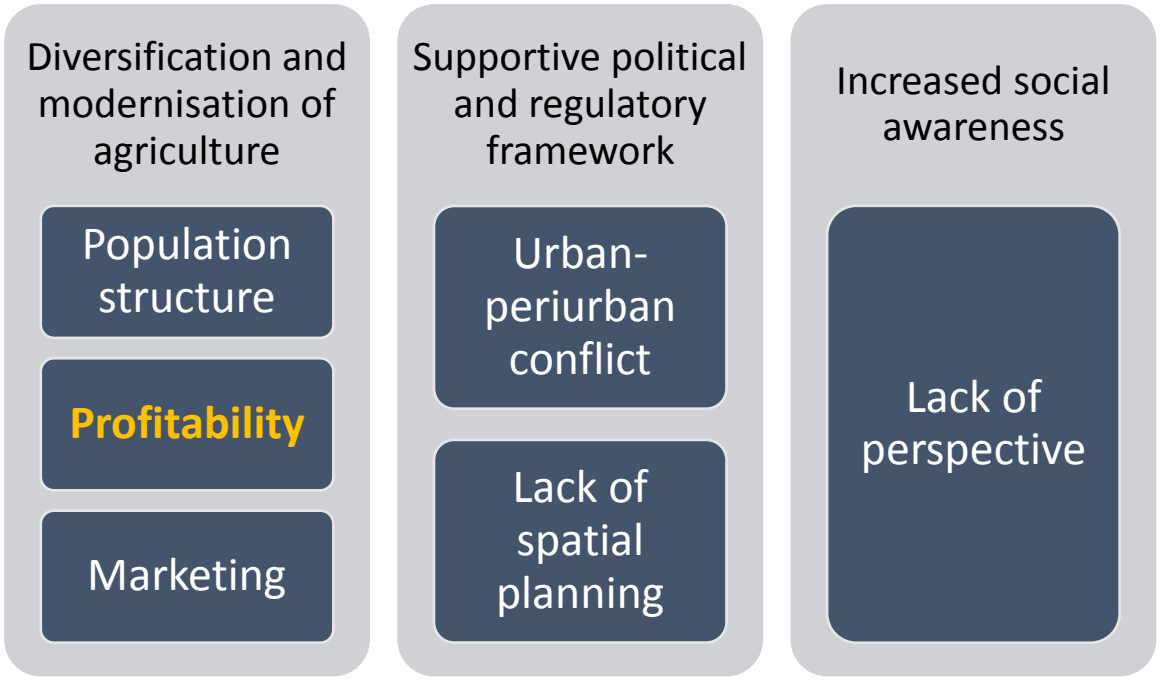
- RAINFALL
  - Labor market imbalances
  - Species displacement/disappearance
  - Concentration of production
  - Changes in crop cycles
  - Agriculture Infrastructures
  - Poorer quality diet
  - Need for technology
  - Higher incidence of pests
  - Crop changes
  - Higher flood risk
  - Loss of crops seasonality
  - Crop displacement
  - Water shortage
  - Replacement of traditional irrigation systems by drip irrigation
  - Changes in irrigation
  - Damage due to intense rainfall over short periods of time
  - Crop protection techniques
  - Higher water requirements
  - Reduction in water resources
  - Increase in salts in the soil
  - Flood. Crop loss
  - City and Huerta redesign
  - Abandoned land erosion due to heavy rainfall
- SEA LEVEL RISE
  - Flood. Crop loss
  - City and Huerta redesign
  - Loss of productive soil
  - Increase in water and soil salinity
  - Increase in salinity
  - New production models
  - Road infrastructures
  - Sea intrusion (middle term)
  - Loss of spaces
  - Total change of the ecosystem
  - Soil degradation
  - Loss of land
- OTHER
  - Increase in social conflicts due to water and resources
  - Increase in social vulnerability
  - Landscape change
  - New infrastructures: levees, desalination plants
  - Loss of safety of agricultural work due to extreme events, provoking crop unreliability and agricultural abandonment

- **Task 3a: Which are the potential answers to the identified Climate Change effects?**
  - TEMPERATURE
    - Adapted varieties
    - New varieties
    - Valuation as carbon sink
    - Stop integrated development plan
    - New crops (cultural loss)
    - Association of farmers
    - Research in new, more adapted varieties
    - Increase in technology and research
    - Training and education
    - Crop diversification (higher biodiversity)
    - Boost for producers: quality seal
    - Diversifying crops
  - RAINFALL
    - Research in new, more adapted varieties
    - Increase in technology and research
    - Training and education
    - Crop diversification (higher biodiversity)
    - Boost for producers: quality seal
    - Diversifying crops
    - Changes in crop cycles
    - More efficient technologies: water, energy
    - Water heritage protection regulations
    - Awareness
    - Desalination
    - Aquifer management
    - Farmer income
    - Bonus
  - SEA LEVEL RISE
    - Farmer income
    - Bonus
    - Preservation of traditional irrigation systems
    - Protective infrastructure
  - HUERTA 0
    - To declare a real climate emergency
    - Zero-mile canteens
    - Local products in tourism/catering
    - Ecological footprint bonus
    - Land and agriculture policies
    - Training and education (nutritional value; climate change and social impacts)
    - Stop urban growth
    - Huerta Law (promotes crop continuity)
    - No more new infrastructures (High speed train / V21 highway expansion)

- Changes in policies (Subsidies for Huerta, taxes for transport and not meeting requirements)
- Agricultural abandonment (no Huerta)
- Partisan, short-term interests
- Preservation as undeveloped land (green spaces)
- Social movement in support of heritage protection
- Valuation of its environmental value



- **Task 3b: Which are the threats or weaknesses which could prevent the implementation of those opportunities for resolution?**
  - TEMPERATURE
    - Conventional markets
    - Age of farmers
    - Land abandonment
    - Small farm size
    - Urban planning
    - Unprofitable
    - Current profitability versus other sectors
  - RAINFALL
    - Current profitability versus other sectors
    - Awareness
    - Lack of awareness of the problem (increase of salinity, decrease of organic matter)
    - High cost
  - SEA LEVEL RISE
    - Suitable technology
  - HUERTA 0
    - Abandonment
    - Land abandonment
    - Lobbies. Lack of political awareness
    - Short term and low ambition policies
    - Pressure from adjacent infrastructures
    - Lack of planning
    - Direct and strong action by public authorities
    - Profitability = sustainability
    - Economic interests
    - Lack of political will
    - Pressure from urban development
    - Pressure from residents who are not supported despite protecting the public interest



7. WORKPLAN, CLOSURE AND NEXT STEPS

- Francisco Galiana (UPV) thanks the participants for their contributions and summarizes the next steps of the Huerta Pilot Landscape workplan.

CONCLUSIONS:

- Workshop 2 will take place in September (baseline date proposal: 16-20 September). It will be focused on co-defining a possible LACAP structure, contents and funding resources. A Doodle poll will be used to schedule the Workshop.
- Workshop 3 will take place in October (baseline date proposal: 21-25 October). It will be organized as an agreement meeting.
- Participants in the workshop can't authorize the inclusion of their organizations in the AELCLIC webpage without requesting permission from organization managers.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - The constituted local network in Valencia-Alboraya would benefit from an increase in representatives from the local/regional authorities and private sector. Some stakeholder groups might be reluctant to take part in workshops. / ACTIONS: Universitat Politècnica de València / Las Naves will try to involve some new stakeholders, i.e. by offering the opportunity to have private interviews in order to explain the project and workplan.
  - Some invited stakeholders couldn't attend because of last minute difficulties and/or prior commitments. / ACTIONS: Universitat Politècnica de València will open an online form to enable to remotely contribute to the workshop to those stakeholders who couldn't attend but might be interested in the project. Open a Doodle Poll to set the preferred possible date and time of the 2nd Workshop.
  - The stakeholders were able to quickly identify a wide variety of landscape values. The provision of environmental services appeared most repeatedly during that task. In relation to the landscape adaptation to climate change, it is worth noting that the identified Huerta versatility could be a key element on which resilience can be built. As the workshop progressed, stakeholders focused strongly on the need to ensure the economic profitability of the agricultural activities in the Huerta. Other identified values or services offered by the pilot landscape were dismissed. / ACTIONS: Universitat Politècnica de València / Las Naves will try to involve some new stakeholders with different interests and perspectives and/or invite experts to the workshops 2 and 3 in order to enrich the discussions.
  - Some potential climate change adaptation actions for the Huerta landscape were themselves identified as the main cause of possible climate change impacts, thus raising the issue of maladaptation risk. The disruption of the link between the people and the landscape productive activity is a possible underlying cause of many of the identified impacts. / ACTIONS: Universitat Politècnica de València will address the risk of maladaptation to climate change within the second workshop. Sustaining the profitability of the productive activities while maintaining the landscape character should also be considered as a key focus area.
  - Many of the detected potential answers to climate change can be integrated within a supportive political and regulatory framework in relation to agriculture, land planning and/or climate change. Other opportunities include the diversification and modernization of agriculture, including elements such as training and education, and an increase in social awareness in relation to the need to mitigate and adapt to climate change, as well as regarding the benefits of zero-mile food. / ACTIONS: Universitat Politècnica de València/Las Naves will analyze the local and regional existing plans and the opportunities for coordination and present the results within the second workshop.
  - The lack of adequate planning and coordination of adaptation actions as well as delayed decision-making were identified as key barriers to achieve a successful adaptation to climate change along with the need to ensure economic profitability. / ACTIONS: Universitat Politècnica de València/Las Naves will analyze the local and regional existing plans and the opportunities for coordination and present the results within the second workshop. Try to involve key decision makers in the local network.
  - WORKSHOP2: Will be scheduled in the middle of September / ACTIONS: Universitat Politècnica de València will open a Doodle Poll to set the preferred possible date and time.

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Creation of the local network for the Pilot Landscape Huerta de Valencia-Alboraya). LEVEL OF ACHIEVEMENT: 3/4
  - OUTCOME 3 (Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing). LEVEL OF ACHIEVEMENT: 4
  - OUTCOME 4 (Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop). LEVEL OF ACHIEVEMENT: 5
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - Due to recent regional and local elections, appointments of authorities are currently under way. The absence of key interlocutors on the administrative side, for the time being, is representing a major challenge.
  - Unforeseen circumstances prevented some stakeholders to attend the workshop.
  - Attendees were not able to confirm the interest of their institutions in being present in the AELCLIC webpage without further approval by their superiors or managers.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Highly participative and knowledgeable stakeholders
  - Clear definition of the expected outcomes
  - Good time planning and subsequent adjustment to the schedule
  - Very useful reference materials from other AELCLIC workshops
  - Adequate selection of workshop location and preparation of materials
- **Learnt lessons and recommendations for similar activities in other places:**
  - Some stakeholders stressed the importance of developing participation activities in locations well-connected in terms of transport, and with adequate parking facilities, in order to make attendance easier or even possible in some cases
  - Even with a coffee break, three and a half hours might be an excessively long duration for this kind of activity. It was decided to try to adjust future activities to a shorter duration.
- **Learnt lessons and recommendations for future activities in the same place:**
  - See previous section.
- **Level of influence of the local characteristics (social, geographical, etc) in the development of the activity:**
  - High. As already mentioned, the discussion focused on the need to ensure the economic profitability of agriculture in the Huerta landscape. Therefore, a very substantial part of the activity was developed around the local circumstances surrounding agricultural activities in the Huerta.

ACTIVITY: Workshop1_RIU BESÒS_PILOT LANDSCAPE
DATE and TIME: 2.10.2019, 16:00-19:00
PLACE: Sant Adrià del Besòs (Spain), Consorci del Besòs headquarters
ORGANIZERS:

- Carme Ribas / Consorci del Besòs
- Carmen Gómez / Consorci del Besòs
- Marc Montlleó/ Barcelona Regional
- Francisco Galiana / Universitat Politècnica de València
- Emilio Servera / Universitat Politècnica de València
- Juanjo Galán / Aalto University

PARTICIPANTS:

- Assela Coll / Ajuntament Sant Adrià de Besòs
- Gloria Viladrich / Ajuntament Sant Adrià de Besòs
- Francesc Bercet / Ajuntament Santa Coloma de Gramanet
- Tomás Carrión / Ajuntament Santa Coloma de Gramanet
- Jordi Català / Ajuntament Montcada i Reixac
- Rafael Argelich / Ajuntament Badalona
- Aurora Lòpez / Ajuntament Barcelona
- Núria Parpal / Diputaciò Barcelona
- Francesc Llimona / Parc Natural Collserola
- Carme Ribas / Consorci Besòs
- Begoña Bellette / Consorci Besòs
- Marc Montlleò / Barcelona Regional
- Gustavo Rodríguez / Barcelona Regional
- Gemma Conde / Barcelona Regional
- Manuel Isnard / Consorci Besòs-Tordera
- Nuria Garcia / Institut Municipal del Paisatge Urbà i la Qualitat de Vida (IMPUQV)
- Xavier Sancho / Barcelona Cicle de l'Áigua (BCASA)
- Cristina Vert / ISGlobal
- Joan de Pablo / Universitat Politècnica de Catalunya
- Juan R. Obon / Endesa
- Marta Hernández / Endesa
- Xavier Larruy / Freelance Biologist
- Roger Hoyos / Plataforma 3 Xemeneies
- Pedro Sánchez / Plataforma 3 Xemeneies
- Robert Vidal / Bosc de Llum
- Manel Gomez / Montcada SOM-RIUS

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):

- Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC.
- Creation of the local network for the Riu Besòs Pilot Landscape.
- Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing.
- Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop.

AGENDA:

1. Welcome and presentation.
2. Introduction to the AELCLIC project.
3. The final stretch of the river Besòs: historical background and future plans
4. Potential climate change impacts in Europe and the Mediterranean
5. Climate change impacts in the Besòs area.

Coffee break

6. Workshop presentation and organization. Presentation of participants.
7. TEAMWORK
    a. TASK 1: Identification of the Besòs river landscape core values.
    b. TASK 2: Identification of climate change effects on the Besòs river landscape.
    c. TASK 3: Brainstorming about possible solutions to the identified effects and barriers.
8. Agenda and workplan proposal for the following Workshop 2.

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1. WELCOME

- Welcoming words by Carme Ribas (Consorci del Besòs).

2. INTRODUCTION TO THE AELCLIC PROJECT

- Juanjo Galán (Aalto University) summarizes via Skype the goals, expected outcomes and structure of the project, as well as the location and reasons for the selection of the Riu Besòs Pilot Landscape. The AELCLIC web page is presented.

CONCLUSIONS:

- The AELCLIC project is presented as a project with a strong focus on the user needs at each of the 16 selected pilot landscapes
- The main objective of the current project is the definition of a series of strong local networks, in order to co-define the structure and content definition for future Landscape Adaptation Plans to Climate Change (LACAP), which would be developed in a future project

3. THE FINAL STRETCH OF THE RIVER BESÒS: HISTORICAL BACKGROUND AND FUTURE PLANS

- Joaquim Calafí and Begoña Bellette (Consorci del Besòs) outline the historical background and future plans for the final stretch of the river Besòs, with a special focus on the River Park and the future development of the coastal area.

CONCLUSIONS:

- The condition of the final stretch of the Besòs river has improved significantly since 1997, due to a joint effort by several concerned administrations
- The Besòs river park has become a key element in the green infrastructure of very densely consolidated urban area, with a heavy public use
- The management plan for the river park is under revision. The development plan for the area surrounding the “3 Xemeneies” (a key industrial heritage landmark in the coastal area) is also currently in progress.

4. POTENTIAL CLIMATE CHANGE IMPACTS IN EUROPE AND THE MEDITERRANEAN

- Emilio Servera (UPV) reviews some existing datasets which already show some observed climate change effects across Europe. Projected future changes are then introduced, with a special focus on the Mediterranean area.

CONCLUSIONS:

- Significant change trends in annual temperature and annual and summer precipitation are already being registered across Europe
- Projected changes are highly dependent on the evolution of greenhouse gas emissions in the future, and could reach up to a 5,5ºC increase in temperature. The

rate and direction of changes in precipitation are highly related to latitude, and could range from a 30% increase in the north of Europe and a 40% decrease in the southern part of the continent.

- The Mediterranean area is considered one of the global hotspots for climate change impacts due to the combination of projected temperature increases and precipitation decrease, among other factors.

5. CLIMATE CHANGE IMPACTS IN THE BESÒS AREA.

- Marc Montlleó (Barcelona Regional) describes the Besòs area, future climate projections and their expected effects in the Besòs area. He also explains the ongoing work in relation to climate change in the area, and the detailed expected effects in two selected areas

CONCLUSIONS:

- The magnitude of climate change in the Besòs area will depend on the mitigation measures taken.
- Highly detailed climate projections have already been developed and show, for instance, that the temperature increase at the end of the century might make the Besòs area climate comparable to that of the South of Spain or North of Africa today.
- Main expected climate change effects in the area include higher temperatures, increase in floods, and lower availability of water resources, all of which have direct and indirect impacts on human health
- The “3 Xemeneies” area will experience higher temperatures, sea level rise, higher risk of river flooding and lower water resources availability.

5. WORKSHOP PRESENTATION AND ORGANIZATION.

- Francisco Galiana (UPV) presents the workshop structure and work dynamics.

CONCLUSIONS:

- A single working group was established.
- Stakeholders would work individually, but dialogue and debate between the participants was encouraged.
- Each person will write in sticky notes their contributions to each Task. Notes will be later placed on several flipcharts, divided in several pre-defined areas.
- Repetition of sticky notes with the same or similar texts by different stakeholders was allowed since it would be used as an indicator of the relevance of the topic.
- Every activity will be developed at two different work scales simultaneously: a broader, more general scale (final stretch of the river Besòs and surroundings) and a more detailed, site scale (focused on the “3 Xemeneies” area)

6. PRESENTATION OF PARTICIPANTS.

PARTICIPANT	SECTOR	INSTITUTION
Assela Coll	LOCAL/REGIONAL AUTHORITY	Ajuntament Sant Adrià de Besòs
Gloria Viladrich	LOCAL/REGIONAL AUTHORITY	Ajuntament Sant Adrià de Besòs
Francesc Bercet	LOCAL/REGIONAL AUTHORITY	Ajuntament Santa Coloma de Gramanet
Tomás Carrión	LOCAL/REGIONAL AUTHORITY	Ajuntament Santa Coloma de Gramanet
Jordi Català	LOCAL/REGIONAL AUTHORITY	Ajuntament Montcada i Reixac
Rafael Argelich	LOCAL/REGIONAL AUTHORITY	Ajuntament Badalona
Aurora Lòpez	LOCAL/REGIONAL AUTHORITY	Ajuntament Barcelona
Núria Parpal	LOCAL/REGIONAL AUTHORITY	Diputaciò Barcelona
Francesc Llimona	LOCAL/REGIONAL AUTHORITY	Parc Natural Collserola
Carme Ribas	PUBLIC SECTOR	Consorci Besòs
Begoña Bellette	PUBLIC SECTOR	Consorci Besòs
Marc Montlleò	PUBLIC SECTOR	Barcelona Regional
Gustavo Rodríguez	PUBLIC SECTOR	Barcelona Regional
Gemma Conde	PUBLIC SECTOR	Barcelona Regional
Manuel Isnard	PUBLIC SECTOR	Consorci Besòs-Tordera
Nuria Garcia	PUBLIC SECTOR	Institut Municipal del Paisatge Urbà i la Qualitat de Vida (IMPUQV)
Xavier Sancho	PUBLIC SECTOR	Barcelona Cicle de l'Áigua (BCASA)
Cristina Vert	RESEARCH	ISGlobal
Joan de Pablo	RESEARCH	Universitat Politècnica de Catalunya
Juan R. Obon	PRIVATE SECTOR	Endesa
Marta Hernández	PRIVATE SECTOR	Endesa
Xavier Larruy	PRIVATE SECTOR	Freelance Biologist
Roger Hoyos	SOCIETAL ORGANIZATION	Plataforma 3 Xemeneies
Pedro Sánchez	SOCIETAL ORGANIZATION	Plataforma 3 Xemeneies
Robert Vidal	SOCIETAL ORGANIZATION	Bosc de Llum
Manel Gomez	SOCIETAL ORGANIZATION	Montcada SOM-RIUS

CONCLUSIONS:

- The local network was established by the Consorci del Besòs (which is a consortium of the municipalities of Barcelona, Sant Adrià de Besòs, Santa Coloma de Gramenet, Montcada i Reixac and Badalona), based on their deep knowledge of the main local stakeholders, previously developed participatory processes, and inputs and examples provided by the UPV.

- The constituted local network in the Besòs landscape was highly comprehensive and knowledgeable, and benefited from a deeply established culture of networking and cooperation which has been the base of the restoration works of the final stretch of the Besòs river.
- The only missing key stakeholders were representatives of the regional government.
- Remote participation was not promoted given the success of the meeting.

6. TEAMWORK

- **Task 1: Which are the values that better represent the Besòs river landscape?**
  BROADER SCALE
  - ENVIRONMENTAL
    - Restoration of water quality (more water, more wildlife)
    - Connectivity among the different metropolitan natural areas
    - Air quality
    - It is the only stopover for migratory aquatic birds between Tordera and Llobregat
    - Fluvial humanised area (urban and canalised river).
    - Water; fluvial landscape
    - Diversity: flora and wildlife
    - River volume
    - Wildlife refuge
    - Biological corridor
    - “Sponge” the territory (decrease density)
    - Ecological corridor
    - Biological corridor
    - Biological corridor
    - Biodiversity
    - Biodiversity increase
    - Water quality. Improved by wetlands action
    - Ecological corridor (in general). Protected area (in particular)
    - Biological corridor
    - Importance of vegetation patches in forests
    - Hydric resources
    - Biodiversity increase
    - Species restoration
  - CULTURAL
    - Mosaic of areas
    - Land structure
    - Central axis
    - Natural environment in a highly urbanised area
    - Improves the landscape and greenery of the suburban environment
    - Canalised river (walls). Different levels
    - Priority area for education which contains Besós Watershed
    - Mediterranean habitat (river)
  - SOCIAL
    - Place of encounter/relationships for an important part of the population
    - Public space, space for leisure
    - Need to improve the coexistence of the social use and the maintenance of wildlife and flora in the river during the year
    - Restoration of the green space for public use

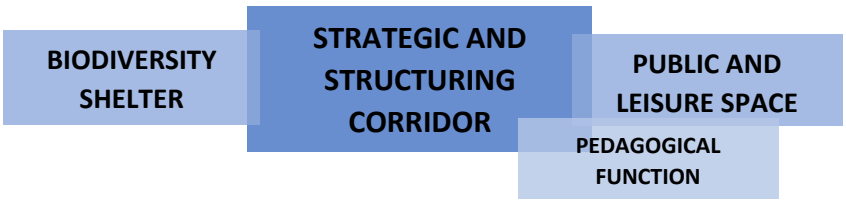
- Place that promotes social interactions (positive for people´s well-being and mental health)
- Iconic open space (general).Affordable housing (particular)
- Plural and inclusive space
- River use as a social success
- Adaptation of river´s edge-greenway (bikes, trekking)
- Urban fabric- social relations
- Highly used public space
- Park, place for leisure
- Educational and scientific space
- Intercultural welcome territory
- Place of encounter
- Fluvial park like sport and health axis

○ ECONOMIC

- Stimulus in the vicinity of the river due to the large number of people and types of activities.
- Central axis
- Industry and tourism
- Neighbours platforms

○ OTHER

- Alert system for fluvial park users
- Place that promotes physical activity (improves health)
- Place to relax
- Potential climatic refuge

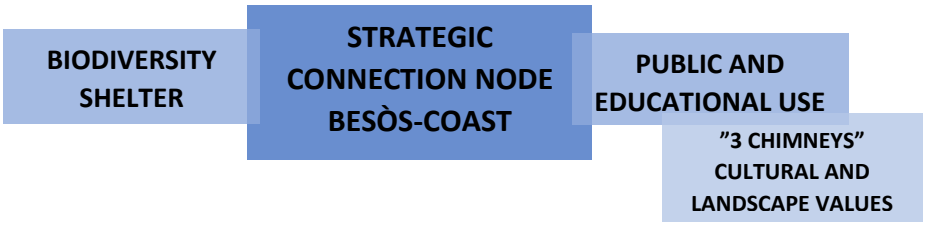


SITE SCALE

○ ENVIRONMENTAL

- Improvement of water quality
- Biological and citizen connectivity (with Collserola, Serra Marina and Vallés)
- Last opportunity to pay tribute to the damaged Besós Delta (Diagonal Mar failed)
- Reserve and refuge areas
- Green corridor
- Coastline, beach and river´s mouth.
- Biodiversity hotspot. River´s mouth-coastline
- High value of the encounter: sea, river, sky. Blue infrastructure.
- Ecosystem
- Preserve biodiversity
- Ecological connectivity-ecological processes
- Biodiversity monitoring
- Sea water intrusion

- CULTURAL
  - Memory of former industrial and energy production 3X
  - Chimneys
  - Preserve quality of this coastline sector
  - 3 chimneys as a landmark
  - Industrial heritage (3 chimneys)
  - Reference site, landmark, skyline, 3 chimneys
  - Value of the beach as public space
- SOCIAL
  - Historic compensation for metropolitan infrastructure (mainly polluted)
  - Recreational use
  - Social connection among municipalities
  - Pedagogy: promote museums
  - Educational activities
  - Environmental education
  - Park: leisure, sport, walking
- ECONOMIC
  - Economic activities (industrial states)
  - Harbour
  - Tourism



- **Task 2: Which are the Climate Change effects on the Besòs river landscape?**

  BROADER SCALE

  - TEMPERATURE
    - Fluvial environment. Less friendly for users. Brings more insolation.
    - Increase of invasive foreign species (tiger mosquito); tropical plants, exotic animals.
    - Need to restore existing buildings (energetic restoration)
    - Heat stroke of users in fluvial park
    - Change of use in squares, streets…
    - Change of use and schedules in fluvial park
    - Highly asphalted streets with few trees = useless streets
    - Heat waves
    - Increase of energy demand
    - Increase of temperature
    - Illnesses and pests
    - Need of shade in fluvial park
    - Pests
    - Decrease of biodiversity
    - Modify biological diversity

- Affects vegetation
- Epidemic, health
- Open space design/ recreational
- Modify diversity
- Population mortality- children´s suffering
- Increase social segregation
- Conditions health
- Increased salinity in the last stretch of the river

- RAINFALL
  - Specially flood risk
  - Disappearance of recovered species by decrease of river flow
  - Urban greenery will be affected – decrease quality
  - Problems for farming recovery
  - Drought. Impact on domestic water
  - Increase of pests: changes in flora and wildlife
  - Flooded areas- affection to infrastructures (railway)
  - Changes in aquatic communities
  - Changes in winter and summer bird life
  - Impact on aquatic wildlife due to extreme droughts
  - Increase of pests
  - Strengthen security plans
  - Decrease flow of rivers which are less dependent on water treatment plants (even dry out)
- FLOOD RISK
  - Damages in the river due to flood
  - Vegetal species not adapted to hydric environment. Flood problems
  - Sea level rise. Coastline erosion
  - Risk for the users of the fluvial park (elevation and so on)
  - Wastewater discharge in the river by overflow of the sewage network
  - Loss of heritage/economic resources
  - Flood risk - activities affection
  - Floods
  - Flood risk
  - May cause landscape degradation- decrease the use of the area (less benefits for people)
  - Damage on infrastructure
  - People security
- SEA LEVEL RISE
  - Decrease use of local coastlinel
  - Modify beaches
- OTHER
  - Risk of forest fire
  - Health problem
  - Mosquito alarm
  - River-surroundings
  - Increase of invasive species, especially vegetation
  - Change in % wastewater purified - natural water. Increase of % wastewater purified, decrease of natural water

WORSENING HEALTH BECAUSE OF HEAT WAVES AND NEW DISEASES

LOSS OF BIODIVERSITY

DECLINE IN PUBLIC USE DUE TO HIGHER EXPOSURE TO RISKS

SITE SCALE

- TEMPERATURE
  - Difficulties to teach in primary and secondary schools due to lack of adaptation of school buildings
  - Social demand of swim use
  - Less attendance in the hottest time of the day
  - Non foreign species
  - Biodiversity loss
  - Very hot summer nights
  - Rainfall
- RAINFALL
  - Aquifer affection
- FLOOD RISK
  - Problems with railway cuttings (Renfe Bridge)
  - More floods on Renfe Bridge and 3 chimneys area
  - Increase of flood frequency and possible overflow
  - Coastline flood potential (3x) by floods and storms
  - Need to control fluvial park adjacent areas
- SEA LEVEL RISE
  - Loss of the coast
  - Beach regression plus floods due to sea storms.
  - Loss of touristic interest
  - Saline intrusion
  - Impact on retaining structures
  - Modify beaches
- OTHER
  - Sea storm
  - Presence of exotic or foreign species
  - Risk of tropical illnesses

SHORELINE RECESSION AND BEACH LOSS

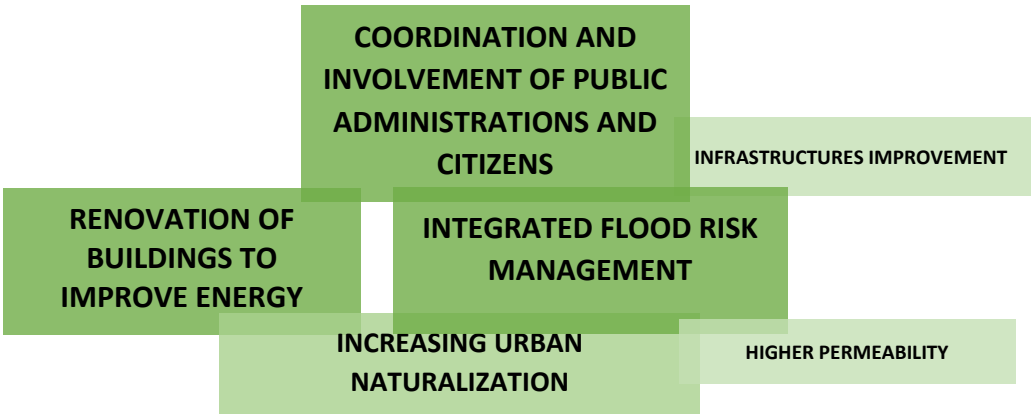
INCREASE IN FLOOD RISK

LOSS OF BIODIVERSITY

- **Task 3a: Which are the potential answers to the identified Climate Change effects?**

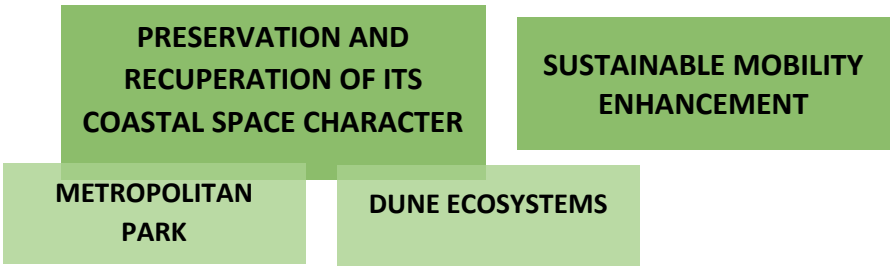
  BROADER SCALE

  - TEMPERATURE
    - More ecological buildings
    - Housing insulation
    - Possibility to recover the role of the river as climatic refuge
    - Climate justice
    - Climate refuge
    - Send awareness raising messages to users in relation to heat strokes
    - Less paved streets, more trees
    - Redesign urban structure/restoration
    - Restore buildings with climate criteria
  - RAINFALL
    - Anti-DSU tanks
    - Divide networks – rainfall tanks- reuse
    - Increase soil permeability
    - Organisational level of the watershed is an opportunity
    - Management of rainwater. Studies to use urban water on green spaces.
  - FLOOD RISK
    - Water retention tanks
    - Creation of flood areas on Besòs River edges (Vallés plain) in order to laminate flood
    - Permeabilize soil
    - Permeability
    - Make watercourse more natural
    - Build rainwater storage tanks
    - Improve the design of urban infrastructure next to the river (it will be better adapted now and in the future.)
    - Increase the capacity of the sewage network
    - Modify railway layout
    - Increase the time to anticipate river floods
  - OTHER
    - Actions to remove foreign species
    - Citizen's involvement
    - Society involvement and collaboration
    - Provide access to the river for an important part of the closest population, so access to greenery
    - Coordination among authorities/institutions
    - In order to reduce forest fires: create landscape
    - Land identity
    - Unity of action among stakeholders
    - Rearrangement of population
    - Reduce car use



SITE SCALE

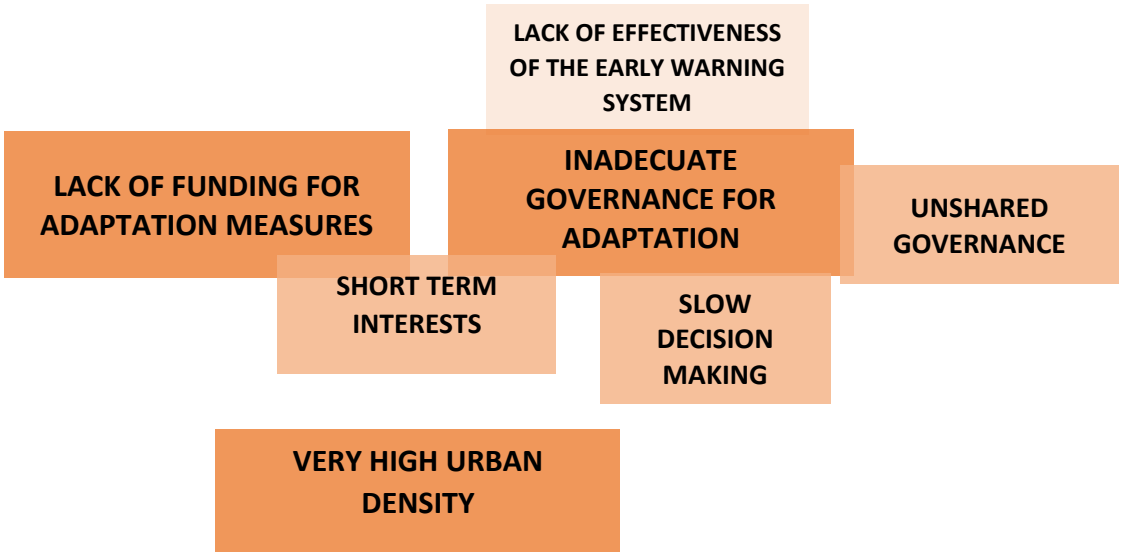
- TEMPERATURE
  - More green area
  - Sustainable buildings
  - Tree plantation
  - Provide shade and fresh areas as refuge for older people and children
- RAINFALL
  - Elevation/Modify railway layout
- FLOOD RISK
  - Increase the capacity of the sewage system/sewer pipe
  - Littoral Park enlarged and floodable
  - New Metropolitan Park on the coastline
- SEA LEVEL RISE
  - Space for dunes in the beach
  - Design a waterfront with climate change criteria
  - Adapt dune landscape
  - Improvement of Llevant sewer pipe as a retaining structure
  - Place for environmental restoration which includes measures of sea level rise adaptation
  - Not to build houses nor hotels on the sea frontline
- OTHER
  - Electrifying infrastructures
  - Large littoral Metropolitan Park ≠ no need of new neighbourhood
  - Sustainable mobility
  - Creation of tracks for sustainable mobility
  - Space revaluation



- **Task 3b: Which are the threats or weaknesses which could prevent the implementation of those opportunities for resolution?**

BROADER SCALE

- TEMPERATURE
  - Household income comstraint (restoration)
  - Users ignore warnings
  - Budget, obtain economical resources
  - Funding
  - Budget €
- RAINFALL
  - Administrative normative terms
  - Funding and willingness
  - Lack of €
  - Economic difficulties of dwellers
- FLOOD RISK
  - Space that is increasingly being urbanised (permeability)
  - Too many infrastructures in the watershed
  - Too many false warnings informing about alarms
  - Little budget prioritization in applying actions to increase sewage networks
  - Lack of budget (concern) in applying urbanistic changes
  - Tq/Flood. Population shift
- OTHER
  - Slowness in decision making
  - Lack of politic support
  - Need of public investment
  - Economic concerns prevail when building Besós edges (walls out)
  - Lack of focus in Besós of supramunicipal authorities
  - Private interests prevail over public interests
  - Short term policies and politicians without vocation
  - Lack of economic resources
  - Increase of foreign species is faster than its removal
  - Problems of feeding
  - Scarce capacity for shared governance
  - Highly consolidated urban fabric – adaptation problems
  - High population density
  - Strong rapid change in our lifestyle (consumption and mobility model)



SITE SCALE

- RAINFALL
  - Economic willingness
- FLOOD RISK
  - Property speculation
  - Lack of politica willingness
  - Funding
- SEA LEVEL RISE
  - Bureaucracy
  - Llevant sewer pipe. Difficulties in collaborating and funding
  - Littoral speculation
  - Economic interests

7. WORKPLAN, CLOSURE AND NEXT STEPS

- Francisco Galiana (UPV) thanks the participants for their contributions and summarizes the next steps of the Pilot Landscape workplan. Two possible dates for Workshop 2 are proposed.
- Carme Ribas (Consorci del Besòs) thanks the participants for their contributions

CONCLUSIONS:

- It is agreed by the local network that Workshop 2 will take place in October 30th. It will be focused on co-defining a possible LACAP structure, contents and funding resources.
- Many participants in the workshop authorize the inclusion of their organizations in the AELCLIC webpage.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - The constituted Besòs local network is very comprehensive and knowledgeable. It was not possible to involve representatives from the regional government in the workshop, but they apparently have not been involved in any previous participatory processes in the area. / ACTIONS: Consorci del Besòs will send a letter of appreciation to all guests.
  - The organization of the Workshop by Consorci del Besòs was exemplary. The main local stakeholders were contacted and invited well in advance. UPV received the list of confirmed attendants before the meeting. The Workshop took place in excellent facilities, and the Consorci also organized and sponsored the catering service for the coffee break. / ACTIONS: Consorci del Besòs will take a similar role regarding the 2nd Workshop
  - The contributions of the representatives from Consorci del Besòs and Barcelona Regional during the first part of the workshop were highly valuable. They made excellent presentations that showed the great work that they have been doing in the pilot landscape for years, which must be considered as the starting point for any further work. They also submitted later to the Universitat Politècnica de València the climate change plans already adopted in the area via e-mail. / ACTIONS: UPV will consider all the information provided in order to integrate it into the presentations in the Workshop 2. The agenda for that Workshop will be agreed with Consorci del Besòs and Barcelona Regional, so they will be able to decide in which way they want to contribute (if any) to the following Workshop.
  - There were many similarities regarding the main landscape values identified by the stakeholders at both work scales. The broader area and the 3 chimneys site were both considered as strategic locations within the metropolitan surroundings, with important connectivity functions at different levels. Both working areas present educational and pedagogical values and are important as biodiversity refuges / ACTIONS: Universitat Politècnica de València will consider the identified values in relation to the preparation of Workshop 2 presentations.
  - More differences arose between both levels of detail while discussing potential climate change impacts. While at the general scale the main focus was on health impacts and their public use implications, there were concerns on the site scale regarding its own potential disappearance due to the receding coastline. Impacts on biodiversity were commonly identified at both working scales. / ACTIONS: Universitat Politècnica de València will consider the main identified impacts in relation to the preparation of Workshop 2 presentations.
  - Many of the detected potential answers to the identified climate change threats were therefore different between both working scales. The identified potential answers can be, in each case, related to the character of the area: a green corridor in an urban environment, on the broader scale, and the coastal character of the 3 chimneys site. A nature-based approach to climate change adaptation could also be found underlying at both levels of detail. / ACTIONS: Universitat Politècnica de València will analyze the options in which the identified potential answers could be integrated within a LACAP and present the results during the second workshop.
  - The lack of funding and competition over land use were the main threats or barriers identified for successful climate change adaptation in the area. The lack of adequate governance and some related issues were also present, mainly on the broader scale. / ACTIONS: Universitat Politècnica de València will analyze the potential ways in

which a LACAP could help to overcome the identified barriers, and present the results within the second workshop.

- Several stakeholders confirmed their interest in being included in the AELCLIC web as part of the Riu Besòs Local Network. / ACTIONS: Universitat Politècnica de València will provide the AELCLIC web administrator with their contact details in order to include the local network structure in the AELCLIC web.
- A press release was prepared by the Consorci del Besòs after the workshop and uploaded into their web page (https://consorcibesos.cat/el-consorci-del-besos-col-labora-en-lorganitzacio-dunes-sessions-de-treball-sobre-ladaptacio-dels-paisatges-europeus-al-canvi-climatic-en-el-marc-del-projecte-europeu-aelcl/) / ACTIONS: Universitat Politècnica de València will circulate the press release and include it in further reports regarding the societal impact of the project.
- WORKSHOP2: Scheduled in October 30th / ACTIONS: Universitat Politècnica de València will prepare the pertinent invitation and agenda drafts, and Consorci del Besòs will review and circulate them to the local network.

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Creation of the local network for the Pilot Landscape Riu Besòs). LEVEL OF ACHIEVEMENT: 4
  - OUTCOME 3 (Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 4 (Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop). LEVEL OF ACHIEVEMENT: 5
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - The absence of representatives from the regional government was the only shortcoming in the creation of the local network.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Excellent work by the Consorci del Besòs in setting up the local network, inviting them to take part in the workshop, and every other organizational task prior, during and after the workshop.
  - Highly participative and knowledgeable stakeholders. Very high level of expertise and interest on the matter, which led to a fruitful discussion during the teamwork.
  - Great presentations by Consorci del Besòs and Barcelona Regional, which set the tone for the teamwork.
  - Good preparation of materials by Aalto University and UPV
  - Clear definition of the expected outcomes
  - Good time planning and subsequent adjustment to the schedule
  - Very useful reference materials from other AELCLIC workshops
  - Excellent facilities, which made also possible the involvement of Aalto University via Skype.
- **Learnt lessons and recommendations for similar activities in other places:**
  - Working with local counterparts with the experience, knowledge and resources needed to take the lead and excel in the organization of this kind of activity maximizes the success and return of the workshop
  - Invitations to the workshop were sent more than 3 weeks in advance of the date, followed by telephone contact. The high level of attendance achieved was possible only because the organisational tasks started with such a wide time range prior to the event, and telephone contact was developed subsequently.
  - Developing a workshop with a local network which already has a culture and experience of participatory work, and which have been working together for a long time, is also a key ingredient for success.
  - Knowing beforehand the attendance list allowed for preparing and presenting materials suited to the level and interests of the audience.
  - Keeping the workshop duration at 3 hours is still considered as the best option after this experience.
- **Learnt lessons and recommendations for future activities in the same place:**
  - See previous section.
- **Level of influence of the local characteristics (social, geographical, etc) in the development of the activity:**
  - High. As already mentioned, the level of involvement and expertise showed by the leading members of the local network, and the experience and culture of

participatory work of the attendants, was key in the successful development of the activity.

ACTIVITY: Workshop1_LA MATA-TORREVIEJA_PILOT LANDSCAPE
DATE and TIME: 25.9.2019, 16:00-19:00
PLACE: Torrevieja (Spain), "Virgen del Carmen" Culture Centre
ORGANIZERS:

- Carmen Gómez / Torrevieja City Council
- Juan Antonio Pujol / Torrevieja City Council
- Francisco Galiana / Universitat Politècnica de València
- Emilio Servera / Universitat Politècnica de València

PARTICIPANTS:

- Carmen Gómez / Torrevieja City Council
- Víctor M. Costa / Orihuela City Council
- José Rubio / Torrevieja City Council
- Carmen Morate / Torrevieja City Council
- Jesús Sánchez / Empresa Mixta Aguas del Arco Mediterráneo, S.A. (AGAMED)
- Angel Gilí / Acciona Servicios Urbanos
- Manuel J. Pérez / Actúa, Servicios y Medio Ambiente
- Delfina Giménez / Criterio Verde
- Beatriz Almalcha / Torrevieja Pesca Tradicional
- Adrián Canales / Ocio Mar Torrevieja
- Vicente Manuel Martinez / Odisea Diving Torrevieja Sub C.B
- Concepción Torres / SWS

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):

- Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC.
- Creation of the local network for the Torrevieja Pilot Landscape
- Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing.
- Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop.
- Co-identification and co-designation of the pilot landscape area

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AGENDA:

1. Welcome and presentation.
2. Introduction to the AELCLIC project.
3. Potential local climate scenarios.

Coffee break

4. Workshop presentation and organization. Presentation of participants.
5. TEAMWORK
    a. TASK 1: Identification of the Torrevieja Landscape core values.
    b. TASK 2: Identification of climate change effects on the Torrevieja Landscape.
    c. TASK 3: Brainstorming about possible solutions to the identified effects and barriers.
6. Agenda and workplan proposal for the following Workshop 2. Co-identification and co-designation of the pilot landscape area.

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1. WELCOME

- Welcoming words by Carmen Gómez (Torrevieja City Council)

2. INTRODUCTION TO THE AELCLIC PROJECT

- Francisco Galiana (UPV) summarizes the goals, expected outcomes and structure of the project, as well as the location and reasons for the selection of the Torrevieja Pilot Landscape. The AELCLIC web page is presented.

CONCLUSIONS:

- The AELCLIC project is presented as a project with a strong focus on the user needs at each of the 16 selected pilot landscapes
- The main objective of the current project is the definition of a series of strong local networks, in order to co-define the structure and content definition for future Landscape Adaptation Plans to Climate Change (LACAP), which would be developed in a future Demonstrator project

3. POTENTIAL LOCAL CLIMATE SCENARIOS

- Emilio Servera (UPV) briefly reviews some existing datasets which already show some observed climate change effects at a regional, national and global level. Global and regional climate change scenarios are then introduced, and the most important expected changes over temperature, rainfall, flood risk and sea level rise in the Torrevieja pilot landscape are presented.

CONCLUSIONS:

- Climate change effects are already noticeable in Torrevieja
- Climate change should be considered when deciding which should be the future of the Torrevieja landscape
- Torrevieja will be warmer and drier, but flood risk will increase. Very important changes in the landscape will be caused by sea level rise which in principle will unfold more slowly
- At this work scale, the potential influence regarding the magnitude of the climate change that will happen in Torrevieja is very small. However, a local network can be key in establishing the way that the adaptation requirements to such changes are accomplished.

4. WORKSHOP PRESENTATION AND ORGANIZATION.

- Francisco Galiana (UPV) presents the workshop structure and work dynamics.

CONCLUSIONS:

- A single working group was established.
- Stakeholders would work individually, but dialogue and debate between the participants was encouraged.
- Each person will write in sticky notes their contributions to each Task. Notes will be later placed on several flipcharts, divided in several pre-defined areas.
- Repetition of sticky notes with the same or similar texts by different stakeholders was allowed since it would be used as an indicator of the relevance of the topic.

5. PRESENTATION OF PARTICIPANTS.

PARTICIPANT	SECTOR	INSTITUTION
Carmen Gómez	LOCAL/REGIONAL AUTHORITY	Ajuntamiento Torrevieja
Victor M. Costa	LOCAL/REGIONAL AUTHORITY	Ajuntament Orihuela
José Rubio	LOCAL/REGIONAL AUTHORITY	Ajuntamiento Torrevieja
Carmen Morate	SOCIETAL ORGANIZATION	Ajuntamiento Torrevieja
Jesús Sánchez	PRIVATE SECTOR	Empresa Mixta Aguas del Arco Mediterráneo, S.A. (AGAMED)
Angel Gilí	PRIVATE SECTOR	Acciona Servicios Urbanos
Manuel J. Pérez	PRIVATE SECTOR	Actúa, Servicios y Medio Ambiente
Delfina Giménez	PRIVATE SECTOR	Criterio Verde
Beatriz Almalcha	PRIVATE SECTOR	Torrevieja Pesca Tradicional
Adrián Canales	PRIVATE SECTOR	Ocio Mar Torrevieja
Vicente Manuel Martinez	PRIVATE SECTOR	Odisea Diving Torrevieja Sub C.B
Concepción Torres	PRIVATE SECTOR	SWS

CONCLUSIONS:

- The local network was established by the Torrevieja City Council, based on inputs and examples provided by the UPV regarding the type of stakeholders to be convened
- The constituted local network in Torrevieja showed a strong presence of the private sector but would benefit from an increase in representatives from regional authorities (particularly, from the “Lagunas de La Mata y Torrevieja” Natural Park), the research sector and societal organizations.
- A key private actor (the operating company in the salt mines) was invited but did not take part in the workshop.
- 4 attendants from the private sector left during the coffee break. 3 of them explained that the aim of their companies was the development of tourist activities in the sea, and therefore felt that they were not able to contribute to the workshop
- Remote participation was not promoted based on the limited success of the previous experience in the Huerta Pilot Landscape.

6. TEAMWORK

- **Task 1: Which are the values that better represent the landscape of La Mata-Torrevieja?**
  - ENVIRONMENTAL
    - Fauna biodiversity.
    - Coastal areas biodiversity
    - Sand dunes
    - Coves of Torrevieja (Alfredo Nobel)
    - Natural Park of Las Salinas y Laguna de la Mata
    - Lagoons of Natural Park of Las Salinas y Laguna de la Mata
    - Natural Park. Water Mill.
    - Bank ecotones of the Natural Park Lagoons
    - The salt mines at the lagoons

- SOCIAL
  - Fishing
  - Boardwalk
  - Boardwalk (Juan Aparicio)
  - Yacht clubs
  - Eras de la Sal
  - The weather
  - Boardwalks and urban areas architectural values
  - Urban fabric of the urban area
  - Urban residential areas
  - Tourism
- CULTURAL
  - Sea-sports
  - Marine fishing
  - Historic quay area
  - Vineyard agricultural area
  - Old railway track. Green Way
- ECONOMIC
  - Salt mines
  - Beaches
  - Beaches
  - Beaches
  - Tourism
  - Beach Tourist Development
- OTHER
  - The mud baths in the lagoons
  - The city as a homogeneous metropolitan area body

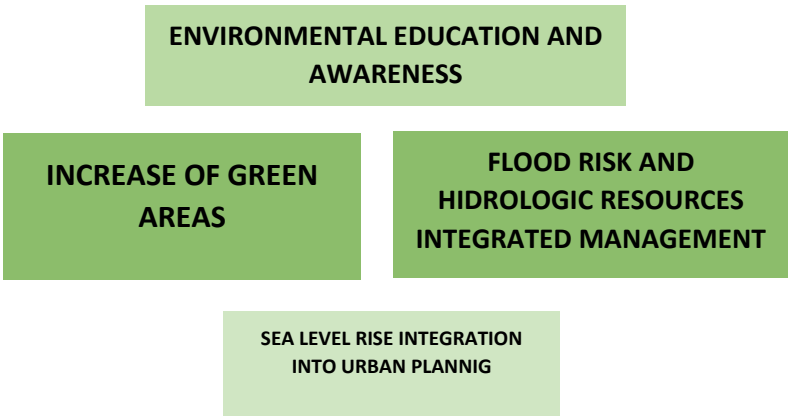
- **Task 2: Which are the Climate Change effects on the La Mata-Torrevieja Landscape?**
  - TEMPERATURE
    - Abnormal behavior of plant species
    - Plant species disorder
    - Flora and wildlife species extinction in the Natural Park
    - Bird behavior changes
    - Modification of marine wildlife (increase of higher water temperature species)
    - Urban vegetation change and lower cover percentage
    - Increase of diseases and discomfort due to the presence of insects
    - Tourism affection due to increased hours with excessive heat (decrease in good hours)
    - Higher energy consumption
    - Higher temperature / higher electricity consumption / increase of CO_2 emissions

- Increased tourism season in summer (positive)

- RAINFALL
  - Plant species disorder
  - Increase of diseases and discomfort due to the presence of insects
  - Flora and wildlife species extinction in the Natural Park
  - Increase in water consumption due a negative maintenance
  - Urban vegetation change and lower cover percentage
  - Lower use of rainwater
- FLOOD RISK
  - Negative image of the municipality due to the effects of the "gota fría" (cold drop / cold front)
  - Economic losses due to floods
  - Disappearance of beaches due to sand loss
- SEA LEVEL RISE
  - Disappearance of beaches due to sand loss
  - Danger of disappearance of the flora and wildlife of the lagoons
  - Posidonia seagrass beds poor health
  - Need to consider new urban planning
- FOREST FIRE RISK
- OTHER
  - Urban life disruption

- **Task 3a: Which are the potential answers to the identified Climate Change effects?**
  - TEMPERATURE
    - Increase in green areas
    - Creation of urban green lungs
    - Increase in street trees and green areas
    - Tree planting
    - Excuse to develop a different city
  - RAINFALL
    - Increase in climate adapted green areas
    - Use of water
  - FLOOD RISK
    - Facilitating water flows
    - Measures in flood risk areas
    - Storm water runoff systems
    - Rainwater network
    - Water retention tanks
    - Rainwater storage system rethinking

        - Sidewalks elevation
        - Wetlands restoration
    - SEA LEVEL RISE
        - Modification of the coastline
    - FOREST FIRE RIKS
    - OTHER
        - Stop the building industry
        - Environmental education
        - New society more aware of climate change



- **Task 3b: Which are the threats or weaknesses which could prevent the implementation of those opportunities for resolution?**
    - TEMPERATURE
        - Outdated urban planning
        - Funds increase
        - A global problem (overall)
    - RAINFALL
        - Need for measures in beaches
        - Cost increase
        - Large investments and infrastructure
    - FLOOD RISK
        - High expenses
        - High urban density
    - SEA LEVEL RISE
        - Economic losses
        - High investment
    - FOREST FIRE RISK
    - OTHER
        - Lack of social awareness
        - Economic interests
        - Private interests
        - Disregard the problem
        - Citizen mindset
        - Raise awareness (use of plastics, meat consumption, recycling)

NEED FOR HIGH INVESTMENTS

LACK OF SOCIAL AWARENESS

7. WORKPLAN, CLOSURE AND NEXT STEPS

- It was agreed by the stakeholders to focus the work in a particular area from the waterfront of La Mata Beach to the protected area of the Lagunas de la Mata and Torrevieja, with some mixed density urban areas in the middle. It was decided that the Pilot Landscape would therefore be named as "La Mata – Torrevieja"
- Francisco Galiana (UPV) thanks the participants for their contributions and summarizes the next steps of the La Mata - Torrevieja Pilot Landscape workplan.

CONCLUSIONS:

- The local network decided, within a range of possible dates, that Workshop 2 will take place on October 23rd. It will be focused on co-defining a possible LACAP structure, contents and funding resources.
- Most of the participants in the workshop authorized the inclusion of their organizations in the AELCLIC webpage.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - The constituted local network in La Mata-Torrevieja has a strong presence from the private sector but would benefit from an increase in representatives from the regional authorities (particularly, from the natural park), research sector civil groups. The presence of a missing key representative from the private sector (the operating company in the salt mines) would be positive too. / ACTIONS: Torrevieja City Council / Universitat Politècnica de València will try to involve some new stakeholders, and to encourage some invited stakeholders that did not attend to be present in the 2nd Workshop.
  - The Torrevieja City Council played a key role in the organization of the Workshop by identifying and inviting the main local stakeholders. The Workshop took place in well suited local facilities, and the Council also organized and sponsored the catering service for the coffee break. / ACTIONS: Torrevieja City Council will take a similar role regarding the 2nd Workshop
  - The stakeholders were able to identify diverse landscape values, which were focused around the coastal area and the "Lagunas de la Mata y Torrevieja" Natural Park. / ACTIONS: Universitat Politècnica de València will analyze the main regulations and plans affecting those areas and the activities taking place there. The conclusions of such analysis will be presented during Workshop 2, in order to achieve a better alignment of the LACAP with the current agendas. Expert involvement from the city council might be considered too for some of the topics.
  - The rise in temperatures and sea level were considered as the main potential causes of impacts in the pilot landscape. Several links were identified between climate change and the values previously identified. It was also made clear that urban life and tourism, which is the main economic activity in the city, will be affected by climate change. A potential positive impact was identified in this regard, since one of the stakeholders pointed out that longer summers can lead to a longer tourism season. Some other stakeholders argued that, on the other hand, most owners of second homes in the municipality don't spend summer in Torrevieja, since it becomes too hot for them, and therefore could spend less time in the city if summer length continues increasing. / ACTIONS: Universitat Politècnica de València will focus on those key areas while presenting the current climate change regulatory and planning framework during the second Workshop.
  - Most of the potential answers to the identified climate change impacts could be related to city greening schemes, flood management, and other actions which can be incorporated into urban planning. Increasing the current levels of environmental education and awareness was also considered a key cross-cutting action. / ACTIONS: Universitat Politècnica de València will provide further information during the second workshop regarding those key opportunities to address climate change adaptation and some possible ways in which they could be integrated within a LACAP.
  - The need for major investments was considered the main barrier for climate change adaptation actions. / ACTIONS: A specific activity will be developed by Universitat Politècnica de València during the second workshop in order to identify key missing stakeholders which could provide additional funding for the development of adaptation actions in the pilot landscape.
  - Several stakeholders confirmed their interest in being included in the AELCLIC web as part of the Torrevieja Local Network. / ACTIONS: Universitat Politècnica de València

will provide the AELCLIC web administrator with their contact details in order to include the local network structure in the AELCLIC web.

- A draft press release was prepared by UPV and circulated by the Torrevieja City Council regarding the beginning of the AELCLIC work in Torrevieja. This led to the workshop being announced in local and regional media (e.g. https://www.elperiodic.com/torrevieja/frente-costero-torrevieja-elegido-como-paisajes-piloto-representativos-suroeste-europa_639882) and also to the presence in the workshop of a journalist from the local weekly newspaper "Vista Alegre" / ACTIONS: Universitat Politècnica de València will cooperate with the journalist in order to review and edit the AELCLIC story for the local weekly newspaper.
- A detailed pilot area was defined within the workshop and named as "La Mata-Torrevieja" / ACTIONS: Universitat Politècnica de València will take into account the suggested area and name, and make arrangements to include it in the AELCLIC web.
- WORKSHOP2: Scheduled well in advance on October 23rd, what should encourage attendance / ACTIONS: Torrevieja City Council will book the same room and invite and provide the appropriate details to the stakeholders.

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Creation of the local network for the Torrevieja Pilot Landscape). LEVEL OF ACHIEVEMENT: 3
  - OUTCOME 3 (Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing). LEVEL OF ACHIEVEMENT: 4
  - OUTCOME 4 (Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 5(Co-identification and co-designation of the pilot landscape area). LEVEL OF ACHIEVEMENT: 5
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - The workshop date was decided just 2 weeks in advance, and the invitations were sent later by the city council.
  - Some key stakeholders, e.g. representatives from the Natural Park and the operating company in the salt mines, did not attend the workshop.
  - Some attendants from the private sector left during the coffee break.
  - The list of invited and confirmed stakeholders was asked but not received before the workshop, and therefore the activity had to be planned without knowing in detail the profile of the attendants
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Deep involvement by the Torrevieja City Council in setting up the local network and inviting them to take part in the workshop.
  - Highly participative stakeholders with deep knowledge of the local landscape.
  - Clear definition of the expected outcomes
  - Good time planning based on the experience obtained during the Workshop 1 in the Huerta de Valencia-Alboraya pilot landscape
  - Very useful reference materials from other AELCLIC workshops
  - Adequate workshop location and preparation of materials
  - Very good public dissemination of results, including the Universitat Politècnica de València contribution to a positive article (http://vistaalegretorrevieja.com/?p=7036) in the "Vista Alegre" local weekly newspaper, which could also be found in the printed version (https://issuu.com/vistaalegretorrevieja/docs/va_3134/14) which is freely distributed in the municipality
- **Learnt lessons and recommendations for similar activities in other places:**
  - It was decided after the Huerta Workshop 1 to reduce the duration of following workshops from 3,5 hours to 3 hours. Workshop 1 in Torrevieja was already planned as a 3 hours long activity. This change is positively assessed, and 3 hours is therefore considered as the preferred option for the rest of the workshops since it enables a better engagement by the participants.
  - The coffee break was scheduled after the presentations by the speakers, and right before the beginning of the teamwork. This is considered a good option, when feasible, since the coffee break can be used as an ice breaker activity where the workshop facilitators can begin the dialogue with the participants during an informal activity.
  - Some stakeholders left during the coffee break alleging that they didn't feel able to contribute to the teamwork activities in the workshop due to their professional

background. This stressed the importance of knowing in advance the assistants' profile, in order to develop customized presentations during the first part of the workshop which are adapted and appealing to the whole range of assistants.
    - Invitations should be sent if possible further in advance, in order to ease the attendance to the workshop
- **Learnt lessons and recommendations for future activities in the same place:**
    - See previous section.
- **Level of influence of the local characteristics (social, geographical, etc) in the development of the activity:**
    - High. As already mentioned, the stakeholders were knowledgeable about the municipality details, and therefore the discussion focused on key elements such as flood risk management and the climate change potential impacts on the tourist activity from a very local perspective.

ACTIVITY: Workshop2_PARC NATURAL DE L´ALT PIRINEU_PILOT LANDSCAPE
DATE and TIME: 31.10.2019, 09:00-15:00
PLACE: Llavorsí (Lleida, Spain)
ORGANIZERS:

- Marc Garriga Lujan / Director of Parc Natural de l'Alt Pirineu (Territory and Sustainability Department, Catalunya Government)
- Francisco Galiana / Universitat Politècnica de València
- Emilio Servera / Universitat Politècnica de València

PARTICIPANTS:

- Marc Garriga Lujan / Alt Pirineu Natural Park
- Ramon Baulina / Observatori Meteorológic de Pallars
- Araceli Colomé Abrié / Municipality of Lladorre
- Cristina Simó / Ecomuseu Valls d' Àneu
- Lluis Pla / Meteopirineu
- Cristofol Cuadras / MeteoValldameu
- Raquel Conill Artigas / Universitat Autònoma de Barcelona
- Ramón Pérez Obiel / Universitat Autònoma de Barcelona
- Bernat Baylina / FGC Esport i Port Ainé
- Miquel Prat Sagalés / Sant Joan de L´Erm
- Jaume Comas Ballester / Volunteer
- Jesús Martín Martín / Lo Pi Negre (NGO)
- José Angel López López / Alt Pirineu Park Natural Volunteer (Geologist)

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):

- Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing.
- Discussing the potential role of the AELCLIC Project in the adaptation of the Parc Natural de l'Alt Pirineu (PNAP) landscape to Climate Change.
- Definition of key actions or contents that should be included in a Parc Natural de L´Alt Pirineu Landscape Adaptation Plan to Climate Change (LACAP)
- Identification of main stakeholders and available resources towards the development of a Parc Natural de L´Alt Pirineu LACAP.

AGENDA:

1. Welcome and presentation
2. Introduction to the AELCLIC project
3. Potential local climate scenarios.
4. Workshop presentation and organization. Presentation of Participants
5. TEAMWORK SESSION 1
    a. TASK 1: Identification of the Parc Natural de L´Alt Pirineu core values.
    b. TASK 2: Identification of climate change effects on the Parc Natural de L´Alt Pirineu landscape.
    c. TASK 3: Brainstorming about possible solutions to the identified effects and barriers.

    Coffee break.
6. Parc Natural de L´Alt Pirineu climate change adaptation planning framework
7. Objectives and Contents of a Climate Change Adaptation Plan.

8. TEAMWORK SESSION 2
    a. TASK 1: Identification of the role of the AELCLIC Project in the adaptation of the Parc Natural de L´Alt Pirineu landscape
    b. TASK 2: Identification of main contents and actions within a Parc Natural de L´Alt Pirineu LACAP.
    c. TASK 3: Identification of main actors and resources towards the development of a Parc Natural de L´Alt Pirineu LACAP
9. Acknowledgment and closing remarks.

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1. WELCOME

- Welcoming words and introduction by Marc Garriga Lujan (Director of Parc Natural de l'Alt Pirineu)

2. INTRODUCTION TO THE AELCLIC PROJECT

- Francisco Galiana (UPV) summarizes the goals, expected outcomes, and structure of the project, as well as the location and reasons for the selection of the Parc Natural de L´Alt Pirineu Pilot Landscape. The AELCLIC web page is presented.

CONCLUSIONS:

- The AELCLIC project is presented as a project with a strong focus on the user needs at each of the 16 selected pilot landscapes
- The main objective of the current project is the definition of a series of strong local networks, in order to co-define the structure and content definition for future Landscape Adaptation Plans to Climate Change (LACAP), which would be developed in a future project.
- The participation of the PNAP in the AELCLIC-PATHFINDER project, and therefore the development of the current workshop, was approved by the Natural Park Governing Board on its regular meeting which took place on October 4th 2019.

3. POTENTIAL LOCAL CLIMATE SCENARIOS

- Emilio Servera (UPV) briefly reviews some existing datasets, which already show some observed climate change effects in the Pyrenees and the Natural Park. Global and regional climate change scenarios are then introduced, and the most important expected changes over temperature, rainfall, snow depth, snow water equivalent and flood risk in the Parc Natural de L´Alt Pirineu pilot landscape are presented.

CONCLUSIONS:

- Climate change effects are already significant in the Pyrenees, in general, and the Natural Park, in particular.
- The PNAP will be warmer and snow will reduce. Flood risk will increase but the change magnitude is not significant. The rainfall regime will change too.
- Those expected changes should be considered in deciding the future of the Natural Park.
- At this work scale, the potential influence regarding the magnitude of the climate change that will happen in the Parc Natural de L´Alt Pirineu is very small. However, starting to work on adaptation on a local/regional level can be key regarding the way such change is answered.

4. WORKSHOP PRESENTATION AND ORGANIZATION.

- Francisco Galiana (UPV) presents the workshop structure and work dynamics.

CONCLUSIONS:

- A single working group was established.
- Stakeholders would work individually, but dialogue and debate between the participants was encouraged.
- Each person will write in sticky notes their contributions to each Task. Notes would be later placed on several large paper sheets, divided in several pre-defined areas.
- Repetition of sticky notes with the same or similar texts by different stakeholders was allowed since it would be used as an indicator of the relevance of the topic.
- Potential key stakeholders could be identified in the Task 2 even if they were not present at the workshop.
- The large paper sheets were placed on a wide cork wall, which made it possible to keep them visible simultaneously during both teamwork sessions.
- This workshop included most of the activities which were developed in two different workshops in the rest of the pilot landscapes of the Work Package 4 of the AELCLIC Project due to the reasons explained in the Workshop 1 report.
- The main parts of a potential plan (diagnosis, actions, monitoring, etc…) were written in the flipchart to help to organize the discussion around the main LACAP contents. The part in which every input was allocated is also explicitly mentioned in this report.

5. PRESENTATION OF PARTICIPANTS.

PARTICIPANT	SECTOR	INSTITUTION
Marc Garriga	LOCAL/REGIONAL AUTHORITY	Parc Natural de l'Alt Pirineu
Araceli Colomé	LOCAL/REGIONAL AUTHORITY	Ajuntament de Lladorre
Cristina Simó	PUBLIC SECTOR	Ecomuseu Valls d' Àneu
Raquel Cunill	RESEARCH	Universitat Autònoma de Barcelona
Ramón Pérez	RESEARCH	Universitat Autònoma de Barcelona
Bernat Baylina	PRIVATE SECTOR	FGC Espot i Port Ainé
Miquel Prat	PRIVATE SECTOR	Sant Joan de l' Erm
Jesús Martín	SOCIETAL ORGANIZATION	Lo Pi Negre Associació Ambientalista
José Angel López	SOCIETAL ORGANIZATION	Volunteer at Parc Natural de l'Alt Pirineu
Lluis Pla	SOCIETAL ORGANIZATION	Meteopirineu
Cristòfor Cuadras	SOCIETAL ORGANIZATION	Meteo Valls d'Àneu
Ramón Baylina	SOCIETAL ORGANIZATION	
Jaume Comas	SOCIETAL ORGANIZATION	

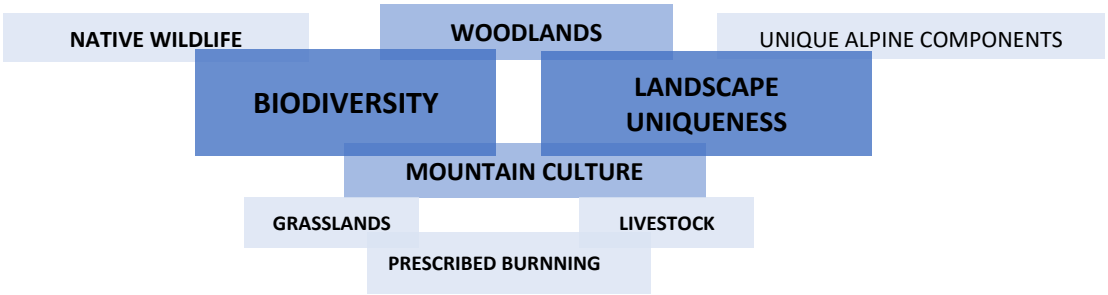
CONCLUSIONS:

- The local network was again contacted and invited, as in Workshop 1, by the Director of Parc Natural de l'Alt Pirineu (Territory and Sustainability Department, Catalunya Government)
- The composition of the local network changed from Workshop 1 because, as already mentioned in the relevant report, the Governing Board who acted as local network for the activation of the pilot landscape won't meet again until next year. The Natural Park Director, based on inputs by the UPV, invited for this workshop a local network more suited to the objectives of the activity, including private sector representatives (tourism and other leisure activities) and local specialists with a high level of knowledge regarding the area, the activities that take place there, and relevant local issues. There is also presence from the research sector, and therefore the local network is considered as highly appropriate, balanced and knowledgeable.
- Remote participation was not allowed since the workshop took place in a very late date, due to the specific approval process of the participation in the AELCLIC project of this pilot landscape, and therefore there was no additional available time.

5. TEAMWORK SESSION 1

- **Task 1: Which are the values that better represent the landscape of Parc Natural de L´Alt Pirineu?**
  - ENVIRONMENTAL
    - Biodiversity due to climatic differences
    - Vegetation cover diversity both in altitude and latitude (climate conditions)
    - Pyrenean wildlife and flora endemisms
    - Black pine (*Pinus uncinata*) woods
    - Black pine forests
    - Birch forests
    - Large silver fir populations of the southern Pyrenees
    - Large areas of woodland never seen before showing sustained growth
    - Species, population and natural systems conservation
    - Wild fruits
    - Glacial lakes
    - Rock glaciers
    - Streams
    - Boxwood
    - Native wildlife
    - Bearded vulture
    - Grouse
    - Brown bear
    - Muskrat of the Pyrenees
  - SOCIAL
    - Quality of Pyrenean rural life
    - Culture of fire (Prescribed burning)
    - Protected local livestock breeds
  - CULTURAL- PAISAJÍSTICA
    - Culture of fire management
    - Dynamic millenary cultural landscape
    - Ancestral symbiosis between man and the environment
    - Historically manmade mountain landscape

        - Mosaic landscape of forest, pastures and thickets
        - Landscape well marked by the seasons
    - ECONOMIC
        - Glacial lakes
        - Forest policy
        - The uniqueness of the forests is a growing attraction highly valued by visitors.
        - Economic changes caused by external factors (misrepresentation of isolation)
        - Adventure activities in rivers and ravines
        - Hiking
        - Snow tourism awareness
        - High economic value of the landscape
    - OTHER
        - Balance between human economic activity and natural values
        - Rural tracks and roads

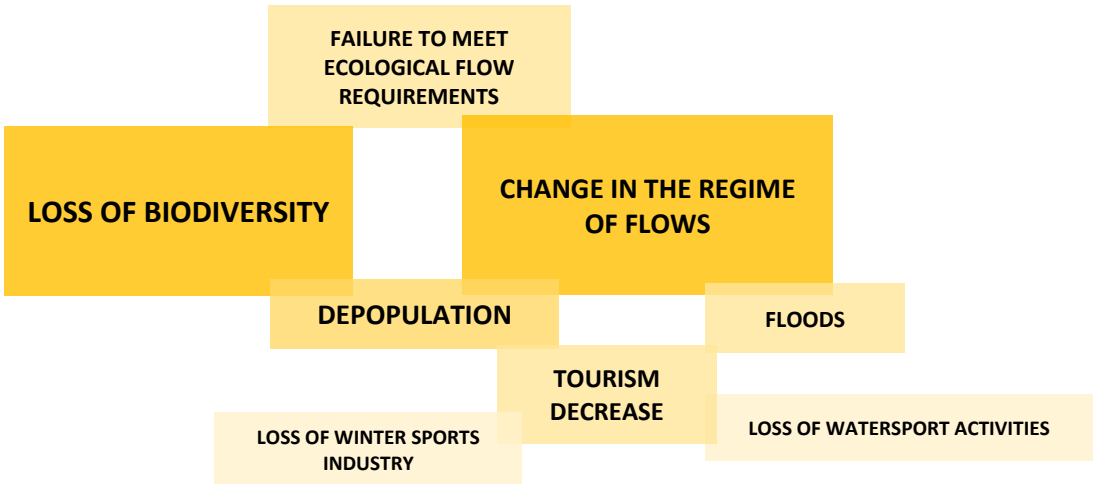


- **Task 2: Which are the Climate Change effects on the landscape of the Parc Natural de L´Alt Pirineu?**
    - TEMPERATURE
        - Change in the diversity of plant and animal species
        - Invasive plants
        - Loss of ecosystems
        - Extinction of sensitive species
        - Disappearance or depletion in the most sensitive animal populations
        - Wildlife retreat
        - Increase of forest pests, especially pine processionary
        - Change in the behavior of insects, their function as a principal source of feed for other species (pine processionary)
        - Pests impacts at a higher altitude (pine processionary and other)
        - Displacement of unique species to higher areas
        - Displacement of forest and non-forest altitudinal clines
        - Pastures increase and anticipation
        - Polluted water in high altitude glacial lakes (because of the southern winds)
        - Temperature increase in river water
        - Risk of catastrophic Wildfires
        - Snowmaking at ski resorts
        - Severe impacts in the tourism sector
        - Impacts on high-altitude hiking (excessive heat)
        - Avalanches increase
        - Changes in food production such as mushrooms, berries and orchards
        - Increase in the number of visitors due to the temperature increase

- RAINFALL
  - Increase in erosion and landslides as a result of changes in vegetation cover
  - Impacts on pasture areas
  - Impacts due to the increase in vegetation cover (lack of forest extraction)
  - Changes in food production such as mushrooms, berries and orchards
  - Failure to comply with the ecological flows due to excessive use of water
  - Death of aquatic species as a result of the decrease in flows
  - Impacts on whitewater activities (decrease and irregularity of flows)
  - Lack of water in the villages and water pollution

- FLOOD RISK
  - Floods
  - Increase in flood risk
  - Immediate landscape changes (even faster than wildfires)
  - Rafting and water sports

- SNOW DEPTH DECLINE
  - Total loss of snow cover
  - Winter Sports Industry instability
  - Ski areas
  - End of skiing
  - Loss of ski resorts
  - Change of the snow tourism system
  - Decrease in snow season length
  - Loss of glaciers
  - Not enough water flow for river sports at August (snowmelt)
  - Difficulty of hydroelectric production (snowmelt)
- OTHER
  - Paradoxical population increase
  - Human depopulation
  - Forest revaluation
  - Snow revaluation
  - Changes in cultural paradigms
  - Strong winds



Task 3a: Which are the potential answers to the identified Climate Change effects?

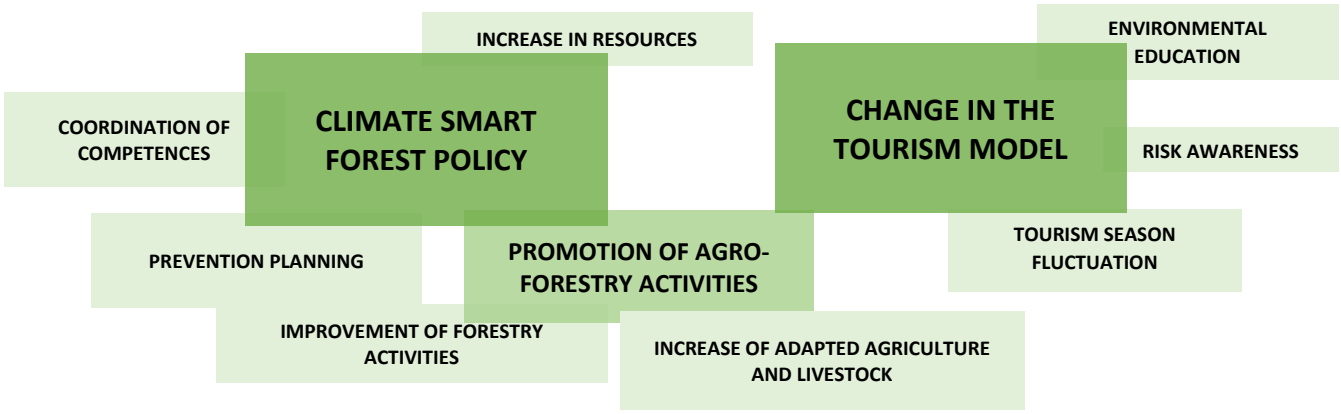
- TEMPERATURE
  - Forestry activities improvement
  - Need for changes in forest policy
  - Agreed forest policy in order to facing threats (invasive species, fires, economic exploitation, avalanches, floods,)
  - Coordination of authorities competences based on common objectives
  - Alternative plans from ski resorts and administration
  - Opportunity to plan and anticipate
  - Burning plans
  - Changes in the agricultural model. Promotion of agriculture in abandoned grasslands. Subsidies and advice
  - No solution: leave it to nature

- RAINFALL
  - Lengthening of the summer season
  - Lengthening of mountain grassland season.
  - Lengthening of the tourism season (hiking)
  - Shades on the streets and squares of the villages

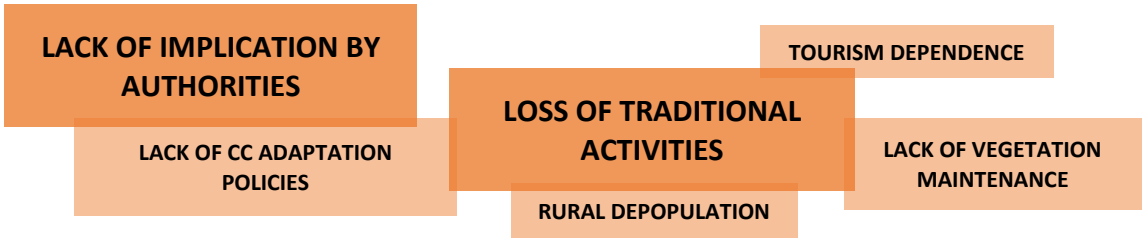
- FLOOD RISK
  - Landslides due to the lack of retaining walls and embankments
  - Tourist awareness, risk warning

- SNOW DEPTH DECLINE
  - Rural repopulation
  - Involvement of local population
  - Environmental education
  - Change of the tourism industry in the Pyrenees (mild temperatures in winter)
  - Forget tourism. The Pyrenees will have to be recovered as a priority agriculture and livestock area

- OTHERS
  - Improvement of grassland irrigation systems. Water saving
  - Increase of agricultural areas: orchards, vineyards, etc.
  - Herds of goats. Forest underbrush clearing.
  - Municipally-owned herds
  - To recover the most adapted sheep and goat breeds
  - Electric transportation promotion
  - Increase in renewable energy
  - To obtain economic resources for conservation purposes
  - R&D investment. Opting for proximity tourism (lower CO2 emissions)



- **Task 3b: Which are the threats or weaknesses that could prevent the implementation of those opportunities for resolution?**
  - TEMPERATURE
    - Lack of government support
    - Greater involvement by ACA (Catalan Water Agency) and CHE (Ebro River Basin Authority) in the area
    - Greater involvement of EU organisms in adaptation policies and reducing climate change impacts
    - National and regional centralist policies
    - Not really a priority objective of the political class
    - Trying to conserve the primary forest can be a threat to the ecosystem
    - Capitalist system
  - RAINFALL
    - Plans and protocols regarding floods, and defining risks
  - FLOOD RISK
  - SNOW DEPTH DECLINE
  - OTHERS
    - Depopulation. Lack of human activity in the forest
    - Rural depopulation
    - High dependence on tourism
    - Overcrowded tourist destination in peak times
    - Lack of environmental awareness by people and politicians (Education)
    - Lack of awareness of the local population ("change is far away from here")
    - Decrease in livestock activity over time
    - Loss of traditional activities (primary sector)
    - Exploitation of natural resources. Mining operations, wind energy, hydro energy
    - Irreversible climate change (change of tourism model of ski resorts)
    - Lack of cleaning in the riverbed, riverine forests
    - Excessive forest undergrowth
    - Overpopulation of invasive-alien species
    - Park fire risk prevention plan



6. PARC NATURAL DE L´ALT PIRINEU CLIMATE CHANGE ADAPTATION PLANNING FRAMEWORK

- Emilio Servera (UPV) presents the main plans and strategies related to climate change that should be taken into account for the development of a PNAP LACAP.

CONCLUSIONS:

- At the national level, there is a National Adaption to Climate Change Plan, in force since 2006. Several works and reports developed in the frame of this national plan are relevant to the pilot landscape, e.g. in relation to adaptation in the winter sports sector, biodiversity or extensive farming.
- Some available funding opportunities at a national level for adaptation to climate change are also presented.
- The structure of the regional climate change strategy is reviewed. Its and main linkages and synergies to the potential LACAP are presented.
- The regional climate change law is also quickly analyzed. It includes relevant sections such as the need to update protected areas plans in order to include adaptation to climate change.
- At a regional level, other current plans such as the PATIVEL (Coastal Green Infrastructure Regional Plan) also take climate change into account, and should be considered in the development of a LACAP.
- At the local level, there are some climate plans approved or in the drafting stage.
- The Natural Park already considers climate change adaptation within its biodiversity monitoring plan. The PNAP doesn't have any management plan yet.

7. OBJECTIVES AND CONTENTS OF A CLIMATE CHANGE ADAPTATION LANDSCAPE PLAN.

- Emilio Servera (UPV) summarizes the goals, expected outcomes and structure of a climate change adaptation plan

CONCLUSIONS:

- The definition of adaptation measures to climate change in Parc Natural de L´Alt Pirineu can be developed at different working scales and from different perspectives
- Defining those measures through a plan would allow to improve and monitor their effectiveness and a better integration with existing programs and plans
- A consortium approach is a good option for developing and executing adaptation plans

8. TEAMWORK SESSION 2

- **Task 1: How could the AELCLIC Project contribute towards the adaptation of the PNAP landscape to Climate Change?**
    - Coordination among every landscape. Communication?

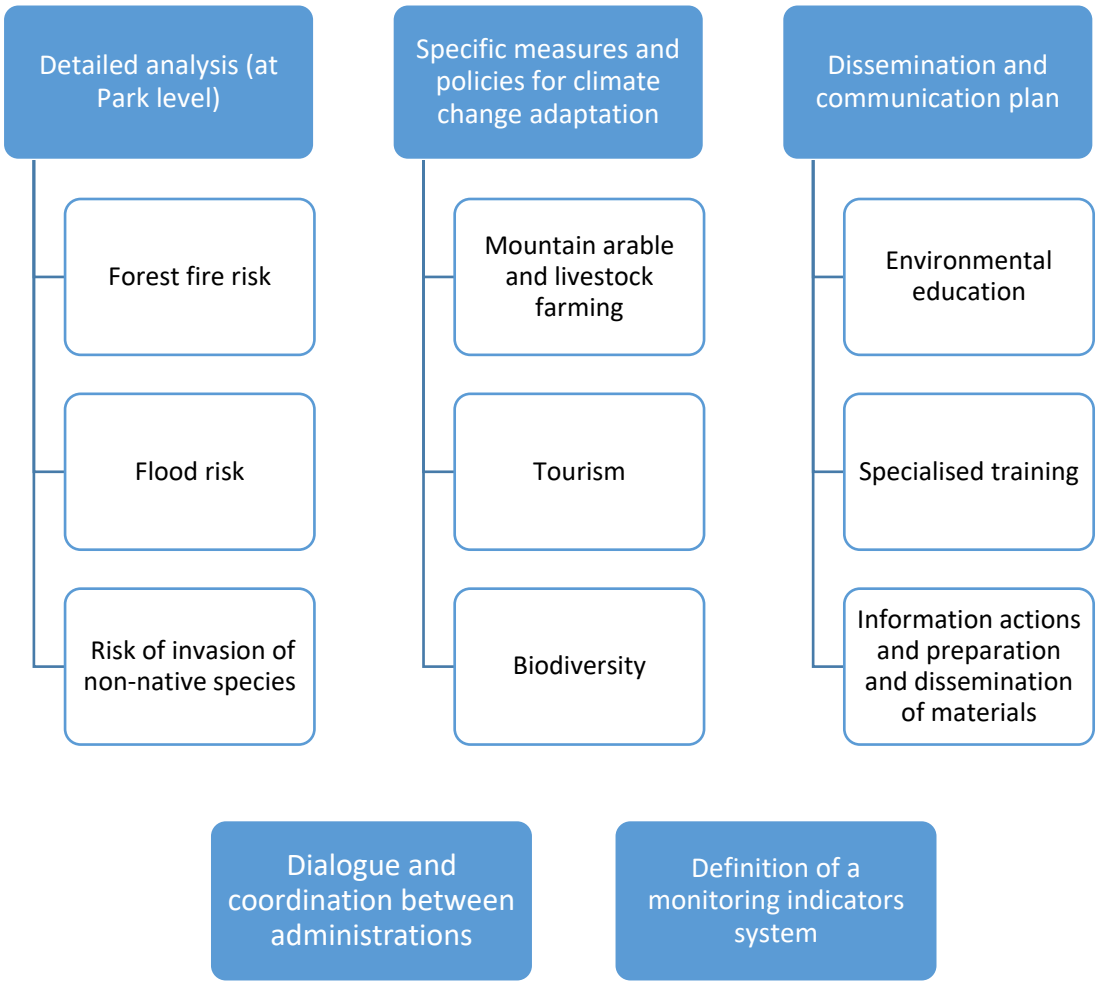
- **Task 2: Which actions should be included in the Landscape Adaption Plan of the Pilot Landscape in order to achieve its intended objectives?**

    - DETAILED ANALYSIS/DIAGNOSIS
        - Good synthesis of every study at the park scale
        - Inventory of what might disappear
        - Hidrologic risks Identification. Floods
        - Fire risk zoning.
        - Diagnosis of key attack points in case of forest fire
        - Assessment of risk zones of invasion of alien species
        - Flood risk mapping in inhabited areas (impacts on infrastructures)
        - Better understanding of the climate in the park and its assessment on a local scale
        - Gathering scientifically robust empirical data on the evolution of climate in the PNAP
        - Project at county escale
        - Fire prevention in fir forests

    - PLAN ACTIONS
        - Mapping of high value agricultural areas which shouldn't be developable
        - Coordination of climate change and global change (socio-cultural)
        - Dialogue with the political class. To pursue commitments
        - Optimization of tourism management.
        - Better control on human impact
        - Changes in livestock management. New livestock policies (goats)
        - Climate adaptation policies in other recreational and agricultural activities
        - Mapping of specific special areas and their risks (glaciers, wetlands)
        - Impacts on the unique species of the NP

    - RESULTS COMMUNICATION AND DISSEMINATION
        - Share results (Schools, town halls, agricultural cooperatives, civil society, Hospitality / tourism)
        - Environmental education on the consequences of climate change in the Pyrenees
        - Environmental education. Project Explanation
        - Environmental education and interpretation (permanent education for the whole population
        - Business training, brigades, teaching
        - Publication of demonstrative adaptation and mitigation actions and dissemination through seminars

    - MONITORING AND ASSESSMENT
        - Permanent assessment of every action



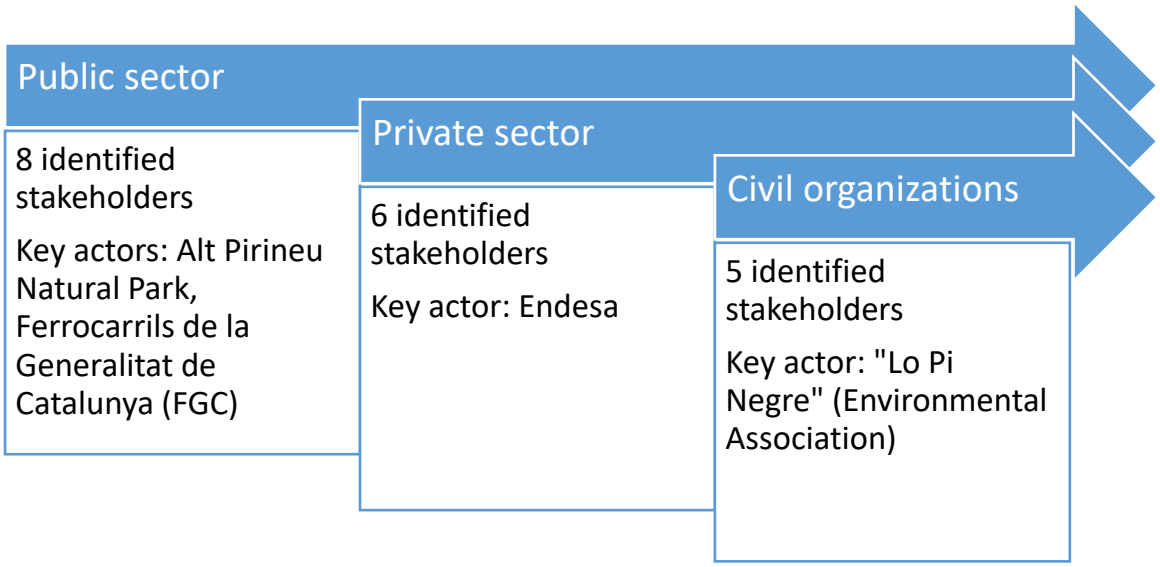
- **Task 3: Evaluation of potential levels of stakeholder involvement**

  - PUBLIC SECTOR
    - Parc Natural de L´Alt Pirineu / Generalitat (own budgets and outsourcing if territorial support is reached)
    - Regional Government of Catalonia. New resources from 2021 from the vehicle CO2 tax for "climate change and biodiversity actions"
    - National Park
    - Lleida Provincial Council
    - County Council
    - Railways of the Government of Catalonia (skiing resort infrastructures)
    - GRAMP-UAB. Research Group in Mountain and Landscape Areas - Autonomous University of Barcelona (Contribution of scientific data on the evolution of climate and plant landscape).
    - Local councils
    - La Caixa Foundation
    - IDAPA. Institute for the development and promotion of l'Alt Pirineu i Arán. Department of Territory and sustainability. Government of Catalonia.

- ACA. Catalan Water Agency. Government of Catalonia
- CHE. Ebro River Basin Authority. Spanish Government.

- PRIVATE SECTOR
  - ENDESA
  - Logging enterprises association
  - Catering Association
  - Sort Lottery Administration.
  - Adventure sports companies
  - Baqueira Beret ski resort

- CIVIL ORGANIZATIONS
  - Catalonia La Pedrera Foundation
  - Lo Pi Negre (NGO, environmental association of Pallares Sobirà)
  - Catalan Fishing and Casting Federation
  - Catalan Hunting Federation
  - Nature Conservation Network



9. ACKNOWLEDGMENT AND CLOSING REMARKS

- Francisco Galiana (UPV) thanks the participants for their contributions and summarizes the workshop results.

CONCLUSIONS:

- The local network will be notified when the workshops reports are available on the AELCLIC webpage
- Some participants in the workshop authorized adding their organizations to the PNAP local network in the AELCLIC webpage.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - The inclusion of the Alt Pirineu Natural Park landscape in the AELCLIC project required the previous approval by the Governing Body of the Natural Park, as previously explained in the Workshop1 report. This workshop, according to the workplan selected by the PNAP Governing Board in the Workshop1 of this Pilot Landscape, bundled tasks pertaining to the Workshops 1 and 2, in the other pilot landscapes of the AELCLIC WP4, or in Workshops 2 and 3, in other Work Packages of the AELCLIC Project. / ACTIONS: The timing and methodology of the tasks was adjusted by UPV in order to be able to develop all of them in a single morning. Results from all those activities are compiled in this report.
  - The organization of the Workshop by the Parc Natural de l'Alt Pirineu was again excellent. Contacts with local stakeholders and other invited experts were successful even if the available time to organize the workshop was much shorter than with the First Workshop (less than one month in advance). There were constant contacts with the UPV during the organizational phase in order to agree a program for the session. The UPV was also informed at different points as the list of confirmed attendants was being filled. The Workshop took place again in the same excellent facilities in the pilot landscape as Workshop 1 (local social welfare centre in Llavorsí, kindly made available by the local council). The PNAP also sponsored some tea/coffee, drinks and excellent local sweets for the attendants coffee-break. / ACTIONS: UPV thanked the Parc Natural de l'Alt Pirineu Director and staff for their essential role in the development of the activities in the pilot landscape.
  - The Parc Natural de l'Alt Pirineu local network was very comprehensive and knowledgeable through both morning workshop sessions. The stakeholders showed especially very high interest at the initial presentations. For instance, during the slideshows regarding "Potential local climate scenarios", questions were constantly raised, leading to a very constructive debate around the need for more detailed data, given the significant climate differences among the different PNAP areas. Even if the number of stakeholders was not too high, they were able to successfully develop the main tasks, providing a wide perspective to adaptation to climate change in the area. / ACTIONS: UPV thanked the attendants for their intense work during the morning, and the Parc Natural de l'Alt Pirineu Director for successfully achieving a more diverse network, with balanced representation between all the main relevant sectors.
  - Several stakeholders confirmed their interest in being included in the AELCLIC web as part of the Parc Natural de l'Alt Pirineu Local Network. / ACTIONS: Universitat Politècnica de València will provide the AELCLIC web administrator with their contact details in order to include the local network structure in the AELCLIC web.
  - Landscape singularity and high biodiversity were at the center of the wide variety of landscape values identified by the stakeholders. The existence of a mountain culture and the importance of woodlands in the landscape were also highlighted. The presence of agro-forestry activities increases the importance of preserving resources such as livestock and grasslands, which are essential to the character of the pilot landscape. It is remarkable that all these values were also considered as the potential basis for the development of new economic opportunities based on the landscape. / ACTIONS: Any future LACAP should take into account not only the climate change impacts in the natural values, but also the socio-cultural values which are directly linked to the local population and their economic activities.

- The main potential identified climate change impacts focused on losing the high biodiversity value and the risk of changes in the regime of flows, and the subsequent cascading impacts, from depopulation to the tourism activities. There is a high uncertainty in relation to the winter sports industry, due to potential dramatic changes in snow cover and depth. Other activities in the area such as rural tourism were highlighted, focusing the discussion on the potential negative impacts on the area economy / ACTIONS: Universitat Politècnica de València addressed many of the identified impacts from a planning perspective in the presentations that took part in the second half of the morning.
- The main answers to the identified climate change impacts clustered around the development of climate-smart agro-forestry policies, and the required changes in the tourism model. The need for improved environmental education and risk awareness was also highlighted, following a common trend among every WP4 pilot landscape / ACTIONS: All the information provided could be taken into account in any potential funding application aimed at developing the LACAP or a similar plan in a future project.
- The lack of implication by authorities and the loss of traditional activities were considered the main barriers in order to advance towards the potential answers to climate change identified in the landscape pilot project. Some stakeholders insisted on the excessive dependence on tourism and the lack of permanent population / ACTIONS: All the information provided could be taken into account in any potential funding application aimed at developing the LACAP or a similar plan in a future project.
- The presentations during the second part of the workshop were again remarkable. They covered in detail every identified main topic which should be addressed through a LACAP in the Parc Natural de l'Alt Pirineu. They were a perfect supplement to the presentations developed during the first part of Workshop. / ACTIONS: UPV will upload every presentation to the AELCLIC Webpage, within the "Materials" file of the Workshop.
- Given the high number of activities and the limited time, the stakeholders decided to focus on Tasks 2 and 3 in the Teamwork session 2. The only proposal made regarding the Task 1 was to assign a coordination and communication role to the AELCLIC project. / ACTIONS: The potential contribution of the AELCLIC project to the adaptation of the PNAP landscape to climate change can be indirectly inferred from the results of Task 2.
- The main contents to consider in a potential Parc Natural de l'Alt Pirineu Landscape Adaptation to Climate Change Plan were identified. The stakeholders established the main scope of the diagnosis, which should not adjust to the strict Park boundaries, but include its socio-economic influence area as well. Some priorities (such as establishing detailed analysis at Park level and related with main risk threats, promoting specific measures and policies for climate change adaptation or achieving a real dialogue and coordination between administrations), as well as the need to develop some pilot projects and establish a monitoring indicators system were also identified. / ACTIONS: All the information provided could be taken into account in any potential funding application aimed at developing the LACAP in a future project.
- The identification of the main actors who could take part in the development of a LACAP or support any potential funding application was also successful. 19 stakeholders were identified within the specific activity developed, but most of them

were not present. / ACTIONS: Any potential partnership interested in developing the Parc Natural de l'Alt Pirineu LACAP in the future would be able to benefit from the evaluation of potential levels of stakeholder involvement.

- The Parc Natural de l'Alt Pirineu Direction asked UPV for a draft press release in order to disseminate the pilot landscape participation in the AELCLIC project. The draft press release was provided by the UPV and vastly improved by the press and communication office of the Regional Land Management and Sustainability Department. The press release was issued on the day before the workshop (https://govern.cat/govern/docs/2019/10/30/10/27/733ac2c3-3278-4b57-ba1d-a277596ef8c9.pdf) and had a high impact. It was distributed by many of the main Spanish and Catalan media (i.e. https://www.europapress.es/epagro/noticia-cambio-climatico-parc-lalt-pirineu-participa-plan-europeo-contra-efectos-cambio-climatico-20191030131934.html or https://www.lavanguardia.com/local/lleida/20191030/471290681288/catalunya-el-parc-de-lalt-pirineu-participa-en-un-plan-europeo-contra-los-efectos-del-cambio-climatico.html) and also by many other departments of the regional government (https://canviclimatic.gencat.cat/ca/actualitat/noticies/Noticia/AELCLIC) or even the Barcelona European Comission Office (https://ec.europa.eu/spain/barcelona/news/el-parc-natural-de-l%E2%80%99alt-pirineu-participar%C3%A0-en-un-projecte-europeu-estudiar-els-efectes-del_ca). The press release was also included later in the monthly environmental newsletter published by the regional government (http://territori.gencat.cat/es/01_departament/documentacio/medi_ambient_i_sostenibilitat/publicacions_periodiques/butlletins_electronics/butlleti_ma/any-2019/numero-475)/ ACTIONS: Universitat Politècnica de València will include the press articles in further reports regarding the societal impact of the project.
- The Bologna International AELCLIC Meeting took place two weeks after the Workshop. The PNAP Director was identified as the key, leading member of the local network, and invited to represent it in the Bologna Meeting. Universitat Politècnica de Valencia / Las Naves would sponsor the travel expenses, at least partially. Finally, prior commitments prevented the Director or any other representative from the Parc Natural de l'Alt Pirineu board to attend the meeting. However, the Park Director was able to prepare an excellent slideshow to contribute to the International Meeting with their perspective of the AELCLIC Project and the potential future development of a LACAP in the Parc Natural de l'Alt Pirineu / ACTIONS: UPV was in charge of presenting the excellent slideshow prepared by the Parc Natural de l'Alt Pirineu in Bologna. The Parc Natural de l'Alt Pirineu pilot landscape was therefore introduced to the representatives from other local networks from around Europe, and subsequently taken into account in the further teamwork developed in the meeting. The Parc Natural de l'Alt Pirineu board was thanked for their outstanding work and received a draft version of the International Meeting Report, allowing them to make any comments or suggestions if appropriate. They will also be informed of any future news and be considered a key actor regarding potential funding applications to develop the Parc Natural de l'Alt Pirineu LACAP.

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Identification of the potential role of the AELCLIC Project in the adaptation of the PNAP landscape to Climate Change). LEVEL OF ACHIEVEMENT: 2
  - OUTCOME 3 (Definition of main contents and actions to be included in a potential Parc Natural de l'Alt Pirineu LACAP). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 4 (Evaluation of potential levels of stakeholder involvement for the development of a LACAP in Parc Natural de l'Alt Pirineu). LEVEL OF ACHIEVEMENT: 4
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - The work session was quite long and two of the stakeholders from the private sector excused their presence at the end of workshop.
  - Including Task 1 (Identification of the potential role of the AELCLIC Project in the adaptation of the PNAP landscape to Climate Change) in the Teamwork session 2 was too ambitious. However, this was quickly detected in order to move on to the following tasks without further delay.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - Excellent organizing work by the PNAP. As mentioned in the previous report, it was decided that the Natural Park Director, based on inputs by the UPV, would invite for this workshop a local network more suited to the objectives of the activity, including private sector representatives (tourism and other leisure activities) and local specialists with a high level of knowledge regarding the area, the activities that take place there, and relevant local issues. This was successfully accomplished, and the local network included highly participative and knowledgeable stakeholders, which were very interested in the topic and made a significant effort in order to successfully develop a very intensive work session.
  - Good preparation of materials by UPV. Ability to adjust to the workplan selected in Workshop 1, which was very intensive and demanding.
  - Teamwork sessions and presentations by the UPV were alternated in order to make the workshop more dynamic and reduce tiredness by the attendants. The coffee break, based on local, high-quality products, organized and sponsored by the PNAP, was also key in order to provide a needed boost for the second half of the workshop.
  - Ability by the UPV to re-adjust a very busy workshops schedule in order to be able to find a new date for this workshop, after the initially agreed date was discarded by the PNAP.
  - Clear definition of the expected outcomes.
  - Very useful reference materials from other AELCLIC workshops. Some materials from the Workshop 1 in this same landscape were used again too, due to the unique workplan that was followed in this pilot landscape due to its singularities.
  - Attending to the whole PNAP Governing Board meeting which took place in the beginning of the same month was very useful in terms of gaining inside knowledge of the Natural Park management and priorities.
  - Excellent facilities.
- **Learnt lessons and recommendations for similar activities in other places:**
  - Organizing and facilitating a workshop 6 hours long is a very challenging activity. However, it is possible to develop it successfully based on good planning and materials, and provided that the local network shows a very high level of interest and effort.

- **Learnt lessons and recommendations for future activities in the same place:**
  - See previous section.
- **Level of influence of the local characteristics (social, geographical, etc) in the development of the activity:**
  - High. As already mentioned, developing successfully a workshop so intense and demanding can only be achieved if the local network shows a very high commitment.

ACTIVITY: Workshop1_SERRES D'ANCOSA_PILOT LANDSCAPE
DATE and TIME: 8.10.2019, 09:15-14:30
PLACE: Orpí (Spain), Can Morei
ORGANIZERS:

- Teresa Cervera / Centre de la Propietat Forestal
- Cristina Vega / Universitat de Lleida
- Francisco Galiana / Universitat Politècnica de València
- Emilio Servera / Universitat Politècnica de València

PARTICIPANTS:

- Yolanda Ruiz / Ajuntament Miralles
- Pere Argelich / Ajuntament Miralles
- Marta Salamé / Consell Comarcal Alt Penedès
- Nuria Ruiz / Diputació de Barcelona
- Pol Bacardit / Diputació de Barcelona
- Silvia Escolano / Diputació de Barcelona
- Helena Perxacs / Diputació de Barcelona
- Gabriel Borràs / Oficina Catalana del Canvi Climàtic
- Iñaki Gili / Oficina Catalana del Canvi Climàtic
- Teresa Cervera / Centre de la Propietat Forestal
- Joaquim Garcia / Centre de la Propietat Forestal
- Teresa Baiges / Centre de la Propietat Forestal
- Juan Luis Abian / Centre de la Propietat Forestal
- Antoni Munné / Agència Catalana de l'Aigua
- Francesc Farré / Consorci per al desenvolupament de la Catalunya Central
- Cristina Vega / Universitat de LLeida
- Pere Casals / Centre de Ciència i Tecnologia Forestal de Catalunya
- Santiago Cerdà / Cal Viaella
- Simó Serra / Bosquerols SCCL
- Mónica Prieto / AirBnB
- Rosa María García / Masia Sapera
- AgustÍ Pelfort / EDUVIC
- David Vivet / Uniò de Pagesos
- Joan Mas / Uniò de Pagesos
- Lluis Vich / Associació de propietaris forestals Serralada Prelitoral Penedès
- Agustí Guilamany / Associació de propietaris forestals Serralada Prelitoral Penedès
- Jaume Olivella / Associació de propietaris forestals Serra Miralles-Orpinell
- Jordi Reixach / Associació de propietaris forestals Serra Miralles-Orpinell

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KEY OBJECTIVES of THE ACTIVITY (expected outcomes):

- Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC.
- Creation of the local network for the Pilot Landscape Serres d'Ancosa.
- Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing.
- Discussing the potential role of the AELCLIC Project in the adaptation of the Serres d'Ancosa landscape to Climate Change.
- Defining a potential work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop.

AGENDA:

1. Welcome and presentation.
2. Past and future climate in inland Catalonia
3. Water resources in Catalonia. State of the Carme-Capellades aquifer
4. Forest fire prevention and carbon emission reductions
5. Multifunctional forest management and carbon credit markets

Coffee break

6. Adaptation actions in the *Alt Penedés* area. Results of the LIFE CLINOMICS project.
7. The AELCLIC project (Adaptation of European Landscapes to Climate Change).
8. Workshop presentation and organization. Presentation of participants.
9. TEAMWORK
    a. TASK 1: Identification of the Serres d'Ancosa landscape unit core values.
    b. TASK 2: Identification of climate change effects on the Serres d'Ancosa landscape.
    c. TASK 3: Brainstorming about possible solutions to the identified effects and barriers.
    d. TASK 4: Identification of the potential role of the AELCLIC Project in the adaptation of the Serres d'Ancosa landscape to Climate Change
10. Agenda and workplan proposal.

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1. WELCOME

- Welcoming words by Teresa Cervera (Centre de la Propietat Forestal)

2. PAST AND FUTURE CLIMATE IN INLAND CATALONIA

- Gabriel Borràs (Oficina Catalana d'Adaptación al Canvi Climàtic) presents past and future climate data in inland Catalonia, some of which come from the LIFE MEDACC project.

CONCLUSIONS:

- Significant changes in temperature and evapotranspiration have been recorded in Catalonia between 1950 and 2018
- Water resource management systems are becoming increasingly vulnerable, not only because of climate change but also because of land use change
- Regionalized climate change projections for Catalonia were developed in the frame of the Third Report on Climate Change in Catalonia.
- Future water availability scenarios for the inner water catchments in Catalonia have been modelled based on hydrological, climate and land use change models.

3. WATER RESOURCES IN CATALONIA. STATE OF THE CARME-CAPELLADES AQUIFER

- Toni Munné (Agència Catalana de l'Aigua) summarizes the studies developed in the area:

CONCLUSIONS:

- The frequency of droughts in Catalonia has been increasing and climate models predict that this trend will go further in the future
- Groundwater assessments (regarding quality and quantity) have been developed under the Water Framework Directive in Catalonia
- There is a significant decreasing trend in the underground water mass under Serres d'Ancosa.
- Several actions are being developed in the area in order to improve the state of the Carme-Capellades aquifer, including coordinated use, protection of the recharge zone and forest management, some of which are included within the LIFE CLIMARK project.

4. FOREST FIRE PREVENTION AND CARBON EMISSION REDUCTIONS

- Cristina Vega (Universitat de Lleida) describes the analysis which are being developed under the LIFE CLIMARK project with regards to forest fire prevention and carbon emission reductions in the Serres d'Ancosa landscape unit:

CONCLUSIONS:

- Carbon stocks are being monitored based on forest inventory and LiDAR derived biomass data
- Carbon loss after severe forest fires can be assessed based on the fire severity and the affected vegetation types
- Conditional burn probability and flame length can be modelled for future scenarios, which makes it possible to calculate the related carbon losses and identify the optimal management points for minimizing carbon emissions. This can be monetized in order to assess potential gross benefits from carbon credits in the area.

5. MULTIFUNCTIONAL FOREST MANAGEMENT AND CARBON CREDIT MARKETS

- Teresa Cervera (Centre de la Propietat Forestal) and Iñaki Gili (Oficina Catalana d'Adaptación al Canvi Climàtic) summarize additional works being done under the LIFE CLIMARK project:

CONCLUSIONS:

- The main objective of the LIFE CLIMARK project is contributing to climate change mitigation by fostering multifunctional forest management and the creation of a local climate credits market
- The LIFE CLIMARK project includes works in 4 selected forest stands in the Serres d'Ancosa landscape unit, where 2 different treatments are being applied
- Multifunctional forest management under the LIFE CLIMARK project aims at increasing water resources and the carbon sequestration rate, maintaining and improving biodiversity, and reducing the vulnerability of forests to large-scale fires.
- Some aspects which are being assessed for the potential design of a local climate credit market (which goes beyond a traditional carbon market) include additionality, temporality, permanence, monitoring and verification. Some topics of interest for the potential credit buyers are also being analysed.

6. ADAPTATION ACTIONS IN THE ALT PENEDÉS AREA. RESULTS OF THE LIFE CLINOMICS PROJECT

- Marta Salamé (Consell Comarcal de l'Alt Penedès) recapitulates some governance and technical studies developed in the Alt Penedés area during the LIFE CLINOMICS project:

CONCLUSIONS:

- 3 Climate Change Adaptation Communities of Work have been created, one of them in the Alt Penedès. They include representatives from the local and regional administrations, other management and participatory bodies, associations from the agricultural sector and other relevant stakeholders
- An action plan for the adaptation of the Alt Penedés to Climate Change was prepared. It organizes around 7 themes and 30 actions. One of those selected themes is "Land planning and landscape management".
- Several pilot actions have been selected by the Alt Penedès Community of Work and are currently being implemented

7. INTRODUCTION TO THE AELCLIC PROJECT

- Francisco Galiana (UPV) summarizes the goals, expected outcomes and structure of the project, as well as the location and reasons for the selection of the potential Serres d'Ancosa Pilot Landscape. The AELCLIC web page is presented.

CONCLUSIONS:

- The AELCLIC project is presented as a project with a strong focus on the user needs at each of the 16 selected pilot landscapes
- The main objective of the current project is the definition of a series of strong local networks, in order to co-define the structure and content definition for future Landscape Adaptation Plans to Climate Change (LACAP), which would be developed in a future project
- The local network is invited to take part in the Project. Their interest will be assessed at the end of the session.

8. WORKSHOP PRESENTATION AND ORGANIZATION.

- Emilio Servera (UPV) presents the workshop structure and work dynamics.

CONCLUSIONS:

- A single working group was established.
- Stakeholders would work individually, but dialogue and debate between the participants was encouraged.
- Each person will write in sticky notes their contributions to each Task. Notes will be later placed on several flipcharts, divided in several pre-defined areas.
- Repetition of sticky notes with the same or similar texts by different stakeholders was allowed since it would be used as an indicator of the relevance of the topic.
- Climate change adaptation projects and actions already taking place in the area were summarized by the UPV. Several options in which the AELCLIC project could complement them and contribute to the adaptation of the Serres d'Ancosa landscape to climate change were presented. These included focusing on the agricultural sector, the integration of adaptation to climate change into the planning and management of protected areas which are partially included in the unit, or deciding the way in which the results from pilot actions developed by other projects could be mainstreamed across the unit. This was presented in order to provide some background to the discussion regarding the potential role of the project and the decision concerning continuation of the work in the area.

9. PRESENTATION OF PARTICIPANTS.

PARTICIPANT	SECTOR	INSTITUTION
Yolanda Ruiz	LOCAL/REGIONAL AUTHORITY	Ajuntament Miralles
Pere Argelich	LOCAL/REGIONAL AUTHORITY	Ajuntament Miralles
Marta Salamé	LOCAL/REGIONAL AUTHORITY	Consell Comarcal Alt Penedès
Nuria Ruiz	LOCAL/REGIONAL AUTHORITY	Diputació de Barcelona
Pol Bacardit	LOCAL/REGIONAL AUTHORITY	Diputació de Barcelona
Silvia Escolano	LOCAL/REGIONAL AUTHORITY	Diputació de Barcelona
Helena Perxacs	LOCAL/REGIONAL AUTHORITY	Diputació de Barcelona
Gabriel Borràs	LOCAL/REGIONAL AUTHORITY	Oficina Catalana del Canvi Climàtic
Iñaki Gili	LOCAL/REGIONAL AUTHORITY	Oficina Catalana del Canvi Climàtic
Teresa Cervera	PUBLIC SECTOR	Centre de la Propietat Forestal
Joaquim Garcia	PUBLIC SECTOR	Centre de la Propietat Forestal
Teresa Baiges	PUBLIC SECTOR	Centre de la Propietat Forestal
Juan Luis Abian	PUBLIC SECTOR	Centre de la Propietat Forestal
Antoni Munné	PUBLIC SECTOR	Agència Catalana de l'Aigua
Francesc Farré	PUBLIC SECTOR	Consorci per al desenvolupament de la Catalunya Central
Cristina Vega	RESEARCH	Universitat de LLeida
Pere Casals	RESEARCH	Centre de Ciència i Tecnologia Forestal de Catalunya
Santiago Cerdà	PRIVATE SECTOR	Cal Viaella
Simó Serra	PRIVATE SECTOR	Bosquerols SCCL
Mónica Prieto	PRIVATE SECTOR	AirBnB
Rosa María García	PRIVATE SECTOR	Masia Sapera
Agustí Pelfort	SOCIETAL ORGANIZATION	EDUVIC
David Vivet	SOCIETAL ORGANIZATION	Uniò de Pagesos
Joan Mas	SOCIETAL ORGANIZATION	Uniò de Pagesos
Lluis Vich	SOCIETAL ORGANIZATION	Associació de propietaris forestals Serralada Prelitoral Penedès
Agustí Guilamany	SOCIETAL ORGANIZATION	Associació de propietaris forestals Serralada Prelitoral Penedès
Jaume Olivella	SOCIETAL ORGANIZATION	Associació de propietaris forestals Serra Miralles-Orpinell
Jordi Reixach	SOCIETAL ORGANIZATION	Associació de propietaris forestals Serra Miralles-Orpinell

CONCLUSIONS:

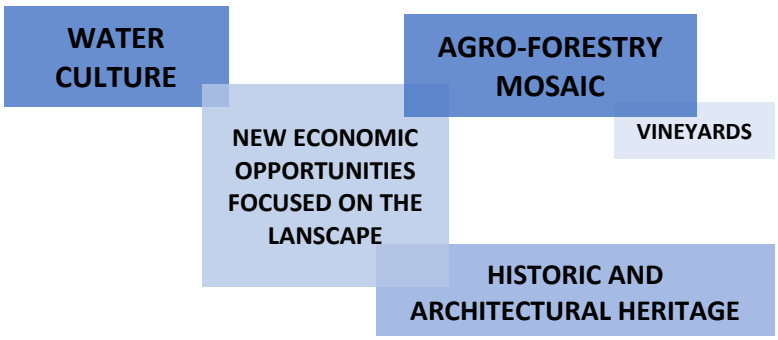
- The local network was established by the Centre de la Propietat Forestal (an organism which depends on the regional Agriculture Department, and whose mission is to promote planning and management of privately owned forests in Catalonia). They have close links with many stakeholders in the area, including not only owners of private forests, but also other kinds of actors, since they are currently working in the area under the LIFE CLIMARK project, which has already established a Local Participation Group. Some inputs and examples were provided by the UPV.
- The constituted local network in Serres d'Ancosa was very rich, diverse and knowledgeable. It had representatives from every major group of stakeholders in the area, thanks to the work being done in the area by the Centre de la Propietat Forestal and Universitat de Lleida, and the presence of members from the Advisory Committee of Experts of the LIFE CLIMARK project.
- Remote participation was not promoted given the success of the meeting.

10. TEAMWORK

- **Task 1: Which are the values that better represent the Serres d'Ancosa landscape unit?**
  - ENVIRONMENTAL
    - Low human pressure
    - Forest owners association which is established and active
    - Lime quarry
    - Geological structure
    - Riera Carme
    - Area of aquifer recharge Riera Carme
    - Water
    - Water culture
    - Groundwater
    - Riera de Carme
    - Water mills
    - Good quality forest site. Pinus halepensis and high resilience
    - Environmental
    - Environmental
    - Environmental
    - Environmental
    - 4 Agroforestry mosaic (vineyard-forest)
    - Biodiversity
  - CULTURAL
    - Diversity
    - Active heritage. Human: ovens, lime vineyard
    - High voltage powerlines are negative
    - Cultural-landscape
    - Cal Vidella Waterfalls (Riera)
    - Heritage of our old and recent past: castles, farmer dwellings (barracas), dry stone walls
    - Castles. Dry stone structures
    - Mediterranean agricultural landscape. Cereal-vineyard forest
    - Historic heritage (Romanic)
    - Rural architecture
    - Mosaic, Castles, apiculture, forest
    - Agroforest mosaic
    - Agroforest mosaic
    - River pools

- Large green area located close to Igualada and Barcelona

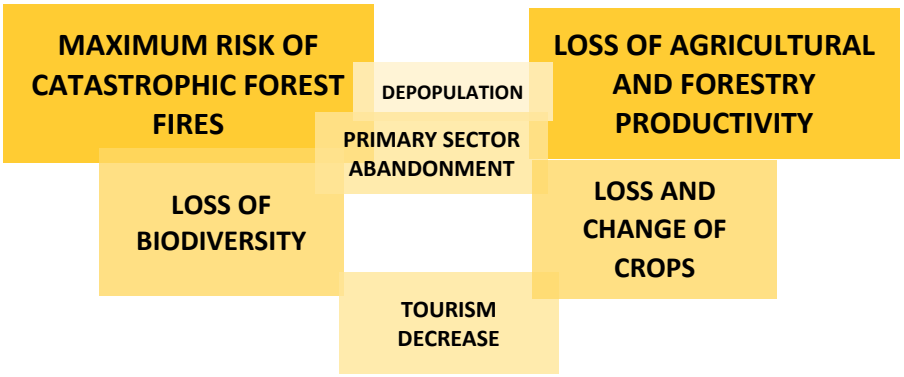
- SOCIAL
  - Pre-coastal - Central Catalonia- South Catalonia
  - Low frequentation -> exclusiveness
  - Low population density
  - Calm - rest
  - Enjoyment in natural environment
  - Proximity to Metropolitan area
  - Attachment to land, mainly water
  - Forest owners association which is stablished and active
  - Social
- ECONOMIC
  - Vineyard
  - Economic
  - Economic
  - Sustainable tourism
  - Rural tourism
  - When it is well structured
  - Agroforest mosaic
  - Vineyard
  - Agroforest mosaic
- OTHER
  - Potential for economic activities focused on landscape
  - Vineyard
  - Agroforest mosaic



- **Task 2: Which are the Climate Change effects on Serres d'Ancosa?**
  - TEMPERATURE
    - Higher need of water by increased evapotranspiration
    - Trees hydric stress. Pests
    - Desertification
    - Plant mortality increase due to drought
    - Fires
    - Change of species. Pests increase
    - Loss of harvest
    - Temperature increase, evapotranspiration and low yields result in abandonment of agricultural land
    - Increase of pests
    - Abandonment of agricultural land

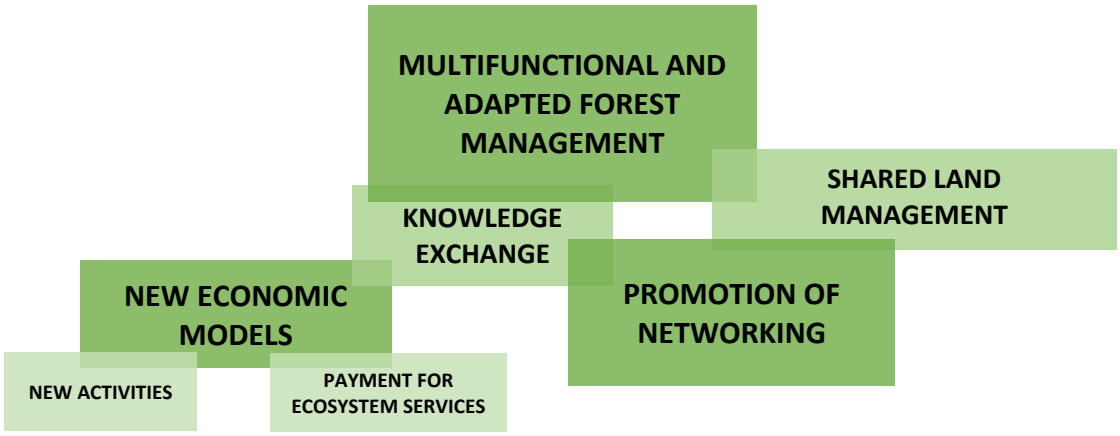
- Change of land use and crops
- Decrease of number of crops. Pests.

- RAINFALL
  - Loss of harvests
  - Loss of agriculture and forestry
  - Increase of pests
  - Increase of forest fires
  - Increase of irrigated crops
  - Shorter but more intensive
  - Due to decrease of rainfall – standstill of tree strata growth
  - Erosion
  - Riera risk of disappearance
  - Loss of biodiversity in Riera
  - Low biodiversity due to drought or drop in rivers flow
  - Change in forestry diversity
  - Decrease in the quantity and quality of water
  - Drought and water decrease in aquifers
  - More irregulars, long droughts, less water available
  - Forest vulnerability to pests due to strength decrease
  - Less water available for the environment and society. Less ecosystem services
  - Increase of shrub land surface (temperature + rainfall)
- FLOOD RISK
  - Decrease of the water table
  - Effects on urbanism and heritage downstream
- FIRE RISK
  - Increase of fire risk
  - More fires
  - Highest risk. Devastating fire
  - Forest fire: carbon emissions. Temporal loss of biodiversity, less tourism
  - To lose the main point of the land which is landscape
  - Affects economic resources
  - Increase forest management
  - Increase of forest fire risk. Scarce forest management
  - Increase of fire risk. Economic impact
  - Economic + environmental
- OTHER
  - Forest pests (temperature+rainfall+other variables)
  - Depopulation
  - Abandonment of agro-forestry activity
  - Disappearance of the primary sector
  - Economic
  - Increase of frequentation (public use)
  - Promote rural tourism
  - Loss of touristic attractive
  - Less tourism
  - Emergence of exotic species (plants/animals) (temperature+ rainfall variables)
  - Replace forest species (temperature+ rainfall variables)
  - Fires<-> rainfall. Increase of fuel capacity because of lack of economic value of the product.



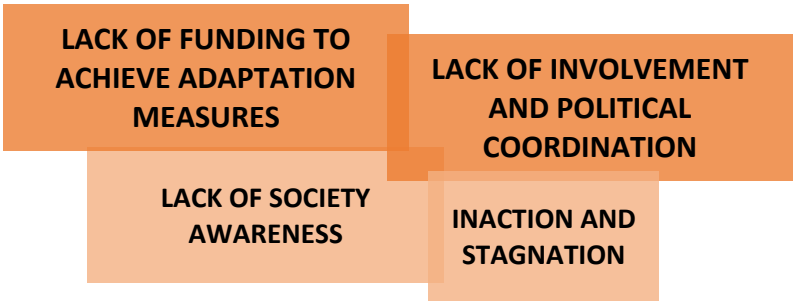
- **Task 3a: Which are the potential answers to the identified Climate Change effects?**
  - TEMPERATURE
    - Use of alternative energy (biomass, solar)
  - RAINFALL
    - Forest management. Reduction of trees
  - FLOOD RISK
    - Change of practices applied to forest, crops and water management
  - FIRE RISK
    - Existence of owner association
    - 25% forest surface under a plan
    - Strategies for forest fires: identified and delineated
    - Multifunctional forest management
    - Increase of forest management and changes in forest mosaic
    - Improve assessment of fire risks in landscape
    - Restoration of dry stone walls
    - Change in energy habits. Be aware that firewood is heat and rural management and development
    - Take profit of landscape
    - Learning
    - Adapted forest management. Introduction to south origin
    - Make climate credit active-forest reinvestment
  - OTHER
    - Interest in land
    - Payment for ecosystem services - climate credit
    - Enlarge agroforestry assurance
    - Promote local economy
    - Promote cooperatives or agroforestry associations
    - Identification of services and payment for services
    - Incorporate population to land with the aid of proper policies
    - More aid to primary sector taking into account profitability of each exploitation
    - Economic valuation of ecosystem services
    - New economic model for young people
    - New economic activities
    - It is an opportunity to think about the land and understand it?
    - Creation of a knowledge network (share objectives)
    - Address economy to sustainable resources e.g. Solar energy
    - Promote agroforestry mosaic + work-> - depopulation
    - New crop techniques. Species improvement.

- Promote proximity products (honey, cheese, meat)
- Payment for ecosystem services



- **Task 3b: Which are the threats or weaknesses which could prevent the implementation of those opportunities for resolution?**
  - TEMPERATURE
  - RAINFALL
  - FLOOD RISK
  - FIRE RISK
    - Lack of investment
    - Lack of forest management due to lack of funding
    - Depopulation-unemployment
    - Land abandonment
    - Negation
    - Regeneration problems. More differentiated systems of regeneration
    - Stricter regime for fires. Larger campaign to prevent fires
    - No action
    - Financial
    - Social commitment
    - Difficult to go from planning to action (lack of € and politic and citizen willingness)
    - Difficulties of economic profitability to change farming practices and forest management
    - Lack of awareness (society and politics)
    - Lack of accuracy in the application of solutions
    - Tiredness of people
    - Need to agree a homogeneous methodology for all us.
    - Payment of ecosystem services
    - Public authorities in terms of bureaucracy and different points of view of departments
  - OTHER
    - Too many sanitary rules
    - Mainly urban society. Disconnection with land
    - Short term thinking
    - Inertia; aversion to change; stagnation
    - Catastrophism

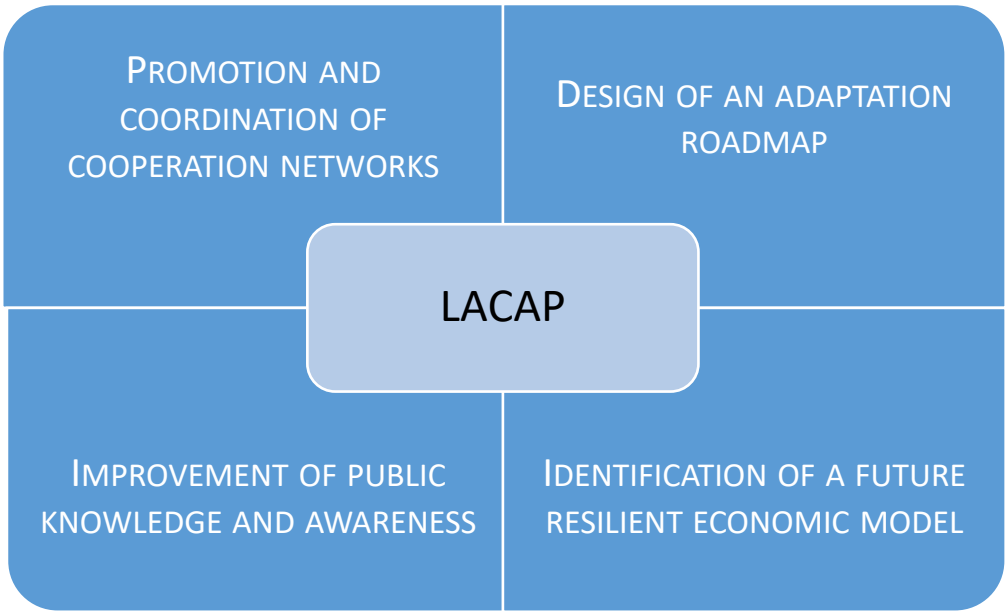
- No government: lack of coordination
- Particular approach not global approach of the problem
- Too much bureaucracy
- No clear or contradictory policies
- Ignore interaction among society, economy and environment
- Lack of funding
- Law limitations
- Lack of fiscal incentives
- Disconnection of urban dwellers with rural world
- Legislative barriers UE, national, regional and local level (urbanism)



- **Task 4: How could the AELCLIC Project contribute towards the adaptation of the Serres d'Ancosa landscape to Climate Change?**

  - Joint adaptation. Overall view. Water – agriculture – forest → economic model
  - Future economic model
  - Economic resilience of agroforestry activities/entities
  - Dissemination. Conclusions. (+ Marketing)
  - Yes: it's a dynamic project
  - Yes: it's more practical than theoretical
  - Yes: experience
  - To balance study and action
  - + public-private partnership
  - Promotion of the cooperative movement
  - To adapt the global climate change view and deliver tools to the local world
  - To take climate change to the population (bring the problems and the solutions)
  - To create discontinuities in the land, restoring vineyards. Study of potential zones.
  - To set lines of action in a plan allowing prioritization ("roadmap")
  - Design of the structure and mechanisms to promote the adaption of the landscape unit
  - In a positive way
  - It can help to bring adaptation to the area (promotion of innovation and already existing projects)
  - Innovation in agroforestry management
  - Creation of a realistic workplan with funding schemes
  - Access to a bigger knowledge
  - Access to funding
  - To promote the analysis of problems
  - Creation of a net and trust between stakeholders
  - Essential: coordination of local group.

- Clustering existing projects and creation of nets
- Citizen attachment and involvement through the use of "landscape" as a basis
- Integration and mainstreaming sectors across the landscape unit
- To improve public awareness
- Finding a mechanism to give value to the landscape as a key element of the good life



11. AGENDA, WORKPLAN AND CLOSURE

- Francisco Galiana (UPV) thanks the participants for their contributions and summarizes the obtained results. A potential workplan is presented and approved. The session ends with a catered lunch for every participant.

CONCLUSIONS:

- Participants are asked if they wish to continue working in the project during 2019. They are suggested to take into account the results of the last group task, in order to make their decision. Given the tight schedule of workshops in the WP4 (this was the last Workshop 1 developed), only 1 possible date is available (October 29th).
- The local network expresses their interest in continuing work within the AELCLIC project. Workshop 2 would take place in October 29th.
- Participants in the workshop were not asked to authorize the inclusion of their organizations in the AELCLIC webpage. Given the accumulated delay, and considering that it wasn't until the last moment that the workplan was approved, there wasn't time to circulate the authorization form before lunch. It was decided to perform that task during the second workshop.
- A catered lunch was served at the same premises where the workshop took place to end the session.

SUMMARY:

- **Key CONCLUSIONS, Key DECISIONS and NEXT ACTIONS (By Whom and When):**
  - The workshop was conceived as a joint, networking action between the LIFE CLIMARK and AELCLIC projects. The agreement initially included only the development of this first workshop. It was decided that it would be up to the local network to decide if they wanted to continue working within the AELCLIC project (with another workshop during 2019), based on the experience of this first joint workshop. / DECISIONS: The local network decided to continue working within the AELCLIC project with a 2nd Workshop
  - The organization of the Workshop by the Centre de la Propietat Forestal was excellent. Contacts with local stakeholders and other participants from the LIFE CLIMARK Advisory Committee of Experts started more than 2 months in advance. There were constant contacts with the UPV and Universitat de Lleida during the organizational phase in order to agree a program for the session. The UPV was also informed at different points as the list of confirmed attendants was being filled. The Workshop took place in excellent facilities in the pilot landscape ("Can Morei" country house), whose owner was highly collaborative and participative during the event. The Centre de la Propietat Forestal also organized and sponsored the catering service for the coffee break and lunch. / ACTIONS: Centre de la Propietat Forestal will take a similar role regarding the 2nd Workshop
  - The constituted Serres d'Ancosa local network is very comprehensive and knowledgeable. Since it was based on existing networks already linked to the Centre de la Propietat Forestal and the Universitat de Lleida through the LIFE CLIMARK project, the forestry sector was predominant. / ACTIONS: Centre de la Propietat Forestal will invite additional stakeholders from other sectors to the Workshop 2, in order to achieve a broader perspective.
  - The presentations during the first part of the workshop were excellent. Developing the workshop as a joint action with the LIFE CLIMARK project made it possible to count on several highly qualified specialists which are part of its Advisory Committee of Experts. / ACTIONS: UPV will consider all the information provided in order to integrate it into the presentations in the Workshop 2. The agenda for that Workshop will be agreed with the Centre de la Propietat Forestal, aiming at counting on the presence of experts from other fields who would hopefully be able to approach the adaptation of Serres d'Ancosa to climate change with different complementary perspectives.
  - Water and the agro-forestry mosaic were at the center of the wide variety of landscape values identified by the stakeholders. The rich cultural and architectural heritage of the landscape unit was also highlighted. Interestingly, all these values were also considered as the potential basis for the development of new economic opportunities based on the landscape. / ACTIONS: Centre de la Propietat Forestal will try to involve in the workshop 2 some new stakeholders and experts with different interests and perspectives in order to enrich the discussions regarding economic activities different than forestry that are taking place in the area. UPV will consider all the information provided in order to integrate it into the presentations in the Workshop 2.
  - The main potential climate change impacts identified focused on the risk of devastating wildfires and the negative effects on agricultural and forest productivity. Links to how this could affect other activities in the area such as rural tourism were highlighted, focusing the discussion on the potential negative impacts on the area economy, and the subsequent risk of depopulation/ ACTIONS: Universitat Politècnica

de València will address the opportunities to address the main identified impacts from a planning perspective within Workshop 2

- The identification of potential answers to climate change impacts in the landscape unit focused almost exclusively on fire risk and other related topics. Multifunctional forest management was considered a key answer to climate change in the pilot landscape, based probably on the inputs received during the presentations in the first half of the session. Other opportunities include the promotion of networking and the development of new economic models. / ACTIONS: Universitat Politècnica de València will address the opportunities to integrate the identified answers from a planning perspective during Workshop 2.
- The lack of funding and political coordination and involvement were considered the main barriers in order to advance towards the potential answers to climate change identified in the landscape unit. / ACTIONS: UPV will consider all the information provided in order to integrate it into the presentations in the Workshop 2.
- The stakeholders identified several ways in which the AELCLIC project could contribute to the adaptation of Serres d'Ancosa landscape to climate change, such as the design of an adaptation roadmap for the landscape unit or the promotion and coordination of cooperation networks. They considered the project as positive for the area and were clearly in favour of the continuation of the project work during 2019 and potentially beyond. / ACTIONS: Centre de la Propietat Forestal and UPV will continue working together in the frame of the AELCLIC project during 2019.
- The LIFE CLIMARK project uploaded the materials of the workshop to their webpage (https://lifeclimark.eu/es/comunicacio/articles-i-comunicacions/) and announced it via social media (https://twitter.com/lifeclimark/status/1184367278751670272?s=20). The Centre de la Propietat Forestal twitter account also reported the workshop (https://twitter.com/cpforestal/status/1181896930634473472?s=20) / ACTIONS: Universitat Politècnica de València will circulate the announcements and include them in further reports regarding the societal impact of the project.
- WORKSHOP2: Was initially scheduled during the workshop 1 in the only available date in that moment (October 29th). However, at a later stage, and for unexpected reasons outside the UPV's control, it was needed to change the established date of a Workshop from a different pilot landscape. This opened three new possible dates for the development of Workshop 2 in Serres d'Ancosa, which were then offered by the UPV to the Centre de la Propietat Forestal (in addition to maintaining the initially established one) in order to increase the available time for planning and organizing the second Workshop. / ACTIONS: Centre de la Propietat Forestal decided to delay the workshop until one of the newly offered dates. Workshop 2 would finally take place on November 8th.

DIAGNOSIS:

- **Level of Achievement of the expected outcomes (from 1 (min) to 5 (maximum)):**
  - OUTCOME 1 (Launch of the AELCLIC Pathfinder initiative within EIT-Climate-KIC). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 2 (Creation of the local network for the Pilot Landscape Serres d'Ancosa). LEVEL OF ACHIEVEMENT: 4
  - OUTCOME 3 (Diagnosis and co-identification of Climate Change impacts and opportunities in the local economy, ways of living, environment, cultural heritage and levels of wellbeing). LEVEL OF ACHIEVEMENT: 4
  - OUTCOME 4 (Identification of the potential role of the AELCLIC Project in the adaptation of the Serres d'Ancosa landscape to Climate Change). LEVEL OF ACHIEVEMENT: 5
  - OUTCOME 5 (Defining a work agenda towards a Landscape Adaptation Plan to Climate Change with a second AELCLIC Workshop). LEVEL OF ACHIEVEMENT: 5
- **Main Shortcomings or barriers for the full achievement of the expected outcomes:**
  - The session was perhaps a little bit too long. The delay in the programme at the beginning of the teamwork part of the session was over an hour, which made it challenging to develop every planned task for that part of the workshop.
  - Some of the results of the activities developed as part of the teamwork were very focused on fire risk, due to the composition of the network.
  - Due to the lack of time, among other reasons, tt was not possible to confirm the interest of the stakeholders in being present in the AELCLIC webpage. This task was postponed to Workshop 2.
- **Main Reasons for the successful achievement of the expected outcomes:**
  - The workshop benefitted from the existing local network and advisory committee of experts set up by the LIFE CLIMARK project. It would have been impossible to assemble a network like this without joining forces with an already established and very strong project.
  - Excellent work by the Centre de la Propietat Forestal in setting up the local network, inviting them to take part in the workshop (in some cases, more than 2 months in advance), and every other organizational task.
  - Cooperation and help from the Universitat de Lleida in establishing the initial contacts with the Centre de la Propietat Forestal, setting the program for the session, and presenting their work in the LIFE CLIMARK project.
  - Great presentations by the invited experts during the first half of the session.
  - Highly participative and knowledgeable stakeholders. Very high level of expertise and interest on the matter, which led to a fruitful discussion during the teamwork.
  - Good preparation of materials by UPV. Ability to make the AELCLIC project compelling to the local network in order to agree a workplan for the rest of the year.
  - Ability shown by the UPV to adapt the teamwork and stimulate the involvement of the assistants in order to complete every planned activity despite the shortened available time (due to the delay in the presentations of the first part of the session).
  - Clear definition of the expected outcomes
  - Very useful reference materials from other AELCLIC workshops
  - Excellent facilities and support by the owner.
- **Learnt lessons and recommendations for similar activities in other places:**
  - Working with local counterparts with the experience, knowledge and resources needed to take the lead and excel in the organization of this kind of activity maximizes the success and return of the workshop

- Invitations to the workshop were sent in some cases more than 2 months in advance of the date. The high level of attendance achieved was possible only because the organizational tasks started with such a wide time range prior to the event and there was already a very strong network due to previous work in the area by the Centre de la Propietat Forestal and Universitat de Lleida.
- Knowing beforehand the attendance list allowed for preparing and presenting materials suited to the level and interests of the audience.
- The workshop planned duration (5 hours) is considered excessive for this kind of activity, and led to an important decrease in the available time for the development of the teamwork.

- **Learnt lessons and recommendations for future activities in the same place:**
  - See previous section.
- **Level of influence of the local characteristics (social, geographical, etc) in the development of the activity:**
  - High. As already mentioned, the forestry sector was predominant in the network, and therefore, the results from some of the teamwork activities were strongly focused on forestry issues such as the wildfire risk.

WP5

South Eastern Europe

ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: May 16, 2019 - from 2 p.m. to 6 p.m.
PLACE: Fondazione Innovazione Urbana, Piazza Maggiore 6, Bologna
ORGANIZERS: University of Bologna, Municipality of Bologna and Fondazione Innovazione Urbana

PARTICIPANTS:
Organizers

- University of Bologna: Daniele Torreggiani, Patrizia Tassinari, Anna Costa, Giulia Gatta
- Municipality of Bologna: Giovanni Fini

Fondazione Innovazione Urbana: Valeria Barbi, Federico Salvarani, Simona Beolchi, Andrea Massimo Murari

Stakeholders who accepted to join the network of stakeholders:

- Giuseppe De Togni, Comune di Bologna
- Julia Colver, Nomisma
- Marco Spinedi: interporto Bologna
- Marco Caliceti: Confagricoltura Bologna
- Claudio Cervellati, Confagricoltura Bologna ed Emilia Romagna
- Marco Alberghini UGC Cisl Area Metropolitana Bolognese
- Michele Solmi: Consorzio Bonifica Renana
- Andrea Morsolin: Consorzio Bonifica Renana
- Stefano Savini: Emilbanca
- Silvia Bergami: EmilBanca
- Marco Odaldi: AESS (Agenzia Energia e Sviluppo Sostenibile) Modena
- Patrizia Preti: Orti di Via Salgari, ANCESCAO
- Andrea Bruini: Granarolo Group
- Lucia Fresa: Agenzia del Pilastro
- Francesco Palmieri: Bologna Welcome
- Carmine Preziosi: ANCE Bologna (Collegio Costruttori Edili)
- Chloy Vlamidis, Agenzia di Sviluppo Pilastro

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- Fondazione FICO
- CAAB
- Orogel
- Inalca
- Coldiretti Bologna
- Quartiere San Donato - San Vitale
- Agenzia del Pilastro

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This workshop, co-organized by University of Bologna, Municipality of Bologna and Fondazione Innovazione Urbana, is the first workshop organized in the “north-eastern fringe areas of Bologna”, selected as one of the 16 pilot landscapes where the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this first workshop aims at involving local stakeholders connected, at different

levels, with the pilot area, to present them the project, allow them to co-identify the impacts of climate change on the local landscape, and co-identify opportunities for the future definition of a Landscape Adaptation Plan to Climate Change.

The workshop, to whom participated 23 persons, representatives of the local stakeholder's ecosystem and the event organizers, has been hosted at the headquarters of Fondazione Innovazione Urbana, whose staff provided specialized support aimed to facilitate the participatory process.

The main objectives of the workshop could be summarized as follows:

- Explain and describe the project to the local stakeholders ecosystem;
- Ease the contact and the networking between the stakeholders and with the project's partners;
- Evaluate the interest of the stakeholders in the project, be they related or connected to inhabitants, businesses or institutions of the pilot area, or operating at a broader scale including the pilot area or parts of it, or even related to other areas where organizations showed an interest in exploring the opportunities of adding satellite pilot areas to be connected to the core pilot area already identified;
- Explore their knowledge and awareness about climate change issues, and carry out a co-identified diagnosis of climate change impacts they know or perceive in the pilot area;
- Evaluate their interest in collaborating in the project and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;
- Explore the opportunities and collect input on their potential involvement and contribution related to a future project for the definition of a Landscape Adaptation Plan to Climate Change, also in relation to the opportunity to apply for a follow-up EU project after this pathfinder (e.g. Climate KIC Demonstrator call for proposals).

All the stakeholders invited to the discussion declared their interests in collaborating, with different modalities and different instruments, to the projects. They also accepted to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

2 – 3 p.m. Welcoming speech and general thanks

- Valeria Barbi – Fondazione Innovazione Urbana: welcoming of the participants, presentation of the Foundation for Urban innovation and description of the afternoon's agenda.
- Daniele Torreggiani – professor of the Department of Agricultural and Food Sciences of the University of Bologna: description of the AELCLIC project, work-plan and activities in the pilot area; main climate change impacts in the region;
- Giovanni Fini – Municipality of Bologna: description of the pilot area; summary of previous projects in the region, with particular reference to the BlueAp project, allowing the City of Bologna to create and implement the Bologna Local Climate Change Adaptation Plan; outline of spatial planning and planned developments in the area, transition to new PUG.
- The participants briefly introduce themselves.

3 – 4.30 p.m. Group Work on climate change impacts diagnosis

Participants work on the diagnosis of critical issues and impacts related to climate change, describing the already tangible and predictable consequences they notice or experience in the pilot area. Impacts are visualized and mapped in real time.

4.30 - 4.45 p.m. Coffee break

4.45 - 6.00 p.m. Summary of the impacts identified and focus group about opportunities
Brainstorming about the opportunities and potential contribution related to a future project for the definition of a Landscape Adaptation Plan to Climate Change. Inputs are visualized in real time.

6.00 Closing of the works and networking cocktail

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)

1. Downscaling analysis of climate change impacts: participants have started from an analysis of general and widespread climate change impacts and have then focused on the pilot area.

Discussion:
Identification of the problem:

- What impacts derive from Climate Change?
- Critical issues related to climate change
- Impacts on the local landscape, in terms of life, environment, local productive and economic activities, cultural and natural heritage, wellbeing of inhabitants.

Summary of Results:
The local stakeholders involved at the table proved to participate in the discussion actively intervening and identifying various impact problems caused by climate change. They also proved to be proactive in thinking about the possible contribution they could make to the project for the implementation of the adaptation plan.

The key impacts identified are:

- Drought;
- Extreme events;
- Sudden events;
- Hydrogeological instability;
- Water scarcity;
- Increased temperatures;
- Heat waves.

The key themes identified to focus on within the project are:

➔ Maintenance:
  - Ordinary maintenance (better knowledge of the territory and landscape): wastewater nets; maintenance of water courses necessary interventions; downstream problem with poor channeling; vegetation;
  - Extraordinary maintenance: increase of pumps for tanks; repeated flooding; destruction of trees; over-accumulation of impacts on offices, difficulty in managing utilities consumption;

➔ Water Scarcity: water is more and more needed to sustain agriculture and for the industrial uses;

- ➔ Agriculture, industry and other businesses:
  - Damages to crops, decrease in yields;
  - Increased energy consumption for cooling;
  - Access to water;
  - Damaged buildings;
  - Need to support farms and local businesses for damages caused by climate change (drought, extreme events, etc.);

- ➔ Everyday life: daily issues
  - Mobility, need to rethink mobility in the area especially for public services;
  - Inadequacy and scarce appeal of slow mobility infrastructures;
  - Impermeability or poor permeability of soils;
  - Vegetation's key role and issues;
  - Lack of thermal comfort and consequent necessity to use of air conditioning;
  - Creation of marshes due to the clay soil;
  - Flooding (e.g. subway, watershed);
  - Car park problem;
  - Crossings;
  - Discomfort for weaker groups;
  - Increasing number of insects and seasonal allergies;

- ➔ Tourism: impact on tourism
  - Facilities damaged (cycle tracks, facilities for rural and naturalistic tourism);
  - Loss of seasonality;
  - Bad smells.

2. Creation of a local ecosystem of stakeholders:

Discussion: the key impacts and critical issues identified by the group work are summarized by the facilitators. Each stakeholder is invited to think about the opportunities and potential contribution (knowledge, skills, activities, etc.) and possible synergies related to a future project for the definition of a Landscape Adaptation Plan to Climate Change.

Summary of Results

Opportunities of the territory

- ➔ From the work group, different opportunities have been identified. They are directly identified with sub-areas, infrastructures or subjects whose involvement in the project could provide desirable adaptation conditions and synergic actions connecting different actors, sectors, land-uses, also in a circular economy perspective. These territorial opportunities are:
  - Railway Freight yard S. Donato;
  - Arboretum park (area Pilastro);
  - Ex Municipal Garden Centre;
  - Ortive area (Salgari Street);
  - Granarolo wastewater treatment plant.
  - Interporto (potential lab of experimentation for wastewater management, nature-based solutions; landscape and vegetation; renewable energy);

- ➔ The main cross-sector and transversal themes which have come out from the work-group are as follows :
    - Initiate actions to raise awareness of citizens and neighborhood residents about the need to implement a climate change adaptation projects;
    - Create a more mature environmental awareness;
    - The possibility of enhancing and rediscovering the biodiversity;
    - The possibility of acting directly on the network of public spaces and above all on the soft mobility system to improve the quality of the places;
    - The possibility of increasing public green spaces even for thermal regulation purposes;
    - Importance of incentives/legislative tools to promote virtuous actions and overcome bottlenecks;
    - Importance of connection with spatial and landscape planning tools;
    - Potential synergies and networks that may be established among different sites, sectors and actors to enhance social, natural and economic features of the pilot area, while improving its resilience and landscape quality (water resources;
    - Mobility and environmental infrastructures, etc.). .

Potential contribution related to a future project for the definition of a Landscape Adaptation Plan to Climate Change

The stakeholders have identified what may be available and the possible synergies between the various participants. The main potential contributions can be summarized as follows:

- Territory Analysis (Data/knowledge);
- Data and knowledge, raising awareness and dissemination in the agricultural world;
- Supply of historical data on crops and irrigation. CAP data;
- Study of impacts on the energy front;
- Community awareness;
- Constructive Support in identifying building and infrastructure solutions to respond to environmental and functional problems;
- Contribute with analysis results/pilot projects on mobility, water, waste;
- Triggering virtuous processes for circular economy;
- Sharing of the experience gained in environmental assessment and certification;
- Networking and involving other actors also for potential regeneration projects;
- promoting internal/external awareness and dissemination through the own business, financial and entrepreneurial network.

Closure

The organizers thank all the stakeholders for their active participation and recall that the elements that emerged in today's discussion will be the basis for the next workshop, in which possible adaptation solutions and themes/contents for a future plan will be identified, thus laying the basis for the roadmap for the future definition of the plan for the adaptation of the local landscape to climate change will be defined.

Climate-KIC is supported by the EIT, a body of the European Union

Picture(s) of the activity, presentation, raw outputs, etc.

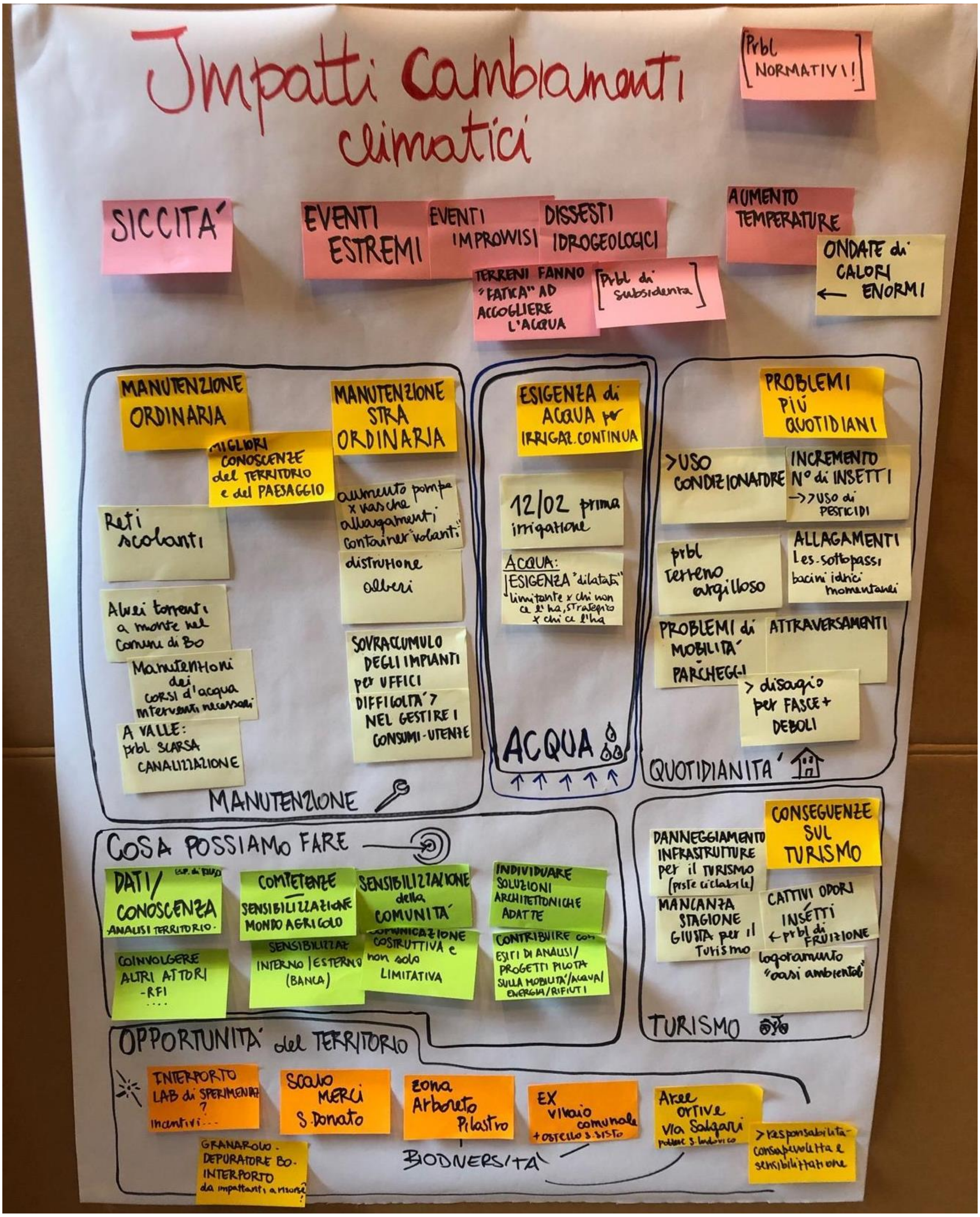





AELCLIC PATHFINDER

Bologna pilot landscape

Bologna Workshop, 16th May, 2019


Impatti cambiamenti climatici
Prbl NORMATIVI!
SICCITA'
EVENTI ESTREMI
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TERRENI FANNO "FATICA" AD ACCOGLIERE L'ACQUA
Prbl di subsidenza
MANUTENZIONE ORDINARIA
MIGLIORI CONOSCENZE del TERRITORIO e del PAESAGGIO
MANUTENZIONE STRAORDINARIA
Reti scolanti
aumento pompe x vasche allagamenti container volanti
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Alvei torrenti a monte nei Comuni di Bo
Manutenzioni dei corsi d'acqua interventi necessari
A VALLE: prbl SCARSA CANALIZZAZIONE
SOVRACCUMULO DEGLI IMPIANTI per UFFICI
DIFFICOLTA'? NEL GESTIRE I CONSUMI - UTENZE
MANUTENZIONE
ESIGENZA di ACQUA per IRRIGAZ. CONTINUA
12/02 prima irrigazione
ACQUA: ESIGENZA "dilatata" limitante x chi non ce l'ha, strategico x chi ce l'ha
ACQUA
PROBLEMI PIÙ QUOTIDIANI
>USO CONDIZIONATORE
INCREMENTO N° di INSETTI -> >USO di PESTICIDI
prbl terreno argilloso
ALLAGAMENTI es. sottopassi bacini idrici momentanei
PROBLEMI di MOBILITA' PARCHEGGI
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> disagio per FASCE + DEBOLI
QUOTIDIANITA'
COSA POSSIAMO FARE
DATI/CONOSCENZA ANALISI TERRITORIO
COMPETENZE SENSIBILIZZAZIONE MONDO AGRICOLO
SENSIBILIZZAZIONE della COMUNITA'
INDIVIDUARE SOLUZIONI ARCHITETTONICHE ADATTE
COINVOLGERE ALTRI ATTORI - RFI
SENSIBILIZZAZ. INTERNO/ESTERNO (BANCA)
COMUNICAZIONE COSTRUTTIVA e non solo LIMITATIVA
CONTRIBUIRE con ESITI DI ANALISI/PROGETTI PILOTA SULLA MOBILITA'/ACQUA/ENERGIA/RIFIUTI
DANNEGGIAMENTO INFRASTRUTTURE per il TURISMO (piste ciclabili)
CONSEGUENZE SUL TURISMO
MANCANZA STAGIONE GIUSTA per il Turismo
CATTIVI ODORI INSETTI <- prbl di FRUIZIONE
logoramento "oasi ambientali"
TURISMO
OPPORTUNITA' del TERRITORIO
INTERPORTO LAB di SPERIMENTAZ.? incentivi...
Scalo MERCI S. Donato
Zona Arboreto Pilastro
EX vivaio comunale + OSTELLO S. SISTO
Aree ortive Via Salgari
GRANAROLO - DEPURATORE Bo - INTERPORTO da impattanti a risorse?
> responsabilità - consapevolezza e sensibilizzazione
BIODIVERSITA'

SUMMARY:

- Participants agree in being part of the local network of stakeholders;
- Participants agree in being updated on the project's phases and development;
- Participants agree in being involved in the second workshop to be held on September 18th;
- Participants agree in using their logos on the project official website;
- Participants confirm their interest in being involved in a future project for the definition of the plan;
- Level of Achievement of the expected outcomes: 5 out of 5.
- Main Shortcomings or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- Main Reasons for the successful achievement of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions.
- Learnt lessons and recommendations for similar activities in the same place/other places: stakeholders active in other areas have showed a great interest in sharing their own experience and have highlighted the availability and opportunity to connect other areas to the core area already identified, to benefit from networking at a broader scale. AELCLIC activities on the Bologna pilot landscapes have thus proved effective also in promoting positive impact and possible connections with other sites in the metropolitan area of Bologna.
- Level of influence of the local characteristics (social, geographical, etc) in the development of the activity: 5 out of 5.

Authors of the Report:
Fondazione Innovazione Urbana
University of Bologna

ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: September 18, 2019 - from 3.30 p.m. to 6.30 p.m.
PLACE: Fondazione Innovazione Urbana, Piazza Maggiore 6, Bologna
ORGANIZERS: University of Bologna, Municipality of Bologna and Fondazione Innovazione Urbana

PARTICIPANTS:
Organizers

- University of Bologna: Daniele Torreggiani, Patrizia Tassinari, Ludovica Marinaro, Giulia Gatta
- Municipality of Bologna: Giovanni Fini
- Fondazione Innovazione Urbana: Valeria Barbi, Federico Salvarani, Marta Bertolaso

Stakeholders who accepted to join the network of stakeholders:

- Giuseppe De Togni, Municipality of Bologna
- Julia Colver, Nomisma
- Marco Spinedi: interporto Bologna
- Marco Caliceti: Confagricoltura Bologna
- Claudio Cervellati, Confagricoltura Bologna ed Emilia Romagna
- Michele Solmi: Consorzio Bonifica Renana
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- Marco Odaldi: AESS (Agenzia Energia e Sviluppo Sostenibile) Modena
- Andrea Bruini: Granarolo Group
- Mirella Di Stefano: Granarolo Group
- Lucia Fresa: Agenzia del Pilastro
- Chloy Vlamidis, Agenzia di Sviluppo Pilastro

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- Fondazione FICO
- CAAB
- Orogel
- Inalca
- Coldiretti Bologna, Carlo Cavallina
- Quartiere San Donato - San Vitale, Simone Borsari
- Orti Salgari, Patrizia Preti
- Francesco Palmieri: Bologna Welcome
- Carmine Preziosi: ANCE Bologna (Board of Builders)

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This workshop, co-organized by University of Bologna, Municipality of Bologna and Fondazione Innovazione Urbana, is the second one organized in the “north-eastern fringe areas of Bologna”, selected as one of the 16 pilot landscapes where the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this second workshop aims at consolidating the network of the local stakeholders connected, at different levels, with the pilot area. It defines the diagnosis of impacts of the climate change on the pilot area, and co-identifies the possible structure and the contents (themes, goals, solutions, actions and roles) for the future definition of a Landscape Adaptation Plan to Climate Change.

The workshop, attended by 20 persons, representatives of the local stakeholder's ecosystem and the event organizers, has been hosted at the headquarters of Fondazione Innovazione Urbana, whose staff provided specialized support aimed to facilitate the participatory process.

The main objectives of the workshop could be summarized as follows:

- Summarize the results of the first workshop and implement them;
- Evaluate the interest of the stakeholders who were not present at the first workshop, in collaborating in the project and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;
- Consolidate the networking between the stakeholders and with the project's partners;
- Map the perception and awareness of the network about climate change issues, carrying out a co-identified diagnosis of climate change impacts in the pilot area;
- Trigger a landscape centered approach to cope the goals of climate change adaptation starting from a landscape characterization of the pilot area and an overview of projects and programs carried out both locally and internationally.
- Co-define the structure and the contents (in terms of themes, goals, solutions, actions and roles) for the definition of a Landscape Adaptation Plan to Climate Change;
- Discuss about the opportunity to apply for a follow-up EU project after this pathfinder (e.g. Climate KIC Demonstrator call for proposals).

All the stakeholders invited to the discussion declared and confirmed their interest in collaborating, with different modalities and contributions, to the projects. They also accepted to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

3.30 – 3.40 p.m. | Welcoming speech and synthesis of the first workshop's results

- Valeria Barbi – Fondazione Innovazione Urbana: welcoming of the participants and description of the agenda.
- Daniele Torreggiani – professor of the Department of Agricultural and Food Sciences of the University of Bologna: brief summary of the results of the first workshop and description of the objectives of the work to be carried out in the first phase of the workshop.

3.40 – 4.30 p.m. | PHASE 1: Implementing the impact diagnosis: definition of the hierarchy of climate change impacts in the various areas of the pilot area.

- The **first group work** (led by Valeria Barbi and prof. Daniele Torreggiani) involves the use of an online application (Mentimeter) for the simultaneous management of data and the creation of graphs that allow identifying the relevance attributed by the stakeholders to the various impacts of climate change on the different homogeneous areas of the pilot area (see annex 1 to the present document).
- Ludovica Marinaro (University of Bologna) - Illustration of the characterization of the various spatial units of the pilot landscape.
- The **second group work** (led by Valeria Barbi and prof. Daniele Torreggiani) using Mentimeter, is aimed at identifying the relevance attributed by stakeholders to the various impacts of climate change on the various structural landscape units of the pilot area, whose

definition derives from the landscape characterization previously introduced (see annex 1 for the related graphs).

4.30 – 5.30 p.m. PHASE 2 | Suitable adaptation solutions for the pilot area

- Ludovica Marinaro – University of Bologna. Illustration of plans, projects and solutions carried out at local and international level in the climate change's adaptation field, with reference to the main structural units of the pilot landscape.
- **Third group work** carried out on aerial images, aimed at mapping and outlining desirable strategies, solutions, opportunities and projects for adapting the pilot landscape to climate change. The stakeholders are invited to think about the evolution of the landscape starting from the identified structural units. The organizers to define the inputs for the third phase of the workshop systematize the brainstorming of this group work.

5.30 - 6.30 p.m. PHASE 3 | THEMES, OBJECTIVES AND ACTIONS of the plan for the adaptation of the pilot area to climate change and ROLES of the stakeholders

- Brief illustration of the group work for defining the structure and contents of the Plan. A draft version of the structure and contents of the Plan, prepared by the organizers based on the outputs of the first workshop and further implemented in real time using the outputs of the brainstorming sessions of the previous phases of this second workshop, is showed in a large paper format.
- Focus group with all the stakeholders (led by University of Bologna with the support of the Municipality of Bologna and FIU) aimed at:
    - Sharing the structure of the future LACAP;
    - Co-identifying the contents of the various parts of the Plan: THEMES, OBJECTIVES, SOLUTIONS, ACTIONS and ROLES of the stakeholders.

  The outputs of the focus group are implemented in the draft structure of the Plan.
- Daniele Torreggiani – University of Bologna. Summary of the results of group work and sharing of the results achieved for the future LACAP.

6.30 Closing of the works and networking cocktail

Daniele Torreggiani – University of Bologna. Closing and general thanks

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)

PHASE 1 | Implementing the impacts diagnosis: Starting from the results of the impact analysis carried out in the first workshop, the stakeholders are asked to verify the number and the level of perceived importance and relevance of the various climate change impacts on the pilot landscape.

The climate change impacts that have been confirmed by the network have been grouped into three main impacts. This result is also consistent with the results of the Climate Change Adaptation Plan of Bologna – BlueAp. The key impacts identified are as follows:

- Drought and water scarcity;
- Extreme events;
- Increased temperatures and heat waves.

After confirming the main perceived impacts on the pilot landscape, the work has been carried out with the help of the Mentimeter app. Each stakeholder has been asked to assess (very low, low,

medium, strong, and very strong) the perceived importance and severity of each CC impact on the main regions of the pilot landscape.
After the illustration of the characterization of the landscape of the pilot area (UniBo), and the identification of its structural units, the stakeholders have then been asked to rate the severity of each CC impact on the various structural units of the pilot landscape (very low, low, medium, strong, and very strong).

Summary of Results:
All the stakeholders have participated actively, contributing to sum up the common perception of the severity of climate change impacts. The results of this focus group are in annex 1 to this report. Temperature increase is perceived as severe problem on average over the entire pilot area, especially on parking areas, on paved areas in general, and on agricultural areas. The consequences of drought are perceived especially on green and cultivated areas, while the effects of heat waves especially on green areas, agricultural areas and pedestrian ways.

PHASE 2 | Suitable adaptation solutions for the pilot area
The first part of this section was aimed at illustrating a selection of projects and programs both at a local and international scale, which can be assumed as reference for the definition of CC adaptation solutions. Examples of projects carried out in the Municipality of Bologna and other European and international contexts have been presented. This is followed by an excursus of the most important, recent and innovative climate adaptation plans implemented in different European and international metropolitan contexts to offer useful examples about possible structures and visions.

Discussion: The work was conducted using aerial images of the pilot area and stickers of 7 different colors (1 for solutions and 6 for actions), to allow the stakeholders to differentiate the Solutions and the different types of actions. UNiBO maps on the areal images the solutions and actions identified in the focus group. To trigger a fruitful discussion the organizers prepared some examples of solutions derived from the results of the first AELCLIC workshop, the analysis of the climate change adaptation plan of Bologna and inspired by the most relevant CC adaptation plans at the international level. Each stakeholder has been invited to think about the suitable solutions and relative actions for the future LACAP.

The solutions and actions identified are as follows:

The opportunity to perform some data analysis and assess the real dimension and evidence of CC impacts on the pilot area and to assess the economic impact of CC. This proposal can be considered a preliminary action for each solution proposed.
One of the solutions should address the improvement of the quality of the built heritage and architecture. It would be useful to consider bioclimatic, traditional and sustainable technologies that can help to improve the energetic efficiency of the built heritage of the pilot area, as for instance some wind towers, green walls, green roofs, etc.

It would be important to provide some solutions integrating the production of energy from renewable sources. The network proposes to integrate photovoltaic panels inside the parking areas and on the roofs of industrial and commercial buildings, balancing these last potential interventions with green roofs (always considering their maintenance costs).

All the stakeholders converge on the proposed solution of creating a **linear system of green areas** including a slow mobility network (bike lanes). In the perspective of increasing the amount of high-

quality green areas, it is important to pay attention to the maintenance costs and tasks. Some green areas of the pilot area, which already represent an attraction in themselves, could be connected and increase their degree of accessibility. In general, the pilot area is already well equipped with gardens, especially the Pilastro neighborhood, hence the supposed interventions must act to better connect the urban tissue with green infrastructure. The design will have to pay specific attention to the choice of plant species able to withstand extreme events in order to reach conditions of continuous safety of users as well as of movable and immovable property.

The stakeholder agree with the necessity and the opportunity to create a solution for the **water management** for the entire pilot area. Water management in fact could be considered as one of the major themes for the pilot area. The solution of creating an interconnected system for the storage, treatment and distribution of rainwater may help in mitigating extreme events and reusing water when/where it becomes a scarce resource. The solution aims at creating a virtuous water cycle in the neighborhood. If the excess of water gives problems to urbanized areas and the lack of water gives problems to green/agricultural areas, close to each other in the pilot area, the LACAP should plan a solution to establish a virtuous connection.
In general, the network agrees to identify solutions related to water storage, which could be performed through systems for micro-accumulation in the rural territory or larger reservoirs, retention basins which could also have a naturalistic value; and through bios wales, raingardens and road-related blue infrastructures in the urban areas. Unused areas may be used for the creation of retention basins.
Industrial water storage and treatment would call for different solutions. The reclamation consortium is working to find water from wastewater treatment plants, especially for agriculture. Therefore, the LACAP may focus on solutions related to water recycling for green areas.

To address drought in agricultural areas, according to the stakeholders it is necessary to combine a reduction in the use of water, accumulation, precision agriculture, and the adoption of draught-resistant cultivars.

One of the other complementary solutions that the LACAP should address concerns **education and communication**. This is necessary not only to provide dissemination of the pilot projects and solutions, but also to increase awareness about climate change effects on the landscape. Platforms, awareness raising campaigns, training about green areas and urban health should be considered.

Summary of Results: The discussion was lively and full of ideas. Each stakeholder has actively contributed to the definition of the solutions and the subsequent definition of many of the information necessary to support their implementation. It clearly emerges the need to establish priorities not only for the plan, but also more generally for the prospects of use and transformation of the pilot area. It is therefore necessary to establish priorities and avoid conflicting actions in the plan, which can therefore inspire the solutions, share a hierarchy of interventions and guide the transformation of the landscape of the pilot area.

PHASE 3 | THEMES, OBJECTIVES AND ACTIONS of the plan for the adaptation of the pilot area to the CC and ROLES of the stakeholders

Discussion:
After a brief explanation of the work for the third phase of the workshop, the organizers illustrate the draft structure of the Plan taking prepared considering the results of the first workshop and previous

brainstorming sessions of this second workshop, and the analysis of examples and models at international level. The structure that is presented constitutes the strategic and design framework for the future creation of the LACAP. It identifies the THEMES; the OBJECTIVES, which can be linked to more than one theme; the SOLUTIONS formulated to face the major impacts of climate change detected in the pilot area, and the ACTIONS needed to implement them, subdivided into 6 types (analysis, diagnosis, project, pilot actions, monitoring and communication). The LACAP structure also contains a section about the roles of the members of the network, to be linked to specific actions. The group shares and confirms the themes identified by the basic structure of the plan.
The discussion then focuses on the part dedicated to solutions and actions to summarize and give concrete expression to the proposals that emerged in the second phase. The network agrees on the solutions of the draft version prepared by the organizers based on the elaboration and development of the previous results, configured as "integrated landscape strategies". Some additional solutions are discussed and added, as follows:

- A water management solution aimed at creating a closed-cycle water system for the neighborhood.
- The creation of a linear system of green public spaces that include the soft mobility network, improve the climatic comfort of existing roads, connect existing green areas and provide better services for the neighborhood in general. This solution, aimed to give greater impulse to the circular economy, must be calibrated to consider the authorization procedures and regulation-related issues. According to the network, various bottlenecks related to the current legislation system reduce the implementation of innovative projects in the rainwater reuse or renewable energy auto production field at the neighborhood or block level. The LACAP may thus focus on those bottlenecks to facilitate the implementation of adaptation solutions. This task may be included for each solution or may be defined as a specific solution. The actions may facilitate the creation of energy communities with the active involvement of the population.
- The third solution may focus on the built environment, to increase its resilience in terms of energy efficiency and energy production.
- A fourth solution may focus on education and communication about climate change effects on landscapes. This solution would include information campaigns, training courses, open construction sites and concrete demonstration actions of adaptation projects as well as the effects of climate change.

Summary of Results
The LACAP may be defined as a masterplan defining the specific adaptation scenario of the pilot area. The future steps of development of the LACAP should address the necessary preliminary analytical and diagnostic phases, analyze the technical and economic feasibility of the various solutions, and study and design them in detail, within a general and coordinated vision, and considering the relationships and mutual connections among the various solutions and landscape systems.

The stakeholders agree that a follow-up project should focusing both on developing a masterplan (that would provide guidelines for future public and private developments and actions in the pilot area), and on real demonstration actions. Pilot actions should be considered as part of a broader unitary strategy, and as innovative actions planned and conceived within a more general framework allowing to demonstrate the potential beneficial effects of various scenarios where those solutions can be scaled-up.

The organizers will integrate the draft LACAP structure resulting from this workshop and circulate it to the network of stakeholders, in order to allow them to send any further comment and suggestion and to confirm/express their potential contribution (in terms of knowledge, skills, activities, synergies, etc.) related to a future project for the development of the Landscape Adaptation Plan to Climate Change. The potential contributions identified by the stakeholders so far are as follows:

- Territory Analysis (Data/knowledge);
- Risk analysis and risk evaluations;
- Data and knowledge, raising awareness and dissemination in the agricultural world;
- Supply of historical data on crops and irrigation. CAP data;
- Study of impacts on the energy front;
- Community awareness;
- Constructive Support in identifying building and infrastructure solutions to respond to environmental and functional problems;
- Contribute with analysis results/pilot projects on mobility, water, waste;
- Triggering virtuous processes for circular economy;
- Sharing of the experience gained in environmental assessment and certification;
- Networking and involving other actors also for potential regeneration projects;
- Promoting internal/external awareness and dissemination through the own business, financial and entrepreneurial network.

Closure

The organizers thank all the stakeholders for their active participation. The stakeholders confirm their interest in further developing the activities on the pilot landscape and in the future development of the LACAP.

Picture(s) of the activity, presentation, raw outputs, etc.

AELCLIC PATHFINDER

Bologna pilot landscape

Bologna Workshop, 18th September, 2019

SUMMARY:

- Participants agree in being part of the local network of stakeholders;
- Participants agree in being updated on the project's phases and development;
- Participants agree in being involved in a next workshop or meeting;
- Participants agree in using their logos on the project official website;
- Participants confirm their interest in being involved in a future project for the definition of the plan;
- Level of Achievement of the expected outcomes: 5 out of 5.
- Main Shortcomings or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- Main Reasons for the successful achievement of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions. They are also interested in being promoters of a new approach with concrete actions.
- Learnt lessons and recommendations for similar activities in the same place/other places: The stakeholders and the group in general want to achieve a concrete result and have shown interest in continuing the experience towards its realization. They aim to create a coherent, organic and innovative plan that can be configured as a model experience in urban areas and beyond.
- Level of influence of the local characteristics (social, geographical, etc.) in the development of the activity: 5 out of 5.

Authors of the Report:
University of Bologna
Fondazione Innovazione Urbana

ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: May 13, 2019 - from 10 a.m. to 1:45 p.m.
PLACE: Comune di Mantova, Palazzo Soardi, Sala degli Stemmi, Mantova
ORGANIZERS: University of Bologna, University IUAV of Venice

PARTICIPANTS:
Organizers

- University of Bologna (AELCLIC partner): Daniele Torreggiani
- University IUAV of Venice (AELCLIC Third Party): Anna Marson, Francesco Musco, Denis Maragno

Stakeholders who accepted to join the network of stakeholders:

- Gabriella Montanarini, Municipality of Mantova
- Sandra Savazzi, Municipality of Mantova
- Elisa Parisi, Municipality of Mantova
- Monica Bedini, Municipality of Mantova, UNESCO office
- Giulia Moraschi, Municipality of Mantova
- Marcella Ghidoni, Municipality of Mantova
- Iva Tiziana Silvestrin, Municipality of Mantova
- Roberta Marcacciaro, Municipality of Mantova
- Francesca Paini, Municipality of Mantova
- Stefano Pasquali, Province of Mantova
- Renzo Bonatti, Province of Mantova
- Cristiano Guernieri, Architects Professional Association of Mantova
- Cristina Alinovi, Centro Studi PIM (MI)
- Simone Massari, Mantova Ambiente, gruppo MEA Spa
- Sandro Sutti, Labter Crea Mantova
- Monica Viviani: “Gazzetta di Mantova”
- Fausto Ugozzoli, Aerodron Srl

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- Edoardo Tolasi, Ordine Agronomi forestali,
- Luisa Pedrazzini, Lombardy Region

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This workshop is the first one organized in the “city of Mantova”, selected as one of the 16 pilot landscapes where the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this first workshop, to whom participated 21 persons, representatives of the local stakeholder’s ecosystem and the event organizers, aims at involving local stakeholders with the pilot area, to present them the project and allow them to co-identify the impacts of climate change on the local landscape as a first step for the future definition of a Landscape Adaptation Plan to Climate Change.

The main objectives of the workshop could be summarized as follows:

- Explain and describe the project to the local stakeholders ecosystem;

- Ease the contact and the networking between the stakeholders and with the project's partners;
- Explore their knowledge and awareness about climate change issues, and carry out a co-identified diagnosis of climate change impacts they know or perceive in the pilot area;
- Evaluate their interest in collaborating in the project and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;

All the stakeholders invited to the discussion declared their interest in collaborating in the project. They also accepted to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

10.00 a.m. Welcoming speech and general thanks

- Andrea Murari, municipality of Mantova: welcoming of the participants,
- Daniele Torreggiani – professor of the Department of Agricultural and Food Sciences of the University of Bologna: presentation and description of the afternoon's agenda, description of the AELCLIC project, work-plan and activities in the pilot area; main climate change impacts in the region;
- Anna Marson, University IUAV of Venice: landscape policies and practices
- Francesco Musco, University IUAV of Venice: the climate change adaptation in the current urban planning.
- Denis Maragno, University IUAV of Venice: presentation of the "Resilient Mantova Guidelines".
- The participants briefly introduce themselves.

11.30 a.m. Coffee break

11.45 a.m. Group Work on climate change impacts diagnosis and identification of key issues for the creation of the adaptation plan

Participants work on the diagnosis of critical issues and impacts related to climate change, describing the already tangible and predictable consequences they notice or experience in the pilot area. The discussion aims also at pointing out any critical issue and the opportunities for the creation of concrete strategies for the climate change adaptation.

1.45 p.m Closure

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)

1. Downscaling analysis of climate change impacts

2. Proposal of opportunities for the adaptation plan.

The workshop allowed identifying the principal perceived impacts of climate change on the city of Mantova and at the same time, the bottlenecks in terms of both planning, administration and management of the territory to better face the challenge of climate change adaptation. From this discussion, a list of perceived impacts emerged, reflecting a hierarchy of importance attributed, and proposals divided by themes and areas that could help define the adaptation strategies.

Discussion:
Identification of the problem:

- What impacts derive from Climate Change?
- Critical issues related to climate change
- Impacts on the local landscape, in terms of life, environment, local productive and economic activities, cultural and natural heritage, wellbeing of inhabitants.
- Which could be the critical issues and opportunities for the creation of the adaptation plans?

1. Downscaling analysis of climate change impacts: participants have started from an analysis of general and widespread climate change impacts, bringing out their perception.

The key impacts identified are:

- Increased temperatures;
- Heat waves;
- Air quality;
- Extreme events;
- Water scarcity;
- Flooding;
- Invasion of alien species;
- Eutrophication of lakes;
- Increasing number of insects and seasonal allergies;
- Sudden events;
- Hydrogeological instability;
- Negative impacts on tourism industry;

2. Proposal of strategies for the adaptation plan. Starting from the identification of the main criticalities and obstacles detected on the territory both on the administrative, regulatory, cultural and infrastructural level, possible key themes and approaches are identified to assist the creation of a climate adaptation plan.

The key themes and the approaches identified to focus on within the project are:

➔ Policy integration:

- Making sure that the landscape is assumed as "heritage" in climate change adaptation policies in order to have policies more attentive to the intrinsic nature of the place;
- Integrate the perspective of climate change into landscape and heritage action plans. A first moment of experimentation could be the new UNESCO site management plan.
- Build a synergy with the Soprintendenza in order to include it in the project and start a process of integration of landscape protection policies so that they can include and foster climate change adaptation strategies;
- Shift from burden based landscape policies to design based and rewarding ones;
- Create a nexus between the landscape policies and the organization systems;
- Look for adaptive strategies to inform both urban planning and sectoral plans;
- Maintain consistency and consider the National Energy Strategy (SEN) and the National Integrated Energy and Climate Plan (PNIEC);

- ➔ Localization and measure of impacts
  - Map the impacts found, giving precise localization and description in order to have a synthetic and exhaustive picture of the perceived phenomena.
  - Define how to measure the impacts in order to share and collect precise data and create a common language.

- ➔ Projects for the transformations of urban public spaces:
  - Promote green infrastructures projects and nature-based solutions as coherent and integrated strategies for the climate change adaptation within the urban plans.
  - Promote the project and transformation of public green and neighborhood areas so that they can respond to the needs and expectations of citizenship becoming more attractive than air-conditioned enclosed spaces.
  - Redesign the network of urban public spaces to increase their resilience according to an incremental approach. “Implement the experience Resilient Mantova”.
  - Rethink and codify the ways in which private property spaces, whether parts of buildings or open spaces, can contribute to the increase in urban green areas.
  - Promote incentives and reward policies for urban forestry interventions.
  - Allocate funds and provide investments for green area’s management whether they are valuable or neighborhood areas.

- ➔ Water Use
  - Foster a more conscious management of water both in private and in public areas, whether it means manage wetlands and marshes or the Mincio’s River system.
  - Improve the interaction between the various subjects involved in the "river contract" of the Mincio, harmonizing the objectives of development and management of the river system so that they also contemplate strategies of adaptation to climate change.

- ➔ Communication and sensibilization
  - Promote awareness of the effects of climate change and launch specific awareness-raising campaigns
  - Reform the design culture of public space by launching specific actions with professional associations.
  - Highlight the importance of green public spaces for the entire city and for single neighborhood.
  - Involve private individuals in the implementation of good practices through reward policies and tax incentive systems.

- ➔ Mobility
  - Need to rethink mobility in order to cope a double goal: reduce emissions and produce mitigations by implementing the green public areas system.
  - Redesign the slow mobility infrastructures in order to confer attractiveness to it;

- ➔ Soil consumption
  - Find strategies to stem the impermeability or poor permeability of soils;

Discussion: the key impacts and critical issues identified by the group work concur to form a first framework of the effects of climate change on the pilot case of the city of Mantua.

Summary of Results:
The local stakeholders involved at the table proved to participate in the discussion actively intervening and identifying various impact problems caused by climate change. Thanks to the contribution of the individual experiences of each of the stakeholders involved and of the suggestions that the organizers provided during the workshop, the discussion has been animated, producing a good level of interaction that eventually led to shared results. In addition to the identification of a list of impacts, the outcome of the workshop is the definition of key issues and proposals for the creation of a climate change adaptation plan.

Closure
The organizers thank all the stakeholders for their active participation and recall that the elements that emerged in today's discussion will be the basis for the next workshop.

Picture(s) of the activity, presentation, raw outputs, etc.

AELCLIC PATHFINDER

Mantova pilot landscape

Mantova Workshop, 13th May, 2019

SUMMARY:

- Participants agree in being part of the local network of stakeholders;
- Participants agree in being updated on the project's phases and development;
- Participants agree in being involved in the second workshop to be held on July 16th;
- Participants agree in using their logos on the project official website;
- Participants confirm their interest in being involved in a future project for the definition of the plan;
- Level of Achievement of the expected outcomes: 5 out of 5.
- Main Shortcomings or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- Main Reasons for the successful achievement of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions.
- Learnt lessons and recommendations for similar activities in the same place/other places: stakeholders have showed a great interest in sharing their own experience and have highlighted the availability to participate to AELCLIC project. Opportunity of deepening specific aspects of synergy between public bodies at different levels, and of strengthening synergies between public and private stakeholders.
- Level of influence of the local characteristics (social, geographical, etc) in the development of the activity: 5 out of 5.

Authors of the Report:
University of Bologna
University IUAV of Venice

ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: July 16, 2019 - from 3.00 p.m. to 6:00 p.m.
PLACE: Biblioteca Comunale Teresiana, Sala Teresiana, Via Ardigò 13, Mantova
ORGANIZERS: University of Bologna, University IUAV of Venice

PARTICIPANTS:
Organizers

- University of Bologna (AELCLIC partner): Daniele Torreggiani, Ludovica Marinaro
- University IUAV of Venice (AELCLIC Third Party): Francesco Musco, Denis Maragno

Stakeholders who accepted to join the network of stakeholders:

- Professional association of agronomists of Mantova: Marco Goldoni;
- Lombardy Region: Luisa Pedrazzini;
- Municipality of Mantova: Sandra Savazzi; Elisa Parisi; Sofia Salardi; Mariangela Busi; Roberta Marchioro;
- Consorzio di Bonifica Territori del Mincio: Barbara Schiavinato;
- Mantova Ambiente, gruppo MEA Spa: Simone Massari;
- Labter Crea Mantova: Sandro Sutti;
- Gazzetta di Mantova: Monica Viviani;
- Aerodron Srl: Romeo Broglia.

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- **Municipality of Mantova**: Giulia Moraschi; Monica Bedini; Gabriella Montanarini; Iva Tiziana Silvestrin; Francesca Paini; Marcella Ghidoni
- **Centro studi PIM**: Cristina Alinovi
- **Mantova Ambiente, gruppo TEA Spa:** Giorgio Grossi

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This is the second workshop organized in the “city of Mantova”, selected as one of the 16 pilot landscapes where the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this second workshop, attended by 16 persons, representatives of the local stakeholder’s ecosystem and the event organizers, aims at defining and mapping the relevant impacts of climate change for the study area and at co-defining the contents and structure of a future Landscape Adaptation Plan to Climate Change (LACAP).

The main objectives of the workshop could be summarized as follows:

- Providing a brief explanation and description of the project, mainly for the benefit of those who did not attend the first workshop;
- Facilitating the contact and the networking between the stakeholders and with the project’s partners;
- Co-identifying a diagnosis of climate change impacts known/perceived by the stakeholders in the pilot area;

- Evaluating the interest of the new stakeholders and confirm that of the already existing network in collaborating in the project, and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;
- Co-defining the possible contents of a future plan for adapting the pilot landscape to climate change and how it may be connected to spatial and land use plans and other sector plans.

All the stakeholders invited to the discussion, new participants included, have confirmed their interest in collaborating in the project. They have also welcomed to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

3.00-3.15 p.m. The AELCLIC project: towards a Landscape adaptation plan to climate Change, the second Workshop.

• Opening welcome, brief presentation of the project and presentation of the agenda
• Summary of the results of the 1st workshop
• The stakeholders introduce themselves

3.15 – 4.00 p.m. | Changing landscapes and shared strategies to inhabit them.

Implementation of the results of the first workshop, both for the diagnosis of the impacts of climate change on the landscape, and for the future definition of the plan for adapting the landscape to climate change.

- Coding and mapping of climate change impacts on the pilot area, understanding their potential effect on the landscape. The group work has been based on some thematic maps illustrating some of the main effects of climate change detected during the first workshop (eg. Temperature rise and heat waves - See the report of the first workshop).
- Definition of adaptation opportunities and strategies, also referring to the different types of urban areas.

4.00 – 5.15 p.m. | The future Plan: Content and structure.

- Open discussion focused on the co-definition of the possible structure and contents of the future LACAP. The project activities, benefitting of the previous work carried out in the pilot area by the city of Mantova and IUAV, aim at creating added-value by co-defining the contents of a future Landscape Climate-Change Adaptation Plan, intended as a systemic and cross-sector document lending support to spatial and sector planning, also based on some examples and best practices in the international context.

5.15 – 6.00 p.m. | A roadmap for the plan.

Since the goal of the project is the creation of *"regional/local consortia with the **social, financial, administrative and technical capacity** to co-define in the future Landscape Adaptation Plans to Climate Change",* this last part is aimed at defining what will be needed to create the plan in terms of knowledge, activities and resources (already available or to be acquired), as well as at exploring how the future plan may be connected to spatial and land use plans and other sector plans.

6.00 p.m. | Closure

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)

1. Definition of climate change impacts on the pilot area and understanding their potential effect on the landscape.

2. Initial draft of the contents and the structure of the future LACAP

1. Defining the climate change impacts on the pilot area and understanding their potential effect on the landscape: Starting from the results of the previous workshop and looking at an aerial image of the city and at a thematic map representing the summer heat wave effects, the participants discuss about the perceived impacts in the various parts of the city.

The workshop has allowed to confirm the main perceived impacts of climate change on the city of Mantova emerged during the first workshop. From this discussion, the list of perceived impacts has been confirmed/implemented. This updated list now thus reflects a hierarchy of importance attributed to each climate change effect. The proposals outlined to face these effects are then divided by themes and areas that help defining the adaptation strategies.

The key impacts confirmed are:

- Increased temperatures;
- Heat waves;
- Air quality;
- Extreme events;
- Water scarcity;
- Flooding;
- Invasion of alien species;
- Eutrophication of lakes;
- Increasing number of insects and seasonal allergies;
- Sudden events;
- Hydrogeological instability;
- Negative impacts on tourism industry.

2. Proposal of strategies for the adaptation plan. Starting from the identification of the main critical issues and obstacles detected on the territory both on the administrative, regulatory, cultural and infrastructural level, the key themes and approaches identified during the first workshop have been confirmed and led to the further formulation of the contents of the future LACAP.

The key themes identified are:

- ➔ Policy integration:
- ➔ Policies and actions for the transformations of urban public spaces
- ➔ Mobility
- ➔ Water Use and management
- ➔ Soil consumption
- ➔ Communication and awareness raising

Discussion: the key impacts and critical issues identified by the group work contribute to define the framework of the effects of climate change on the pilot case of the city of Mantova. The results of

the first workshop have been confirmed and the discussion has allowed to investigate the main impacts on the landscape of the main climate change drivers, such as the increase in temperatures and urban heat island effects. Some thematic maps, portraing the main impacts identified, have allowed the stakeholders to evaluate how the urban fabric and the configuration of the public space currently facilitates or complicates an effective adaptation. The attention has been focused, for example, on the important role of vegetation in public spaces and open spaces in general, making it clear its effective contribution in reducing air pollution and improving air quality, thermal well-being and increasing sociality and use of places. This work has also allowed to discuss more clearly some impacts that had been treated less extensively during the first workshop. In particular, the effects of high-speed winds and the important role of vegetation in screening winds and affecting air circulation have been discussed. It also allowed to further stimulate the critical awareness of the network, inviting the participants to work in a landscape scenario perspective. This step, far from aiming at an exhaustive mapping, has proved useful to trigger the second part of the workshop.

2. Initial draft of the contents and structure of the future LACAP

In the second part of the workshop, the discussion has been aimed at outlining the fundamental contents and a possible structure of the future LACAP. Some fundamental characteristics of the LACAP and the role it may play in connection with the spatial planning tools have also been discussed.

The LACAP will have a systemic and cross-scale nature. Although it will be calibrated for the urban scale of the city of Mantua, it will have a particular impact on ecosystems, this calling for the need to define consistent strategies capable of interacting with even wider territorial systems.
The plan will therefore provide complementary strategies both on the urban and broader scale.

The institutional and regulatory framework

- **Agreements with the authorities responsible for territorial governance and landscape protection.** One of the general and priority criteria for drafting the plan concerns the need to establish the necessary synergies with the bodies responsible for the protection and government of the territory and the landscape at the various scales: Region, Superintendence of Cultural Heritage, Basin Authority and local administrations. The relationships that must be established with the region and with the superintendence are of particular importance, so that the adaptations to climate change foreseen are always consistent with the need to protect, conserve and promote the urban, architectural and in general cultural heritage of the city.
- **Integration and complementarity with existing plans and instruments.** Consequently, there is the need to formulate a general strategy of integration and dialogue with the urban planning instruments in force at the various scales and with the various sector plans. The future LACAP will have to constitute an integrative and corrective level of the transformation and protection policies of the urban landscape of Mantova. The LACAP may act as a layer connecting the various sector plans, through landscape as a linking key, with particular reference to the connections with:
    - the new Landscape Plan: relevant in-depth studies to be carried out at higher scales. Possibility that the plan contributes to influence the criteria of attribution of the classes of landscape sensitivity.
    - the PGT (urban land management plan) under revision, the maintenance of its knowledge framework, and its monitoring.
    - all the relevant sector plans: mobility, vegetation and green areas, energy etc.

- the CAP and biodiversity and landscape quality goals.
- the emergency management plan, for what concerns earthquakes, extreme events and sever climate conditions, etc.

Systemic actions on a broad territorial scale

- **Strengthening the ecological network**
  The plan will have to act on the existing ecological network by promoting actions aimed at strengthening it and recreating/mending /implementing it where necessary. The LACAP should take advantage of the opportunities related to the potential synergies with the new multifunctional green network under definition by the Lombardy region, based on the ecologic network and its further development with reference to cultural, naturalistic and agricultural aspects. The network is drawn at the regional level and will need to be detailed at the municipal level. The LACAP should deal with this point, addressing the multi-functionality of these networks and the related ecosystem services and resilience also in a social key, also focusing on the development of the finer elements of the network that have being becoming poorer and poorer over time.
- **Urban regeneration and green systems**
  The LACAP should aim at promoting urban regeneration (including densification, if/where possible), at increasing the quantity and quality of green areas and green systems (including vertical green), and at improving the resilience of areas under development (industrial areas, etc.).

- **Promote a conscious and sustainable water management**
  "If water changes, Mantova changes". The future plan will have to address the theme of water and its management, enhancing the systemic and multi-semantic declinations with respect to the landscape. Water must be conceived primarily as a precious resource. Water management must be understood by the plan as an important preventive and defense strategy against hydrogeological risk; as an identifying character of the urban landscape; as a resource for the production of new services including tourism. Water management can affect water quality, impacting on the aesthetics and amenity values of the river and lake, and thus on the tourism sector.
- **Promote sustainable land use**
  The LACAP should promote a zero soil consumption scenario, improve the quality of urban soils to increase resilience and limit hydrogeological risks, and define strategies to improve soil permeability;

Systemic actions on the urban scale

- **Work on public space to increase resilience**
  The network of urban public spaces can also become a laboratory for the experimentation of new technological and compositional solutions, working on pavings and on green systems (trees, shrubs, turfgrass) of the roads, on the choice of materials, on water disposal and collection devices, lighting, etc.
- **Rethink urban mobility with greater regard to public mobility.** To encourage the use of public transport and multimodality in order to promote greater use of bicycles.

Systemic actions on the built heritage

- **Promote targeted actions on the built heritage.** The LACAP should promote the implementation of a program aimed at increasing the energy efficiency of public and private

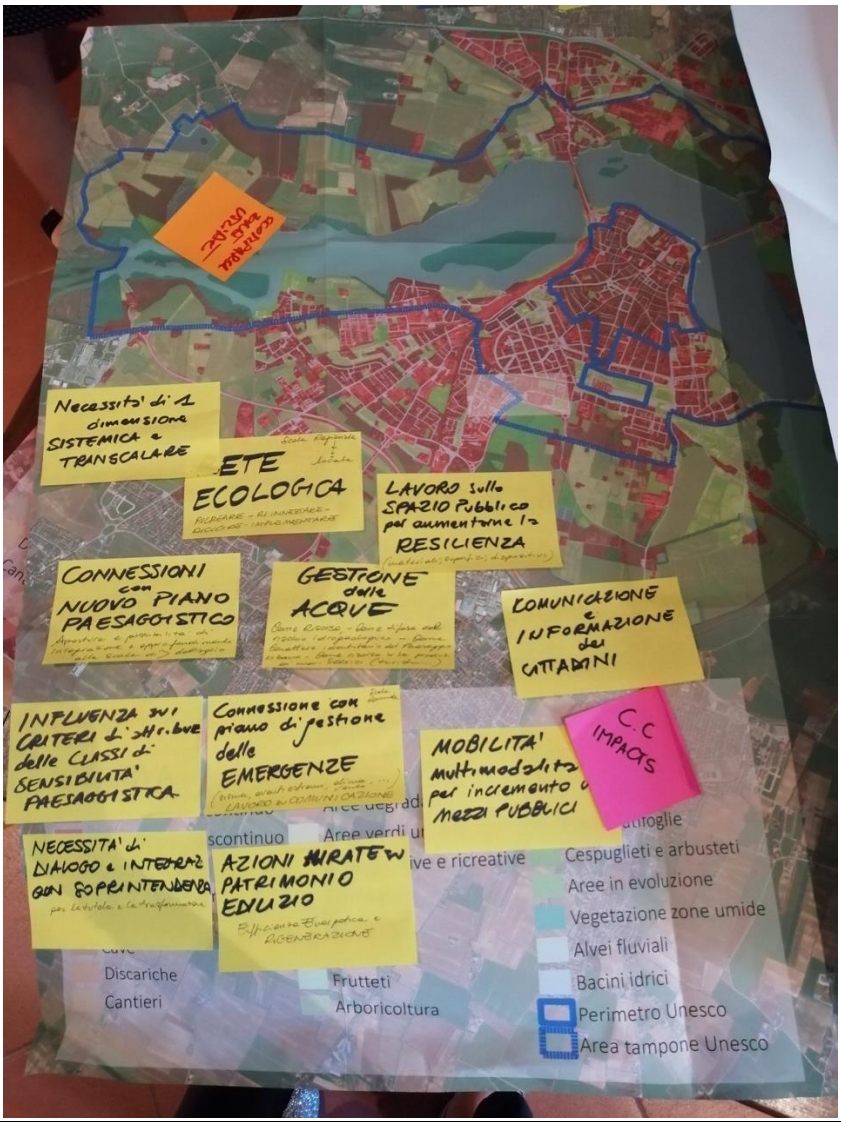
buildings, to improve their performance and contribute to limiting energy consumption. The contents of the LACAP must also provide complementary guidelines and tools to promote and encourage urban regeneration interventions.

Awareness raising, education and communication.
The LACAP should include adequate communication and raising awareness strategies on the subject of climate change, so that the adaptation strategies are understood by the citizens. This kind of educational and informative action plays a crucial role since it lays the necessary foundations for the development of a collective critical awareness related to the theme of landscape adaptation.

- Promote campaign to raise citizens' awareness on climate change issues.
- Promote an educational project that is suitable for various types of users (both for schools, professionals, and adults in general).
- Provide an adequate continuous communication strategy.

Summary of Results:
The local stakeholders have proved to participate in the discussion actively intervening and identifying both the problems caused by climate change and the possible strategies to cope with them. The has fruitful discussion and good interaction has allowed to identify a list of impacts and key issues and proposals for the creation of the future LACAP.

Picture(s) of the activity, presentation, raw outputs, etc.


Necessita' di 1 dimensione SISTEMICA e TRANSCALARE
ECOLOGICA
LAVORO sullo SPAZIO Pubblico per aumentarne la RESILIENZA
CONNESSIONI con NUOVO PIANO PAESAGGISTICO
GESTIONE delle ACQUE
COMUNICAZIONE e INFORMAZIONE dei CITTADINI
INFLUENZA sui CRITERI e delle CLASSI di SENSIBILITA' PAESAGGISTICA
Connessione con piano di gestione delle EMERGENZE
MOBILITA'
C.C IMPACTS
NECESSITA' di DIALOGO e INTEGRAZ. con SOPRINTENDENZA
AZIONI MIRATE su PATRIMONIO EDILIZIO
Discariche
Cantieri
Frutteti
Arboricoltura
Cespuglieti e arbusteti
Aree in evoluzione
Vegetazione zone umide
Alvei fluviali
Bacini idrici
Perimetro Unesco
Area tampone Unesco

SUMMARY:

- Participants agree on being part of the local network of stakeholders;
- Participants agree on being updated on the project's phases and development;
- Participants agree on using their logos on the project website;
- Participants confirm their interest in being involved in a future project for the definition of the LACAP;
- Level of Achievement of the expected outcomes: 5 out of 5.
- Main Shortcomings or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- Main Reasons for the successful achievement of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions.
- Learnt lessons and recommendations for similar activities in the same place/other places: stakeholders have showed a great interest in sharing their own experience and have highlighted the availability to participate to AELCLIC project. Opportunity of deepening specific aspects of synergy between public bodies at different levels, and of strengthening synergies between public and private stakeholders.
- Level of influence of the local characteristics (social, geographical, etc.) in the development of the activity: 5 out of 5.

Authors of the Report:
University of Bologna
University IUAV of Venice

23ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: July 19th, 2019 - from 10.00 p.m. to 15:30 p.m.
PLACE: Fondazione Radice Pura, Strada 17, N. 19. Fraz. di S. Leonardello – Giarre (CT)
ORGANIZERS: University of Bologna, Fondazione RadicePura, Piante Faro

Organizers

- University of Bologna (AELCLIC partner): Daniele Torreggiani, Ludovica Marinaro
- Piante Faro, Fondazione Radice Pura (AELCLIC Third Party): Giusi Monti, Sergio Cumitini

Stakeholders who accepted to join the network of stakeholders:

- IN/Arch Sicilia, Dott. Ignazio Lutri;
- Donnafugata and Coldiretti Sicilia: Francesco Ferreri;
- Associazione Musicale Etnea: Luca Recupero;
- Fondazione Piccolo and Agenzia per il Mediterraneo: Michele Germanà;
- Garden club ETNA: Giovanna Cosentino; Maria Carmela Vagliasindi

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- Garden of Villa Borghese: Virginia Borghese;
- Councilor for Culture of the Municipality of Catania, Barbara Mirabella;
- Director of ecology and environment Municipality of Catania: Lara Riguccio;
- Legambiente Catania: Dott. Sandro Di Bella; Dott. Alfredo Tamburino ;
- Municipality of Giarre, Cultural Office
- FAI section of Catania, LIONS Club of Catania: Mandalà Prof.ssa Antonella
- Fondazione La Verde La Malfa, Art Park
- IDEATTIVA
- Garden of Kolimbetra
- Garden Club of Taormina: Ilde Tomassetti
- Garden Club of Messina: Flora Bombarda
- Orto Botanico of Catania: Prof. Gianpietro Giusso
- Le stanze In fiore
- ITALIA NOSTRA section of Messina

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This workshop is the first one organized in the area called after Etna Landscapes, selected as one of the 16 pilot landscapes where the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this first workshop, to whom participated 10 persons, representatives of the local stakeholder's ecosystem and the event organizers, aims at determine and map the relevant impacts of climate change for the study area and then to co-define the contents and structure of a future Landscape Adaptation Plan to Climate Change.

The main objectives of the workshop could be summarized as follows:

- Explain and describe the project to the local stakeholders ecosystem;
- Ease the contact and the networking between the stakeholders and with the project's partners;
- Carry out a co-identified diagnosis of climate change impacts they know or perceive in the pilot area;
- Evaluate the interest of the stakeholders in collaborating in the project and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;
- Co-define the possible contents of a future plan for adapting the pilot landscape to climate change and the operational methodology with which this document / tool should be created and interact with the existing urban planning instruments.

All the stakeholders invited to the discussion confirmed their interest in collaborating in the project, and have shown interest and availability in a second workshop to be held hopefully in September. They also accepted to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

9.30- 9:45 a.m. | Welcome coffee

9:45 - 10:30 a.m. | The AELCLIC project: toward a landscape adaptation plan to climate change

Introduction and presentation of the AELCLIC project
● Opening greeting and presentation of the organization of the afternoon's work
● Presentation of the AELCLIC project and workplan + Climate change in a nutshell
● The participating stakeholders briefly introduce themselves
● Presentation of the pilot area: brief overview

10.30 - 11:45 a.m. | Changing landscapes. Perceived impacts on local plan.

Group work to assess the existing and most perceived impacts of climate change on the pilot area.
● Brief illustration of the purpose of the work to be conducted.
● Group work - A diagnosis of critical issues and impacts related to climate change is made, describing the already tangible and predictable consequences (guiding themes: extreme events, drought, desertification, temperature increase).
● During the work the impacts and criticalities are displayed aerial photo of the area in large format (coordination and visualization by UniBO).

11:45 a.m. – 1:00 p.m. | Visions to nourish the plan.

Focus groups to identify themes and possible solutions for the future plan for adapting the local landscape to climate change.
● Brief illustration of the purpose of the work to be conducted.
● Table tour: based on the results of the diagnosis of the first part of the morning, the stakeholders are invited to reflect on the possible adaptation solutions that could be implemented in the specific context, on the objectives that the adaptation plan should be and on the issues and the contents that the plan should deal with.

● During the work, the proposed objectives, themes and contents are displayed on a blackboard / aerial photo of the area in large format. This first brainstorming will be the subject of further implementation during the subsequent phases of the workshop.

1:00 – 2:00 p.m. lunch

2:00 – 3:00 | The Future Plan: first hypothesis of possible contents and structure of the plan.

- Brief illustration of the purpose of the work to be conducted.
- Open discussion among all stakeholders on possible contents of the future plan

3:00 - 3:30 p.m. | Conclusions - A ROADMAP for the plan.

Due to the strategic objective of the project, which in each pilot area aims to create "networks of local actors with the social, financial, administrative and technical capabilities to co-define in the future the adaptation plan of their own landscape to climate change" , the workshop closes with a group discussion aimed at defining what it will take to create the plan for adapting to climate change in the Etna landscapes, in terms of knowledge, activities and resources (already available or to be acquired), in order to explore the feasibility (also in terms of connections with formally established institutions) and the most effective training process for the future creation of the plan.

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)
1. Definition of climate change impacts on the pilot area foreshadowing their potential effect on the landscape.
2. Initial draft of the contents and the structure of the future landscape adaptation plan to climate change.

1. Definition of climate change impacts on the pilot area foreshadowing their potential effect on the landscape: Starting from the introduction made by the organizators and a general overview of climate change impacts on the region, participants communicate their perception by applying on a cartographic support. **P**articipants have started from an analysis of general and widespread climate change impacts and have then focused on the pilot area.

Discussion:
Identification of the problem:

- What impacts derive from Climate Change?
- Which critical issues are related to climate change?
- Impacts on the local landscape, in terms of life, environment, local productive and economic activities, cultural and natural heritage, wellbeing of inhabitants.

Summary of Results:
The local stakeholders involved at the table proved to participate in the discussion actively intervening and identifying various impact problems caused by climate change. They also proved to be proactive in thinking about the possible contribution they could make to the project for the implementation of the adaptation plan.
The workshop allowed to identify the principal perceived impacts of climate change on the area of Etna landscapes. From this discussion, a list of perceived impacts has been created and it now reflects

a hierarchy of importance attributed to each climate change effect. The imagined proposals to face these effects are then divided by themes and areas that help define the adaptation strategies.

The key impacts confirmed are:

- Increased temperatures;
- Heat waves;
- Desertification;
- Climate tropicalization
- Extreme events;
- Water scarcity;
- Flooding;
- Sudden events;
- Hydrogeological instability;
- Abandonment;

2. Proposal of strategies for the adaptation plan. Starting from the identification of the main criticalities and obstacles detected on the territory both on the administrative, regulatory, cultural and infrastructural level, the key themes and approaches identified during the workshop has been created and led to the further formulation of the contents of the climate adaptation plan of the landscape.

The key themes identified to focus on within the project are:

- ➔ Policy integration;
- ➔ New models of governance;
- ➔ Financial incentives and new regulatory system;
- ➔ Reuse strategies;
- ➔ Circular Economy;
- ➔ Link with production chains;
- ➔ Recovery of traditional trades and knowledge;
- ➔ Care and protection of the territory;
- ➔ interventions on the green in urban areas;
- ➔ Renewable energies;
- ➔ Water Use and management;
- ➔ Soil consumption and impermeabilization;
- ➔ Agricolture as a testing laboratory of adaptation techniques;
- ➔ Tourism promotion;
- ➔ Communication and sensibilization of the citizenship;

Discussion: the key impacts and critical issues identified by the group work concur to define the framework of the effects of climate change on the pilot case of the Etna Landscapes. The discussion was able to investigate the effects on the landscape caused by the main impacts detected, such as the increase in temperatures, climate tropicalization and heat islands. Working on maps allowed the stakeholders to examine the impacts localizing them in the territorial context. This exercise conducted on the pilot area has enabled the critical awareness of the network to be stimulated, inviting the stakeholders to develop reasoning that started from landscape scenarios. This step, far from having an intent of exhaustive mapping, was instead the trigger necessary for the second part of the workshop, of a more projective and proactive nature.

2. Initial draft of the contents and the structure of the future adaptation plan of the landscape to climate change.

The second part of the workshop, which was also the one on which the most substantial part of the activity was concentrated, saw a discussion aimed at outlining the fundamental contents and a possible structure of the future plan to adapt the landscape to climate change. During the work group, a further in-depth discussion has been operated by the organizers with the illustration of international examples of climate adaptation plans promoted by various cities and metropolitan contexts, to feed the discussion and provide new ideas for the co-definition of the contents and the structure of the plan. The discussion then took place on the basis of the inputs provided and the results of the diagnosis of the impacts, outlining a first draft of desirable contents. In general, have been established some fundamental characteristics of the plan and the role it can play in concert with the existing urban planning instruments in order to make it effectively concrete and maximize the correspondence and the positive effects on the landscape.

GENERAL SCOPE AND CONSTITUTION

SYSTEMIC APPROACH TO COPE WITH LANDSCAPE DIVERSITY

The case of Etna landscapes is applied to a vast area whose borders are often blurred and which presents above all a great variety of landscapes in a relatively small territory. This marked diversity and variety has the effect of presenting a varied series of impacts found which are reflected in as many possible strategies and actions to deal with them. Therefore, the plan to adapt the landscape to climate change will have a systemic and transcalar dimension capable to adapt to a conspicuous landscape variety, which includes: urban areas, coastal areas, agricultural areas, mountain areas (the slopes of Etna). The plan will therefore provide complementary strategies for the various landscape unities.

LANDSCAPE AS A COMMON GOOD

The network, although there were many interested in the meeting, showed a good level of awareness of the problem covered by the AELCLIC project and more generally of the value and importance of the landscape. We can speak of a network that already possesses an adequate conception of the landscape. The widespread awareness that the landscape is a "common good" has emerged from the discussion. The plan will therefore start from this principle of sharing and attribution of value.

CIRCULAR ECONOMY

The network has shown a keen awareness that the effects of climate change will produce significant changes for the production activities of the territory, with particular reference to agricultural, nursery and wine-making activities in the area but not only, both in positive and in negative. It is therefore important that the adaptation strategies also include business strategies, in the sense that they involve the stakeholders of the territory in order to carry out their activities to assist adaptation, for the common good and for a landscape that continues to be representative of the identity and culture of the whole community. The plan with its strategies must therefore encourage the creation of a circular economy model.

REDISCOVER TRADITIONS

The plan to adapt the landscape to climate change can be an opportunity to rediscover and find new and modern application to all the rich wealth of experiences, technologies, ancient design solutions and traditional knowledge that have made these landscapes an expression harmonious of their communities, balanced systems. Informing the plan with this knowledge makes the site specific and cultural specific strategies and is configured as a good strategy for strengthening the identity as well as for communicating the project.

The institutional and regulatory framework

- **Agreements with the authorities responsible for territorial governance and landscape protection.** One of the general and priority criteria for drafting the plan concerns the need to establish the necessary synergies with the bodies responsible for the protection and government of the territory and the landscape at the various scales: Region, Superintendence of Cultural Heritage and local administrations. The relationships that must be established with a leading Municipality, for example the municipality of Catania, and with some virtuous municipalities are of particular importance. In fact, the group highlights the importance of having an institutional reference that can take charge of the future promotion and implementation of the plan, due to its proven importance.
- **Promote new governance models.**
- **Integration and complementarity with existing urban planning instruments.** Consequently, there is the need to formulate a general strategy of integration and dialogue with the urban planning instruments in force at the various scales. The future adaptation plan to climate change will have to constitute an integrative and corrective level of the transformation and protection policies.
- **Updating the existing planning instruments**
  There is in general the need for the updating of programming and regulatory tools that could be also enriched with the creation of matrices of planning solutions and guidelines that can help the implementation of climate adaptation strategies at various levels.

Systemic actions on a vast territorial scale

- **Use Agricolture as a sector for experimenting with innovative techniques for adapting to climate change**
- **Improve and make explicit the direct link between supply chains and landscape.** The enhancement of production chains, especially in the agricultural sector but also in the wine and nursery sector, appears as a strategy of synergetic adaptation of the territory and its operators to the changes that are affecting landscapes. Applying adaptation strategies that directly involve local companies with a range of solutions ranging from economic and financial incentives to concrete projects for transforming the territory, means making explicit and fully exploiting what the ELC has defined as "economic value of the landscape ".
- **Promote a conscious and sustainable water management**
  The future plan will have to take on the theme of water and its management, enhancing the systemic and multi-semantic declinations with respect to the landscape. Water must be conceived primarily as a precious resource. Water management must be understood by the plan as an important preventive and defense strategy against hydrogeological risk; as an identifying character of the urban landscape; as a resource for the production of new services including tourism.
- **Promote sustainable land use**
  Stop soil consumption and improve the quality of urban soils to increase resilience and limit hydrogeological risk. Find strategies to stem the impermeability or poor permeability of soils;
- **Promote the connection with the coastal areas**
  The plan must also be charged with improving communication between the hinterland and the coast, by acting on the mobility system that must be secured by extreme events and the numerous floods that occur during the latter.

Systemic actions on the urban scale

- **Work on public space to increase resilience**

The network of urban public spaces can also become a laboratory for the experimentation of new technological and compositional solutions, through work on the paving and on the arboreal shrubby system of the roads, on the choice of materials, on water disposal and collection devices, lighting etc ..

- **Improve the mobility**
  it is necessary to implement a series of initiatives for the improvement of public transport and to create an efficient network that allows the development of soft mobility, an alternative to the massive use of private cars.

Systemic actions on the built heritage

- **Increase the use of energy from renewable sources.**
  The use of renewable energy sources is generally felt as a priority adaptation strategy.
- **Promote targeted actions on the built heritage.** Implement a program for the energy efficiency of buildings to improve their performance and contribute to limiting energy consumption.

Awareness raising, education and communication.

The plan must also include adequate communication strategies and raising awareness of the citizenry on the subject of climate change, so that the adaptation strategies are understood and internalized by the citizens. This kind of educational and informative action lays the necessary foundations for the development of a collective critical awareness related to the theme of landscape adaptation and is of great importance.

- Promote campaign to raise awareness of citizenship on the issue of climate change.
- Promote a related educational project that is suitable for various types of users (both for schools, for professionals, and for adult citizenship in general).
- Provide an adequate continuous communication strategy.

Summary of Results:

The local stakeholders involved at the table proved to participate in the discussion actively intervening and identifying both the problems caused by climate change and the possible strategies to cope with them. Thanks to the contribution of the individual experiences of each of the stakeholders involved and of the suggestions that the organizers provided during the workshop, the discussion has been animated, producing a great and proactive level of interaction that led to shared results. In addition to the identification of a list of impacts, the outcome of the workshop is the definition of key issues and proposals for the creation of a climate change adaptation plan.

Closure

The organizers thank all the stakeholders for their active participation and recall that the elements that emerged in today's discussion will be the basis for the next step. All the stakeholders agree on the possibility of carrying out a new workshop to complete the projective part and the determination of the structure and contents of the plan.

Picture(s) of the activity, presentation, raw outputs, etc.

AELCLIC PATHFINDER

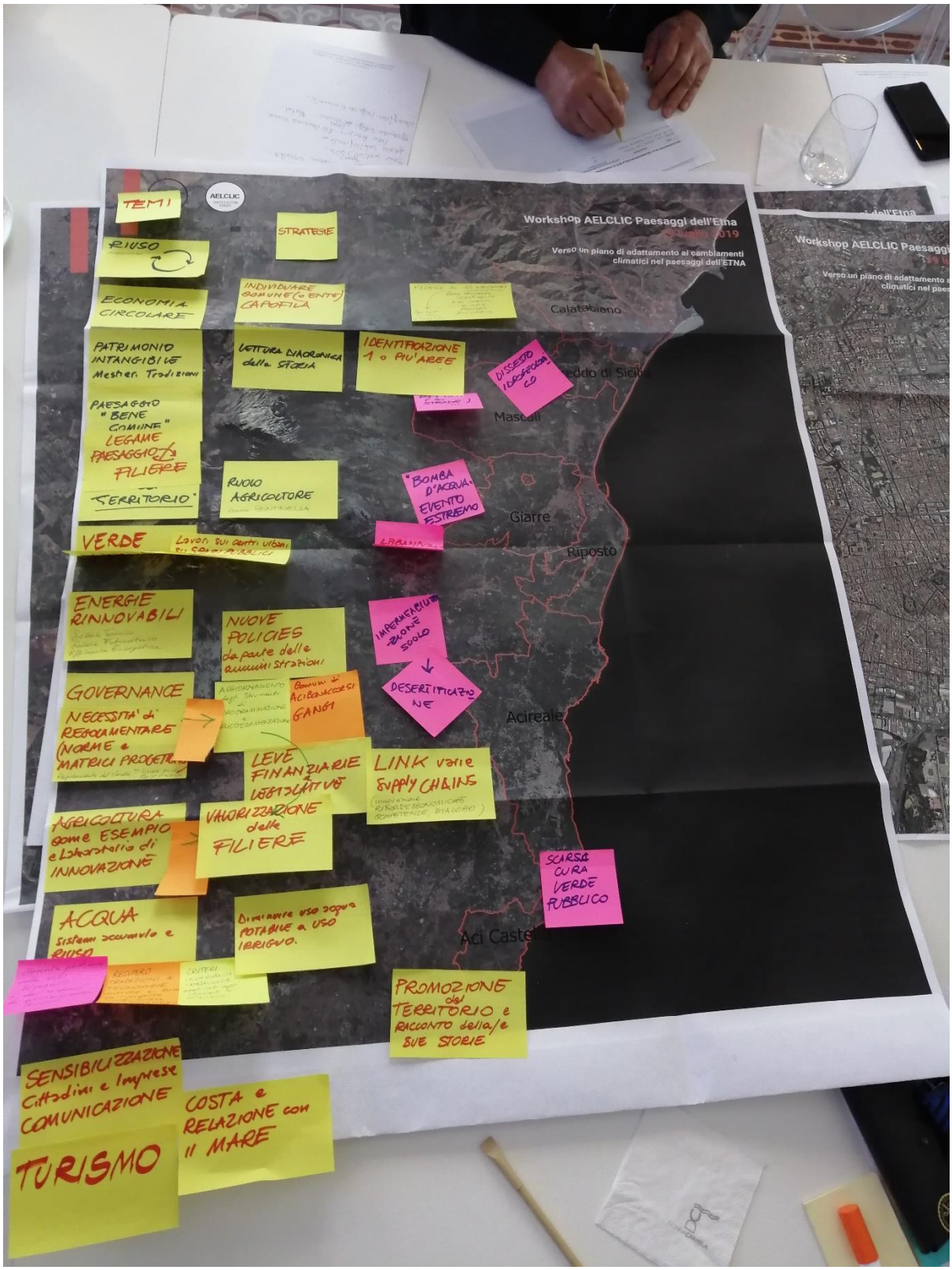
Etna Landscapes pilot landscape

Giarre Workshop, 19th July, 2019

AELCLIC PATHFINDER

Etna Landscapes pilot landscape

Giarre Workshop, 19th July, 2019


TEMI
RIUSO
STRATEGIE
ECONOMIA CIRCOLARE
INDIVIDUARE COMUNE (o ENTE) CAPOFILA
PATRIMONIO INTANGIBILE Mestieri Tradizioni
LETTURA DIACRONICA della STORIA
IDENTIFICAZIONE 1 o PIU' AREE
DISSESTO IDROGEOLOGICO
PAESAGGIO "BENE COMUNE"
LEGAME PAESAGGIO FILIERE TERRITORIO
RUOLO AGRICOLTORE
"BOMBA D'ACQUA" EVENTO ESTREMO
VERDE
ENERGIE RINNOVABILI
NUOVE POLICIES da parte delle amministrazioni
IMPERMEABILIZZAZIONE SUOLO
DESERTIFICAZIONE
GOVERNANCE
NECESSITA' di REGOLAMENTARE (NORME e MATRICI PROGETTUALI)
LEVE FINANZIARIE LEGISLATIVE
LINK varie SUPPLY CHAINS
AGRICOLTURA come ESEMPIO e Laboratorio di INNOVAZIONE
VALORIZZAZIONE delle FILIERE
ACQUA
Sistemi accumulo e RIUSO
Diminuire uso acqua POTABILE a USO IRRIGUO.
SCARSA CURA VERDE PUBBLICO
PROMOZIONE del TERRITORIO e RACCONTO della/e SUE STORIE
SENSIBILIZZAZIONE Cittadini e Imprese COMUNICAZIONE
TURISMO
COSTA e RELAZIONE con il MARE
Workshop AELCLIC Paesaggi dell'Etna
Verso un piano di adattamento ai cambiamenti climatici nel paesaggi dell'ETNA
Calatabiano
Giarre
Riposto
Acireale
Aci Castello

SUMMARY:

- Participants agree in being part of the local network of stakeholders;
- Participants agree in being updated on the project's phases and development;
- Participants agree in using their logos on the project official website;
- Participants confirm their interest in being involved in a future project for the definition of the plan;
- Level of Achievement of the expected outcomes: 5 out of 5.
- Main Shortcomings or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- Main Reasons for the successful achievement of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions.
- Learnt lessons and recommendations for similar activities in the same place/other places: stakeholders have showed a great interest in sharing their own experience and have highlighted the availability to participate to AELCLIC project. Opportunity of deepening specific aspects of synergy between public bodies at different levels, and of strengthening synergies between public and private stakeholders.
- Level of influence of the local characteristics (social, geographical, etc) in the development of the activity: 5 out of 5.

ECONOMIC REPORT:

TYPE OF COST	**COST (€)**
• Travel & Accommodation Costs for the partner(s) members	
• Goods, materials and external services	
• Sub-granting (e.g. Travel & Accommodation costs for Third Parties or collaborators)	
TOTAL	

Authors of the Report:
University of Bologna
Fondazione Radice Pura

ACTIVITY: workshop AELCLIC_PATHFINDER project
DATE and TIME: July 4, 2019 - from 9.30 a.m. to 13.30 p.m.
PLACE: Factory Hesper, 1st Dr. Constantin Istrati Street, Bucharest
ORGANIZERS: University of Bologna, EURODITE SRL

PARTICIPANTS:
Organizers

- University of Bologna: Daniele Torreggiani, Ludovica Marinaro
- EURODITE Srl: Joep Erik De Roo, Cristiana Stoian

Stakeholders who accepted to join the network of stakeholders:

- Alexandru Tararescu, Factory Hesper
- Adelina Stanoiu, National Institute of Materials Physics
- Iulia Laura Vasile, Architect, private citizen
- Sergiu Cruceanu, Senior advisor for Ministry of the environment,
- Miruna Draghia, Urbasofia (urban planning company)
- Anca Burcus, student landscape architecture, Fundatia Simetria NGO + Parcuri 360
- Irina Leca, National Heritage Institute and Vice-President of the ARCHÉ NGO

The following stakeholders accepted to join the network of stakeholders and planned to participate in the workshop but have not been able to attend due to unforeseen circumstances:

- Lavinia Andrei, president of Terra Mileniul III (NGO)
- Sorin Marin, researcher at the National Astronomical Institute (direct stakeholder in the area)

The following could not attend the workshop due to their schedule, but would like to be involved in the future in case the project continues:

- Miruna Trica, involved in several local organisations that deal with community activation in the Carol Park area

KEY OBJECTIVES of THE ACTIVITY (expected outcomes):
This workshop, co-organized by University of Bologna and Eurodite SRL, is organized in the multiplier pilot landscape of the city of Bucharest. In the area of “Parcul Carol and Filaret-Rahova neighborhood”, which has been selected as one of the 16 pilot landscapes of the project, the AELCLIC project aims to create a network of local stakeholders with the capacity to co-define plans for the Adaptation of their landscape to Climate Change. In particular, this workshop is aimed at involving local stakeholders connected, at different levels, with the pilot area, presenting them the project, and allowing them to co-identify the impacts of climate change on the local landscape and opportunities for the future definition of a Landscape Adaptation Plan to Climate Change.

The workshop, attended by 11 people, representatives of local stakeholders’ ecosystem and the event organizers, has been hosted at the headquarters of HESPER factory, located inside the pilot area.

The main objectives of the workshop could be summarized as follows:

- Explain and describe the project to the local stakeholders ecosystem;
- Ease the contact and the networking between the stakeholders and with the project’s partners;

- Evaluate the interest of the stakeholders in the project, be they related or connected to inhabitants, businesses or institutions of the pilot area, or operating at a broader scale including the pilot area or parts of it;
- Explore their knowledge and awareness about climate change issues, and carry out a co-identified diagnosis of climate change impacts they know or perceive in the pilot area;
- Evaluate their interest in collaborating in the project and receive their expression of interest in appearing in the project website as a member of the network of stakeholders;
- Explore the opportunities and collect input on their potential involvement and contribution related to a future project for the definition of a Landscape Adaptation Plan to Climate Change.

All the stakeholders invited to the discussion declared their interests in collaborating, with different modalities and different instruments, to the project. They also accepted to be updated on the project development and the future definition of a climate adaptation plan within the pilot area, intended as an integrated and systemic solution and as an information document supporting territorial and sector planning, as well as a reference for public or private initiatives on climate change adaptation.

AGENDA:

AELCLIC Bucharest workshop Agenda
July 4, 2019 – 9.30 am – 13.30 pm

09:00 - 09:30 - coffee/ pastry welcome

09.30 - 10.15 | The AELCLIC project: Towards a climate change adaptation plan
Daniele Torreggiani, University of Bologna: Opening welcome, Description of the AELCLIC project, Work-plan and activities in the pilot area, Main climate change impacts in the region;
Presentation of the pilot area:

Joep Erik De Roo, Eurodite: Cultural heritage of area
Miruna Draghia, Urbasofia: spatial planning/planned development
Anca Burcus, Fundatia Simetria: Landscape analysis

10.15 - 11.15 | Changing Landscapes: Perceived impacts on local territories.
Group work on climate impacts, heritage values and urban planning aspects of the park
Participants work on the diagnosis of critical issues and impacts related to climate change, describing the already tangible and predictable consequences they notice or experience in the pilot area. Impacts are visualized and mapped in real time.

Coffee break 11.15-11.30

11.30- 12.15 | Envisioning landscape to nourish the future plan.
Brainstorming based on the results of the diagnosis of the first part of the morning. The stakeholders are invited to reflect on the possible adaptation solutions that could be implemented in the specific context, on the objectives that the adaptation plan should take and on the themes and contents that the plan should deal with.

12.15 - 13.00 | Building the AELCLIC's local network.

Plenary discussion: each stakeholder is invited to discuss about the opportunities that can derive from a network collaboration between various local players, in terms of role and contribution in a future project that take care of creating an adaptation plan for the local landscape.

13.00 - 13.30 | A ROAD MAP for AELCLIC plan. Conclusions of the workshop.

KEY OBJECTIVE of THE ACTIVITY (expected outcomes)

1. Downscaling analysis of climate change impacts: participants have started from an analysis of general and widespread climate change impacts and have then focused on the pilot area.

Discussion:
Identification of the problem:

- What impacts derive from Climate Change?
- Critical issues related to climate change
- Impacts on the local landscape, in terms of life, environment, local productive and economic activities, cultural and natural heritage, wellbeing of inhabitants.

Summary of Results:
The local stakeholders involved at the table proved to participate in the discussion actively intervening and identifying various impact problems caused by climate change. They also proved to be proactive in thinking about the possible contribution they could make to the project for the implementation of the adaptation plan.

The key impacts identified are:

- Heat waves;
- Increased temperatures;
- Extreme events;
- Sudden events;
- Air Pollution;
- Water scarcity;
- Seasons change and loss of seasonality;
- Tropicalization
- Soil impermeability
- Loss of Fauna;
- Birds proliferation

The key themes identified to focus on within the project are:

➔ Maintenance of the park and the neighborhood public spaces network:

- Ordinary maintenance (better knowledge of the urban landscape): water nets; maintenance of paths and roads; downstream problem with poor channeling; vegetation;

- Extraordinary maintenance: to face repeated flooding; destruction of trees; difficulty in managing utilities consumption; …

➔ Water management
Lowering of ground level water

➔ Impermeability or poor permeability of soils;

➔ High temperatures and thermic discomfort
Lack of thermal comfort and consequent necessity to use of air conditioning;
Discomfort for weaker groups;

➔ Vegetation (there is no long term plan for vegetation in the Park and moreover in the neighborhood; need to understand vegetation's key role and issues;

➔ Ecosystem balance
Increasing number of insects and seasonal allergies;
Invasive species (crows)

➔ Industrial Heritage (mostly abandoned, needs to be protected and enhanced)

➔ Manage extreme events as Flooding (e.g. subway, watershed), umber of **summer storms**;

➔ Mobility: need to rethink mobility in order to reduce pollution and traffic;
- Scarce appeal of slow mobility infrastructures;

➔ Tourism: impact on tourism
- Facilities damaged for a lack of management of the park (paths, stairs, facilities for tourism);
- Loss of seasonality;

2. Creation of a local ecosystem of stakeholders:

Discussion: the key impacts and critical issues identified by the group work are summarized by the facilitators. Each stakeholder is invited to think about the opportunities and potential contribution (knowledge, skills, activities, etc.) and possible synergies related to a future project for the definition of a Landscape Adaptation Plan to Climate Change.

Summary of Results

Opportunities of the territory

➔ The main cross-sector and transversal themes which have come out from the work-group are as follows:
- Initiate actions to raise awareness of citizens and neighborhood residents about climate change effects and the need to create a climate change adaptation plan;
- Foster a mature environmental awareness;

- Raise awareness about the role and the value of vegetation, in general and to face climate change, as people often see trees merely as objects;
- Increase public green spaces even for thermal regulation purposes;
- Promote the natural heritage values protection;
- Provide actions to make ecosystem in balance again fostering also the rediscover the biodiversity;
- Improving alternative and sustainable mobility in the city;
- Act directly on the network of public spaces and above all on the soft mobility; system to improve the quality of the places;
- Make a clearer link between the limits of the park and the surrounding tissue;
- Foster the integration of renewable energy solutions in the city (especially solar roofs, or implementing the "Casa Verde Project");
- Act on the built heritage to increase the energy efficiency of buildings;
- Create green pockets connected to the park in the neighborhood;
- Create green roof demonstrator projects in the neighborhood;
- Improve the attractiveness of the Park;
- Turn the Carol Park into a flagship hub of innovation in the climate change and sustainability domains (similar to an exhibition center, a demonstrator of climate change adaptation and dialogue with the industrial heritage with educational purposes);
- Retention solutions for water;
- Need for storytelling to improve the park sensory perception;
- Start a monitor activity on the quality of air, the vegetation status, social uses and perception , …;
- Importance of the connection with spatial and landscape planning tools and of the involvement of the municipality of Bucharest / a municipality district in the network.

➔ From the work group, different opportunities have been identified. They are directly identified with places or features whose involvement in the project could provide desirable adaptation conditions and synergic actions:

- Carol Park and Filaret neighborhood
- Tineretului Park (provide links) ;
- Industrial heritage buildings;
- Cismigiu park (provide links) ;

Potential contribution related to a future project for the definition of a Landscape Adaptation Plan to Climate Change

The stakeholders identified the achievable goals and the possible synergies between the various participants. The main potential contributions can be summarized as follows:

- Data and knowledge, raising awareness and dissemination;
- Study of impacts on the energy front, knowledge about solar cells, demonstrator activities;
- knowledge on built heritage and especially on industrial heritage and architecture;
- heritage studies, activation of heritage buildings, linking partners (ICOMOS) for trying to get grants; Cultural tours; community activation;
- Community awareness; networking with local actors;
- information about vegetation, creation of a green registry, create a ASoP – map for green management; provide volunteers to manage the park;

- Collecting data about the uses and activities of the park;
- knowledge on technical climate change measures;
- Networking and involving other actors to build a strong network and also for potential regeneration projects;
- Promoting internal/external awareness and dissemination through the own business, financial and entrepreneurial network.
- Write proposals, documents, drawings

Picture(s) of the activity, presentation, raw outputs, etc.

AELCLIC PATHFINDER

Parcul Carol and Filaret Rahova Neigborhood pilot landscape

Bucharest Workshop, 4th July, 2019

SUMMARY:

- Participants express their wish to be part of the local network of stakeholders;
- Participants express their wish to be updated on the project's phases and development;
- Most participants express their wish to use their logos on the project official website;
- Participants agree on the opportunity of evaluating the possibility of organizing a second workshop with the aim to broaden the network and further develop the discussion
- Participants confirm their interest in being involved in a future project for the definition of the plan;
- Level of Achievement of the expected outcomes: 5 out of 5.

- **Main Shortcoming**s or barriers for the full achievement of the expected outcomes: no barriers emerged during the workshop. Participants were proactive and sensitive to the topic.
- **Main Reasons for the successful achievement** of the expected outcomes: climate change regularly affect stakeholders' daily activities both from a personal and professional perspective. They probably perceive the urgency to tackle the challenge and to create a network of actions.
- **Learnt lessons and recommendations** for similar activities in the same place/other places: stakeholders have showed a great interest in sharing their own experience and have highlighted the availability and opportunity to connect other areas to the core area already identified, to benefit from networking at a broader scale. AELCLIC activities on the Bucharest pilot landscapes have thus proved effective also in promoting positive impact and possible connections with other sites in the metropolitan area of the capital.
- **Level of influence** of the local characteristics (social, geographical, etc) in the development of the activity: 5 out of 5.

Authors of the Report:
University of Bologna
Eurodite

https://aelclicpathfinder.com/