This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Sustainable Energy and Climate Action Plans (SECAP)

Myrto Skouroupathi

Cyprus Energy Agency

Contents

- Introduction
- Process
  - Initiation
  - Planning
  - Implementation
  - Monitoring & Reporting

Introduction

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Clean Energy Transition Plans

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

The Covenant of Mayors

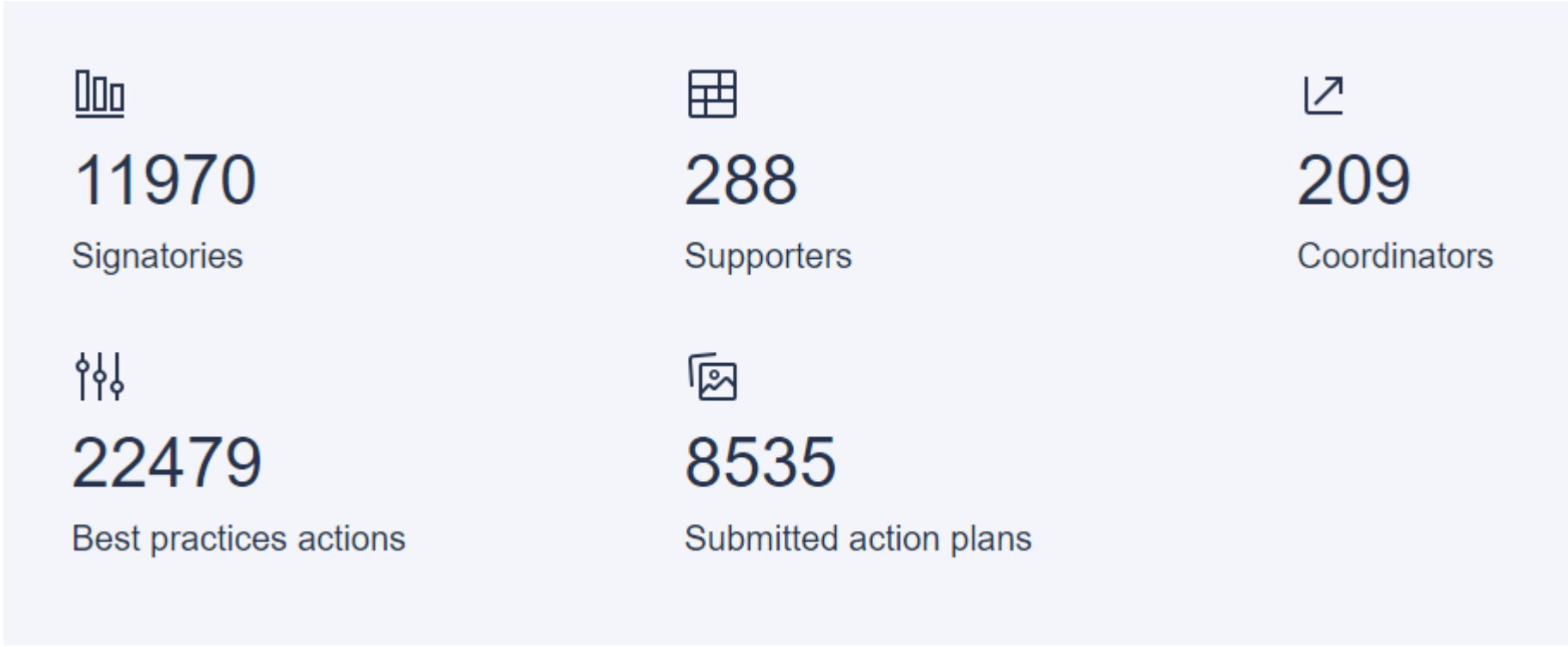
- The EU Covenant of Mayors for Climate & Energy is an initiative supported by the European Commission bringing together thousands of local governments that want to secure a better future for their citizens.
- Signatories voluntarily commit to implementing EU climate and energy objectives.

Covenant of Mayors, 2024

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

The Covenant of Mayors



Covenant of Mayors, 2024

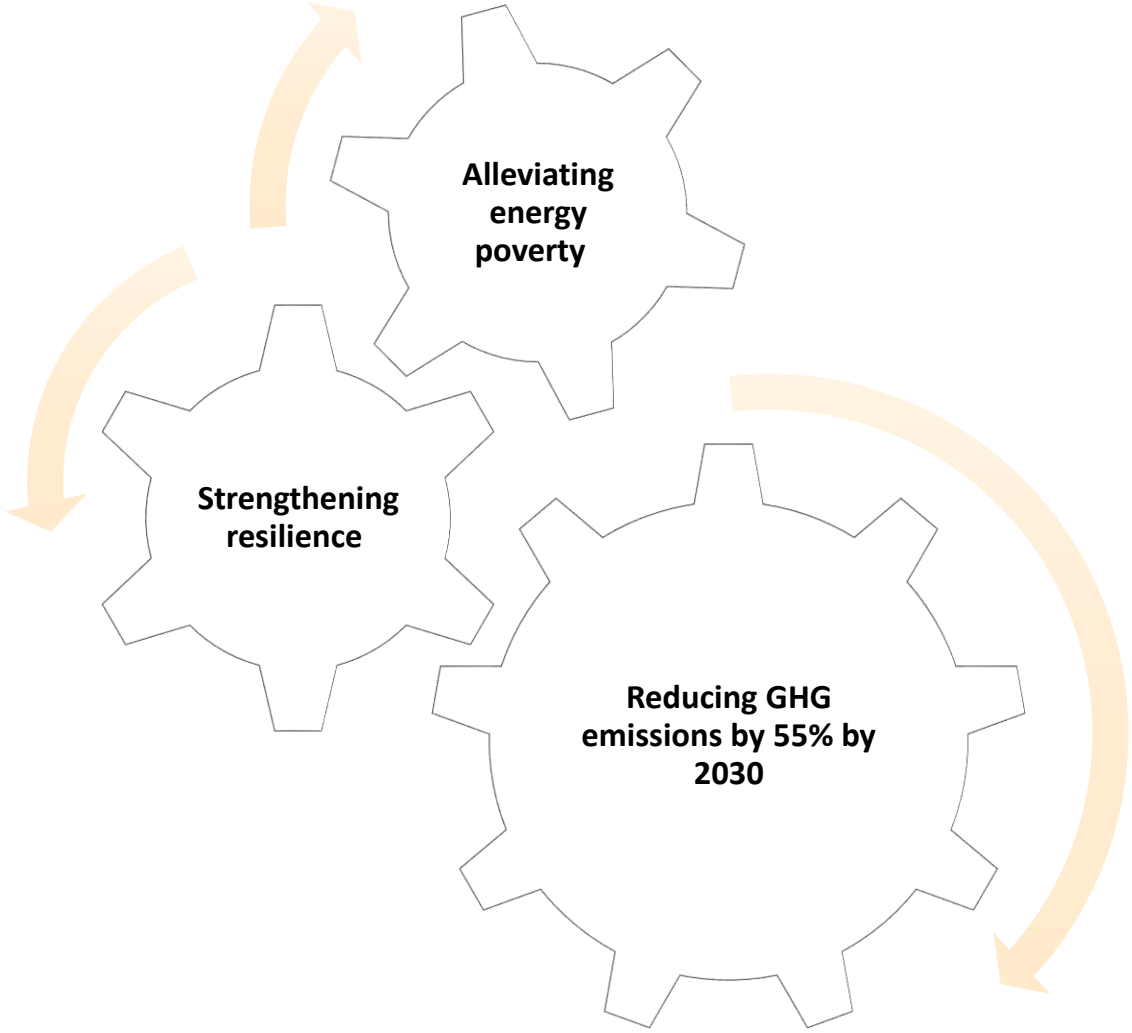
This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Targets

The 3 pillars of signatories' commitments are:

1. Mitigation: reducing GHG emissions by at least 55% by 2030
2. Adaptation: strengthening the resilience of the LA
3. Energy poverty: Setting specific actions and targets to alleviate energy poverty



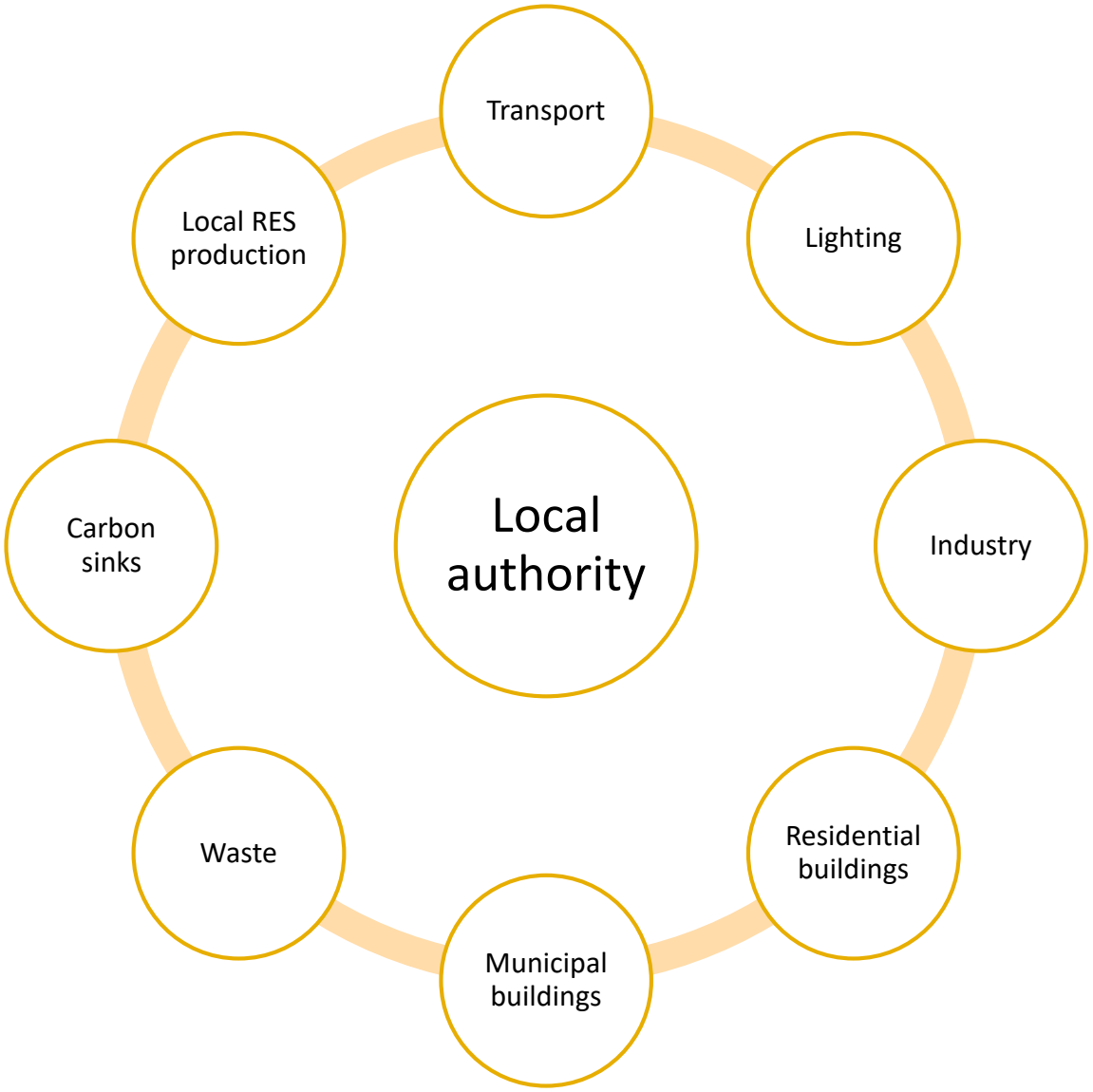
This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Scope

Emissions accounted for in a SECAP from all sources of energy (electricity, diesel, biomass etc.)

The sectors which fall into the scope of the SECAP have some flexibility




Process

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

1. Initiation

- Political commitment and signing of the Covenant of Mayors official Commitment Document
- Mobilisation of municipal departments involved
- Building support from stakeholders

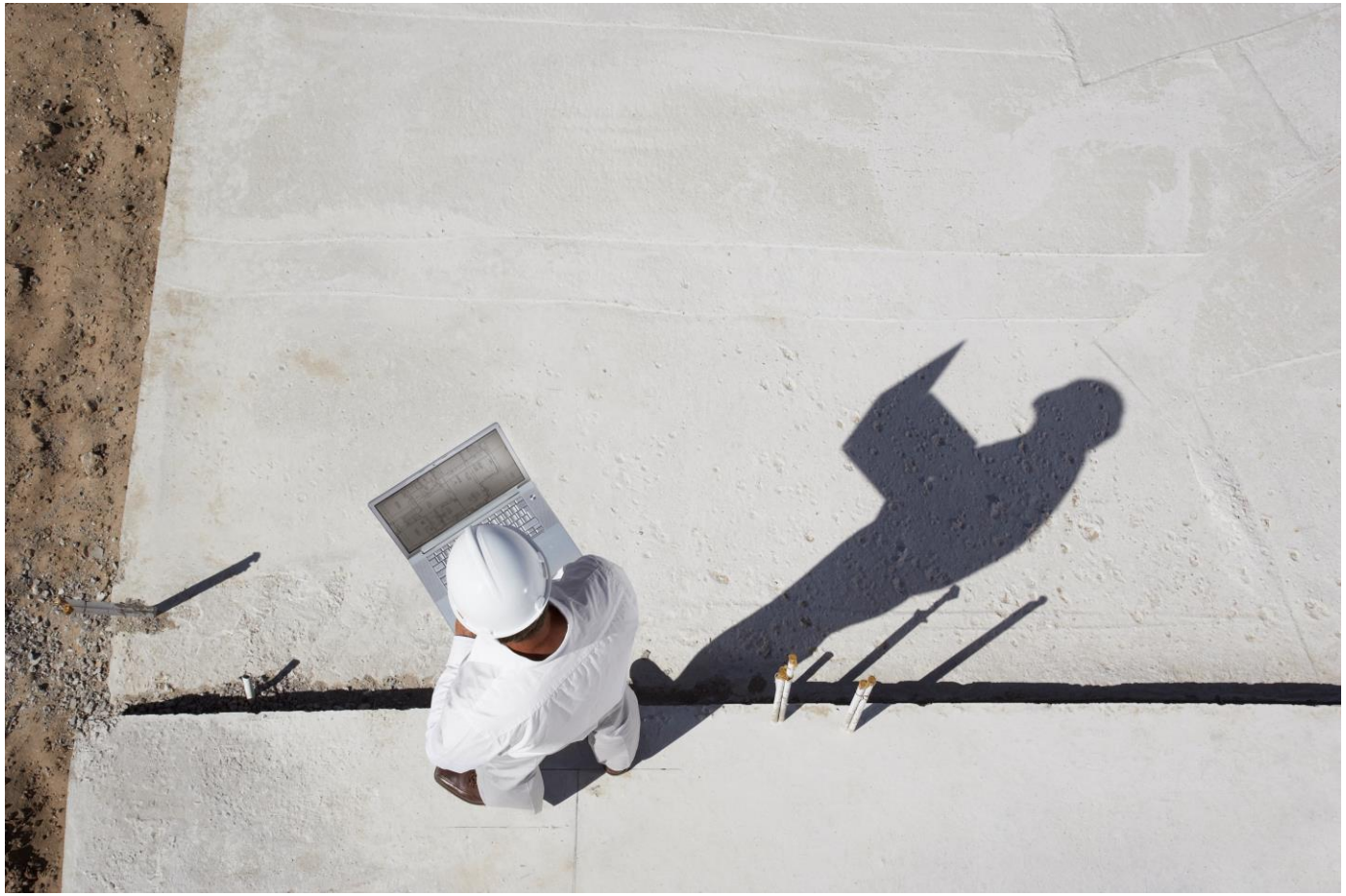
Covenant of Mayors, 2024

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

2. Planning

- Baseline review
- Vision setting
- Actions



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Step 1: Baseline Review

Includes:

- Baseline Emission Inventory (BEI) – for mitigation
- Risk and Vulnerability Assessment (RVA) – for adaptation

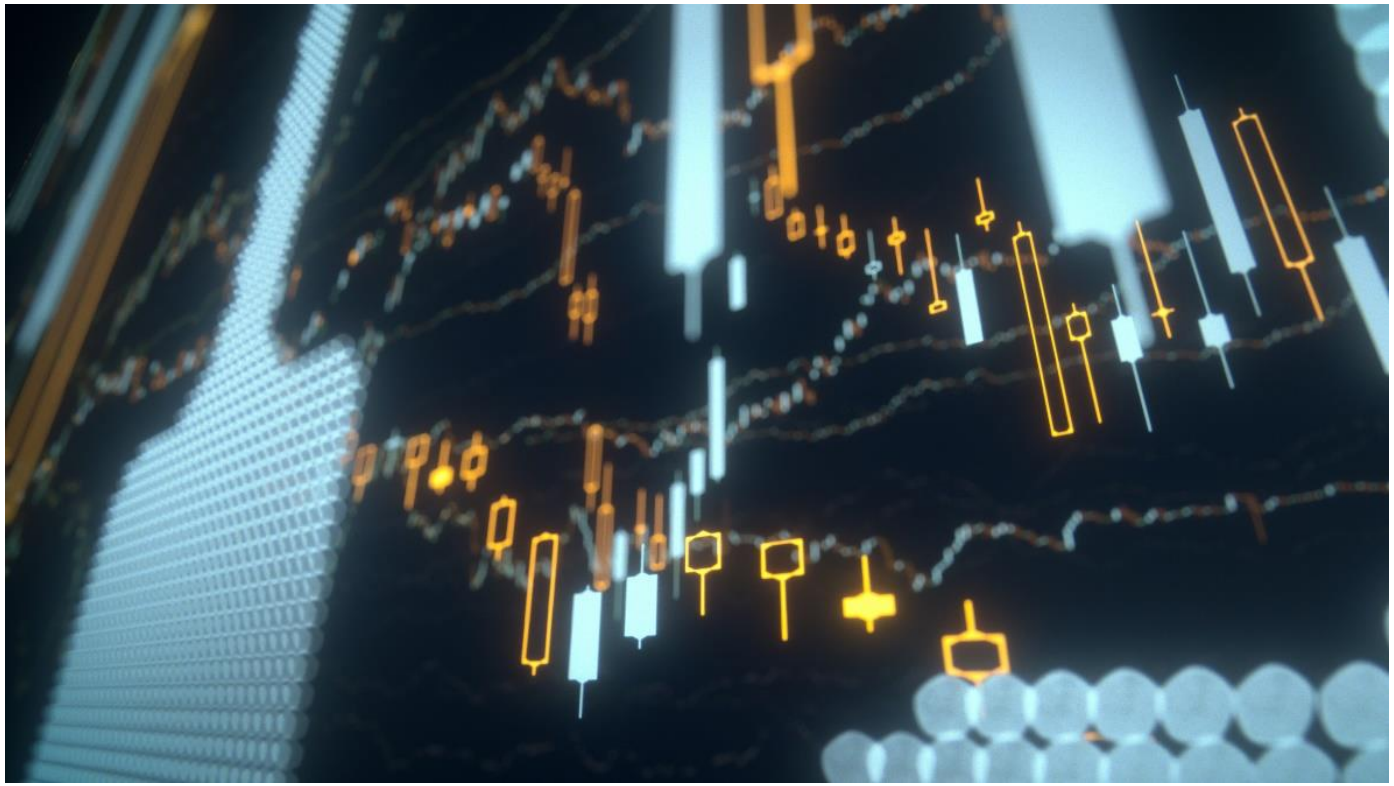
Baseline Emissions Inventory

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Assess the quality of data

- Bottom up or top down
- Hard data, statistics, soft data, measurements
- Consistency

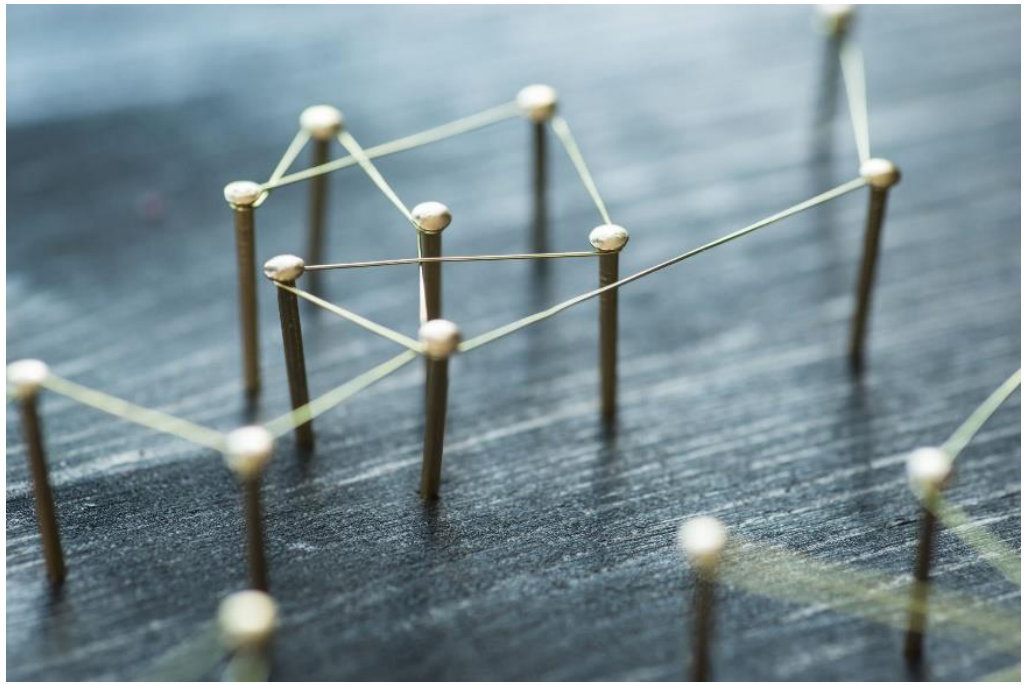


This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Information you will need

- Sources of emission
- Quantities of emitting processes
- Emission factors
- Population/demographic data



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Information you will need

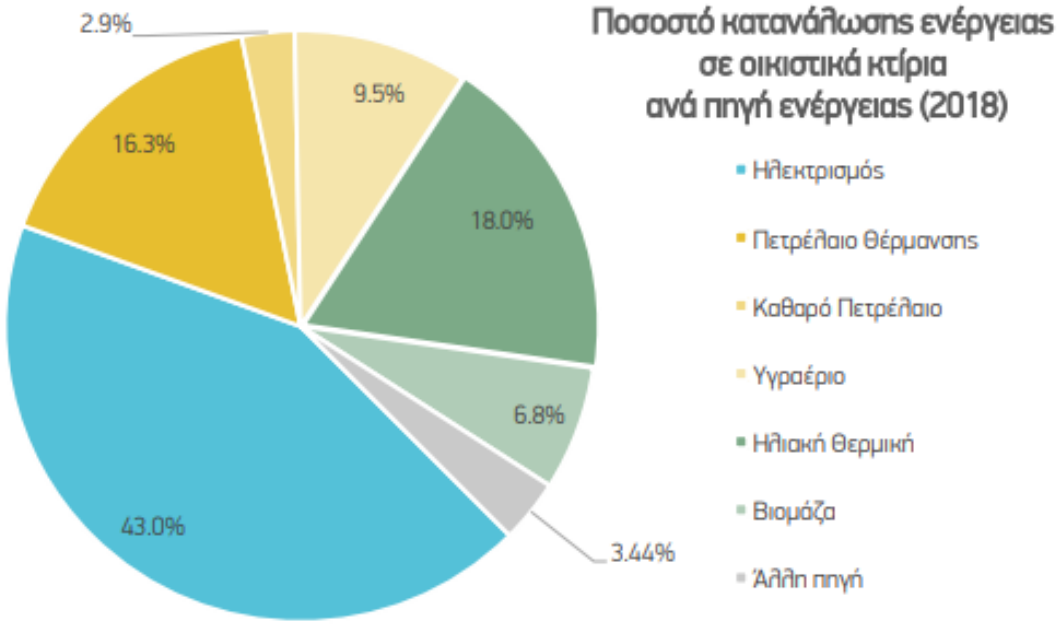
Scope	Indicators
Energy structure & Emissions	• Level & evolution of energy consumption and emissions per sector and per energy carrier
Renewable Energy	• Existing facilities, production, & trends of RES
Energy consumption/ management in local administration	• Level & evolution of energy consumption and emissions per sector and per energy carrier • Assessment of energy efficiency of buildings & equipment
Energy consumption of municipal fleet	• Composition of fleet (own and external) & annual energy consumption
Buildings	• Typology of existing building stock

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

An example from Cyprus

- Electricity data for all sectors by postcode
- Statistics on use of other energy sources
- Total consumption of other energy sources
- Assumptions based on observation



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Building a database

Cyprus Energy Agency

Select Community or Municipality or Region:

Select Units: kWh

NATIONAL STATISTICS

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No. El. Residential Consumers	398,563	451,334	461,441	468,071	468,071	454,150	449,431	463,243	468,406	473,046	514,582	0
National Elecricity Consumption (kWh)	4,912,238,764	4,801,342,355	4,584,649,245	4,396,515,493	3,889,190,636	3,902,557,916	3,991,990,534	4,271,336,892	4,030,786,481	4,254,026,955	1,719,207,721	0
Population	810,239	825,323	840,407	855,491	870,575	885,660	900,744	915,828	930,912	945,996	961,081	0
Heating Diesel	114,304	94,953	108,708	105,335	85,812	77,308	88,809	89,087	93,395	76,368	95,029	0
Diesel	348,841	357,835	343,599	305,099	259,759	249,801	264,887	287,408	311,173	324,962	338,194	0
Gasoline	383,468	390,302	384,756	372,113	349,110	340,766	345,342	353,606	350,898	341,604	333,678	0
LPG	55,440	52,658	58,618	56,904	51,364	48,410	53,809	54,906	56,646	53,665	60,664	0
Kerosene	18,544	13,878	16,491	16,970	11,640	9,478	13,546	13,887	14,381	11,015	14,914	0
Agriculture Diesel	23941	23,483	24,640	23,786	23,175	21,209	23,529	22,911	24,109	22,356	23,886	0

LOCAL STATISTICS

		CENSUS 2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	CENSUS 2011	2012	2013	2014
LIVING QUARTE	Population	6435	6,903	7,371	7,840	8,308	8,776	9,244	9,712	10,181	10,649	11117	11,585	12,053	12,522
	Living quarters (Occupied)	1823	1,981	2,139	2,297	2,455	2,613	2,770	2,928	3,086	3,244	3402	3,560	3,718	3,876
	Living quarters (Vacant/ Of temporary residence)	211	227	244	260	277	293	309	326	342	359	375	391	408	424
	Number of households	1823	1,983	2,142	2,302	2,461	2,621	2,781	2,940	3,100	3,259	3419	3,579	3,738	3,898
	Number of Institutions	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	Average household size	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.2	3	3	3
TYPE OF BUILDING	Single house											2114			
	Semi-detached or duplex											979			
	Row houses											154			
	Back-yard house											60			
	Apartment blocks											336			
	Conventional dwellings in partly residential buildings											86			
	Other type of building											26			
ECONOMIC ACTIVI	Economically active population											2633			
	Unemployed persons											282			
	Employed persons											2351			
	In Primary sector (NACE A-B)											28			
	In Secondary sector (NACE C-F)											229			
	In Tertiary sector (NACE G-U)											2046			
	Not stated											48			

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Building a database

LOCAL ELECTRICITY CONSUMPTION

	2009		2010		2011		2012		2013		2014	
	Consumption (kWh	No. of Consumers	Consumption (kWh)	No. of Consumer	onsumption (kW	No. of Consumer	onsumption (kW	No. of Consumer	onsumption (kW	No. of Consumers	Consumption (kWh)	No. of Consumer
RESIDENTIAL SECTOR	16,863,829	3,480	18,578,402	3,842	18,081,108	3,994	18,604,326	4,152	15,556,204	4,240	15,677,320	4,208
Residential	16,215,126	3,354	17,952,147	3,699	17,471,925	3,849	18,040,472	4,004	15,371,353	4,092	15,467,916	4,066
Residential storage heaters	648,703	126	626,255	143	609,183	145	563,854	148	184,851	148	209,404	142
PRIMARY SECTOR	885,768	69	846,837	68	826,521	71	822,161	72	695,186	75	654,294	73
Agriculture, Forestry and Fishing [A]	885,768	69	846,837	68	826,521	71	822,161	72	695,186	75	654,294	73
Mining and Quarrying [B]	0	0	0	0	0	0	0	0	0	0	0	0
SECONDARY SECTOR	16,259,952	257	17,810,412	311	16,524,031	315	14,883,289	324	13,126,195	293	13,700,047	287
Manufacturing [C]	15,437,553	174	16,253,275	198	15,377,461	202	14,281,897	202	12,649,458	197	12,999,911	197
Electricity, Gas, Steam and Air Conditioning Supply [D]	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply; Sewerage, Waste Management and Remediation Activities [E	759,075	13	1,461,663	7	956,416	6	270,478	7	214,903	7	494,994	8
Construction [F]	63,324	70	95,474	106	190,154	107	330,914	115	261,834	89	205,142	82
TERTIARY SECTOR	7,374,494	387	8,176,954	459	8,106,641	493	9,037,298	511	8,501,591	534	8,619,956	528
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles [G]	3,937,018	119	4,251,935	147	4,400,307	145	5,252,972	149	4,991,618	154	4,908,355	147
Transportation and Storage [H]	918,975	93	1,255,020	108	1,173,244	121	1,119,502	123	1,163,467	132	1,225,963	124
Accommodation and Food Service Activities [I]	375,411	30	468,630	33	477,520	31	435,439	35	318,300	39	466,032	39
Information and Communication [J]	969,675	17	931,398	21	848,390	24	975,278	26	904,905	28	886,087	30
Financial and Insurance Activities [K]	144,443	5	135,313	5	106,207	4	103,831	3	91,109	4	102,677	6
Real Estate Activities [L]	0	0	0	0	336	1	0	1	0	0	0	0
Professional, Scientific and Technical Activities [M]	229,843	22	317,006	30	295,247	33	292,116	34	225,232	32	252,890	34
Administrative and Support Service Activities [N]	33,398	5	2,297	1	1,919	1	1,311	1	1,393	1	1,910	1
Public Administration and Defence; Compulsory Social Security [O]	16,133	4	24,275	6	27,337	7	46,024	8	41,746	8	40,834	9
Education [P]	81,931	10	202,047	16	195,861	20	210,723	20	188,933	21	177,234	24
Human Health and Social Work Activities [Q]	119,046	5	20,522	2	20,947	4	22,842	5	19,093	6	20,912	6
Arts, Entertainment and Recreation [R]	519,833	44	424,858	16	423,650	18	426,404	19	409,464	20	395,612	22
Other Service Activities [S]	27,939	32	143,653	74	135,676	84	150,856	87	146,331	89	141,450	86
Activities of Households As Employers [T]	849	1	0	0	0	0	0	0	0	0	0	0
Activities of Extraterritorial Organisations and Bodies [U]	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC LIGHTING	998,195	96	1,024,931	102	1,018,961	103	954,832	122	987,484	118	1,079,869	126
Public Lighting - Urban areas	94,539	12	77,004	10	76,729	10	149,043	29	269,833	35	361,339	40
Public Lighting - Rural areas	892,978	74	937,125	82	932,242	83	795,719	83	708,316	73	704,614	73
Public Lighting - Traffic Lights	6,773	5	6,962	5	7,459	5	7,147	5	6,879	5	6,874	5
Public Lighting - Other Lighting	3,905	5	3,840	5	2,531	5	2,923	5	2,456	5	7,042	8
TOTAL	**42,382,238**	**4,289**	**46,437,536**	**4,782**	**44,557,262**	**4,976**	**44,301,906**	**5,181**	**38,866,660**	**5,260**	**39,731,486**	**5,222**

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Building a database

	2009										
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
	Electricity	**Heating Diesel**	**Kerosene**	**LPG**	**Natural gas**	**Biomass**	**Chorcoal**	**Solar**	**Wind**	**Diesel**	**Gasoline**
RESIDENTIAL SECTOR	16,864,262	4,575,444	742,293	2,219,193	0	2,637,648	1,019,091	5,545,056	0	0	0
Residential	16,215,543	4,399,440	713,739	2,133,827	0	2,637,648	1,019,091	5,545,056	0	0	0
Residential storage heaters	648,720	176,004	28,554	85,366	0	0	0	0	0	0	0
PRIMARY SECTOR	885,791	240,324	38,989	116,563	0	0	0	0	0	0	0
Agriculture, Forestry and Fishing [A]	885,791	240,324	38,989	116,563	0	0	0	0	0	0	0
Mining and Quarrying [B]	0	0	0	0	0	0	0	0	0	0	0
SECONDARY SECTOR	16,260,370	4,411,602	715,712	2,139,726	0	0	0	0	0	0	0
Manufacturing [C]	15,437,950	4,188,471	679,513	2,031,502	0	0	0	0	0	0	0
Electricity, Gas, Steam and Air Conditioning Supply [D]	0	0	0	0	0	0	0	0	0	0	0
Water Supply; Sewerage, Waste Manag. and Remediation Act. [E]	759,095	205,950	33,412	99,890	0	0	0	0	0	0	0
Construction [F]	63,326	17,181	2,787	8,333	0	0	0	0	0	0	0
TERTIARY SECTOR	7,374,684	2,000,826	324,602	970,445	0	0	0	886,053	0	0	0
Wholesale and Retail Trade [G]	3,937,119	1,068,180	173,295	518,091	0	0	0	473,037	0	0	0
Transportation and Storage [H]	918,999	249,334	40,450	120,932	0	0	0	110,416	0	0	0
Accommodation and Food Service [I]	375,421	101,855	16,524	49,402	0	0	0	45,106	0	0	0
Information and Communication [J]	969,700	263,089	42,682	127,604	0	0	0	116,507	0	0	0
Financial and Insurance Activities [K]	144,447	39,190	6,358	19,008	0	0	0	17,355	0	0	0
Real Estate Activities [L]	0	0	0	0	0	0	0	0	0	0	0
Prof., Scientific and Tech. Activities [M]	229,849	62,360	10,117	30,246	0	0	0	27,616	0	0	0
Admin. and Support Service Activities [N]	33,399	9,061	1,470	4,395	0	0	0	4,013	0	0	0
Public Administration and Defence [O]	16,133	4,377	710	2,123	0	0	0	1,938	0	0	0
Education [P]	81,933	22,229	3,606	10,782	0	0	0	9,844	0	0	0
Health and Social Work Activities [Q]	119,049	32,299	5,240	15,666	0	0	0	14,303	0	0	0
Arts, Entertainment and Recreation [R]	519,846	141,040	22,881	68,407	0	0	0	62,458	0	0	0
Other Service Activities [S]	27,940	7,580	1,230	3,677	0	0	0	3,357	0	0	0
Activities of Households As Employers [T]	849	230	37	112	0	0	0	102	0	0	0
Extraterritorial Org. and Bodies [U]	0	0	0	0	0	0	0	0	0	0	0
PUBLIC LIGHTING	998,221	0	0	0	0	0	0	0	0	0	0
Public Lighting - Urban areas	94,541	0	0	0	0	0	0	0	0	0	0
Public Lighting - Rural areas	893,001	0	0	0	0	0	0	0	0	0	0
Public Lighting - Traffic Lights	6,773	0	0	0	0	0	0	0	0	0	0
Public Lighting - Other Lighting	3,905	0	0	0	0	0	0	0	0	0	0
TRANSPORT	0	0	0	0	0	1,485,744	0	0	0	35,886,374	36,915,076
Urban and suburban passenger road land transport	0	0	0	0	0	1,449,125	0	0	0	34,092,055	36,915,076
Other passenger road transport services (taxi, tourism, school buses, etc.)	0	0	0	0	0	36,619	0	0	0	1,794,319	0
Local Electricity Production from Renewable Energy Sources	42,120	0	0	0	0	0	0	42,120	0	0	0
	-					+		+	+		

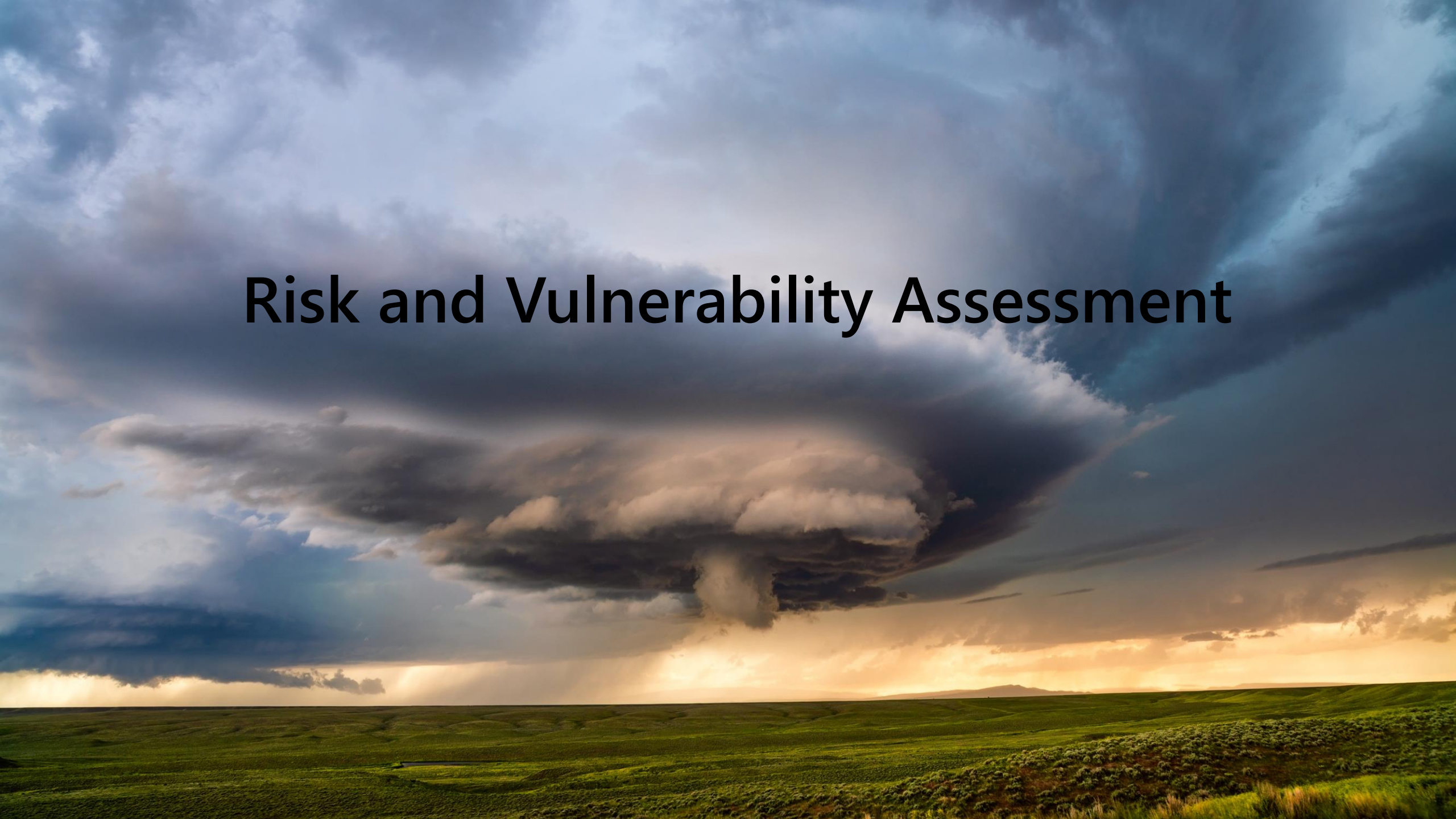
This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Building a database

Ύψωνας	tones CO_2 2009	tones CO_2 2010	tones CO_2 2011	tones CO_2 2012	tones CO_2 2013	tones CO_2 2014	tones CO_2 2015	tones CO_2 2016	tones CO_2 2017	tones CO_2 2018	tones CO_2 2019	tones CO_2 2020
Electricity	37,006	40,523	38,642	37,252	32,190	32,949	33,253	35,837	36,220	40,083	43,531	0
Heating Diesel	2,998	2,425	2,826	2,808	2,338	2,157	2,496	2,457	2,627	2,178	2,779	0
Kerosene	486	354	429	452	317	264	381	383	404	314	436	0
LPG	1,307	1,209	1,370	1,364	1,258	1,214	602	1,361	1,432	1,376	1,595	0
Diesel	9,582	9,545	9,343	8,558	7,524	7,381	7,914	8,355	9,204	9,668	10,334	0
Gasoline	9,192	9,112	7,089	7,032	6,742	6,739	6,881	6,913	6,995	6,906	6,916	0
TOTAL	**60,571**	**63,169**	**59,700**	**57,466**	**50,369**	**50,705**	**51,527**	**55,307**	**56,882**	**60,525**	**65,590**	**0**

Ύψωνας	tones CO_2 2009	tones CO_2 2010	tones CO_2 2011	tones CO_2 2012	tones CO_2 2013	tones CO_2 2014	tones CO_2 2015	tones CO_2 2016	tones CO_2 2017	tones CO_2 2018	tones CO_2 2019	tones CO_2 2020
RESIDENTIAL	16,655	17,805	17,422	16,777	13,423	13,400	13,723	14,077	16,293	15,452	17,125	0
PRIMARY	877	815	810	806	679	633	567	667	720	614	640	0
SECONDARY	16,094	17,131	16,198	14,596	12,829	13,263	13,017	15,131	13,536	17,476	19,926	0
TERTIARY	7,299	7,865	7,946	8,863	8,309	8,345	8,543	9,248	9,192	9,470	10,102	0
PUBLIC LIGHTING	872	896	891	835	863	944	882	917	943	939	548	0
TRANSPORTS	18,774	18,657	16,433	15,590	14,266	14,120	14,795	15,268	16,199	16,574	17,250	0
TOTAL	**60,571**	**63,169**	**59,700**	**57,466**	**50,369**	**50,705**	**51,527**	**55,307**	**56,882**	**60,525**	**65,590**	**0**



Risk and Vulnerability Assessment

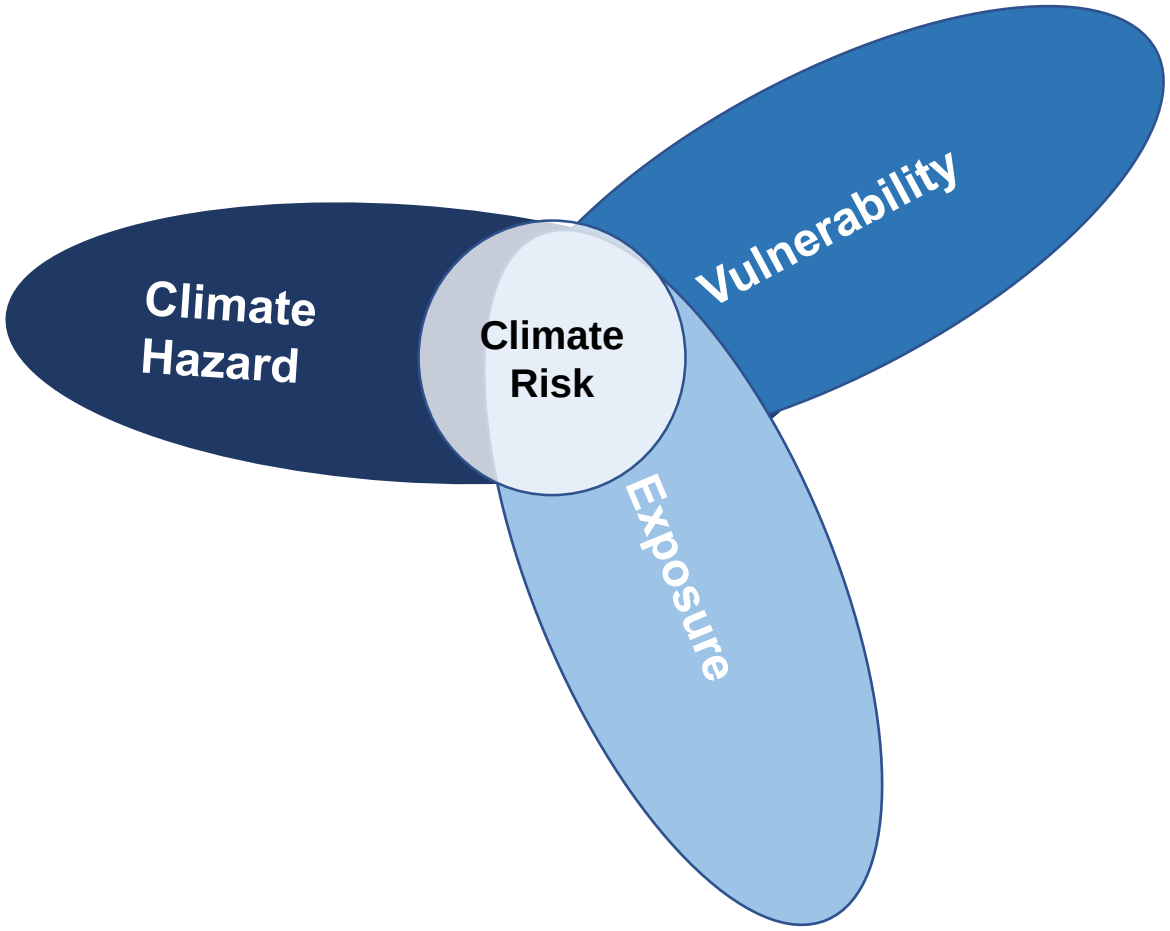
This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Risk and Vulnerability Assessment

- The magnitude or severity of the negative impacts of climate change depend on how exposed a system is to a particular climate hazard and how vulnerable it is

- Climate hazard, exposure and vulnerability are the key factors of climate risk and are the parameters of a climate risk assessment



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment Equation

$$Risk = Hazard\ x\ Exposure\ x\ Vulnerability$$

Hazard is the **climate hazard** faced e.g. extreme temperatures, extreme precipitation, floods, drought etc.

Exposure refers to what **assets** are present that could be impacted from a climate hazard e.g. infrastructure, businesses, population, schools etc. Also known as receptors.

Vulnerability refers to the socioeconomic characteristics, biophysical characteristics and institutional characteristics that are **weaknesses** and can **amplify the consequences** of a climate hazard.

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment-Data Collection

In order to conduct a climate risk assessment, data needs to be collected on the three factors of the risk equation:

1. Climate hazards facing the location
2. The assets or receptors present in the location across the sectors of society, economy and environment
3. The characteristics of the assets or receptors, in order to identify points of vulnerability and assess their capacity to adapt

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment-Climate Hazard Data

The climate hazard is identified using a three-step process.

1. Identification of the **current and historical** climate hazards experienced by an area
2. Identification of the impacts recorded on society, environment and economy of the historical climate hazards that were identified in step 1
3. Collection of **future projections** of how the climate hazards will evolve under different climate change scenarios from studies using regional downscaled climate change models

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment-Climate Hazard Data

1. Identification of the **current and historical** climate hazards experienced by an area.

- Through collection of data and information from:
  - National departments including meteorological, water (floods), forest (forest fires), agricultural and environment departments (drought),
  - documentary review of scientific reports and newspaper articles,
  - review of relevant national and EU databases

Historical climate data should be collected for a minimum of 30 years

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Example of climate hazard analysis

- Example of how historical and future trends on climate hazards can be analysed from a case study in Mrkopalj Croatia
- Future projections have been collected for RCP 4.5 and RCP 8.5

	Historical Trend	Future Climate Projections under RCP 4.5	Future Climate Projections under RCP 8.5
Annual Precipitation	**752.32 mm** the average annual precipitation recorded at the Parg meteorological station for the period 1986-2005	**+62.8 ±100.8 mm** Increase in the average annual precipitation for the period 2071-2100	**-39.9 ±113.8 mm** Decrease in the average annual precipitation for the period 2071-2100
Mean number of days with total daily precipitation ≥ 20 mm	**29.4** The observed average number of days with total precipitation ≥ 20 mm for the period 1971-2000 as simulated by climate regional models	**+1.6 ±1.8** Increase in the mean number of days with total daily precipitation ≥ 20 mm for the period 2071-2100	**+0.4 ±2.3** Increase in the mean number of days with total daily precipitation ≥ 20 for the period 2071-2100
Mean number of consecutive dry days i.e. days with less than 1mm of rain[8]	**17.1** The observed average consecutive dry days for the period 1971-2000 as simulated by climate regional models	**+0.7 ±2.75** Increase in the average number of consecutive dry days for the period 2071-2100	**+4.3 ±7.2** Increase in the average number of consecutive dry days re under for the period 2071-2100

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment- Exposure

- The assets of the location for which a CRA will be conducted (e.g. country, region or city) are identified and mapped out
- They are often known as **receptors** i.e. they receive the impacts of the climate hazard
- Where possible it is good to map these assets and receptors on GIS maps

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment- Exposure

Receptor	Example of receptor
 **Environment**	soil river wetland habitat ground water and aquifers flora fauna forest

Receptor	Example of receptor
 **Economy & Built Environment**	infrastructure e.g. transport, energy and telecommunications houses buildings agriculture livestock manufacturing Industry tourism industry Fishing and aquaculture

Receptor	Example of receptor
 **Cultural Heritage**	historical places and monuments archaeological sites landscapes museums churches

Receptor	Example of receptor
 **Human**	People (lives and livelihood) human health communities political cohesion

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment- Vulnerability

- Vulnerability is defined as the propensity or predisposition to be negatively affected
- It is made up of two factors: 1) **sensitivity to harmful effects and** 2) **lack of capacity** to cope and adapt. The capacity to cope is referred to as **adaptive capacity**
- Sensitivity to harmful effects may include physical features of a system (e.g., building material of houses, type of soil in agriculture fields), social, economic, (e.g., age distribution, income distribution) and cultural attributes (e.g. indigenous groups)
- As part of a CRA vulnerability is determined through assessing socio-economic factors and environmental factors that make a population/ecosystem/economic sector/city (i.e. receptor) more sensitive to negative impacts from climate hazards, affecting their capacity to cope and recover

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment- Vulnerability

- For each climate hazard the different **socioeconomic attributes** e.g. population income, education, housing etc. present in a location must be identified and then assessed
- There are socioeconomic indicators that are commonly collected by government departments that can help determine socioeconomic vulnerability
- Examples include:
  - Demographics and health status related indicators e.g. life expectancy, percentage of elderly and vulnerable population, family and household structure
  - Social and economic related indicators e.g. GDP per capita, income, inequality, unemployment, poverty
  - Infrastructure related indicators e.g. availability, quality
  - Characteristics of the built environment related indicators e.g. housing typologies, density of buildings, soil sealing, building materials, age of buildings

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Risk Assessment- Vulnerability

- For each climate hazard the different **biophysical attributes** e.g. presence of river, areas of degradation etc. present in a location must be identified and then assessed
- There are biophysical indicators that are commonly collected by government departments that can help determine environmental related vulnerability
- Examples include:
  - Ecosystem related indicators e.g.. presence of ecosystems and habitats, land use, resource use and depletion
  - Environmental status related indicators e.g. emissions to air, emissions to water, degradation and quality of ecosystem

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Impact Chains

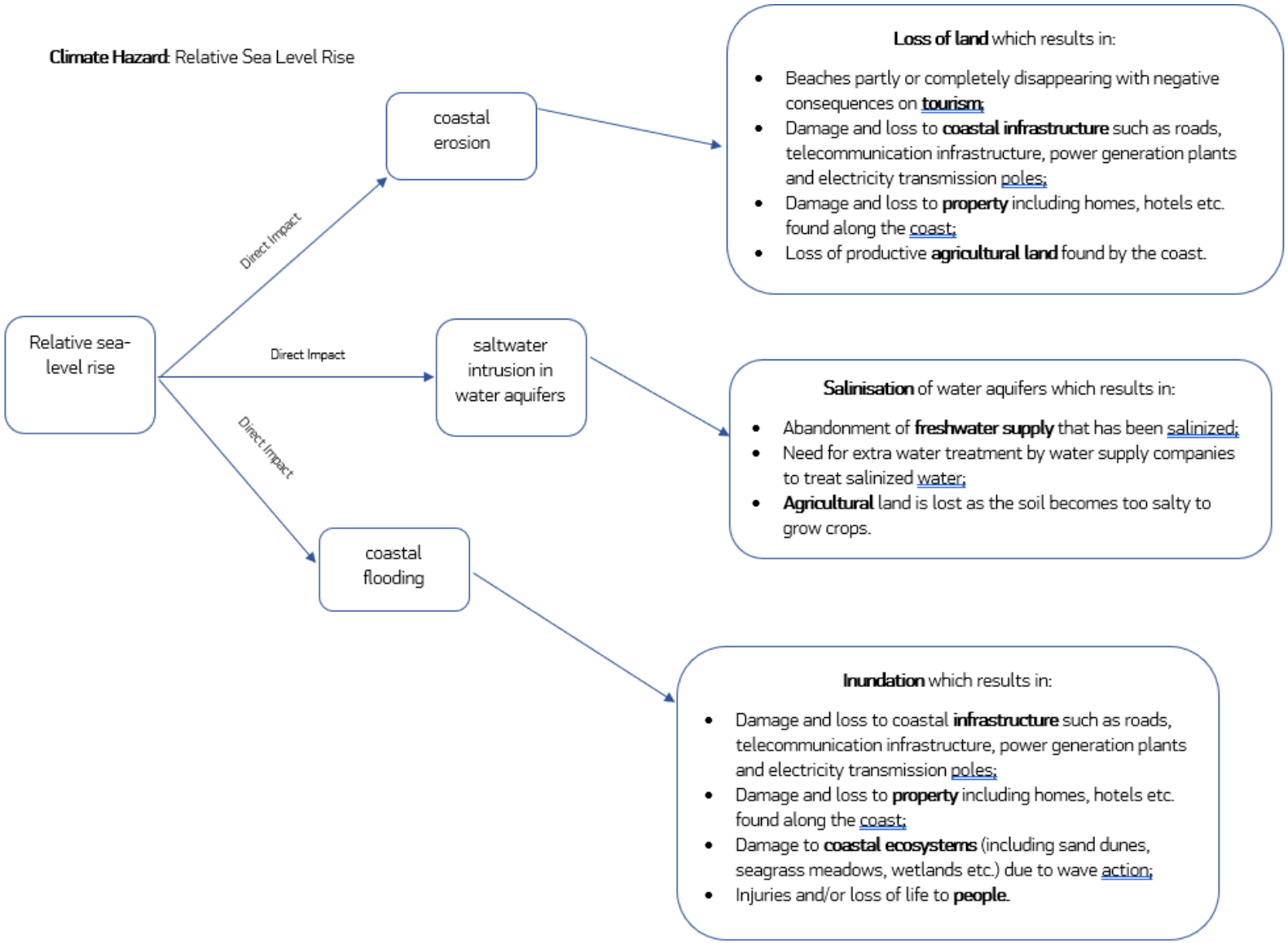
- A climate impact chain is a schematic representation of how a given climate hazard affects a receptor of interest showing both direct and indirect impacts

- The vulnerability (including adaptive capacity) of the receptor to be negatively affected must be taken into account when determining impacts

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Climate Impact Chains

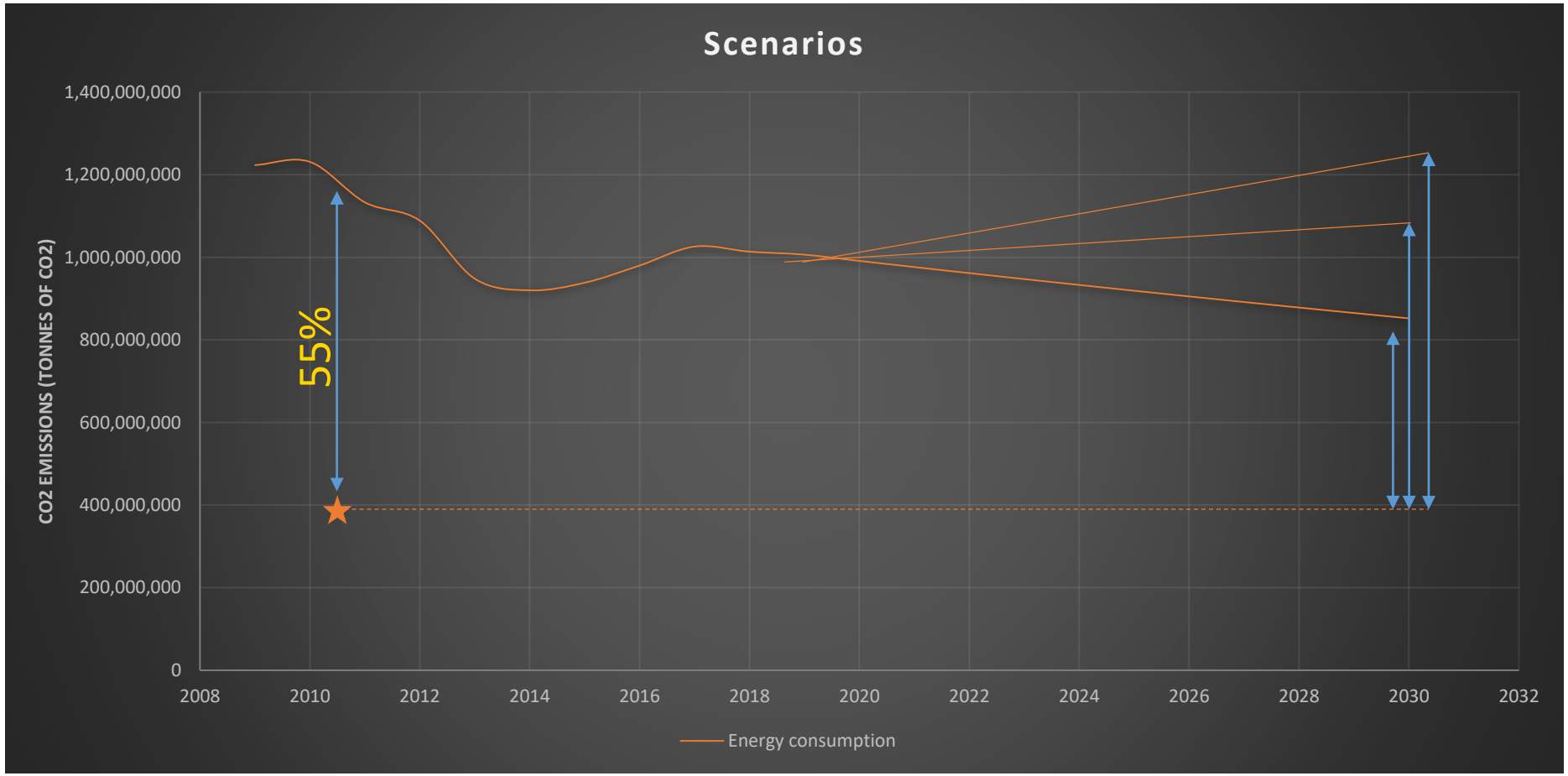


Scenarios

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Why we need scenarios

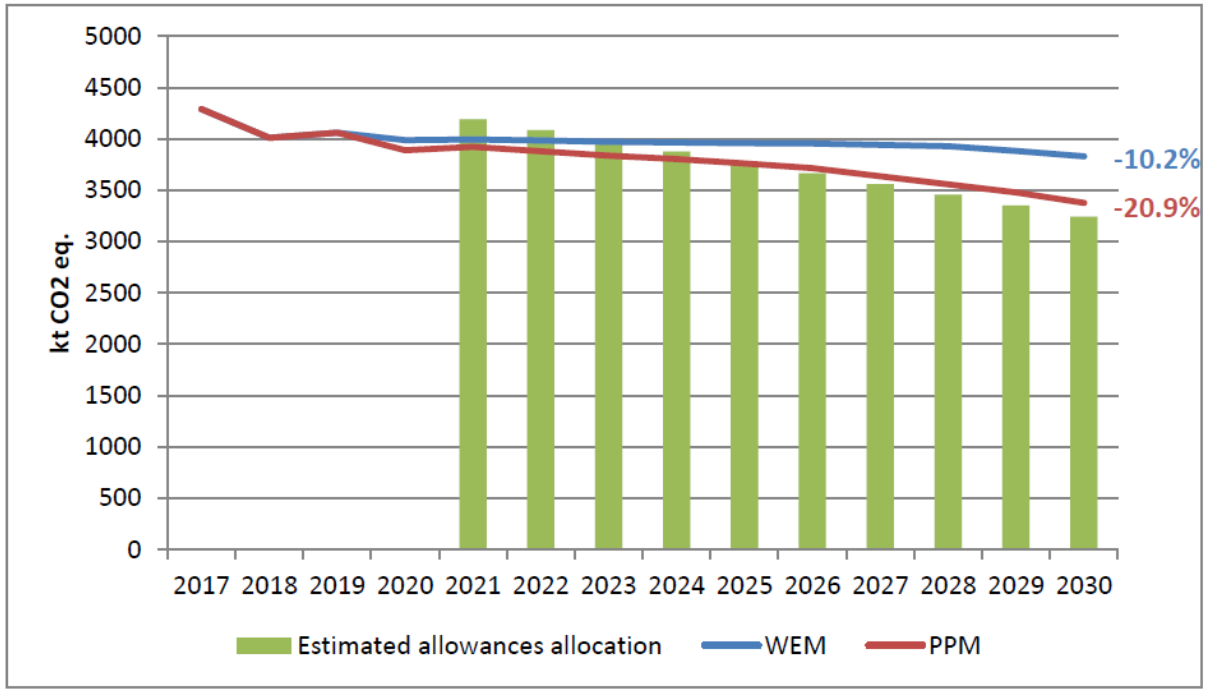


This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

What affects scenarios

- National actions
- Growth projections
- Development projections (rural/urban)
- Sector projections
- Plans for change in use



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

What affects scenarios

- Touristic developed
- Touristic growing
- Urban developed/growing
- Peri-urban developed/growing
- Village
- Etc.

		Touristic growing
5	RESIDENTIAL SECTOR	
6	Residential	2.5%
7	Residential storage heaters	2.5%
8	PRIMARY SECTOR	
9	Agriculture, Forestry and Fishing [A]	1.0%
10	Mining and Quarrying [B]	0.5%
11	SECONDARY SECTOR	
12	Manufacturing [C]	3.0%
13	Electricity, Gas, Steam and Air Conditioning Supply [D]	0.0%
14	Water Supply; Sewerage, Waste Management and Remediation Activities [E]	2.5%
15	Construction [F]	4.0%
16	TERTIARY SECTOR	
17	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles [G]	4.0%
18	Transportation and Storage [H]	4.0%
19	Accommodation and Food Service Activities [I]	4.0%
20	Information and Communication [J]	4.0%
21	Financial and Insurance Activities [K]	2.0%
22	Real Estate Activities [L]	4.0%
23	Professional, Scientific and Technical Activities [M]	1.0%
24	Administrative and Support Service Activities [N]	1.0%
25	Public Administration and Defence; Compulsory Social Security [O]	1.0%
26	Education [P]	1.0%
27	Human Health and Social Work Activities [Q]	2.0%
28	Arts, Entertainment and Recreation [R]	1.0%
29	Other Service Activities [S]	2.0%
30	Activities of Households As Employers [T]	1.0%
31	Activities of Extraterritorial Organisations and Bodies [U]	1.0%
32	PUBLIC LIGHTING	
33	Public Lighting - Urban areas	3.5%
34	Public Lighting - Rural areas	3.5%
35	Public Lighting - Traffic Lights	3.5%
36	Public Lighting - Other Lighting	3.5%
37	TRANSPORTS	
38	Urban and suburban passenger road land transport	3.0%
39	Other passenger road transport services (taxi, tourism, school buses, etc.)	3.0%
40		
41	Local Electricity Production from Renewable Energy Sources	4.5%

Vision

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Why it's important

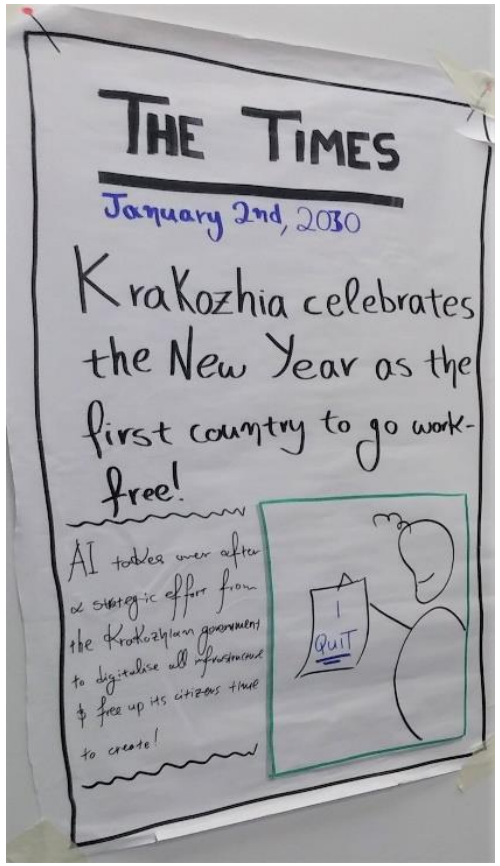
- Know where you want to go
- Plan correctly the steps to get there
- Be able to refocus
- Have acceptance by stakeholders
- Mitigate conflict

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Tool 1 – News cover

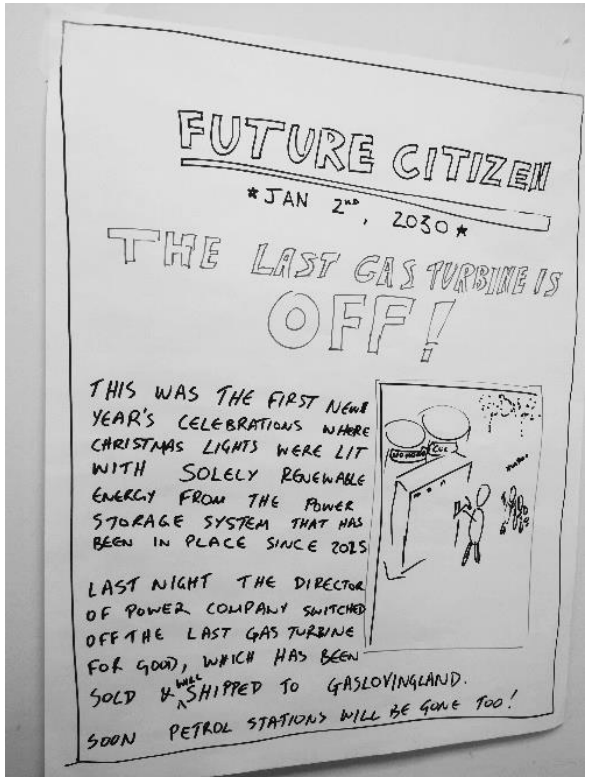
- Simple tool for workshop settings
- Encourage collaboration
- Focus on lifting restrictions and enhancing creativity
- Broad enough vision to achieve (close to) consensus

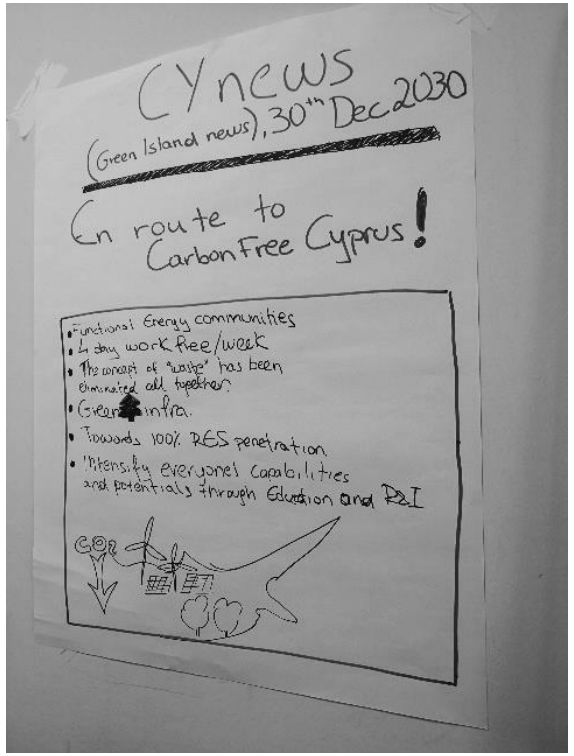


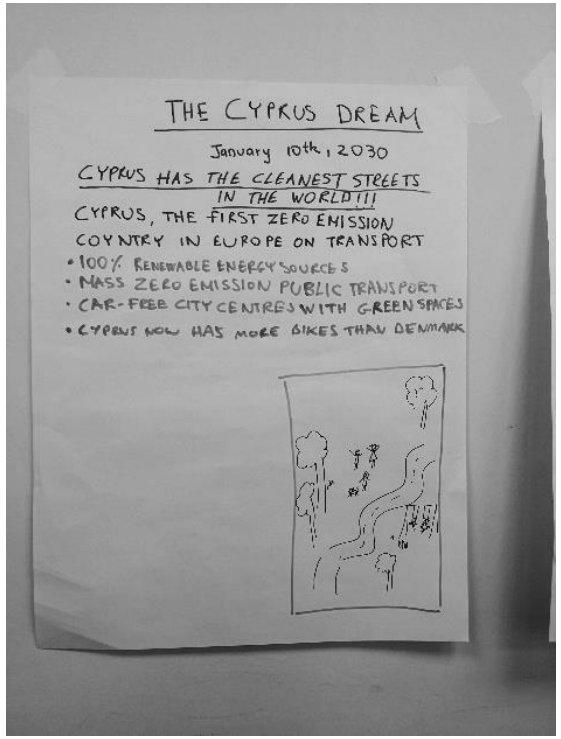
This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

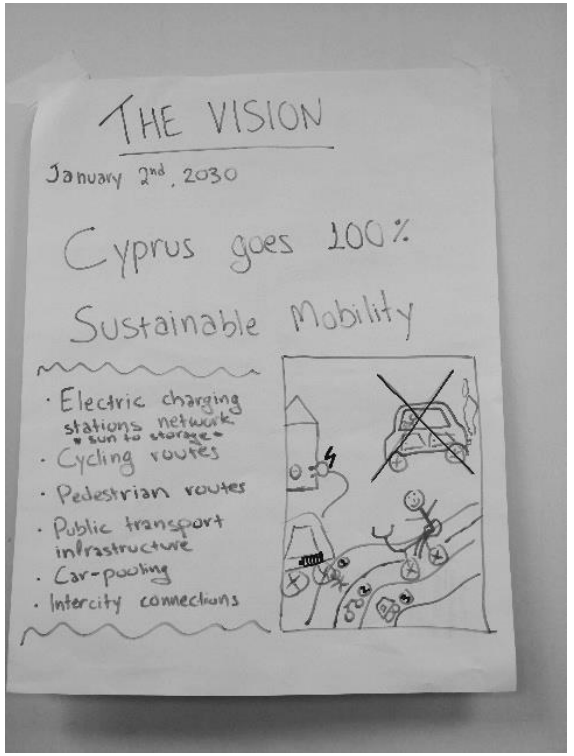
Co-funded by the European Union

Tool 1 – News cover





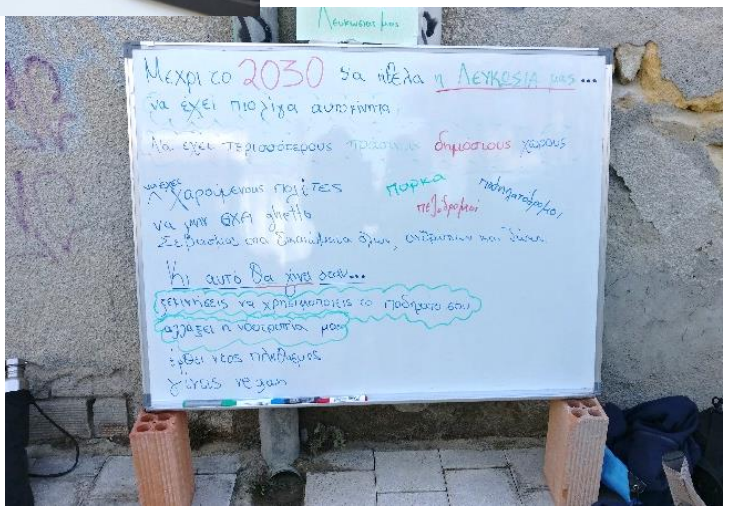




This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

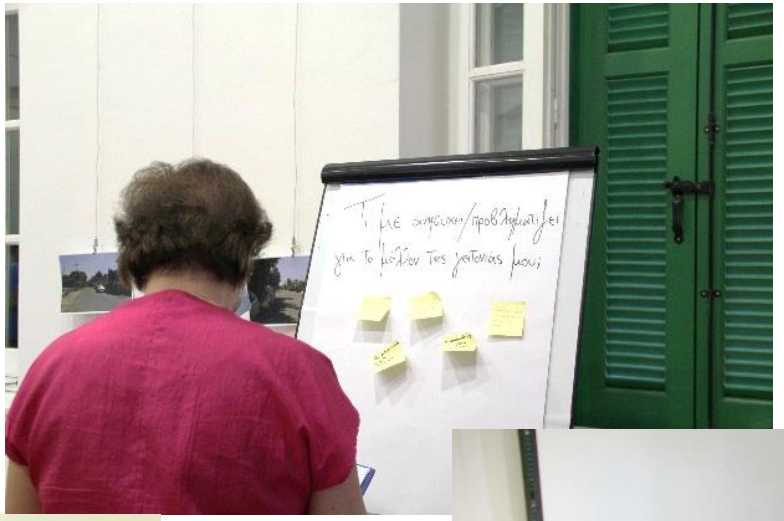
Tools for citizen engagement



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Tools for citizen engagement



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Tools for citizen engagement


Actions

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Examples of mitigation actions

Public buildings	• Energy upgrades • Soft measures
Tertiary sector and industry	• Green taxation • Policy change
Residential buildings	• Energy audits • Soft measures • Green roofs • Subsidies
Public lighting	• Streetlights • Traffic lights • Public lights
Transport	• Cycling infrastructure • Public transport upgrade: additional lanes, timeslots, bus lanes • Municipal fleet upgrade - replacement
Local Energy Production	• PVs on public buildings • Energy communities
Other	• Carbon sinks • Sustainable waste management • Green Public Procurement • Town planning

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Examples of adaptation actions

Water
- River restoration
- Sustainable urban drainage system (SUDS)
- Nature-based Solutions (NBS) for flooding
- Reduction of water loss

Buildings
- Promotion of green roofs
- Bioclimatic design of buildings
- Measures in Green Public Procurement

Transport
- Climate resilient design
- Shaded pathways

Environment and biodiversity
- Educational activities
- Increase of green spaces
- Pollinator parks

Town planning
- Actions to improve microclimate
- Permeable paving

Health
- Cooling centres
- Training of professionals

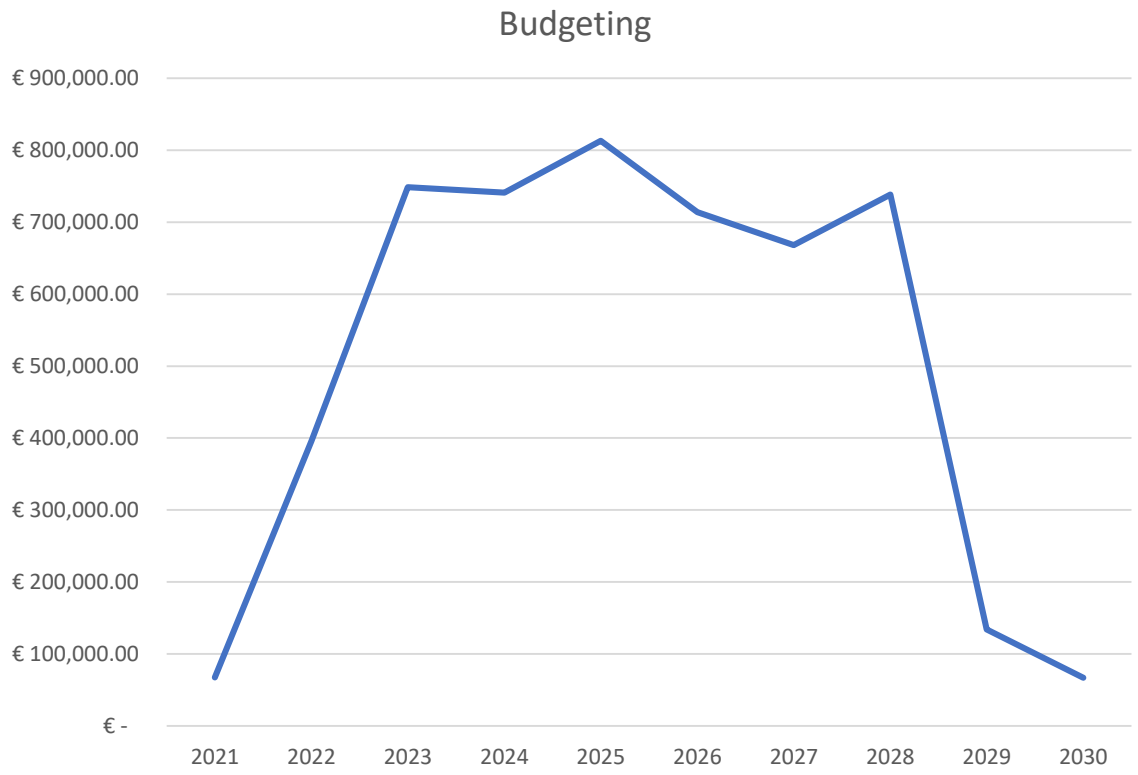
Civil protection
- Early warning systems
- Recording of damages from extreme weather events

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

3. Implementation

- Timeline
- Budgeting and financing sources
- Roles and responsibilities
- Regular monitoring



This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

4. Monitoring and reporting

- The Covenant of Mayor requires action reporting every two years and full reporting every four years
- Action reporting: progress of implementation
- Full reporting: progress and Monitoring Emission Inventory (MEI)

This project has received funding from the European Union's LIFE Programme for Research and Innovation under Grant Agreement no. 101120859

Co-funded by the European Union

Thank you

Myrto Skouroupathi

Climate Change Mitigation Coordinator

Cyprus Energy Agency