

D5.2 NEVERMORE KPI Panel

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Abbreviations and acronyms

Acronym	Description
EEA	European Environment Agency
EKNorr	Energikontor Norr AB (North Sweden Energy Agency)
KPI	Key Performance Indicator
SD	Sustainable Development



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Executive summary

Deliverable **D5.2 "NEVERMORE KPI Panel"** presents the outcomes of **T5.2 "Common KPI-driven evaluation panel of policies and measures"**. Task 5.2 was led by RINA-C with the active participation of FBK, CARTIF, NCSRD, SIMAVI, CMCC, IVL, UVa, INFO, PAT, SITIA, TULCEA and EKNorr.

Deliverable 5.2 contains the set of Key Performance Indicators (KPIs) that are deemed to be relevant for the NEVERMORE evaluation framework and it is submitted as an Excel tool (deliverable type: OTHER) attached at the bottom of this document. The present Explanatory Note is elaborated to describe the methodological approach adopted for the KPI Panel definition.

The aim of Task 5.2 was to develop a KPI-driven evaluation panel for the evaluation and comparison of the policies and measures. The KPIs are co-designed and supported by research insights, feedback and comments (including policy objectives) received by stakeholders (consultations organised as part of T2.4 "Coordination of the participatory processes with stakeholders and end-users") and the available data for the validation approach.

The KPI panel covers the three pillars of sustainable development (Environmental, Social and Economic). In addition, the EEA Policy Evaluation Framework was applied to include multi-impact indicators for both disaster scenarios and adaptation and mitigation measures.

1 Introduction

The **D5.2 "NEVERMORE KPI Panel"** covers the three pillars of sustainable development (environmental, social and economic) and presents multi-impact indicators to assess the effect of measures in terms of efficiency and effectiveness, in line with the European Environment Agency (EEA) framework (see Section 3). The Excel-based tool consists of 4 sheets:

- Introduction: presents the NEVERMORE affiliation and partners participating in the KPI Panel elaboration.
- Environmental Pillar: outlines 96 KPIs focusing on the environmental and sustainable development pillar.
- Social Pillar: outlines 100 KPIs focusing on the social sustainable development pillar.
- **Economic Pillar**: outlines 67 KPIs focusing on the economic sustainable development pillar.

The three KPI sheets (Environmental Pillar, Social Pillar and Economic Pillar) consist of the following columns:

• **Category:** the KPIs are subdivided into several categories in order to facilitate the area of analysis (Table 1).

Environmental	Social	Economic
 Carbon Emissions Climate Hazards Energy Food Land use Pollution Resources consumption 	 Behavioural Change Community Services & Inclusion Employment Health & Safety Political System 	 Economic Growth Environmental taxes and transfers Inflation International financial flows: Official Development Assistance Technology and innovation: Patents Technology and innovation: R&D Tourism

Table 1.Categories



- KPI Name: name of the KPI.
- Level of application: efficiency and effectiveness multi-impact indicators are analysed.
- KPI Definition: definition of the KPI.
- Unit: unit of measure of the KPI or formula/tools to measure the KPI.
- Scale: EU, National or local scale of application.
- **Source (if any):** eventual source considered.
- Note: relevant comments.
- Sectoral affiliation: affiliation according to the sectors identified in WP6 "Analysis of climate change impacts and risk at case studies":
 - Agriculture, forestry and fishing
 - Mining and quarrying
 - Energy Industry and commerce
 - Transport
 - Water and waste
 - Tourism/leisure/cultural heritage
 - Finance/Economy
 - Society
 - Biodiversity and natural heritage.

2 Methodology

Task 5.2 was led by RINA-C with an active involvement of all NEVERMORE project partners. Its approach consisted of the following steps:

- 1. Identification of the policy evaluation framework to be followed in the evaluation of policies and for the selection of relevant KPIs (see Section 3 for details);
- 2. Collection of KPIs classified according to the following criteria:
 - Environmental, Social and Economic pillars.
 - Relevant category (e.g. energy, land use, economic growth, health & safety).
 - Level of application (effectiveness or efficiency).
 - Scale (EU, national and/or local).
 - Relevant sector, in alignment with WP4¹ and WP6² (i.e. agriculture, forestry and fishing; biodiversity and natural heritage; energy; transport; tourism, leisure/cultural heritage; technology, information and communication; cities, urban planning and construction; finance/economy; industry and commerce; society; mining and quarrying).

All partners contributed and collaborated on this task, led by RINA-C, each being in charge of collecting KPIs for one of the above-mentioned pillars;

3. Integration of comments, feedback and suggestions received by partners and collected in the context of the case study consultations (see Section 0 for details).

¹ NEVERMORE Work Package 4: Design, modelling & integration of economic, environmental & social damages functions ² NEVERMORE Work Package 6: Analysis of climate change impacts and risk at case studies



3 Policy Evaluation Framework

Environmental and climate policy objectives are frequently stated in terms of the anticipated impact of a policy on the situation it is intended to influence. When assessing policies, it is essential to understand the goals, objectives, and targets linked to public interventions, to select the right indicators.

The EEA's Policy Evaluation Framework addresses some of the difficulties that evaluators face in the context of environmental and climate policy. The EEA's suggested methodology seeks to foster a discourse on policy assessment addressing the different stages of the policy intervention. The EEA approach is presented in Figure 1.

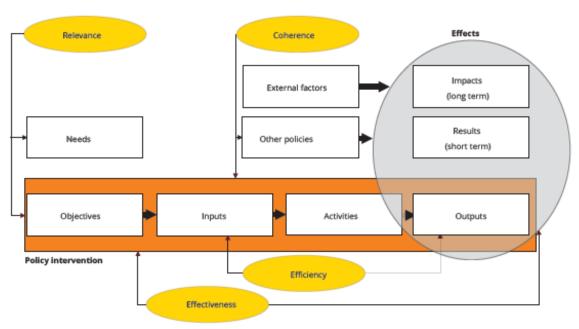


Figure 1. Policy Evaluation Framework (Source: EEA³)

In light of the NEVERMORE project structure and modelling exercise, the partners involved in Task 5.2 agreed to focus on the Effectiveness and the Efficiency Indexes.

The **Effectiveness Index** investigates to what extent a policy intervention caused observed effects and changes and to what extent do the observed effects correspond to the objectives.

The **Efficiency Index** focuses on the resources used to reach the observed output, as it investigates if the costs involved were justified, given the changes and effects achieved.

Effectiveness — To what extent did a policy intervention cause observed effects and changes? To what extent do the observed effects correspond to the objectives?

Efficiency — Were the costs involved justified, given the changes and effects achieved?

³ EEA Environment and Climate Policy Evaluation Framework <u>https://www.eea.europa.eu/publications/environment-and-climate-policy-evaluation/download</u>



4 Case Study Consultations

A strong engagement of local stakeholders is key for reaching the objectives of NEVERMORE.

NEVERMORE includes five case studies, that represent different socio-ecological EU contexts challenged by different climate change impacts: CS1 - Island (Sitia, Crete Island - Greece), CS2 - Mountain region (Trentino region – Italy), CS3 - Boreal region (Norrbotten County - Sweden), CS4 - Mediterranean region (Murcia region - Spain) and CS5 - Wetland (Danube Delta - Romania). As part of the co-design approach and as suggested in T2.4, RINA-C held five consultation sessions with the NEVERMORE case study leaders: Instituto de Fomento de la Region de Murcia (INFO), Provincia Autonoma di Trento (PAT), Dimos Sitias (SITIA), Institutia Prefectului Judetul Tulcea (TULCEA), Energikontor Norr AB (EKNorr) – and with the support of case study technical supporters CARTIF, FBK, NCSRD, SIMAVI and IVL.

In particular, the objectives of the consultation sessions conducted by RINA-C were the following:

- Collecting feedback on the KPI panel framework structure;
- Collecting feedback on the preliminary set of KPI panel;
- Assessing the priority areas for each case study; and
- Identifying new KPIs to integrate into the panel (eventually).

All case study leaders agreed on the KPIs framework structure and on the important role played both by efficiency and effectiveness KPIs in order to evaluate climate policies. In particular, most of them suggested that, in the context of selection of climate policy measures to be implemented, effectiveness should be first assessed, followed by the identification of the best solution in terms of efficiency. As to the number of KPIs included in the Panel, case study leaders agreed on keeping the list as complete as possible. The intention is for it to be used as a supporting (non-exhaustive) list, which can later be adapted to the specific case study needs for the evaluation of policy measures in the following steps of the NEVERMORE project.

4.1 Case Study 1: Sitia

The Municipality of Sitia covers the Eastern part of the island of Crete and it is Europe's most "extreme climate hotspot" municipality, mainly due to thermal drought conditions. The economy is traditionally based on agricultural crops and olive trees, producing multiple Protected Destination of Origin (PDO) products, which has produced a steady increase in exports. Tourism has seen a rapid expansion in recent years. Main challenges concern climate pressures, mainly heat and droughts, during summer periods, that threaten to affect tourism rate, agricultural production and biodiversity, in particular.

Therefore, the main suggestions made by SITIA concerned the integration of indicators related to measures to support tourism rate (e.g. number of overnight stays), productivity in agriculture and employment in tourism and agricultural sectors. Flooding has been identified as another climate hazard that is affecting Sitia, for which however no substantial investment as to adaptation measures has been addressed yet.

4.2 Case Study 2: Trentino

Trentino represents one of the mountain regions most sensitive to climate change in southern Alps. Rising temperatures (+1.3° C since the 40s), more frequent heat waves, unpredictable precipitation patterns and modified seasonal snow-cover dynamics are the main climatic changes in the region, and they have a major effect on tourism, the environment safety and wellness of local communities. In view of these climate threats, the Autonomous Province of Trento has committed to develop and



deploy a provincial strategy of sustainable development that includes adaptation and mitigation measures such as energy effectivization and electrification leveraging the surplus of local hydropower production (+65%), but also adaptation strategies based on increasing the resilience of economic sectors.

In relation to the KPI Panel, several indicators were suggested in addition to those already mapped, especially in relation to tourism. These concerned variation of tourism rates (e.g. ratio of number of nights in high versus low seasons, tourism facility extension period, total amount spent for initiatives in the tourism sector), as well as impact of tourism from an environmental point of view (e.g. water/electricity consumed by visitors in accommodation facilities or for other tourism-related services).

4.3 Case Study 3: Norrbotten

The case study area is located in the north of Sweden (area SE33-Upper Norrland), which is comprised of Västerbotten and Norrbotten counties, with a combined area of 15 million hectares (64% forest land). Important features of the regional economy are forestry, mining, hydro-electric power and Sami reindeer herding. In terms of climate change, the mainly affected sectors comprise the forestry sector (increasing the risk of forest fire, wind throw and insect and pathogen disturbance), agriculture (increased need for pesticides and fertilizers is expected), fisheries (the habitat of warm water species is expected to grow at the expense of cold-water species), the energy sector (disruptions in the electricity grid, flooded facilities and infrastructure as well as extremely low or high energy needs) as well as the culturally important reindeer herding. As such, many potential mitigation and adaptation measures have already been identified for each policy sector (e.g. needs-adapted fertilization and pest control, watercourse restoration, provision of alternative migratory routes for reindeer, adapted forest management, etc.). In relation to the KPI panel, many recommendations were made in relation to the integration of KPIs regarding biodiversity and land use, water pollution, CO2 emissions and transportation.

4.4 Case Study 4: Murcia

Murcia region has an arid Mediterranean climate, low rainfall, limited water resources and soils with few nutrients. Being one of the largest producers of fruit, vegetables and flowers, Murcia region is often described as the "Garden of Europe". Main climate threats in the region concern the rise of temperature and desertification (soil erosion), which affect especially the agricultural sector, due also to unsustainable water management, but also tourism. Local municipalities have the potential competence to introduce mitigation and adaptation measures, but they have had difficulties to integrate climate change adaptation with local regulations.

Because of this, the main suggestions made for Murcia concerned the integration of indicators related to the agrifood industry, with specific focus on water management (e.g. water consumption and reuse, technologies to increase a sustainable water management, sea water treatment for human consumption, water contamination due to fertilizers and chemical waste), temperature variation and floods and droughts impact. These issues also concern the tourism sector.

4.5 Case Study 5: Danube

The Danube Delta (Tulcea county) is one of the most important wetlands in Europe, representing a nature reserve with a highly diverse fauna and flora and is declared a Biosphere Reserve. Ecological agriculture, tourism and environmental protection, services, renewable energy sources and heavy industry are important parts of the regional economy. Climate change has major implications for water supply, river runoff, agriculture and natural vegetation development. Extreme rainfall leads to extreme hydrological events, such as floods or droughts with a strong impact on the local economy and society. Potential mitigation and adaptation measures have already been identified and there is commitment



from the authorities and private sector to assess them: sustainable tourism promotion, agricultural niche activities (beekeeping), developing of eco-agriculture in small farms, increased availability of new and innovative technologies (e.g. wind turbine stations, biogas and biomass installations and solar panels), exploiting the potential use of renewable energy; and improving energy efficiency in the residential sector.

Considering this context, the main suggestions made by TULCEA in relation to the KPI panel were related to sustainable tourism promotion (e.g. number of overnight stays), transportation (e.g. transportation accessibility), and agriculture (especially in relation to water consumption for irrigation systems, productivity and the occurrence of droughts).

Conclusions

This report is an Explanatory Note accompanying D5.2 NEVERMORE KPI Panel and describes the structure and the methodology used for the definition of the panel. The D5.2 is an excel-based tool that contains the main KPIs identified for the evaluation of the policies and measures in the context of the NEVERMORE Project.

Based on the European Environment Agency (EEA) framework, the KPI panel considers the effectiveness and the efficiency indicators and addresses the main sectors deemed relevant for the five NEVERMORE case studies.

References

• European Environment Agency, EEA (2016). Environment and climate policy evaluation. doi:10.2800/68508





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D5.2 – NEVERMORE KPI panel

Responsible Partner: RINA Main contributors: FBK, CARTIF, NCSRD, SIMAVI, CMCC, IVL, UVa, INFO, PAT, SITIA, TULCEA, EKNorr

The NEVERMORE KPI panel covers the three pillars of the sustainable development (environmental, social and economic effects of measures) and presents multi-impact indicators (effectiveness and efficiency) for both the disaster scenarios and adaptation and mitigation measures.

Environmental Pillar

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Carbon Emissions	Production-based CO2 productivity, GDP per unit of energy-related CO2 emissions	Effectiveness	Production-based CO2 productivity is calculated as real GDP generated per unit of CO2 emitted (USD/kg). Included are CO2 emissions from combustion of coal, oil, natural gas and other fuels.	US dollars per kilogram, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									У		
Carbon Emissions	Production-based CO2 intensity, energy-related CO2 per capita	Effectiveness	Production-based CO2 intensity is calculated as CO2 emissions per capita (tonnes/person). Included a	Tonnes	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #									У		
Carbon Emissions	Production-based CO2 emissions	Effectiveness	Production-based CO2 emissions are expressed in million metric tonnes. Production-based CO2 emissions are also expressed as an index with values in 2000 normalised to equal 100. Included are CO2 emissions from combustion of coal, oil, natural gas and other fuels.	Tonnes, Millions	EU, National	https://stats.oecd.org/index.aspx ?DataSetCode=GREEN_GROWTH #									Ŷ		
Carbon Emissions	Demand-based CO2 productivity, GDP per unit of energy- related CO2 emissions	Effectiveness	Demand-based CO2 productivity is calculated as GDP generated per unit of CO2 emitted from final demand (USD/kg).	US dollars per kilogram, 2015	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #									y		
Carbon Emissions	Demand-based CO2 productivity, disposable income per unit of energy- related CO2 emissions	Effectiveness	Demand-based CO2 productivity is calculated as the Net National Disposable Income available per unit of CO2 emitted from final demand (USD/kg).	US dollars per kilogram, 2015	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #									y		
Carbon Emissions	Demand-based CO2 intensity, energy- related CO2 per capita	Effectiveness	Demand-based CO2 intensity is expressed as CO2 emissions per capita (tonnes/person).	Tonnes	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #									У		
Carbon Emissions	Demand-based CO2 emissions	Effectiveness	Demand-based CO2 emissions are expressed in million metric tonnes.	Tonnes, Millions	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #									Ŷ		
Carbon Emissions	CO2 emissions from air transport per capita	Effectiveness	This indicator is calculated as CO2 emissions per capita (tonnes/person).	Tonnes	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #						у					
Carbon Emissions	CO2 emissions from air transport per unit of GDP	Effectiveness	Air transport CO2 intensity of GDP is calculated as CO2 emitted per unit of real GDP generated (kg/USD).	Kilograms, 2015	EU, National	https://stats.oecd.org/index.aspx ?DataSetCode=GREEN_GROWTH #						y					
Carbon Emissions	Emissions variation	Effectiveness	Variation of annual total carbon dioxide equivalent emissions from energy production, transportation and industry.	Total annual emissions (%)	EU, National, Local	https://ghgprotocol.org/greenho use-gas-protocol-accounting- reporting-standard-cities		У	у	У	У	У	У	У	У	У	у
Carbon Emissions	Emissions variation	Efficiency	Investment required to achieve emission reduction	€/avoided tCO2eq	EU, National, Local			y	У	У	У	У	У	У	Ŷ	Ŷ	У
Climate Hazards	Global Climate Risk Index	Effectiveness	The Global Climate Risk Index shows the level of exposure and vulnerability to extreme weather events	Number of deaths – Weight: 1/6, Number of deaths per 100,000 inhabitants – Weight: 1/3, Sum of losses in purchasing power parity (PPP) – Weight: 1/6, Losses per unit of Gross Domestic Product (GDP) – Weight: 1/3	EU, National	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.		y	Ŷ	Ŷ	У	У	y	y	Y	Y	У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Climate Hazards	Global Climate Risk Index	Efficiency	Investment required to reduce imperviousness of the global climate change risk	€ saved	EU, National	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.		у	у	¥	y	Ŷ	У	У	У	У	y y
Climate Hazards	Sea Level Rise and Coastal Flooding	Effectiveness	Most coastal regions experience increases in both absolute and relative sea level, the latter being more relevant for coastal protection.	cm of sea livel rise	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0							Y				У
Climate Hazards	Sea Level Rise and Coastal Flooding	Efficiency	Investment required to reduce the impact or counteract the damages produced by the sea level rising, compared to baseline	€ saved	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0							y				y
Climate Hazards	Fire Weather Index	Effectiveness	Assess fire risk based on meteorological conditions	Based on 24- hour accumulated precipitation and daily values of air temperature, relative humidity, and wind speed	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											Y
Climate Hazards	Fire Weather Index	Efficiency	Investment required to reduce the fire risk and impact	€ saved	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											У
Climate Hazards	Sea surface temperature	Effectiveness	Monitors trends in average sea surface temperature anomalies	T℃	EU, National	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0							y				y
Climate Hazards	Ocean acidification	Effectiveness	Illustrates the global mean average rate of ocean acidification, quantified by decreases in pH, which is a measure of acidity, defined as the hydrogen ion concentration.	рH	EU, National	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0							y				y
Climate Hazards	Drought impact	Effectiveness	Severe negative annual productivity anomaly under drought pressured areas, i.e. under negative annual soil moisture anomaly.	Ha/year of land affected by drought	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											y
Climate Hazards	Drought impact	Efficiency	Investment required to decrease the drought impact	€/saved ha	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											y
Climate Hazards	Standardized Precipitation Index	Effectiveness	This indicator measures anomalies of accumulated precipitation during a given period (e.g. 1, 3, 12 months)	H(x) = q + (1- q)G(x)	EU, National,lo cal	https://climate- adapt.eea.europa.eu/en/metada ta/map-graph/spi-standardized- precipitation- index#:::text=The%20Standardiz ed%20Precipitation%20Index%20 (SPI,of%20time%20at%20that%2 Olocation.		у			Ŷ		y	У	y	У	y
Energy	Total primary energy supply (TPES)	Effectiveness	Total energy supply (TES) is expressed in million tonnes of oil equivalent.	Tonnes of oil equivalent (toe), Millions	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #				y							
Energy	Energy intensity, TPES per capita	Effectiveness	Energy intensity is calculated as TES per capita (toe/person).	Tonnes of oil equivalent (toe)	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #				У							
Energy	Renewable energy supply, % total energy supply	Effectiveness	Renewable energy supply is calculated as a share of renewable sources in TES (expressed as percentage).	Percentage	EU, National	<pre>" " https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #</pre>				У							

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Energy	Renewable electricity, % total electricity generation	Effectiveness	Renewable electricity is calculated as a share of renewables in electricity production (%).	Percentage	EU, National	https://stats.oecd.org/index.aspx ?DataSetCode=GREEN_GROWTH #				y							nentage
Energy	Energy consumption in agriculture, % total energy consumption	Effectiveness	Energy consumption in agriculture is expressed as a share of total energy consumption (%).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #		У		y							
Energy	Energy consumption in services, % total energy consumption	Effectiveness	Energy consumption in services is expressed as a share of total energy consumption (%).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #				У							
Energy	Energy consumption in industry, % total energy consumption	Effectiveness	Energy consumption in industry is expressed as a share of total energy consumption (%).	Percentage	EU, National	https://stats.oecd.org/index.aspx ?DataSetCode=GREEN_GROWTH #				У	У						
Energy	Energy consumption in transport, % total energy consumption	Effectiveness	Energy consumption in transport is expressed as a share of total energy consumption (%).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #				y		У					
Energy	Energy consumption in other sectors, % total energy consumption	Effectiveness	Energy consumption in other sectors is expressed as a share of total energy consumption (%).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #				y							
Energy	Variation of energy consumption	Effectiveness	Variation of annual energy consumption.	Total energy consumption (%)	EU, National, Local			Ŷ	У	У	У	y	У	У	У	У	У
Energy	Variation of energy consumption	Efficiency	Investment required to achieve energy consumption reduction	€/saved kWh	EU, National, Local			У	У	y	У	У	У	у	У	У	У
Energy	Increased integration of RES	Effectiveness	Variation of the share of capacity from renewable energy sources	Total RES capacity (%)	EU, National, Local			Ŷ	У	У	У	У	У	у	y	У	У
Energy	Increased integration of RES	Efficiency	Investment required to increase the share of capacity from renewable energy sources	€/new RES kW	EU, National, Local			У	У	У	y	у	У	У	У	У	У
Energy	Tourism energy consumption	Effectiveness	Electric energy consumption per visitor	Kwh/visitor	EU, National,lo cal									у			
Food	Ecological footprint of consumption per person	Effectiveness	The Ecological Footprint per person is a measure of the rates of consumption and the total population of a country	gha/person	EU, National	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.										У	
Food	Ecological footprint of consumption per person	Efficiency	Investment required to reduce the ecological footprint of consumption per person	€ spent/%variati on in the Ecological Footprint	EU, National	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.										у	
Land use	Marine protected area, % total exclusive economic zone	Effectiveness	Marine protected area is expressed as a percentage of total exclusive economic zone	Percentage	EU, National	https://stats.oecd.org/index.aspx <u>2DataSetCode=GREEN_GROWTH</u> <u>#</u>							У	У			У
Land use	Investment to increase the % of marine protected area	Efficiency	Investment required to increase the % of marine protected area	€ spent/%variati on in the number of marine protected area	EU, National									у			У
Land use	Terrestrial protected area, % land area	Effectiveness	Terrestrial protected area is expressed as a percentage of total land area.	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #								У			У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Land use	Variation of land use for energy production	Effectiveness	Variation of the proportional land area occupied by energy production units (occupied square meters per generation capacity in megawatts)	m2/MWh	EU, National, Local					У					Ŷ		
Land use	Variation of land use for energy production	Efficiency	Investment required to decrease of the proportional land area occupied by energy production units.	€/saved m2	EU, National, Local					y					У		
Land use	Crops productivity	Effectiveness	Unit of production per hectar	kg/ha	EU, National, Local			У									
Livestock	Livestock: number of animals	Effectiveness	Total number of animals	number of animals	National/Lo cal		This indicator has been collected and analysed in Task 6.1	Ŷ									
Livestock	Livestock productivity: area of grazing land	Effectiveness	Area of grazing land	ha	National/Lo cal		This indicator has been collected and analysed in Task 6.1	У									
Livestock	Reindeer husbandry: number of animals	Effectiveness	Total number of animals	number of animals	Local		This indicator has been collected and analysed in Task 6.1	y									
Livestock	Reindeer husbandry: reindeer owners	Effectiveness	Total number of people owning reindeers	number of people	Local		This indicator has been collected and analysed in Task 6.1	у									
Land use	Investment to increase agriculture productivity	Efficiency	Investment required to increase production	€/kg produced	EU, National, Local			У									
Land use	Nature protection	Effectiveness	Area of protected land and sea	Percentage of protected EU land and sea area	EU, National	https://www.conservation.cam.a c.uk/files/waldron_report_30_by _30_publish.pdf											У
Land use	Nature protection	Efficiency	Net cost of protecting land	Economic benefits (e.g. revenue from nature tourism and ecosystem services) minus costs (e.g. economic losses to the agriculture, forestry and fisheries sectors	EU, National												У
Land use	Restoration of drained peatland	Effectiveness	Area of restored peatland	Percentage of restored/rewe tted peatland	EU, National												У
Land use	Restoration of drained peatland	Efficiency	Net cost of restoring peatland	Economic benefits (e.g. revenue from ecosystem services such as flood mitigation) minus costs (e.g. economic losses to agriculture and forestry)	EU, National												У
Land use	Restoration of forest ecosystems	Effectiveness	Habitat quality	Carbon storage	EU, National			У									У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Land use	Restoration of forest ecosystems	Efficiency	Net cost of restoring forest ecosystems	Economic benefits (e.g. revenue from ecosystem services such as carbon storage) minus costs economic losses to forestry	EU, National			Y									y y
Land use	Deforestation rate	Effectiveness	The total forest surface area that is cut down each year	Ha/year of forest loss	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.		y									y
Land use	Deforestation rate	Efficiency	Investment required to decrease deforastation rate, compared to baseline	€/saved ha	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.		Y									y
Land use	Vegetation biomass productivity change	Effectiveness	Vegetation productivity is a key indicator of ecosystem condition and can be used to monitor the effects of climate, land use and land use change.	Mg/ha	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0		У									У
Land use	Vegetation biomass productivity change	Efficiency	Investment required to increase vegetation productivity, compared to baseline	€/Mg	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0		У									У
Land use	Soil imperviousness	Effectiveness	Covering of the soil surface with impermeable materials because of urban development and infrastructure construction.	Ha/year of soil sealed	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											У
Land use	Soil imperviousness	Efficiency	Investment required to reduce imperviousness of the soil surface, compared to baseline	€/saved ha	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											У
Land use	Cropland area under eco-schemes (CAP)	Effectiveness	Eco-schemes of the Common Agricultural Policy aim to encourage the adoption of sustainable agricultural practices through conditional direct payments	% of total cropland area or ha/year of cropland area under eco- schemes	EU, National, Local	https://eur-lex.europa.eu/legal- content/EN/TXT/?uri=CELEX%3A 02021R2115-20220422		У									у
Land use	Cropland area under eco-schemes (CAP)	Efficiency	Investment required to increase cropland area under eco-schemes, compared to baseline	€/ha	EU, National, Local	https://eur-lex.europa.eu/legal- content/EN/TXT/?uri=CELEX%3A 02021R2115-20220422		y									y
Land use	Natural cover	Effectiveness	Amount of soil removed from the natural environment	Natural cover area/total land area	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											у
Land use	Natural cover	Efficiency	Investment required to decrease of the amount of soil converted from natural environment, compared to baseline	€/saved ha	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											у

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Land use	Biodiversity intactness index	Effectiveness	The Biodiversity Intactness Index (BII) shows how native terrestrial species' average abundance compares to their abundance before human intervention	Aggregation by weighting by the area subject to each activity and the number of species occurring in the particular area	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.											y y
Land use	Marine protected area	Effectiveness	Percentage of marine surface area that is protected	marine protected land area/total land area (%)	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.							y				У
Land use	Landscape fragmentation	Effectiveness	Measures landscape fragmentation due to transport infrastructure and sealed areas	% of fragmented landscape	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											у
Land use	Landscape fragmentation	Efficiency	Investment required to reduce landscape fragmentation, compared to baseline	€ saved	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=0											у
Pollution	Air Quality Index	Effectiveness	Ranking of cities/countries based on annual average PM2.5 concentration (µg/m³)	Annual average of PM2.5 concentration (µg/m³)	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.										У	
Pollution	Air Quality Index	Efficiency	Investment required to increase the air quality index	€ spent/% variation in air quality index	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.										У	
Pollution	Soil pollution	Effectiveness	Surface of polluted soil	Ha/year of polluted soil	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.											у
Pollution	Soil pollution	Efficiency	Investment required to decrease soil pollution, compared to baseline	€/saved ha	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.											У
Pollution	Health impacts of exposure to noise from transport	Effectiveness	Chronic exposure to environmental noise significantly affects physical and mental health and well-being	Range and magnitude of chronic high annoyance and high sleep disturbance due to noise from transport	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=2						y				y	
Resources consumption	Water consumption	Efficiency	Consumption of water per person	m3/population	EU, National, Local			У	y	У	У	У	У	У	У	У	У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Resources consumption	Water consumption in agriculture	Efficiency	Consumption of water per production unit	m3/production unit	EU, National, Local			У									lientage
Resources consumption	% water recycled	Effectiveness	% water recycled/reused	% water recycled/reuse d	EU, National, Local			У			У	У	У	у	У	У	У
Resources consumption	Non-energy material productivity, GDP per unit of DMC	Effectiveness	Non-energy material productivity is calculated as GDP generated per unit of materials consumed (USD/kg).	US dollars per kilogram, 2015	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #					У				У		
Resources consumption	Biomass, % of DMC	Effectiveness	Consumption of Biomass is expressed as a percentage of Domestic Material Consumption (DMC).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #											
Resources consumption	Non-metallic minerals, % of DMC	Effectiveness	Consumption of non-metallic materials is expressed as a percentage of Domestic Material Consumption (DMC).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #			Ŷ								
Resources consumption	Metals, % of DMC	Effectiveness	Consumption of metals is expressed as a percentage of Domestic Material Consumption (DMC).	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #			Ŷ		У						
Resources consumption	Municipal waste generated, kg per capita	Effectiveness	Municipal waste generated in expressed in kg per person. Municipal waste is waste collected by or on behalf of municipalities.	Kilograms per capita	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #							У				
Resources consumption	Municipal waste recycled or composted, % treated waste	Effectiveness	Municipal waste recycled or composted is expressed as a percentage of all waste treated.	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #							У				
Resources consumption	Municipal waste disposed to landfills, % treated waste	Effectiveness	Municipal waste disposed to landfills is expressed as a percentage of all waste treated.	Percentage	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #							У				
Resources consumption	Nitrogen balance per hectare	Effectiveness	Nitrogen balance is calculated as the difference between the total quantity of nitrogen inputs entering an agricultural system (mainly fertilisers, livestock manure), and the quantity of nitrogen outputs leaving the system (mainly uptake of nutrients by crops and grassland).	Kilograms	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #		У									У
Resources consumption	Phosphorus balance per hectare	Effectiveness	Phosphorus balance is calculated as the difference between the total quantity of phosphorus inputs entering an agricultural system (mainly fertilisers, livestock manure), and the quantity of phosphorus outputs leaving the system (mainly uptake of nutrients by crops and grassland).	Kilograms	EU, National	https://stats.oecd.org/Index.aspx ?DataSetCode=GREEN_GROWTH #		у									У
Resources consumption	Waste generated	Effectiveness	Percent of waste gereated over the total production	Total waste/total production	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-indicators-for- Environmental-Economic-and- Social-Assessment.pdf		У	Ŷ	У	У	У	У	Ŷ	У	У	У
Resources consumption	Waste generated	Efficiency	Investment required to reduce the generated waste	€ spent/% variation generated waste	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-Indicators-for- Environmental-Economic-and- Social-Assessment.pdf		У	Ŷ	У	У	У	У	Ŷ	У	У	У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture , forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/ cultural heritage	Finance /Economy	Society	Biodiversit y and natural heritage
Resources consumption	Hazardous material generated	Effectiveness	Percent of production of harmful material over the total waste generated by the production system	Hazardous waste/total waste	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-Indicators-for- Environmental-Economic-and- Social-Assessment.pdf			y	У	У	y	У				nemege
Resources consumption	Hazardous material generated	Efficiency	Investment required to reduce the hazardous material generated	€ spent/% variation hazardous material generated over the total waste	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-Indicators-for- Environmental-Economic-and- Social-Assessment.pdf			Y		У		У				
Resources consumption	Recycled waste	Effectiveness	Percent of produced waste that is reused or recycled	Mass of recyled material/total production	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-Indicators-for- Environmental-Economic-and- Social-Assessment.pdf		У	У	У	У	у	У	У	У	у	у
Resources consumption	Recycled waste	Efficiency	Investment required to increase the recycled waste	€ spent/% variation recycled waste	EU, National, Local	https://denim-fof.eu/wp- content/uploads/2021/09/D3.3_ Key-Performance-Indicators-for- Environmental-Economic-and- Social-Assessment.pdf		У	У	У	У	у	у	У	У	У	y
Resources consumption	Water stress level	Effectiveness	The ability to meet a region's demand for water	Low-high ability to meet a region's demand for water	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.							у				
Resources consumption	Water stress level	Efficiency	Investment required to reduce the water stress level	€ spent/% variation water stress level	EU, National, Local	Schokker, J., Kamilaris, A., & Karatsiolis, S. (2021). A Review on Key Performance Indicators for Climate Change. Advances and New Trends in Environmental Informatics: A Bogeyman or Saviour for the UN Sustainability Goals?, 273-292.							у				
Resources consumption	Material footprint	Effectiveness	The amount of material extracted from nature to manufacture or provide the goods and services consumed by citizens	Mg of raw material equivalent	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=2					y y		y		y		
Resources consumption	Material footprint	Efficiency	Investment required to reduce material footrpint	€/avoided equivalent raw material extraction	EU, National, Local	https://www.eea.europa.eu/ims #c0=10&c12- operator=or&b_start=2					У		У		У		
Resources consumption	Tourism water consumption	Effectiveness	Water consumption per visitor	m3/visitor	EU, National,lo cal									У			
Resources consumption	Desalined water consumption	Effectiveness	Desalined water consumption	m3/population	EU, National,lo cal			У			у		У	У			
Resources consumption	Water consumption for snow production	Effectiveness	Water consumption for snow production	m3/visitor	EU, National,lo cal									y			
Resources consumption	Energy consumption for snow production	Effectiveness	Energy consumption for snow production	Kwh/ visitor	EU, National,lo cal									У			

Social Pillar

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Behavioural Change	Altruistic value orientation	Effectiveness	Extent to which a person considers costs and benefits for others when making decisions	survey (% of respondents)		European Social Survey 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Biospheric value orientation	Effectiveness	Extent to which a person considers costs and benefits for the environment (ecosphere, biosphere) when making decisions	survey (% of respondents)		European Social Survey 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Climate Change Belief	Effectiveness	A person's belief in human-made climate change.	survey (% of respondents)		European Social Survey 2016; International Social Survey Programme: Environment IV - 2020; European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Climate Change Engagement	Effectiveness	The extent to which a person thinks about and (cognitively) engages with climate change.	survey (% of respondents)		https://ess- search.nsd.no/en/study/f 8e11f55-0c14-4ab3- abde-96d3f14d3c76	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Climate Change knowledge	Effectiveness	Knowledge about climate change causes, effects, and impacts	survey (% of respondents)			This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Climate Discourse	Effectiveness	Count of Facebook posts on climate change in a specific region	n. of posts in a region		Facebook for Good	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Concern for Climate Change and Environment	Effectiveness	Worry and concern about climate change and its effects and on topics regarding the environment at large.	survey (% of respondents)		European Social Survey 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Egoistic value orientation	Effectiveness	Extent to which a person considers costs and benefits for themselves when making decisions	survey (% of respondents)	Eu, National	European Social Survey 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Environmental activism	Effectiveness	Extent to which a person participates in forms of activism or political participation with relation to climate change and environment	survey (% of respondents)		International Social Survey Programme: Environment IV - 2020	This indicator has been collected and analysed by ZSI in task 2.2	У								У	
Behavioural Change	Environmental Attitudes	Effectiveness	Attitutes towards environmental policy, conservation, energy use and sources, etc.; attitudes are mostly measured by providing statements of what should or shouldn't be done	survey (% of respondents)	Eu, National	European Social Survey 2016; International Social Survey Programme: Environment IV - 2020; Attitudes of Europeans towards Biodiversity. Special Eurobarometer 481, 2018; European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2	y								У	У
Behavioural Change	Environmental Identity	Effectiveness	The concept of social identity indicates whether a person identifies as an environmental person and feels like they belong to other people or to the group of pro- environmentalists.	survey (% of respondents)	Eu, National	European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2									У	у
Behavioural Change	Environmental Policy Support	Effectiveness	Being in favour of policies like emission taxes, government investments in renewable energies, etc.	survey (% of respondents)	Eu, National	European Social Survey 2016; International Social Survey Programme: Environment IV - 2020; European Values Study 2017; Life in Transition Survey III 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Behavioural Change	Environmental self-efficacy	Effectiveness	Extent to which a person thinks that they are capable and that their actions make a difference	survey (% of respondents)		International Social Survey Programme: Environment IV - 2020; European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2	У						nemege		У	
Behavioural Change	Life Satisfaction	Effectiveness	Satisfaction with one's life and how it turned out	survey (% of respondents)	Eu, National	European Values Study 2018	This indicator has been collected and analysed by ZSI in task 2.2									y	
Behavioural Change	Local place attachment	Effectiveness	Being attached to the area one is living in	survey (% of respondents)	Eu, National	European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Local risk perception	Effectiveness	Perception of risk that one's local area will be affected by climate change	survey (% of respondents)		1	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Perceived Behavioural Control	Effectiveness	How easy or hard a person perceives a behaviour to be	survey (% of respondents)		1	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Perceived environmental norms	Effectiveness	Whether a person thinks that the people around them endorse pro- environmental norms.	survey (% of respondents)		/	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Perceived risk exposure	Effectiveness	Extent to which a person thinks they are exposed to environmental risks such as pollution.	survey (% of respondents)		International Social Survey Programme: Environment IV - 2020	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Personal moral obligations	Effectiveness	Whether a person experiences moral obligation to behave pro- environmentally	survey (% of respondents)		1	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Political cynicism	Effectiveness	Lack of confidence in political institutions and actors, perception of corruption	survey (% of respondents)		Life in Transition Survey III 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Political Interest	Effectiveness	Interest in politics, following politicis and political news	survey (% of respondents)	Eu, National	European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Political Trust	Effectiveness	trust in political institutions and political actors	survey (% of respondents)		International Social Survey Programme: Environment IV - ISSP 2020; European Values Study 2017; European Social Survey 2016	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Pro-environmental intentions / behaviour	Effectiveness	Intentions or willingsness to performing a behaviour positive for the environment	survey (% of respondents)	Eu, National	European Social Survey 2016; International Social Survey Programme: Environment IV - 2020	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Psychological distance	Effectiveness	Can comprise four distinct aspects of distance: uncertainty of climate change; perceived geographical distance; perceived social distance, perceived temporal distance.	survey (% of respondents)		1	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Quality of Life	Effectiveness	Well-being and quality of life a person perceives about themselves	survey (% of respondents)		/	This indicator has been collected and analysed by ZSI in task 2.2									У	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Behavioural Change	Risk perception	Effectiveness	perceptions about threats through climate change and environmental catastrophies and how likely they are or will be prevented	survey (% of respondents)		European Social Survey 2016; International Social Survey Programme: Environment IV - 2020; Attitudes of Europeans towards Biodiversity. Special Eurobarometer 481, 2018	This indicator has been collected and analysed by ZSI in task 2.2							nentage		V	
Behavioural Change	Social trust	Effectiveness	trusting other people in society / social environment	survey (% of respondents)		International Social Survey Programme: Environment IV - ISSP 2020; European Values Study 2017; European Social Survey 2016; Life in Transition Survey III 2016	This indicator has been collected and analysed by ZSI in task 2.2									y	
Behavioural Change	Trust in Science	Effectiveness	trust in researchers and research institution	survey (% of respondents)		International Social Survey Programme: Environment IV - 2020	This indicator has been collected and analysed by ZSI in task 2.2									Ŷ	
Behavioural Change	Trust in the Media	Effectiveness	trust in traditional media	survey (% of respondents)		International Social Survey Programme: Environment IV - 2020	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Locus of Control	Effectiveness	Extent to which a person think they can control what happens to them and what happens around them	survey (% of respondents)	Eu, National	European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Perceptions of government support	Effectiveness	Perception how much government/country cares about a person's wellbeing	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									У	
Behavioural Change	Confidence in national institutions	Effectiveness	A person's confidence in national political and state institutions	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Frequency of garbage collection in area	Effectiveness	Frequency of garbage collection in area	survey (% of respondents)	Eu, National	European Values Study 2017	This indicator has been collected and analysed by ZSI in task 2.2						у			У	
Community Services & Inclusion	Multidimensional poverty	Effectiveness	The percentage of people who are multidimensionally poor	% of population	EU, National	https://databank.worldb ank.org/source/world- development-indicators										У	
Community Services & Inclusion	Public health coverage	Effectiveness	Different indicators might assess this composite: (1) The (inverse of) self- reported unmet needs for health care by sex, age, specific reasons + degree of urbanisation; (2) health care expenditures as share of GDP	health care expenditures as share of GDP	National	https://ec.europa.eu/eur ostat/databrowser/view/ sdg_07_40/default/table ?lang=en										Y	
Community Services & Inclusion	Public service quality	Effectiveness	Quality of public services, civil service, and policy implementation (score), calculated as Government effectiveness (rescaled to 1- 6)	part of index	National	https://ec.europa.eu/eur ostat/databrowser/view/ sdg_07_40/default/table ?lang=en	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Share of collective transport	Effectiveness	Measures the share of collective transport modes in total inland passenger transport performance, expressed in passenger-kilometres (pkm). Collective transport modes refer to buses, including coaches and trolley-buses, and trains. Total inland transport includes transport by passenger cars, buses and coaches, and trains. Rao & Min 2018 considered it as rpovisioning factor.	% of collective transport mode/ total inland passenger transport (pkm)		Rao & Min 2018	This indicator has been collected and analysed by ZSI in task 2.2									Y	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Community Services & Inclusion	Municipal recycling	Effectiveness	The indicator measures the tonnage recycled from municipal waste divided by the total municipal waste arising.	tonnage recycled from municipal waste total municipal waste arising.		inspired by waste management as part of DLS by Rao & Min 2018	This indicator has been collected and analysed by ZSI in task 2.2						У	nentage			
Community Services & Inclusion	Income Equality	Effectiveness	Different indicators might assess this composite: (1) The ratio of total income received by the 20 % of the population with the highest income (toq quintile) to that received by the 20 % of the population with the lowest income (lowest quintile). Income must be understood as equalised disposable income; (2) inequality of income distribution; (3) purchasing power adjusted to GDP per capita	various indicators that assess the dimension	Eu, National, Local	https://ec.europa.eu/eur ostat/databrowser/view/ lic_pns4/bookmark/dabe Plangeen&bookmark/dabe seb6354-e22-a428e- 9110-480571a7ae90 https://ec.europa.eu/eur ostat/databrowser/book mark/3da27295-9429- 435c-ab12 dd7d465feba9?lang=en	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Gender equality	Effectiveness	Gender employment gap	ratio employed women/man	Eu, National, Local	https://ec.europa.eu/eur ostat/databrowser/book mark/4f9054ce-0e8c- 40ee-8ccef- 30160007edd4?lang=en https://eige.europa.eu/g ender-equality- index/2022/compare- countries/index/table	This indicator has been collected and analysed by ZSI in task 2.2									у	
Community Services & Inclusion	Gender equality	Efficiency	Investments to decrease gender employment gap	€ spent/&variatio n in gender employment gap													
Community Services & Inclusion	Financial security	Effectiveness	How long people could cover basic needs if they suddenly lost all income and had to survive on their savings and things that could be sold.	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2								У	у	
Community Services & Inclusion	Access to communication	Effectiveness	Whether people have access to a mobile phone or the internet (through mobile phone, a computer, or other device)	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									у	
Community Services & Inclusion	Disaster Planning	Effectiveness	Whether people have a plan for what to do that all household members know about, when a disaster occurs	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									у	
Community Services & Inclusion	Social Capital	Effectiveness	How much a person can rely on social networks and relationships	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									у	
Community Services & Inclusion	Local infrastruture	Effectiveness	People's access to infrastructure that improves their capacity to manage disasters	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									у	
Community Services & Inclusion	Internally displaced people	Effectiveness	New displacement Total IDPs(disasters, conflict and violence)	No of persons/year	EU, National	https://www.internal- displacement.org/global- report/grid2022/										У	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Community Services & Inclusion	Gini coefficient	Effectiveness	The Gini index measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.	A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household	EU, National	https://databank.worldb ank.org/metadataglossar y/gender- statistics/series/SI.POV.G INI		y	Ŷ	Y	Y	Y	У	y y	Ŷ	Ŷ	У
Community Services & Inclusion	Minimum Income	Effectiveness	Different indicators might assess this composite: (1) People at risk of poverty or social exclusion; (2) people at risk of poverty after social transfers; (3) severe material and social deprivation rate; (4) people living in households with very low work intensity	different formula depending on indicators	Eu, National, Local	https://databank.worldb ank.org/reports.aspx?sou rce=World-Development- Indicators	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Absence of energy poverty	Effectiveness	The inverse of population with poverty status unable to keep household adequately warm	% of population who are unable to afford to keep home adequately warm. Survey	EU, National, Local	https://ec.europa.eu/eur ostat/databrowser/view/ ILC PEPS1 custom 38 S5164/bookmark/table?1 ang=en&bookmark/table?1 ang=en&bookmark/table?1 https://ec.europa.eu/eur ostat/databrowser/view/ ILC LI41 custom 18552 33/bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =en&bookmark/table?lang =enstd/databrowser/view/ tgs00108/default/table?l ang=en_1 https://ec.europa.eu/eur ostat/databrowser/view/ MAMA_10R_2GOP_cust om 1855694/bookmark/ table?lang=en&bookmark table?lang=en&bookmark table?lang=en&bookmark	This indicator has been collected and analysed by ZSI in task 2.2									Y	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Community Services & Inclusion	Safe sanitation access	Effectiveness	Percentage of population with access to improved sanitation facilities/ People using safely managed sanitation services	% of population	EU, National	https://databank.worldb ank.org/reports.aspx?sou rce=World-Development- Indicators	This indicator has been collected and analysed by ZSI in task 2.2							nentage		У	
Community Services & Inclusion	Drinking water access	Effectiveness	People using safely managed drinking water services) (%)	% of population	EU, National	https://databank.worldb ank.org/reports.aspx?sou rce=World-Development- Indicators	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Healthy life expectancy	Effectiveness	The indicator Healthy Life Years (HV) at birth measures the number of years that a person at birth is still expected to live in a healthy condition. HLY is a health expectancy indicator which combines information on mortality and morbidity. The data required are the age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information. A healthy condition is defined by the absence of limitations in functioning/disability.	age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information	EU, National	IHME GBD (2019); Eurostat (2020): https://vihub.healthdata .org/gbd-results/ https://ec.europa.eu/eur ostat/databrowser/view/ tps00150/default/table?! ang=en	This indicator has been collected and analysed by ZSI in task 2.2									Ŷ	
Community Services & Inclusion	Sufficient nourishment	Effectiveness	Percentage of population meeting dietary energy requirements (%) calculated as reverse of prevalence of undernourishement (rescaled onto scale from 0%-100%)	ratio	EU, National	WB WDI 2020; Eurostat SDG	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Equal access	Effectiveness	Measured with the Equal access index; this aspect is also represented in Egalitarian democracy. Indicates the extent to which all groups enjoy equal de facto capabilities to participate, to serve in positions of political power, to put issues on the agenda, and to influence policymaking. Specifically, it takes into account he indicators power distributed by social economic position (v2pepwrses), power distributed by social group (v2pepwrsoc), and power distributed by gender (v2pepwrgen).	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									Ŷ	
Community Services & Inclusion	Water treated for human consumption	Effectiveness	Water treated (e.g. thorugh desalination process) for human consumption	m3 per capita	EU, National, Local			у			у		У			У	
Community Services & Inclusion	Discrimination	Effectiveness	Experience of discrimination due to beloging to different social groups	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Resilience Index	Effectiveness	Data on safety and risk collected in the World Risk Poll from over 125,000 people in 121 countries.The Resilience Index is and average of 4 domains: Individual, Household, Community, Society.	survey (% of respondents)	National	World Risk Poll										У	
Community Services & Inclusion	Sense of Agency	Effectiveness	Whether people feel empowered to take action in the case of a disaster	survey (% of respondents)	National	World Risk Poll	This indicator has been collected and analysed by ZSI in task 2.2									У	
Community Services & Inclusion	Access to energy	Effectiveness	Access to electricity, urban - Access to electricity, rural	% of population	EU, National	https://databank.worldb ank.org/source/world- development-indicators				y						У	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural	Finance/ Economy	Society	Biodiversity and natural heritage
Community Services & Inclusion	Basic Education	Effectiveness	Different indicators might assess this composite: (1) mean years of schooling (used in the Human development index HDI); (2) early leavers from school and training; (3) tertiary educational attainment; (4) participation in early childhood education; (5) adult participation in learning	various indicators that assess the dimension	EU, National, Local	WB WDI 2020; Eurostat SDGs (SDG 4); UNDP HDI	This indicator has been collected and analysed by ZSI in task 2.2							heritage		Ŷ	
Community Services & Inclusion	Access to transportation	Effectiveness	percentage of public transport vehicles accessible for people with disability	% of total vehicles	EU, National, Local							У		У		У	
Employment	Population employment	Effectiveness	Percentage of people employed out of total population	% of total population	EU, National, Local										У	У	
Employment	Decent work	Effectiveness	Different indicators might assess this composite: (1) NETS = young people (15-29) neither in employment nor in education nor training by gender; (2) longterm unemployment rate (>=12 months) of those aged 15- 74/yrs; employment rate by citizenship (EU/non-EU) of persons aged 20 to 64 - who worked at least one hour for pay in a reference week (Country)	% of population (according to category)	EU, National, Local		This indicator has been collected and analysed by ZSI in task 2.2	y	y	y	y	Ŷ	У	У	y	y	Y
Employment	Tourism employment	Efficiency	Investment to increase employment in the tourism sector	€ invested/emplo yment rate variation (%)	EU, National, Local			У						У			
Employment	Tourism employment	Effectiveness	The percentage of direct employment in tourism sector out of total employment	% of total employment	EU, National	https://stats.oecd.org/in dex.aspx?DataSetCode=T OURISM_KEY_IND_PC								у			
Employment	Employment in agriculture	Effectiveness	Employment in agriculture (modeled ILO estimate)	% of total employment	EU, National	https://databank.worldb ank.org/source/jobs		У								У	
Employment	Employment in service	Effectiveness	Employment in services (% of total employment) (modeled ILO estimate)	% of total employment	EU, National	https://databank.worldb ank.org/source/jobs					у					У	
Employment	Employment in industry	Effectiveness	Employment in industry (% of total employment) (modeled ILO estimate)	% of total employment	EU, National	https://databank.worldb ank.org/source/jobs					у					У	
Employment	Unemployment in disability	Effectiveness	Unemployment rate of people by type of disability, sex and age	percentage of population	EU, National	Eurostat										У	
Health & Safety	Health impacts of exposure to noise from transport	Efficiency	Investment required to decrease the chronic exposure to environmental noise	€ spent/% decrease	EU, National, Local	https://www.eea.europa. eu/ims#c0=10&c12- operator=or&b_start=2						У				У	
Health & Safety	Mortality Rate	Effectiveness	The mortality rate is calculated by dividing the number of total deaths by the population size for a defined population or geographical area over a specified period.	Tot deaths/populati on	EU, National, Local			У	У	У	У	У	У	У	У	У	У
Health & Safety	Average Hospital Stay	Effectiveness	This healthcare KPI tracks the average length of time patients stay in the hospital. While this metric is very useful, it is also very general.	Total Stay Duration / Total Number of Stays	EU, National, Local											y	
Health & Safety	BMI	Effectiveness	Body mass index by population characteristics	BMI %/populati on	EU, National											У	
Health & Safety	Bed or Room Turnover	Effectiveness	This is a healthcare KPI that tracks how quickly patients are moving in and out of the facility.	Number of Discharges (including deaths) / Number of Beds												y	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Health & Safety	Patient Drug Cost Per Stay	Effectiveness	Many drugs have high price tags associated with them. Maybe patient cannot afford what they administered or their insurance plan does not cover it. This could in turn result in a higher-than-expected write-down for the hospital if it is not able to collect payment.	Total Drug Cost / Number of Stays	EU, National, Local									nenage		У	
Health & Safety	Error Rate	Effectiveness	This rate measures the number of mistakes made by staff in a medical facility when treating a patient.	(Number of Treatment Errors / Total Treatments) * 100	EU, National, Local											У	
Health & Safety	Readmission Rates	Effectiveness	This tracks the percentage of patients that are admitted back into the hospital for the same condition or complication they were originally admitted for. Higher hospital readmission rates can indicate that physicians and other care providers are not delivering the proper care to patients, whereas lower hospital readmission rates indicate a strong quality of care. This metric should be used in conjunction with the error rate and training per department to help identify what drives the readmission rates.	(Number of Readmissions / Number of Discharges) * 100	EU, National, Local											У	
Health & Safety	Childhood Immunization Rate	Effectiveness	This healthcare metric measures the number of children who have received immunizations. This is particularity important as it can be treated as a measure of general populous herd immunity. Herd immunity is important for care facilities as it reduces the strain on your care centers and frees up resources to treat other illnesses.	(Number of Children Immunized / Totai Number of Children) * 100	EU, National, Local	https://datatopics.world bank.org/health/sdg- indicators										У	
Health & Safety	Life expectancy rates	Effectiveness	An indicator that can help measure a person's health in a community	the number of deaths at age x divided by the number of person-years at risk at age x	EU, National, Local	Zare Mehrjerdi, Y., Alemzadeh, R. & Hajimoradi, A. Dynamic analysis of health-related factors with its impacts on economic growth. SN Appl. Sci. 2, 1440 (2020). https://doi.org/10.1007/s 42452-020-03203-1										y	
Health & Safety	Investing in the health sector	Effectiveness	The amount of money spent by public or private sectors to improve the quality of health services and technology	€ spent/% increase/decrea se	EU, National	Zare Mehrjerdi, Y., Alemzadeh, R. & Hajimoradi, A. Dynamic analysis of health-related factors with its impacts on economic growth. SN Appl. Sci. 2, 1440 (2020). https://doi.org/10.1007/s 42452-020-03203-2										y	
Health & Safety	Quality of health services	Effectiveness	Level of progress in the field of medical equipment and improvement in therapeutic methods	survey (% of respondents)	EU, National	Zare Mehrjerdi, Y., Alemzadeh, R. & Hajimoradi, A. Dynamic analysis of health-related factors with its impacts on economic growth. SN Appl. Sci. 2, 1440 (2020). https://doi.org/10.1007/s 42452-020-03203-3										У	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Health & Safety	Road traffic accidents	Effectiveness	Persons reporting an accident resulting in injury by sex, age and educational attainment level	N. of accidents/year	EU, National	Eurostat & https://datatopics.world bank.org/health/sdg- indicators								nentage		Y	
Health & Safety	House accidents	Effectiveness	Persons reporting an accident resulting in injury by sex, age and educational attainment level	N. of accidents/year	EU, National	Eurostat										У	
Health & Safety	Healthy nutrition	Effectiveness	Daily consumption of fruit and vegetables by sex, age and urbanization	percentage of population	EU, National	Eurostat										У	
Health & Safety	Healthy nutrition	Effectiveness	Daily consumption of fruit and vegetables by sex, age and income quintile	percentage of population	EU, National	Eurostat										У	
Health & Safety	Poverty in disability	Effectiveness	People at risk of poverty by level of activity limitation, sex and age	percentage of population	EU, National	Eurostat										У	
Health & Safety	infectious diseases mortality	Effectiveness	Deaths related to infectious diseases	total deaths/populati on	EU, National	Eurostat										У	
Health & Safety	Air pollution	Effectiveness	Health impacts of air pollution: air pollutants and greenhouse gases	Years of life lost or Premature death in [Number] or [rate]	EU, National	Eurostat										У	
Political System	Democratic quality	Effectiveness	Different indicators might assess this composite: (1) ability to participate in selecting government, freedom of expression and association, free media calculated as Voice and accountability (2) standardised death rate due to homicide by gender (3) perceived independence of justice system (4) population with confidence in EU institutions	various indicators that assess the dimension	Eu, National, Local											Y	
Political System	Government effectiveness	Effectiveness	Aggregate and individual governance indicators for six dimensions of governance: Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; Control of Corruption.	index (variation)	EU, National	Wordl Bank WGI 2021	This indicator has been collected and analysed by ZSI in task 2.2								У	У	
Political System	Electoral democracy	Effectiveness	Measured with electoral democracy index. Indicates to which extent the ideal of electoral democracy in its fullest sense is achieved.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									y	
Political System	Liberal democracy	Effectiveness	Measured with liberal democracy index. Indicates to which extent the ideal of liberal democracy is achieved.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									У	
Political System	Participatory democracy	Effectiveness	Measured with participatory democracy index. Indicates to which extent the deal of participatory democracy achieved.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									y	
Political System	Deliberative democracy	Effectiveness	Measured with deliberative democracy index. Indicates to which extent the deal of deliberative democracy is achieved.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									y	
Political System	Egalitarian democracy	Effectiveness	Measured with the Egalitarian democracy index. Egalitarian democracy is achieved when 1 rights and freedoms of individuals are protected equality across all social groups; and 2 resources are distributed equality across all social groups; 3 groups and individuals enjoy equal access to power.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									Y	

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism /leisure/ cultural heritage	Finance/ Economy	Society	Biodiversity and natural heritage
Political System	Civil Society Participation	Effectiveness	Measured with the civil society participation index; this aspect is also represented in participatory democracy. Is part of Asks whether major CSOs routinely consulted by policymakers; how large is the involvement of people in CSOs; are women prevented from participating; and is legislative candidate nomination within party organization highly decentralized or made through party primaries? The core civil society, undex CCS is designed to provide a measure of a robust civil society, undex CCS is one that enjoys autonomy from the state and in which citizens freely and actively pursue their political and civic goals, however conceived.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2							nerroge		Ŷ	
Political System	Equal distribution of resources	Effectiveness	Measured with Equal distribution of resources index; this aspect is also represented in Egalitarian democracy. This component measures the extent to which resources — both tangible and intangible — are distributed in society.	index (variation)	EU, National	V-Dem (Varieties of Democracy)	This indicator has been collected and analysed by ZSI in task 2.2									У	
Political System	Environmental democratic index	Effectiveness	Pillar 1 of the indicators to measure environmental democracy. Captures assessments of the right to freely access information on environmental quality and problems. Pillar 2 of the indicators to measure environmental democracy. Captures assessments of the right to participate meaningfully in decision-making.Pillar 3 of the indicators to measure environmental democracy. Captures assessment of the right to seek enforcement of the night to seek or compensation for harm.	index (variation)	EU, National	Environmental Democracy Index (2014)	This indicator has been collected and analysed by ZSI in task 2.2									Ŷ	

Economic Pillar

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/c ultural heritage	Finance/Ec onomy	Society	Biodiversity and natural heritage
Economic Growth	Sectoral Real GDP	Effectiveness	Real GDP of a specific sector, as a % of the total GDP of the region	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#		У	У	У	У	У	У	У	У	У	У
Economic Growth	GDP Growth Contribution	Effectiveness	Variation in total GDP Growth once the policy is implemented, compared to a no-policy scenario	Growth GDP (with policy) / Growth GDP (no-policy)	EU, National	Based on previous indicators and applying effectiveness logic		Ŷ	У	У	У	у	У	у	У	у	У
Economic Growth	GDP Growth Contribution (investment)	Efficiency	Policy-cost / Investment required (as a % of the Real GDP) to achieve the GDP Growth Contribtuion	(Policy Cost or Investment / GDP Real) / GDP Growth Contribution (Percentage)	EU, National	Based on previous indicators and applying efficiency logic		У	У	у	у	У	У	У	у	У	у
Economic Growth	GNI	Effectiveness	Gross national income (GNI) is defined as gross domestic product, plus net receipts from abroad of compensation of employees, property income and net taxes less subsidies on production.	Annual GNI	EU, National			У	У	У	У	У	У	Ŷ	У	У	У
Economic Growth	GNI per cápita	Efficiency	Annual Gross National Income (GNI) per cápita	Annual GNI per cápita	EU, National	https://data.worldbank.org/indi cator/NY.GNP.PCAP.CD		y	У	У	У	У	У	ÿ	У	У	У
Economic Growth	Unemployment Rate	Effectiveness	Percentage of the labour force unemployed (working-age residents without work divided by total labour force)	% of unemployment	EU, National			y	У	У	У	у	У	У	У	У	У
Economic Growth	Tourism GDP (direct as % of total GDP)	Effectiveness	Measured as the % of GDP deriving from the tourism sector out of total GDP	% GDP	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=TOURISM_KEY_I ND_PC								у			
Economic Growth	Exports of goods and services (% of GDP)	Effectiveness	Transactions in goods and services (sales, barter, and gifts) from residents to non-residents.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									У		
Economic Growth	Imports of goods and services (% of GDP)	Effectiveness	Transactions in goods and services (sales, barter, and gifts) from residents to non-residents.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									У		
Economic Growth	Export value index	Effectiveness	Export values are the current value of exports (f.o.b.) converted to U.S. dollars and expressed as a percentage of the average for the base period (2000)	Export value index	EU, National	https://data.worldbank.org/indi cator/TX.VAL.MRCH.XD.WD									У		
Economic Growth	Import value index	Effectiveness	Import unit value indices come from UNCTAD's trade database. Unit value indices are based on data reported by countries that demonstrate consistency under UNCTAD quality controls, supplemented by UNCTAD's estimates using the previous year's trade values at the Standard International Trade Classification three-digit level as weights.	Import value index	EU, National	https://data.worldbank.org/indi cator/TM.UVI.MRCH.XD.WD									Ŷ		
Economic Growth	GDP per capita	Effectiveness	GDP per capita is the sum of gross value added by all resident producers in the economy plus any product taxes (less subsidies) not included in the valuation of output, divided by mid-year population.	GDP/total population	EU, National	http://wdi.worldbank.org/table/ WV.1		У	У	У	у	У	У	Y	У	У	у
Environmental taxes and transfers	Environmentally related taxes, % GDP	Effectiveness	Environmentally related tax revenue is expressed as a percentage of GDP.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#						У					
Environmental taxes and transfers	Environmentally related taxes, % total tax revenue	Effectiveness	Environmentally related tax revenue is expressed as a percentage of total tax revenue.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#						У					
Environmental taxes and transfers	Energy related tax revenue, % total environmental tax revenue	Effectiveness	Energy related tax revenue is expressed as a percentage of environmentally related tax revenue.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У		У					

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/c ultural heritage	Finance/Ec onomy	Society	Biodiversity and natural heritage
Environmental taxes and transfers	Road transport- related tax revenue, % total environmental tax revenue	Effectiveness	Tax revenue related to motor vehicles used in road transport is expressed as a percentage of all environmentally related tax revenue	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#						y					
Environmental taxes and transfers	Emissions priced above EUR 30 per tonne of CO2, % total emissions	Effectiveness	Emissions priced above EUR 30 per tonne of CO2 are expressed as a percentage of total CO2 emissions.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				y							
Environmental taxes and transfers	Emissions priced above EUR 60 per tonne of CO2, % total emissions	Effectiveness	Emissions priced above EUR 60 per tonne of CO2 are expressed as a percentage of total CO2 emissions.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				у							
Environmental taxes and transfers	Emissions priced above EUR 120 per tonne of CO2, % total emissions	Effectiveness	Emissions priced above EUR 120 per tonne of CO2 are expressed as a percentage of total CO2 emissions.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Diesel tax, USD per litre	Effectiveness	Tax rates per litre of diesel fuel are expressed at constant 2015 USD using PPP.	US dollars per litre, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				у							
Environmental taxes and transfers	Diesel end-user price, USD per litre	Effectiveness	Household end-user price per litre of diesel is expressed at constant 2015 USD using PPP. It is deflated using the Consumer Price Index	US dollars per litre, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Petrol tax, USD per litre	Effectiveness	Tax rates per litre of petrol are expressed at constant 2015 USD using PPP.	US dollars per litre, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Petrol end-user price, USD per litre	Effectiveness	Household end-user price per litre of petrol is expressed at constant 2015 USD using PPP. I	US dollars per litre, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Residential electricity price, USD per kWh	Effectiveness	Residential electricity prices are expressed at constant 2015 USD using PPP per kilowatt-hour.	US Dollar, 2015	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Industry electricity price, USD per kWh	Effectiveness	Industry electricity prices are expressed at constant 2015 USD using PPP per kilowatt-hour.	US Dollar, 2015	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Mean feed-in tariff for solar PV electricity generation	Effectiveness	Feed-in tariffs (FITs) for solar photovoltaic are expressed at current USD per kWh.	US Dollar	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Mean feed-in tariff for wind electricity generation	Effectiveness	Feed-in tariffs (FITs) for wind are expressed at current USD per kWh.	US Dollar	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				у							
Environmental taxes and transfers	Fossil fuel consumer support, % total tax revenue	Efficiency	Support for the consumption of fossil fuels is expressed as a percentage of total tax revenue.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				у							
Environmental taxes and transfers	Fossil fuel consumer support, % energy related tax revenue	Efficiency	Support for the consumption of fossil fuels is expressed as a percentage of energy-related tax revenue.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				у							
Environmental taxes and transfers	Forsil fuel consumer support, % total fossil fuel support	Efficiency	Support for the consumption of fossil fuels is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Fossil fuel producer support, % total fossil fuel support	Efficiency	Support for the production of fossil fuels is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Fossil fuel general services support, % total fossil fuel support	Efficiency	General services support is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				У							

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/c ultural heritage	Finance/Ec onomy	Society	Biodiversity and natural heritage
Environmental taxes and transfers	Petroleum support, % total fossil fuel support	Efficiency	Petroleum support is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Coal support, % total fossil fuel support	Efficiency	Coal support is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Gas support, % total fossil fuel support	Efficiency	Natural gas support is expressed as a percentage of total fossil fuel support.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Electricity support, % total fossil fuel support	Efficiency	Electricity support is expressed as a percentage of total fossil fuel support	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Environmental taxes and transfers	Total fossil fuel support, % of total tax revenue	Efficiency	Total fossil fuel support is expressed as percentage of total tax revenue.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У							
Inflation	GDP deflator	Effectiveness	the GDP price deflator shows how much a change in GDP relies on changes in the price level.	Percentage	EU, National	https://stats.oecd.org/Index.asp x7DataSetCode=GREEN_GROWT H#									У		
Inflation	Consumer Price Index (CPI)	Efficiency	The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.	(Cost of market basket in a current year/cost of market basket at base year)*100	EU, National												
Inflation	Inflation Rate	Efficiency	The rate at which prices increase over time, resulting in a fall in the purchasing value of money.	((ending price- starting price)/starting price)*100	World, National	https://tradingeconomics.com/c ountry-list/inflation-rate		У	У	У	У	У	У	У	У	У	У
Inflation	Gasoline prices	Effectiveness	Gasoline prices	USD/Liter	World, National	https://tradingeconomics.com/c ountry-list/gasoline-prices		У	У	У	У	У	У	У	У	У	У
International financial flows: Official Development Assistance	Environmentally related ODA, % total allocable ODA	Effectiveness	Environmentally related Official Development Assistance (ODA) is expressed as a percentage of total sector-allocable ODA. Environmentally related ODA is identified using marker "Environment" and the set of "Rio Markers".	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#									у		у
International financial flows: Official Development Assistance	ODA - all sectors - biodiversity, % total allocable ODA	Effectiveness	Official Development Assistance (ODA) targeting biodiversity is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#		У	У	у	y	у	У	У	у	У	у
International financial flows: Official Development Assistance	ODA - all sectors - climate change mitigation, % total allocable ODA	Effectiveness	Official Development Assistance (ODA) targeting climate change mitigation is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#		y	У	Ŷ	У	y	y	у	У	У	У
International financial flows: Official Development Assistance	ODA - all sectors - climate change adaptation, % total allocable ODA	Effectiveness	Official Development Assistance (ODA) targeting climate change adaptation is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#		У	y	Ŷ	У	y	Y	У	У	У	У
International financial flows: Official Development Assistance	ODA - all sectors - desertification, % total allocable ODA	Effectiveness	Official Development Assistance (ODA) targeting desertification is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#		У	y	У	У	У	У	у	У	У	У

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National, Local)	Source (if any)	Note	Agriculture, forestry and fishing	Mining and quarrying	Energy	Industry and commerce	Transport	Water and waste	Tourism/leisure/c ultural heritage	Finance/Ec onomy	Society	Biodiversity and natural heritage
International financial flows: Official Development Assistance	ODA - renewable energy sector, % total allocable ODA	Effectiveness	Official Development Assistance allocated to renewable energy is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#				У					У		У
International financial flows: Official Development Assistance	ODA - water supply and sanitation sector, % total allocable ODA	Effectiveness	Official Development Assistance allocated to the water supply and sanitation sector is expressed as a percentage of total sector-allocable ODA.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#							У		У		
International financial flows: Official Development Assistance	ODA - environment sector, % total allocable ODA	Effectiveness	Official Development Assistance allocated to environmental protection activities is expressed as a percentage of total sector- allocable ODA.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#									У		
International financial flows: Official Development Assistance	Net ODA provided, % GNI	Effectiveness	Net official development assistance (ODA) provided is expressed as a percentage of Gross National Income.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#									У		
Technology and innovation: Patents	Development of environment- related technologies, % all technologies	Effectiveness	The number of environment-related inventions is expressed as a percentage of all domestic inventions (in all technologies). Changes in 'environmental' technological innovation can then be interpreted in relation to innovation in general.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#						y					
Technology and innovation: Patents	Relative advantage in environment- related technology	Effectiveness	The relative advantage in environment-related technologies is an index of the specialisation in environmental innovation of a given region relative to the world average.	Ratio	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#						У					
Technology and innovation: Patents	Development of environment- related technologies, % inventions worldwide	Effectiveness	The number of environment-related inventions is expressed as a percentage of environment-related inventions worldwide.	Percentage	EU, National	https://stats.oecd.org/index.asp x?DataSetCode=GREEN_GROWT H#						У					
Technology and innovation: Patents	Development of environment- related technologies, inventions per capita	Effectiveness	The number of environment-related inventions is expressed per million residents (higher-value inventions/million persons).	Number of inventions	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#						y					
Technology and innovation: R&D	Environmentally related government R&D budget, % total government R&D	Effectiveness	Government budget for R&D refers to Government Budget Appropriations or Outlays for Research and Development (GBAORD), that measure the funds that government allocate to R&D to meet various socio-economic objectives.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									Y		
Technology and innovation: R&D	Environmentally related R&D expenditure, % GDP	Effectiveness	R&D expenditure refers to Gross domestic Expenditure on Research and Development (GERD) measured as total intramural (= business enterprise + government + higher education + private non-profit) R&D expenditure in various socio- economic objectives.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									У		

Category	KPI Name	Level of application	KPI Definition	Unit	Scale (EU, National,	Source (if any)	Note	Agriculture, forestry	Mining and quarrying	Energy	Industry and	Transport	Water and	Tourism/leisure/c ultural heritage	Finance/Ec onomy	Society	Biodiversity and natural
		application			Local)			and fishing	quarrying		commerce		waste	uturarnentage	onomy		heritage
Technology and innovation: R&D	Renewable energy public RD&D budget, % total energy public RD&D	Effectiveness	Public budget directed at research, development and demonstration (RD&D) related to renewable energy, including hydro, geothermal, solar (thermal and PV), wind and tide/wave/occan energy, as well as combustible renewables (solid biomass, liquid biomass, biogas) and other renewable energy technologies (all supporting measuring, monitoring and verifying technologies in renewable energies).	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#									У		
Technology and innovation: R&D	Energy public RD&D budget, % GDP	Effectiveness	Energy RD&D public budget is expressed as a percentage of GDP. This indicator allows the Renewable energy public RD&D budget (see above) to be put into a broader context.	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У					У		
Technology and innovation: R&D	Fossil fuel public RD&D budget (excluding CCS), % total energy public RD&D	Effectiveness	Public budget directed at research, development and demonstration (RD&D) related to fossil fuels, including oil, gas and coal and excluding RD&D related to CO2 capture and storage (CCS). They are expressed as a percentage of total energy RD&D public budgets (directed at all forms of energy).	Percentage	EU, National	https://stats.oecd.org/Index.asp x?DataSetCode=GREEN_GROWT H#				У					y		
Tourism	Tourism Sustainable Development Index	Efficiency	Investment required to increase the TSDI	€ spend/variatio n in TSDI	EU, National									У			
Tourism	Tourism Sustainable Development Index	Effectiveness	Variation in TSDI	% variation	EU, National									Ŷ			
Tourism	Tourism rate (number of nights/year)	Effectiveness	Number of nights spent by tourists	number nights/year	EU, National, Local									y			
Tourism	Tourism intensity	Effectiveness	Number of tourists as a percentage of total population	tourists %/pop ulation	EU, National, Local									У			
Tourism	Tourism offering opening extension	Effectiveness	Tourism facility extension period	Number of days/year	Local									У			
Tourism	Tourism distribution	Effectiveness	Ratio of number of nights in high versus low seasons	No. nights in high season/No. nights in low season	EU, National, Local									У			
Tourism	Investments in tourism	Efficiency	Total amount spent for initiatives in the tourism sector	€/visitor	EU, National,local									У			
Tourism	Initiatives in tourism sector	Efficiency	Number of initiatives in high seasons	No. initiatives per year	EU, National,local									У			