

## Catalogue of adaptation options for the island of Sicily (Italy).

Maritime Transport			
ID	Name	Description	Source
MT1	Insurance mechanisms for ports	Insurance mechanisms for ports include risk-sharing schemes between local and national organizations, that aim to assist port operators in responding to the climate risks they are enabled to reduce. Insurance outsources the risks to a third party in exchange for a regular financial compensation.	Scott et al. (2013)
MT2	Financial incentives to retreat from high-risk areas	It refers to the creation of financial incentives to retreat or relocate settlements, infrastructure, and productive activities from the original location due to their high exposure to risks such as flood, sea-level rise, and storm surges.	Climate-Adapt metadata (2015). Retreat from high risk areas
MT3	Marine life friendly coastal protection structures	Marine life friendly coastal protection structures are coastal protection structures constructed with materials that maximize the fixation of marine organisms. This option reduces climate change impacts on local marine ecosystems, provides water waste depuration (made by marine organisms) and water quality bio-indicators inside the ports.	McNally & Natanzi (2018)
MT4	Combined protection and wave energy infrastructures	Combined protection and wave energy infrastructures are an energy measure that combines coastal defence with wave energy production. This can create economies of scale, increase coastal protection and further decrease wave propagation inside the port during normal operations.	Iglesias G. et al. (2017)
MT5	Hybrid and full electric ship propulsion	Hybrid and full electric ship propulsion are environmentally friendly for marine life, decreases carbon emissions and can increase ship manoeuvrability which is useful in small ports and under difficult weather conditions. Low speed manoeuvring with conventional engines creates air and water pollution, noise, and fuel consumption. Electrically driven propulsion can address these issues while increasing manoeuvrability using for instance azimuth thrusters.	Apsley et al. (2009); Prousalidis, J. (2005)
MT6	Coastal protection structures	Coastal protection structures such as groynes, breakwaters, artificial reefs, and seawalls are different types of artificial structures, built in the shoreline (or rivers), which are designed to protect the coast from SLR or storms. Those structures can be used to, for example, drift and trap sediments, protect from erosion, absorb wave energy, or allow navigation.	Climate-Adapt metadata (2015). Groynes breakwaters and artificial reefs
MT7	Integrate ports in urban tissue	Integrate ports into the urban tissue opening port areas to other activities, namely cultural, while gaining room in the urban landscape. This allows some port activities to be pooled from low-laying areas while leisure and cultural activities can access more waterfront space.	Pages Sanchez, Jose. (2015).
MT8	Ocean pools	Ocean pools are situated by the sea where waves can wash into the pool. The width, length and depth of ocean pools varies and often depends on their location on the coastline. These recreational structures are a response to SLR, protect the coast and create alternatives to beach leisure areas.	CNN travel (2019).
MT9	Awareness campaigns for behavioural change	Awareness campaigns for behavioural change aim to increase individuals and organisations' knowledge about climate change and the risk faced by the maritime transport sector. These campaigns can be targeted to regions affected by a particular climate threat, specific groups of infrastructures or the general transport sector as a whole.	Climate-Adapt metadata (2015) Awareness campaigns for behavioural change
MT10	Social dialogue for training in the port sector	Social dialogue for training in the port sector refers to social and educational issues related with the gender equality and attracting the young to the sector, while tackling climate change. It relies on social dialogue between workers and employees to define common guidelines for training. It considers key challenges that ports are facing and how the industry is adapting to change and preparing for the future.	Maritime Transport Strategy (2020)

Maritime Transport			
ID	Name	Description	Source
MT11	Diversification of trade using climate resilient commodities	Diversification of trade using climate resilient commodities aims to reduce dependency on trade of perishable goods and critical services, create larger stocks of goods that are climate resilient and consider were changing trading systems to endure changes in climate is economically feasible, strategically justifiable, and equitable.	International Monetary Fund (2016); Kaján and Saarinen (2013)
MT12	Climate resilient economy and jobs	Climate resilient economy and jobs aims to shift the economy and jobs towards a more climate resilient society. Perishable goods and some critical services rely heavily on the marine transport which can be affected by unpredictable extreme weather events. To address this the economy needs to adapt by shifting to products and services that depend less on Just In Time (JIT) operations, using for instance larger stocks.	Climate-Adapt metadata (2014)
MT13	Refrigeration, cooling, and ventilation systems	Improve the efficiency of refrigeration, cooling, and ventilation systems in order to reduce costs in warmer weather and maintain operations during heat waves. Human thermal comfort provided by efficient ventilation and cooling is relevant to ensure the health and safety of passengers and port workers. Refrigeration is relevant for managing goods that need low temperatures.	Scott et al. (2013); Climate-Adapt metadata (2014)
MT14	Restrict development and settlement in low-lying areas	Restrict development and settlement in low-lying areas means to assure that ports are not further developed in low-lying areas exposed to SLR. Planning must consider the long-term potential risks.	Transport, M., & Change, C. (2009)
MT15	Sturdiness improvement of vessels	Improve the strength of vessels to sea storms while decreasing the noise and increasing efficiency. Wave-induced loads on the ship structures are a major concern in hull design process. Ship owners should prefer designs that allow for more demanding wave regimes (for instance including the survivability to rouge waves).	Bitner-Gregersen E.M. et al. (2018)
MT16	Increase operational speed and flexibility in ports	Increase operational speed and flexibility in ports aims to increase the attractiveness of ship transport in order to capture more freight and passenger movement. This can promote a modal shift towards shipping and create new opportunities including those related with exports and tourism. Faster operations also reduce the effects of heat waves on goods and people as well as decarbonise the economy.	Taneja, P., Ligteringen, H., & Walker, W. E. (2012)
MT17	Climate proof ports and port activities	Climate-proof ports and port activities refers to investments that consider specific climate change projections to manage future risks in port infrastructures and improve operational safety conditions. These can include retrofitting or reconfiguring breakwaters and other port structures to avoid overtops and flooding due to storm surges, heavy precipitation, extreme heat, strong winds events and extreme swell conditions. The Copernicus Emergency Management Services (EMS) services can provide regarding climate change and disaster risk reduction.	Chhetri, P. et al. (2015); Copernicus Emergency Management Service (EMS)
MT18	Consider expansion/retreat of ports in urban planning	Consider expansion/retreat of ports in urban planning means to consider the expansion or reallocation of areas for future maritime transport infrastructures due to climate change risks. The urban planning and expansion should consider the potential requirements for port expansion/retreat options.	Copernicus Emergency Management Service (EMS)
MT19	Reinforcement of inspection, repair, and maintenance of infrastructures	A continuous reinforcement of inspection, repair and maintenance of infrastructures aims to adapt monitoring to a new climate context. Changes in the frequency and/or intensity of storms, SLR or temperature, for example, may have impacts in infrastructure, increasing degradation of the materials and requiring new maintenance plans.	Yi Zhang et al. (2017); The Guidelines on Strategic Maintenance for Port Structures (2011)

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MT20	Early Warning Systems (EWS) and climate change monitoring	Early Warning Systems (EWS) is an information system with several components that assesses climate risks and relays that information to decision makers, companies' utilities, and the general public in real time. Transport operators should integrate this tool in procedures in order to protect the safety of people and goods. The collected data can also be used to study the evolution of climate impacts as time progresses, for instance the impact of heat waves and storms in operations.	Climate-Adapt metadata (2019); Alfieri, L. et al. (2012)
MT21	Intelligent Transport Systems (ITS)	Intelligent Transport Systems (ITS) are technologies that relay automated and tailored data and safety-related messages to ships, regarding climate hazards and other relevant information. ITS use communication and information standards that are uniform and widely accepted by other ports that the island is linked to.	Crainic, et al.(2009); European Commission (2018)
MT22	Prepare for service delays or cancellations	Prepare for service delays or cancellations aims to promote the creation of new procedures, alternative options, and channels to sell goods and transport passengers, as well as better communication to deal with delays or cancellations. Dealing with more frequency and/or intensity of storms (which will happen in some regions) improves port reputation and customer preferences.	Scott, H, et al. (2013);  Hammet, & Mixter, (2017);  Sendai Framework for Disaster Risk Reduction 2015 - 2030, 2015,
MT23	Backup routes and infrastructures during extreme weather	Backup routes and infrastructures during extreme weather aims to creates a post disaster response that ensures available alternatives when the main ports are damaged or inaccessible due to extreme weather events. It considers alternative ports and access roads. Alternative ports can be smaller in size, simpler and be used for other purposes, but should have a different location and orientation from the main ones.	
MT24	Post-Disaster recovery funds	Post-Disaster recovery funds is the creation of recovery funds for the maritime transport sector to recover after disasters, through initiatives that get the economy up and running quickly while building-back-better (e.g., rebuild damaged critical infrastructures such as ports and roads). The aim is to minimize the economic and social impacts that can occur in a post-disaster context.	
			UNDP (2011)

Energy Sector			
ID	Name	Description	Source
E1	Financial support for buildings with low energy needs	Financial schemes in the form of loans, subsidies or tax reliefs are ways to support the reduction of energy needs of new or existing buildings, making them address climate change in a more efficient manner. For example, architecture and construction materials that rely on passive thermal comfort reduce the use of energy for human comfort, so less air-conditioning is necessary in the cooling season.	European Energy Performance of Buildings Directive (EPBD, COM(2016); Panão, et al. (2013)
E2	Financial support for smart control of energy in houses and buildings	The support of smart control of energy in houses and buildings allows for an efficient and automated use of energy that enables savings and creates synergies with utilities. For example, such a system could coordinate the automated opening vents with the air conditioning operation, avoiding energy consumption when possible. This will allow for the adaptation of buildings at a controlled cost, while complying with mitigation goals.	European Energy Performance of Buildings Directive (EPBD, COM(2016)
E3	Energy efficiency in urban water management	Energy efficiency in urban water management is the adaptation of urban design and construction for water conservation that avoids energy use under scarcity scenarios. For instance, Water Sensitive Urban Design (WSUD) aims to plan water conservation and storm water storage with integration with elements of urban design. This both to minimises hydrological impacts on the environment and the associated energy use of water supply.	Climate-Adapt metadata (2015); Urban and building Design (WSUD) (2016)
E4	Underground tubes and piping in urban planning	Underground tubes and piping are used for space heating/cooling across the globe and are more resilient to climate change. These systems can be Earth Air Heat Exchanger (EAHE) and Ground Source Heat Pump (GSHP) types. Both systems use tubes or pipes that usually need to be buried beyond the footprint of the building or house. The measure considers this need, and both allows and encourages the use of such space in urban planning.	Soni, et al. (2016)
E5	Biomass power from household waste	Biomass power plants burn household waste, waste from parks and public gardens and sludge generated by sewage treatment plants. Towns and cities can also realise urban production and recreational woods, which can be used for producing biomass for co-generation (Combine Heat and Power) as well as tri-generation (Combined Cold Heat and Power) plants.	Urban green (2016)
E6	Urban green corridors	Urban green areas decrease the air temperature in a city and thus decrease energy needs. Warm air tends to transport pollution and particulate matter to higher layers of atmosphere, causing a cloud of smog. Creating green corridors also promotes biodiversity, increases the touristic value, and decreases water run-off during storms.	Urban green (2016)
E7	Educational garden plots	Educational garden plots are sites where people, especially children, can garden with volunteers one afternoon a week after school. The harvest can be taken home. This creates well-being while having local fresh produce reduces the energy consumption and pollution. These garden plots can be further exploring to educate people about other climate action measures, directly and indirectly related with energy such as waste to energy, composting, water retention and green corridors.	Urban green (2016).
E8	Heated pools with waste	Power plants need cooling, and their waste heat can be used in swimming pools for public use and tourism. This creates an attractive leisure activity in off-peak winter times which diversifies	Lund & Chiasson, (2007); Papamarcou & Kalogirou . (2001)

Energy Sector			
ID	Name	Description	Source
	heat from power plants	the touristic offer and promote community well-being. This type of heat recovery design is called Combined Heat and Power (CHP). Pools provide a heat sink for the power plants which increases efficiency and is useful during heat waves.	
E9	Green jobs and businesses	The promotion of green jobs and businesses consists in training people and supporting green businesses to implement energy solutions across the economy, both in mitigation and adaptation. One example can be the support of research projects to help businesses deal with new technologies relevant to climate action.	Lehr., Lutz., & Edler. (2012)
E10	Public information service on climate action	Public information service on climate action aims to provide the general public with information about adaptation and mitigation options available for their activities and businesses. This includes information dissemination and counselling about available solutions and the public support. This type of information is relevant, for example, to support dwellings, hotels, or commerce to adapt to climate change.	Climate-Adapt metadata (2019)
E11	Small scale production and consumption (prosumers)	Small scale production and consumption (prosumers) aims to promote cooperation by creating economies of scale both in the production and consumption of energy. This allows for a greater use of local renewable resources and waste energy recovery which allow for a better resilience when dealing with climate change events such as heat waves.	Leal-Arcas, R. et al. (2018)
E12	Risk reporting platform	Risk reporting platform intends to promote the communication between the general public and the administration bodies concerning the risks related with climate change. It is a platform where the general public reports directly the risks as they become aware of. These can be for example related with cliff instability, trees falling over energy lines, uncleared bushes that can be ignited by power lines or unstable structures that may fall due to strong winds.	City of Seattle (USA)
E13	Energy storage systems	The development of energy storage systems can provide an alternative when the main power sources fail and need time to recover. This allows for a more resilient energy grid while enabling decarbonization and peak levelling at a controlled cost. This includes not only electric batteries (like those in cars and buses), but also other more sustainable forms of energy storage such as thermal tanks (heat), ice banks (cold) or water height (reversed pumping).	Gallo et.al. (2016); De Sisternes, F. J. et al. (2016)
E14	Collection and storage of forest fuel loads	Collection and storage of forest fuel loads intend to promote and regulate the collection and storage of wood and combustible material to reduce wildfire hazard. Actions may include clearing of small trees out of dense areas, reduce the amount of fuel on the ground and increasing the spacing between trees. Materials collected can be used in energy to waste applications such as pellets, biogas, or other energy solutions.	Climate, Forests and Woodlands (2019). Reducing Forest Fuel Loads to Decrease Wildfire Risk
E15	Seawater Air Conditioning (SWAC)	The Seawater Air Conditioning (SWAC) measure is an alternate-energy system design that uses cold water from the deep ocean to provide more efficient, decarbonized, and reliable cooling. The seawater is piped to heat exchangers for process cooling or to provide condensation water in air conditioning systems. It replaces air cooling units or fresh water evaporative cooling towers which	Seawater Air Conditioning: A Basic Understanding (2004); Arias-Gaviria, J. (2019)



Energy Sector			
ID	Name	Description	Source
		performances degrades in heat waves. Other subsequent or parallel seawater uses can be combined, like for swimming pools or desalinisation.	
E16	<b>Demand Side Management (DSM) of Energy</b>	Demand Side Management (DSM) of energy is an operational strategy that better coordinates producers and consumers of energy. More renewable energy (like solar and wind) use is possible while ensuring the energy service reliability and controlled costs. DMS balances off-peak and peak demand using peak shaving, which is important, for example, during heat waves.	GoFLEX H2020; RESPOND H2020
E17	<b>Review building codes of the energy infrastructure</b>	Review energy infrastructure building codes aims to climate-proof the energy system by reviewing regulatory codes and infrastructures considering the spatial distribution of climate risks. This should include establishment of new procedures, maintenance practices, operational changes, retrofitting and the use of climate and mapping services such as those produced by the Copernicus Emergency Management Service (EMS).	de Bruin, K. et al. (2009)
E18	<b>Upgrade evaporative cooling systems</b>	Upgrade of evaporative cooling systems that rely on a given range of air temperature and water availability is necessary given that this type of cooling systems is a technology that can be affected by climate change and become compromised due to heat waves and water scarcity.	Cuce, P. M., & Riffat, S. (2016); Ayoub, A. et al. (2018)
E19	<b>Early Warning Systems (EWS)</b>	Early Warning Systems (EWS) is an information system that assesses climate risks and provides real time information to decision makers, companies, utilities, and the general public. Climate data used to control and monitor the energy infrastructure can be relayed to the EWS. Using this data to monitor the evolution of climate related impacts in the energy sector increases the knowledge necessary to make long term climate adaptation decisions.	Climate-Adapt metadata adaptation options: Establishment of early warning systems (2019); Alfieri, L. et al. (2012)
E20	<b>Grid reliability</b>	Grid reliability improvement aims to find and upgrade critical components and to enhance the energy system resilience to climate risks. This may include redundant circuitry or components that provide alternative dispatch of energy, equipment upgrades (e.g., better cooling to cope with heat waves) or power downrating (e.g., decrease power output of energy transformers so that they do not overheat during heat waves).	Erol-Kantarci.et al. (2011) Adapt metadata (2019)
E21	<b>Study and develop energy grid connections</b>	Energy grid connections aims to develop interconnections between islands and/or with the mainland allowing for the creation of economies of scale, energy system reliability improvements and more Renewable Energy Sources (RES) penetration.	Prodromidis, & Coutelieris, (2011)
E22	<b>Energy-independent facilities (generators)</b>	Energy-independent facilities (generators) make it possible for buildings to temporarily create their own energy supply. In case of an energy supply failure (power outage), essential amenities remain functional and can be optimized with Combined Heat and Power (CHP) designs and other decentralised energy generation solutions.	Urban green (2016)
E23	<b>Energy recovery microgrids</b>	Energy recovery microgrids are operational elements of the energy grids that rely on distributed generation to restore systems from power outages and to stabilize the grid. This allows for a flexible and swifter recovery from power outages caused by knock-out events	Erol-Kantarci, M.et al. (2011); Chen, C. et al. (2015)

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		(e.g., tree falls on energy lines), excess demand (e.g., during heat waves) or other causes.	
E24	Local recovery energy outage capacity	Local recovery energy outage capacity consists in increasing and improving the ability of the islands to recover from energy outages caused by or worsen by climate extreme events, like severe sea or windstorms that can lead to island isolation and exacerbate logistical hurdles. To facilitate a swift recovery, it's useful to have more mobile backup power, power line replacements and other grid components, logistics, supplies, and personnel.	Adibi, & Fink (1994)

		<b>Tourism Sector</b>	
<b>ID</b>	<b>Name</b>	<b>Description</b>	
<b>T1</b>	<b>Economic Policy Instruments (EPIs)</b>	Economic Policy Instruments (EPIs) are incentives designed and implemented with the purpose of adapting individual decisions to collectively agreed goals. Different type of instruments can be applied, like: pricing (e.g., water tariffs), environmental taxes and charges, subsidies; trading (e.g., tradable permit for pollution or water abstraction, compensation mechanisms, payments for environmental services); and voluntary agreements and risk management schemes such as insurances.	Climate-Adapt metadata (2019)
<b>T2</b>	<b>Financial incentives to retreat from high-risk areas</b>	Financial incentives to retreat from high-risk areas refers to the creation of financial incentives to retreat or relocate settlements, infrastructure, and productive activities from the original location due to their high exposure to risks such as flood, sea-level rise, and storm surges.	Climate-Adapt metadata (2015)
<b>T3</b>	<b>Adaptation of groundwater management</b>	Adaptation of groundwater management can be used to (1) conserve groundwater reservoirs, limiting water use and optimizing water reuse, and (2) restore or increase natural infiltration capacity. Both contribute to adaptation in circumstances of reduced precipitation and sea saltwater intrusion aggravated with groundwater over-exploitation. Different packages of interventions usually include freshwater injection, modifying pumping practice, delayed inflow, artificial recharge, or efficient use of freshwater. This measure aims to confront increase heatwaves.	Climate-Adapt metadata (2019)
<b>T4</b>	<b>Monitoring, modelling, and forecasting systems</b>	Monitoring, modelling, and forecasting systems are information system that provide timely and reliable climate information, as well as up-to-date data on the occurrence and severity of extreme events, possible impacts, and their duration. Different systems can be implemented to respond to different climate hazards, such as drought-related, water quality monitoring, water resources management and predicting and managing flood risks.	Climate-Adapt metadata (2015)
<b>T5</b>	<b>Dune restoration and rehabilitation</b>	Coastal (e.g., dune) restoration and rehabilitation refers to the strengthening of the flood safety and sand reservoir functions of dunes and other coastal structures. Erosion happens as a result of wind action, marine erosion, human activities, and Sea Level Rise (SLR). Possible technics examples include grass planting, thatching, and fencing.	Climate-Adapt metadata (2015)
<b>T6</b>	<b>River rehabilitation and restoration</b>	River and valley rehabilitation and restoration are measures that emphasise the natural functions of rivers/valleys and create vegetated buffer zones alongside watercourses. This contributes to the improvement of micro-climatic conditions, reduces run-off and erosion, and increases groundwater recharge. For Tourism, this option also increases available leisure areas, increases thermal comfort areas and the availability of water.	Climate-Adapt metadata (2019)
<b>T7</b>	<b>Adaptive management of natural habitats</b>	Adaptive management of natural habitats refers to the preservation of ecosystem services which are essential for human well-being. Human activities induce pressure and impacts on biodiversity and ecosystems that tend to be aggravated by climate change. Adaptive management measures include understanding species response; make space for the development of rivers and coasts; aid gene flow; species translocation; targets and conservation mechanisms/plans.	Climate-Adapt metadata (2019)
<b>T8</b>	<b>Ocean pools</b>	Ocean pools are seawater pools located by the sea where waves can wash into the pool. The width, length and depth of ocean pools varies and often depends on their location on the coastline. These recreational structures are useful on SLR context, doubling as an additional protection of the coast and creating alternatives to beach leisure areas.	Water Research Laboratory (2022)
<b>T9</b>	<b>Activity and product diversification</b>	Activity and product diversification include actions to diversify the tourism activities and products and aim to reduce seasonality and overload in infrastructures and ecosystems. Shifting the dependency from 'sun, sea and sand' products to alternative leisure activities can reduce the impacts of heat	IMF (2016); Kaján, & Saarinen (2013)



		<b>Tourism Sector</b>	
<b>ID</b>	<b>Name</b>	<b>Description</b>	
		waves, coastal erosion, or ecosystem degradation, and thus help to maintain destination attractiveness.	
<b>T10</b>	<b>Public awareness programmes</b>	Public awareness programmes establish targeted programmes that raise awareness about climate change (specific values and protection needs) among guides, site managers and local communities.	Belle, N., & Bramwell, B. (2005)
<b>T11</b>	<b>Local circular economy</b>	Local circular economy is an economic system aimed at eliminating waste and the continual use of resources that offers a valuable framework for reduced carbon emissions from materials (decarbonization) and increased resilience to climate change and its impacts.	Global Centre on Adaptation (2019)
<b>T12</b>	<b>Tourist awareness campaigns</b>	Tourist awareness campaigns target behavioural change of visitors and aim to increase tourists (individuals and organisations) knowledge about climate change and the risk faced by tourism destinations. These campaigns can be targeted to regions affected by a particular climate threat, specific groups of visitors or the general tourism sector as a whole.	Climate-Adapt metadata (2015)
<b>T13</b>	<b>Local sustainable fishing</b>	Local sustainable fishing refers to the promotion of fishing zones/rights for local small-scale fishers maintaining stocks and using sustainable methods. This option aims to add value to local resources and products, protect ecosystems services and decrease external dependency.	Climate-Adapt metadata (2013)
<b>T14</b>	<b>Water restrictions, consumption cuts and grey-water recycling</b>	Restrictions can be applied to allow water administration services to cope with water crises. Restriction (or rationing) of certain uses of water such as irrigation of lawns, car washing, filling swimming pools or hosing down pavement areas may be necessary during these times. Grey-water recycling (or reclamation) is the reuse of non-drinkable water (usually treated wastewater) to cover water use needs that don't demand such a high-quality standard.	Climate-Adapt metadata adaptation options: Water restrictions and consumption cuts (2016)
<b>T15</b>	<b>Beach nourishment</b>	Beach nourishment (or replenishment) is the artificial placement of sand to compensate for erosion. Beach nourishment also often aims at maintaining beach width (for tourism and recreational purposes). Several beach nourishment techniques can be used including beach, backshore and shoreface nourishment, and large-scale coastal nourishment (e.g., using sand motors).	Climate-Adapt metadata adaptation options: Beach and shoreface nourishment (2015)
<b>T16</b>	<b>Desalination</b>	Desalination is the process of removing salt from sea or brackish water to make it useable for a range of purposes including drinking and can contribute to adaptation in circumstances of current or future water scarcity problems. Technological examples include electrically driven technologies, like reverse osmosis, and thermally driven technologies, based mainly on vapor distillation processes.	Climate-Adapt metadata adaptation options: Desalinisation (2015)
<b>T17</b>	<b>Coastal protection structures</b>	Coastal protection structures such as groynes, breakwaters, artificial reefs, and seawalls are different types of artificial structures, built in the shoreline (or rivers), which are designed to protect the coast from SLR or storms. Those structures can be used to, for example, drift and trap sediments, protect from erosion, absorb wave energy, or allow navigation.	Climate-Adapt metadata (2015)
<b>T18</b>	<b>Drought and water conservation plans</b>	Drought and water conservation plans refer to tourism-lead adaptation and/or involvement in drought management plans with the aim to reduce the economic, social, and environmental consequences of drought and water scarcity, and to reduce the loss of water and improve efficiency in the sector.	Climate-Adapt metadata adaptation options: (2015)
<b>T19</b>	<b>Mainstreaming Disaster Risk Management (DRM)</b>	Mainstreaming Disaster Risk Management (DRM) aims to plan and organize DRM along five stages including prevention, protection, preparedness, and response, recovery, and review. Examples include interventions to limit urban development in flood prone areas; identify natural hazard prone areas; develop strategies, arrangements, and procedures to address crises; and post-emergency recovery activities.	Climate-Adapt metadata (2015)
<b>T20</b>	<b>Using water to cope with heat waves</b>	Water use to cope with heat waves in cities are a set of investments in water supply services and infrastructures that aim to increase urban resilience regarding heat waves. Different packages of grey interventions are usually	Climate-Adapt metadata (2016)

		Tourism Sector	
ID	Name	Description	
		applied, as for example: creating and/or repairing fountains for drinking water and cooling; water spray fountains; and wetting streets.	
T21	Fire management plans	Fire management plans are management actions have wide range of application such as early warning detection, with escape routes and advice to local citizens and tourists, mobilization, and suppression of unwanted and damaging fires, or use of fire to manage fuel. Additionally, these plans help to increase the understanding of the interactions of climate change with vegetation cover and fire regimes.	Climate-Adapt metadata (2020)
T22	Health care delivery systems	Health care delivery systems are pre-emptive actions and adjustments that need to be made to health care systems, namely reinforcing less prepared aspects of its operation and/or logistics, in order to guarantee effectiveness and efficiency during, for example, high temperature and heat-wave situations. .	Climate-Adapt metadata (2019)
T23	Post-Disaster recovery funds	Post-Disaster recovery funds is the creation of recovery funds for the Tourism sector to recover after disasters, through initiatives that get the economy up and running quickly while building-back-better (e.g., rebuild damaged critical infrastructures such as ports and roads or recover the landscape from fires). The aim is to minimize the economic and social impacts (which may include future loss of the touristic destination attractiveness) that can occur in a post-disaster context.	UNDP ((2011); IMF (2016)
T24	Pre-disaster early recovery planning	Pre-disaster early recovery planning processes include the development of knowledge, good practices and objectives that aim to improve the living conditions of the affected communities, while facilitating the adjustments necessary to reduce the risk of future disasters. Examples of good practices are may include identifying critical ecosystems (goods and services) that require immediate restoration after a disaster or particularly vulnerable communities.	UNDP (2011)

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