

ACTION 3.4.4 (WP3) –

DEVELOPMENT OF THREE GREEN INITIATIVES IN ACCORDANCE WITH THE JOINT STRATEGY OF THE PROJECT “GREEN URBAN TERRITORIES” –

1ST GREEN INITIATIVE: A GUIDE FOR IMPROVING SUSTAINABLE URBAN PLANNING FOR THE CITY OF ALEXANDROUPOLIS

This document has been created within the framework of the Project “Green Urban Territories – Better Place to Live” with Acronym GUT-BPL, financed under the Cooperation Programme INTERREG V-A “Greece- Bulgaria 2014-2020” (Subsidy Contract No B2.6d.12/01.07.2019). The project is co-funded by the European Regional Development Fund (ERDF) and by national funds of the countries participating in the Interreg V-A “Greece- Bulgaria 2014-2020” Cooperation Programme.

The contents of this document are sole responsibility of Dimosineteristiki Evros S.A and can in no way be taken to reflect the views of the European Union, the participating countries, the Managing Authority and the Joint Secretariat.



TABLE OF CONTENTS

INTRODUCTION 4

CHAPTER I – BRIEF DESCRIPTION OF THE SCOPE OF THE PROPOSED INITIATIVE 5

 1.1 BRIEF DESCRIPTION OF THE PROFILE OF THE TARGET AREA5

 1.2 IDENTIFYING THE KEY ISSUES / CHALLENGES ASSOCIATED WITH THE PROPOSED INITIATIVE
 9

CHAPTER II – DESCRIPTION OF THE KEY POINTS OF THE PROPOSED INITIATIVE16

 2.1 ENERGY PRODUCTION FROM RES AND ENERGY UPGRADING OF MUNICIPAL BUILDINGS 16

 2.2 ELECTRIC MOBILITY AND SUSTAINABLE MOBILITY 18

 2.3 SMART WASTE MANAGEMENT AND REDUCTION OF FOOD WASTE 25

 2.4 INCREASE OF URBAN GREENING 30

CHAPTER III – CONNECTION WITH GOALS AND EXPECTED RESULTS38

 3.1 CONNECTION WITH STRATEGIC OBJECTIVES (EUROPEAN GREEN DEAL, JOINT PROJECT STRATEGY)
 AND REGIONAL AND TARGET AREA PLANNING 38

 3.2 EXPECTED RESULTS AND BENEFITS FROM ITS APPLICATION 45

CHAPTER IV – SWOT ANALYSIS OF THE PROPOSED INITIATIVE 47

CHAPTER V – IMPLEMENTATION PLAN, FINANCIAL ANALYSIS AND IMPLEMENTATION SCHEDULE
 53

CHAPTER VI – DRAFT GUIDE FOR MEASURING THE PERFORMANCE OF SUGGESTED PRACTICES
 56

CONCLUDING REMARKS 59

INTRODUCTION

This initiative project was carried out in the context of the implementation of the project "Green Urban Territories - Better Place to Live", which is financed by the cross-border cooperation program "INTERREG VA GREECE - BULGARIA 2014 - 2020".

This project is one of the three joint "Green" Initiatives envisaged in the framework of this project and was developed on the basis of the previous researches that have been prepared for the preparation of a Joint Strategy between the project partners, namely the "Study of the development possibilities for use in urban, semi-urban and other green spaces-points covering the entire Evros area" (3.4.1 - WP3) and "Investigation on the practices of agriculture (primary production), transport and tourism affecting biodiversity in the prefecture of Evros" (3.4.2 - WP3).

The object of this presentation is the preparation of a comprehensive guide for the improvement of the sustainable urban planning of the Municipality of Alexandroupoli. This includes actions in individual policy axes that are linked to the principles of sustainable urban development and concern either new thematic fields or come to support implemented or planned actions at the level of the Municipality, and which will be the subject of an evaluation.

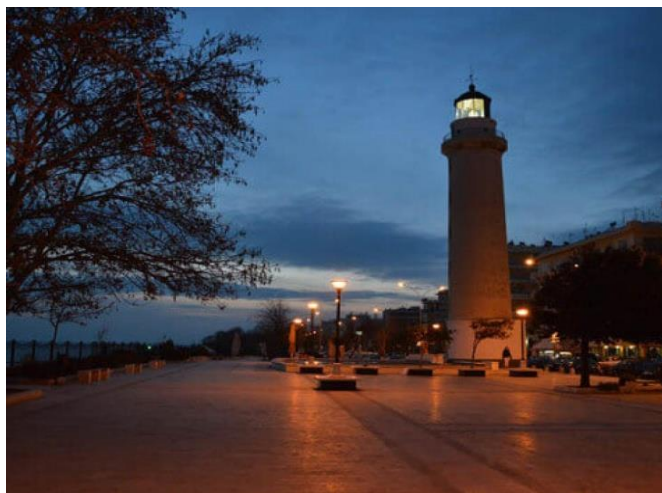
The methodology and results of this initiative can be used as a "guide" for the implementation of similar initiatives in other urban centers with similar characteristics, with a special emphasis on those covered by the present project, in the context of cross-border and joint response of common needs and challenges.

CHAPTER I –

BRIEF DESCRIPTION OF THE SCOPE OF THE PROPOSED INITIATIVE

1.1 BRIEF DESCRIPTION OF THE PROFILE OF THE TARGET AREA

The city of Alexandroupoli is the last geographically large urban center of the country towards the east. It is a relatively new city (founded only 150 years ago) which has nevertheless developed into a constantly growing population, commercial and financial centre, now being at the center of many important developments, such as planned investments in the field of energy and the commercial and defense utilisation of the port.



@visitnorthgreece.com

Demographic and Social Data

Demographically, the city of Alexandroupoli records a steady increase in its permanent population per decade (close to 15% on average). Today (based on estimates for this year's census) it has about 60,000 inhabitants (as a Municipality it is estimated that it will exceed 80,000), which ranks it in first place among the cities of the A.M.Th Region. (and in third place in Northern Greece) in terms of its population size. On the other hand, this increase is mainly due to the phenomenon of internal migration from the rest of the towns and villages of PE. Evros, where it now gathers almost 50% of the total population of the region.

The qualitative analysis of the demographic composition of the city shows the uniform distribution between males and females, the relatively low average age (around 41 years) as well as the concentration of a large part of the economically active population of the region, with a fairly satisfactory average educational level, by extension, a fairly satisfactory human capital that covers a wide range of skills and professional subjects.

This ever-increasing (and qualitatively upgraded) demographic trend came as a result of the opportunities that the city offers in various areas, such as the quality of life and services provided, the economic prospects as well as the general attractiveness of the area (coastal zone, transport hub, entertainment and entertainment options, etc.), although reverse phenomena such as brain drain among a significant portion of young people are also observed here (youth unemployment is also relatively high).

Financial Structure

The economic activity in the target area (Municipal Unit of Alexandroupolis) mainly includes the tertiary sector and to a limited extent the secondary sector. Regarding employment in the sectors of economic activity based on the data of the Business Register, this is distributed in trade (wholesale, retail and car trade), in tourism and related services (hotels, restaurants, etc.), in entertainment services (cafes, bars, etc.) , in education and health, as well as in public sector services. A significant share is occupied by processing (agricultural products processing units) as well as industrial type units (construction, paint industries, textile mills, carpentry) which are developed in organized areas (BI.PE. and BIO.PA.).

The evaluation of the economic activity of Alexandroupoli in the last decades shows two opposing trends. On the one hand, the secondary sector shows a significant decline mainly due to the degradation of infrastructure and the low competitiveness of businesses, in combination with other, institutional factors, which led to the shrinking of the number of businesses in this sector. On the other hand, there is a small but steady increase in the service and tourism sectors, which is reflected both in the tourist figures and in the increase in hotel capacity. Of course, on the other hand, the prospects for tourism are significantly limited by the chronic inability to utilize some of the emblematic tourist centers of the city (such as the Traianoupolis Thermal Baths), which could enrich the city's tourism product, which is developed along the lines of the city break , of cultural events (waves of culture in the summer) and the typical "sun - sea" diptych.

In the current period, however, new economic and investment opportunities are presented following recent developments (e.g. the upgrade of Alexandroupoli port and the construction of the LNG terminal) which can give a new impetus to the secondary sector and in particular to individual sectors such as energy and transport (the construction of an electricity production unit from natural gas in VI.PE is already in the final phase of implementation).

Housing Development and Transportation

The residential development presented a steadily increased building activity (although with fluctuations, especially during the years of the crisis), which expanded the boundaries of the city, through continuous urbanization of the neighboring lands, resulting in the spatial spread of the city. The construction of new houses and the creation of new blocks of flats aims to satisfy the ever-increasing needs for housing, although on the other hand in some areas a "residential congestion" is observed due to the density of the built-up area.

Regarding the existing networks and their associated infrastructures located within the urban fabric, these are presented in the table below.

Category	Description
<i>Road Network</i>	<p>The presence of the Egnatia Road dominates, which connects the city with the rest of the regions of N. Greece (from the west), and the neighboring countries from the east (Turkey) and the north (Bulgaria).</p> <p>Within the prefecture there is the old national road of Alexandroupoli - Kipon and an extensive network of regional and intermunicipal roads.</p>
<i>Interurban / Urban Transport</i>	<p>There is a network of intercity buses (KTEL Evrou) that connects the city with the rest of the regions of N. Greece, as well as with the seats of the other regions of the prefecture (Feres, Soufli, Didymoteicho, Orestiada).</p> <p>Within the city there is an extensive urban transport network, with a total of 18 lines, which connect the city center with the suburbs and neighboring settlements (Makri, Palagia, etc.) but also the main points of the center between them (through the use of a small urban free bus service). These services aim to improve the conditions of movement of citizens in the city, although not to the desired extent, as residents still use the I.X. as their main means of transportation.</p>
<i>Railroad network</i>	<p>The city has a railway network that connects to all the Regional Units of Macedonia - Thrace (up to Thessaloniki), however with significant problems in terms of connecting the stations to each other, such as the suspension of passenger routes for two years (they are replaced by buses from Drama). A similar situation inside the prefecture, with the relevant routes having shrunk.</p> <p>Its scheduled connection with the port (as part of a wider project that is in the works) as well as the upgrade and electrification of the Alexandroupoli – Ormenio line (which is the Greek part of the interstate line Burgas – Alexandroupoli), will give new life to the said means.</p>
<i>Shipping</i>	<p>The port of Alexandroupolis is the only large port of Thrace, with significant commercial traffic. It has a land area of 1,150 sq.m., a container handling terminal, piers, wharves, fish ladders, a port for tourist boats and a connection to the railway network.</p> <p>There is only one passenger ferry connection to Samothraki and (during the summer season) to Lemnos with less frequent sailings.</p> <p>The current port privatization tender may increase commercial traffic and become a major commercial and transit hub.</p>
<i>Air Connection</i>	<p>"Demokritos" International Airport (6 km from the city center) is a regional airport of medium capacity (in terms of number of flights and passenger volume), where there are daily flights to and from Athens (in the summer there is an additional weekly route to Crete).</p> <p>The planned construction of additional infrastructure (fuel tank) may contribute to the extroversion of the airport (ability to conduct flights also from abroad), following the dynamic development of the city.</p>

Environmental Infrastructures and Public Utility Structures

Environmental infrastructure mainly concerns two areas. The first one is connected to the water supply services that are under the supervision of the Municipal Water Supply Company (DEWA). The second is connected to waste management and is under the care of the Municipal Cleaning Service and the Solid Waste Management Agency (FODSA) which is under the A.M.Th. Region. The waste management system to date includes the transport of recyclable materials (blue bin) at the Recyclable Materials Sorting Center (KDAY) of Alexandroupolis, while all mixed waste ends up at the Sanitary Landfill (Landfill) of Komotini, raising the cost of waste management disproportionately. This situation is expected to improve significantly through the start of operation of the new Waste Treatment Unit (WTU) for the collection of all mixed solid waste in the wider area, as well as pre-selected organic waste, for which biological treatment will be carried out with anaerobic digestion and electricity production 700 KW energy and aerobic composting for the production of soil improvement material. In addition, the creation of a Sanitary Landfill and the restoration of the existing landfill in the same area has been launched, along with the creation of a large Green Point (GP) and three small PGs, as well as two collection points for bulky and green waste.



Photo from the recent opening of M.E.A. (source: ERTnews)

Regarding the municipal education infrastructure, these include 40 Kindergartens (including kindergartens), 26 Primary schools and 19 Gymnasiums / Lyceums. In the field of social welfare, the Center for Social Protection, Solidarity, Education & Environment (under the distinctive title "Multisocial") operates with a wide range of social actions ("Feeding at Home", "Help at Home", Social Grocery, K.A .P.I., KDAP etc.).

1.2 IDENTIFYING THE KEY ISSUES / CHALLENGES ASSOCIATED WITH THE PROPOSED INITIATIVE

The proposed initiative aims to complement the planned and implemented actions that are promoted at the local level and are linked to key issues that have to do with sustainable urban planning and are linked on the one hand to the quality of life of the city's inhabitants, on the other hand to the development prospects of the local economy.

The main topics that are of interest in terms of intended results through the implementation of the initiative are briefly described in the following lines.

1.2.1 Energy Production / Consumption

In the part of energy production, according to the Special Framework for Spatial Planning and Sustainable Development for A.P.E. (EPHSAA-APE), the southern part of P.E. Evros is included among the four Priority Wind Areas (P.W.A.) of the country, as it has two comparative advantages. The first is related to the fact that the region has one of the strongest wind potentials in the country (average annual wind intensity). The second concerns the characteristics of its coastal zone (boundaries of M. Alexandroupolis), which is characterized by shallow waters that allow the installation of an offshore wind farm.

In addition, with a recent legislative regulation, the sea area in question is designated as an area for the development of pilot Offshore Wind Park Projects for Projects up to a total power of six hundred (600) MW.

Due to these advantages, there is already strong interest in the installation of offshore wind farms in the coastal zone near Alexandroupoli, utilizing the special spatial planning framework for RES. (wind farm siting). Specifically, there is already an offshore investment project with a total capacity of 216 Megawatts in the works (the company has received a Production License from the Energy Regulatory Authority (RAE) and Connection Conditions from ADMIE, while it is currently preparing an Environmental Impact Study) which it is to be located from the east in the shallows of the gulf (depth less than 25 meters) to the Evros estuary and from the west in the Chilean sea area.



Image of an offshore wind farm. @energy-world.gr

The following conclusions emerge from the analysis of the current situation. First, the region's rich wind potential combined with its shallow seabed favors the installation of wind farms, in line with the national goals of meeting energy needs from renewable sources. Secondly, however, the model of energy production from A.P.E. which is going to be implemented in the area of P.E. Evros relies on investments by large companies that do not serve the energy needs of the local population. Thirdly, the existence of a favorable institutional framework that promotes energy democracy and the existence of an Energy Community in which the Municipality of Alexandroupolis participates can contribute to the above goal for RES, alongside the diffusion of the benefits from such a large-scale investment in the local community.

In terms of consumption, the energy needs of municipal buildings (municipal and community services, kindergartens, etc.) are covered by the Municipality's revenues, which increases the specific code in the Municipality's budget. In order to address this problem, energy upgrade actions have already been launched for 7 buildings of the Municipality (2 KAPI, 4 kindergartens and the Polysocial), which aim to save energy and reduce their energy costs, protect the environment and also ensuring the sustainability of social services provided. On the other hand, given the large number, mainly of schools, the city lags behind significantly in terms of the energy upgrade of the buildings in question.

1.2.2 Waste Management and Food Waste Reduction

Waste management is a major issue for the Municipality of Alexandroupoli. The city produces the most tons of garbage in Eastern Macedonia and Thrace, where, according to DIAAMATH data, 26,252 tons of mixed waste were produced in 2021, an increase of 12.39% compared to the previous year. As far as recyclables are concerned, Alexandroupolis was in second place among the municipalities with the largest decrease in the amount of recycled materials (2,859 tons in 2021 versus 3,015 tons in 2020, i.e. a decrease of 5.16%).

This situation is reflected in the images published on social networks (see adjacent photos), showing the magnitude of the problem which is due to both the large volume of waste per capita and the low rate of recycling by citizens.



Images of overflowing bins in the city centre.

The imminent opening of the M.E.A. but also the resolution of a problem that has arisen in recent years and concerns the prohibition of the deposit of recyclable materials in the local sorting and recycling factories, from midday on Friday until Monday morning, may improve the existing situation. At the same time, in recent years there have been some initiatives at the level of the Municipality to promote the recycling of specific categories of waste, such as clothing (special blue bin / photo 1), plastic lids (heart-shaped bin / photo 2) and mattresses (white container).



However, despite the new infrastructure and related actions in the waste sector, the main problems for the city of Alexandroupoli remain and are categorized as follows:





- The lack of education regarding the sorting of waste at the source, as a result of which mixed waste is thrown in the blue bins or vice versa, recyclable garbage in the conventional bins.
- The - consequent - difficulty of adapting the residents to the new situation with the addition (within the year) of an additional bin for organic waste.
- The lack of green spots to deposit debris and bulky objects, which often leads to uncontrolled dumping situations (see photo below).



- The large consumption of single-use plastic bottles / cups (coffee or water), both at the level of private use and at the level of catering and entertainment (restaurants, cafes, beach bars, etc).
- The lack of an effective control mechanism and the imposition of fines on offenders.

To the above should be added the legislation to be implemented based on the "polluter pays" principle, according to which municipal fees will be adjusted according to the degree of recycling per spatial unit (building block), or municipal district and Municipality as a whole, a fact that on the one hand will (as it turns out) increase the municipal fees for the citizens, on the other hand will create new foci of reaction both between citizens and the Municipal Authority, as well as between the citizens who comply with their obligations and those who renounce their responsibilities in this regard this.

A second important problem concerns the excessive volume of discarded food, which comes from various sources, such as:

-  Households.
-  Catering businesses.
-  Food stores (grocery stores, supermarkets, etc.).
-  Agricultural production.

Food waste, in addition to contributing to the increase in waste, raising the cost of waste management, raises issues of social justice and cohesion, given that in the city (as in almost all urban centers) there is a large number of residents who are faced with the specter of poverty, not being able to procure basic goods for the family table.

For the latter, it is pointed out that in the Municipality, through its social policy of the N.P.D.D. that falls under it (Polysocial), support programs for families in need are implemented ("Feeding at Home", Social Grocery, etc.), which, however, significantly burden the finances of this non-profit enterprise, threatening its sustainability and creating problems regarding the uninterrupted distribution of food to people in need.

The challenge here therefore focuses on how to make use of the surplus food that ends up in the garbage, either those that remain unused and rot in the fields of rural areas around the city, or those that are thrown into the garbage bins due to an approaching expiration date.

From the above, the need for a new design and for additional initiatives to reduce and more rationally manage all waste, as well as to deal with more specific problems, such as reducing food waste and utilizing it for social purposes, emerges. as well as plastic pollution which has significant effects on the landscape and local biodiversity, especially the marine life of the area.

1.2.3 Urban Mobility

A basic problem that the citizen of Alexandroupolis faces every day concerns his movement to and from the center. The use of the car is accompanied by high traffic congestion, high noise intensity and loss of time and effort during movement as well as for finding parking as the available spaces cannot cover the real needs for parking.

Alexandroupolis is a city that is constantly growing in population. The expected increase in population and, by extension, vehicles is expected to exacerbate the problem, leading to even greater inconvenience for residents, especially in the center at peak times. This is because the existing configuration of the center is not built to accommodate more vehicles on the road. In general, any center that brings together mixed uses (living, working, entertainment), such as that of Alexandroupolis, does not favor the use of cars but alternative means of transportation.

In order to solve this problem, the Municipality of Alexandroupolis has revised its planning towards a more sustainable model of urban mobility, through the preparation of a Sustainable Urban Mobility Plan (SMP), which aims to improve the conditions of movement of citizens in the city, in accordance with the spirit of the E.E. to establish a new culture for urban mobility, as reflected in the Commission's Green Paper. The main objective is the reduction of private transport, light traffic zones, more public transport, as well as an emphasis on smart mobility and soft forms of transport (bicycle, electric skates, walking, etc.).

In the same context, through the implementation of several programs (such as the Sustainable Urban Development Plan) the city has expanded the total length of its cycle paths, while for about 3 years it has been operating a regular route to key points in the city center with a minibus which is free. Finally, to support electrification, the Municipality is already preparing a plan for the installation of Electric Vehicle Charging Stations (EVS), while in the context of this project a Charging Station has already been installed.



However, despite significant developments and related infrastructure, Alexandroupolis still faces traffic congestion problems, which are due to the following issues:

- In the obsession of using I.X. even for short distances to the center, as according to the study of the S.V.A.K., the I.X. remains the main means of travel for work (63%), shopping (60%) and accompanying the children to school (57%).
- In the low response of citizens to the use of free urban transport as a share of travel (according to the S.V.A.K. it does not exceed - for each reason for travel - 5%).
- In the low response of citizens to the use of the cycle path (from 2% to 9.5% per reason of travel), which leads to an unpleasant image of having an extensive network of cycle paths without cyclists.

The above shows the need for a new plan and for additional initiatives in order to integrate the use of alternative means instead of their private cars into the mentality of the citizens, through a network of incentives and measures to prevent the unjustified use of vehicles on the city streets.

1.2.4 Urban green

The sharp population growth of Alexandroupolis is largely due to the multitude of incentives it offered for work, complex services, entertainment, generally for a better quality of life. However, the way in which it was developed residentially led to a significant degradation of many parameters that make up this concept of quality of life. One such parameter is the availability of greenery. Unfortunately, insufficient urban planning in this area in the past exacerbated the problem, contributing to the creation of densely built urban areas without a trace of free green spaces. As a result, according to the revised General Urban Plan (GUP), Alexandroupoli is among the cities with the lowest percentage ratio of green spaces (below 8%) as well as green square meters per inhabitant (2.5 sqm of greenery per inhabitant).



The image of the city from above, showing the limited space in green spaces.

Added to this problem is the regular practice of pruning trees both in existing public areas (parks etc.) and on residential sidewalks. In particular, there have been phenomena of excessively severe pruning of trees (often at the suggestion of citizens who are close to their homes), or large-scale pruning of trees with the result that they lose a large part of their leaf surface.

In addition, after on-site research in various parts of the city, the phenomenon of cutting down trees and then covering with cement or tiles the places intended for planting trees on the sidewalks of the building blocks has also been observed, with the result that in many of them there is no the necessary number of trees on the sidewalks of many neighborhoods.



These actions, apart from the aesthetic degradation of the image of the city, have an impact on the quality of life of the residents, especially during the summer season, where the absence of trees has significantly reduced the provision of shading and the ability to reduce the local temperature within the city. Therefore, a new strategy for urban greening is needed that could significantly increase plant cover both from the existing number of trees and from the addition of new trees.

CHAPTER II –

DESCRIPTION OF THE KEY POINTS OF THE PROPOSED INITIATIVE

The proposed initiative includes the production of a Guide to improve the sustainable urban planning of the Municipality of Alexandroupolis. This includes a plan of good practices and actions to be implemented in individual policy axes that are linked to the principles of sustainable urban development and concern either new thematic fields or come to support implemented or planned actions at the level of the Municipality, and which will be the subject of evaluation.

Through this, the compliance of the Municipality with the guidelines of the European Green Agreement and the individual Sectoral (Sustainable Development Strategy) and National Strategies (National Climate Plan) in individual aspects of the city's operation as an administrative structure is sought.

In addition, this Guide is in line with existing standards of sustainable urban planning applied in other European cities and in our country and includes a series of interventions in selected sectors qualified by various sustainable cities forums (e.g. Sustainable Cities Network, European Green Cities etc) as well as a series of criteria and indicators to be measured and monitored, per category of intervention. Measurable and continuous growth will be ensured through the assessment of the city's performance over the next three years.

In brief, the main objectives of this initiative include the following:

- ✓ *Participation in the production of energy from R.E.S. and energy upgrading of municipal buildings.*
- ✓ *Increasing the rate of recycling, reducing the use of plastic packaging, and reducing food waste while making use of it.*
- ✓ *Increasing the use of alternative means of urban transport (urban transport, electric skates, bicycle).*
- ✓ *Increasing the urban green index.*

The following sections describe the main axes of development of the Guide.

2.1 ENERGY PRODUCTION FROM RES AND ENERGY UPGRADING OF MUNICIPAL BUILDINGS

As mentioned, the fundamental objective of the European Climate Strategy is to make the EU the first climate-neutral continent with a horizon of 2050. The city of Alexandroupolis with its strong wind potential (as a "wind priority zone" of the AMTH Region) can contribute to this goal, through the production of clean energy, achieving the goal of climate of neutrality.

2.1.1 Energy Autonomy through the use of R.E.S.

The goal here is the penetration of R.E.S. in the city's electrical system and at the same time covering part of the energy needs of the residents and the administration from APE. The above goal can be met through the creation of a small offshore wind farm. This proposal, which has also been supported by the Center for Renewable Energy Sources through its former President¹ (similar actions are taken by the Municipalities of Neapolis-Sikea and Sithonia) will have the following characteristics:

- Regarding the capacity: Regarding the amount of the investment, the installation of 12 wind turbines with a total power of 20 MW (0.9 MW each) is proposed. The proposed potential of the investment is proposed based on two factors, taking into account on the one hand the financial possibilities of implementing the project, on the other hand the pursuit that the amount of energy produced creates a tangible benefit for both the Municipality and its residents.
- Regarding the location: This is limited by two factors. The first concerns the spatial limitations of the current institutional regime, as well as limitations related to environmental issues (passages of migratory birds, etc.). The second concerns the appropriate location and has to do with the physical limitations that affect the possibility of constructing the project in question (bottom depth, distance from the coast, etc.), and with the elements of the local wind potential (height, physical or technical obstacles) , average wind speed etc), which will ensure the necessary financial viability of the project. Therefore, the exact location will be determined through the relevant technical and environmental studies that will be included in the file that will be submitted for licensing to the R.A.E...
- Regarding the need for additional investments: According to the DEDDIE, within the limits of the Municipality of Alexandroupolis there are still margins for interconnected systems, therefore no additional projects are required to connect the project to the existing network (HT / MT substations), making the investment more affordable design in terms of construction costs.
- Regarding the production / consumption regime: Net Metering is promoted as the most preferred regime, according to which the netting of the electricity produced by a renewable energy station of the self-producer with the consumed electricity in an installation of the self-producer, which is located in the same or adjacent area as the R.E.S. station.
- Regarding the implementing body: Is promoted the solution of the Energy Community (E. Co.), i.e. a municipal cooperative of exclusive purpose (L. 4513/2018, Article 1, 2, N. 4759/2020 Article 160) with the aim of promoting of the social and solidarity economy. Already in 2017, the Municipality of Alexandroupolis has jointly established with the Municipality of Samothraki and the Holy Metropolis an energy community, which could cover the high cost of construction and installation of such a RES project. In this scheme, could participate additionally citizen groups and city businesses, as predicted by the relevant legislation.

¹ <https://statusradio.gr/2021/03/tsolakidis-to-thrakiko-pelagos>

2.1.2 Energy Upgrade of Municipal Buildings

As mentioned, the Municipality of Alexandroupolis is burdened significantly to meet the energy needs of municipal buildings (municipal and community services, daycare centers, etc.). Therefore, the goal for the energy "greening" of the city includes the energy autonomy of all the buildings in question, through energy upgrading and the installation of photovoltaic panels to cover their energy needs from clean forms of energy. In a second phase, the Municipality should proceed with the integration of the principles of bioclimatic planning for all buildings under construction (primary schools, etc.) within the four-year plan (for details see also the implementation plan - Chapter V - where all the relevant parameters are presented).

2.2 ELECTRIC MOTION AND SUSTAINABLE MOBILITY

The green transition in the transport sector incorporates all the "clean" (in terms of emissions) and "smart" mobility options that can be developed in the city, partially replacing the existing transport system, which is based almost exclusively on the use of individual vehicle. The action plan includes the following categories of intervention:

2.2.1 Turning to the Electrification of Municipal Public Transport Vehicles

The goal of entering the traffic of electric vehicles should start with the replacement / conversion of conventional public use and utility vehicles as well as mass transport vehicles with electric ones. These mainly include the vehicles of the Polysocial, which are used for the daily needs of feeding ("Feeding at Home" Program) and social care ("Help at Home" Program), as well as the fleet (2) of small city buses (minibus), which run routes within the city center.



Electric municipal bus in Rethymno. @flashnews.gr

The introduction of electrification in municipal vehicles can significantly contribute to the reduction of fuel supply costs and, by extension, the relative expenditure code, but also to the reduction of emissions in the city. Their operation will be facilitated by the planned installation of electric vehicle charging stations in parts of the city.

2.2.2 Installation of Electric Vehicle Charging Stations

In order to facilitate the entry of electric mobility into the city, a necessary condition is the installation of an integrated network of charging stations, the location of which in key points, adapted to the particularities of the city, in terms of residential density and traffic congestion in the individual spatial areas of the city, so as to facilitate the use of electric vehicles within the boundaries of the Municipality.

The drafting of the Electric Vehicle Charging Plan is already nearing completion, indicating the proposed locations where the charging stations will be installed for the city of Alexandroupolis, which includes:

- Analysis of the Existing Situation – Mapping of the Intervention Area.
- Placement of charging points and IT parking spaces – Scenarios for developing a network of IT charging points.
- Consultation Report.
- File Completion – Plan Application.

Of course, the completion of the project presupposes the preparation of application studies that will be required for the placement of each charger on the ground, its wiring, as well as the construction details of the installation. These procedures are necessary in order to achieve the goal of completing the infrastructure for the introduction of electrification in the city in the prescribed schedule.



Electric vehicle charging station in Alexandroupoli through the project «GUT».

Finally, it should be noted that already, within the framework of the present "Green Urban Territories - Better Place to Live" project, the installation of an Electric Car Charging Station in the Municipality of Alexandroupolis, specifically in the city center, has been completed.

2.2.3 Promotion of Sustainable Forms of Urban Mobility

The above analysis demonstrated the need for Alexandroupoli to adopt a more sustainable model of urban mobility with an emphasis on the use of alternative means instead of their private cars, with benefits both for its citizens and visitors as well as for the functionality and attractiveness of the city as a single total. Moreover, its spatial organization favors the preference of these forms of transportation, however, it runs into the reluctance or reluctance of a large part of the population to get rid of the car.

In this context, this initiative foresees a comprehensive action plan that includes the implementation of incentives for the use of buses or bicycles, as well as measures to prevent the unjustified use of vehicles on the city streets.

The main objective is broken down into the following sub-objectives:

- ✓ The increase in the use of city buses, as can be reflected in the annual number of tickets (for city KTEL) and the number of minibus passengers (since there is no ticket).
- ✓ The increase in the use of bicycles, as can be reflected in the number of bicycle owners and the number of shared bicycle rentals.

In detail, the package of measures per category of means of transport as analyzed below:

A. Increase the use of public transport

From the preceding analysis, it follows that the existing state of municipal transport is quite satisfactory, both in terms of the frequency of routes and the number of stops, as well as the coverage of the main points of the city that are of great interest in terms of traffic (see basic route of the minibus, as shown in the figure below), as well as the access time to each point.



Unfortunately, on the other hand, the choice of urban transport is quite limited. For example, according to the study of the S.V.A.K., the average annual occupancy of the minibus does not exceed 10% even though the itineraries it runs are free. Actions to stimulate the demand for urban transport are therefore required.

The main measures that have been qualified by various European cities concern the improvement, the provision of financial and other incentives as well as information campaigns. In detail, the actions that could be adopted by the Municipality of Alexandroupolis concern the following:

Improving the services provided

- Installation of electronic information boards of the minibus transit time (there is for the regular transport but not for the minibus).
- Music lining inside the minibus with sounds of classical music.
- Rearrangement of routes according to the needs of special groups of citizens (e.g. families with children visiting the municipal swimming pool), through relevant research with a questionnaire to the target group.

Providing incentives

- Rewarding the citizens with the most annual itineraries (eg free tickets to theater performances, film screenings or the city's museums). This requires a reliable passenger registration system, as no ticket is used (free route).

Information campaigns

Given the importance of changing mentality and social behavior, information campaigns play a very important role and could be included in an integrated plan to promote sustainable urban mobility in the context of the "European Mobility Week". These include the following:

- Informative actions in schools that will include a familiarization ride with the minibus.
- Display of a TV spot about the benefits of using this means of transport.

Institutional deterrent measures for individual vehicles

Although these measures are part of the wider planning of the urban regeneration of the city center, they can at the same time help the promotion of urban transport, through measures that are considered to be a deterrent to approaching the center by car.

- Decision for a limited time of stay of I.X. in the city center (except those for work purposes) during peak hours.
- Creation of light traffic zones around the center.

These initiatives have been implemented in many European cities, where data show a significant reduction in the total daily volume of car journeys in the center.

B. Increase in bicycle use

The bicycle for all modern societies is a popular means of transportation, which is combined with well-being and gentle movement, contributing to the improvement of the aesthetic image of the city as well as a healthier urban environment without noise and pollution. To this end, at the municipal level, efforts are being made to promote this form through infrastructure and additional measures.

A similar case can be found in towns of the territory such as Trikala and Karditsa. In Alexandroupolis, however, despite the long-standing existence of a bicycle path, the choice of bicycle is not preferred by its citizens, at least to the desired extent. This is also shown by the number of bicycle owners, which is considerably lower than other cities of the same size, e.g. compared to the city of Karditsa in which there are over 20,000 bicycles.

To reverse this situation, the Municipality of Alexandroupoli, in order to make it more bicycle-friendly, has undertaken a series of projects and actions, such as:

- A large and modern network of bike lanes in the city, which is constantly being upgraded and expanded, covering high-traffic areas such as the central boulevard and the coastal zone.
- Appropriate road markings for bicycles throughout the road network within the city.
- Over 300 cycling routes recorded by cyclists, residents or visitors within the geographical boundaries of the Municipality.
- Public bicycle repair points that can serve citizens as well as visitors.

In this effort, the Municipality of Alexandroupolis, within the framework of the "Green Urban Territories - Better Place to Live" project, received 8 conventional and 8 specially made electric bicycles for public use with the support of the appropriate software, enabling users to use for as long as they wish, returning it to specific parking spots.



Electric bikes in Alexandroupoli through the project «GUT». @e-evros.gr

From the above, it is deduced the need to enrich the local planning, giving priority to promote even more the use of the bicycle and to facilitate the cyclists to move safely and easily. A manual has already been published by the National Technical University of Athens which, among other things, mentions suggestions on what local authorities can do to promote the use of active modes of transport by bicycle, many of which have been implemented by many European cities with encouraging results, some of those indicated for the city of Alexandroupoli are presented below. Analytically:

- | | |
|---|---|
| <i>Improving infrastructure and services</i> | <p>These include both infrastructure to facilitate users during their movement, as well as bicycle rental options.</p> <ul style="list-style-type: none"> ➤ Installation of an integrated network of bicycle parking spaces at important junctions of the city with high tourist and commercial traffic, as detailed: <ul style="list-style-type: none"> - In the City Center (near the City Hall). - At the Port in the area near the car park. - At the Music High School and at the Municipality's Municipal Camping. - At the Municipal Stadium (near the car park there). - In the city's Metropolitan Park (Altinalmazi Park). - Increase the number of shared bicycles with time-leasing. Based on a first needs assessment for the city, the number of bicycles for public use should increase to: <ul style="list-style-type: none"> - 100 electric bicycles, and - 100 conventional bicycles. |
| <i>Import applications and provision for incentives</i> | <ul style="list-style-type: none"> ➤ Using mobile apps can help cities get people to cycle more. For example, in some cities (such as Gdansk, Poland), the Municipality introduced an active mobility game in schools, where students can register their cycling trips by tapping their personalized cards on electronic sensors. ➤ The use of the new tool that will be developed in the context of this project ("Green Urban Territories") and concerns a special application for mobile phones (Mobile App) and other mobile devices of the tablet type, which will be available free of charge and will provide information on intervention areas and environmentally friendly routes with dynamic maps in the reference area (including stations/stops for conventional and electric bicycles). ➤ Rewarding the use of bicycles, which can be done with free tickets to theater performances, film screenings or the city's museums or alternatively by offering ice cream or drinks in bars of partner businesses, a practice that has been crowned with success in the Municipality of Bologna in Italy. |

Information campaigns

Given the importance of changing mentality and social behavior, information campaigns play a very important role and could be included in an integrated plan to promote sustainable urban mobility in the context of the "European Mobility Week". These include the following:

- Regular activities open to the public to promote cycling, such as the established summer evening bike rides starting on June 3rd which has been established as World Bicycle Day (see photo below).
- Information campaigns and interactive actions in schools, such as “Bike to Work” or the “Bike Experience” in Brussels, which helped to achieve a shift in the mode of travel towards cycling for both workers and students.
- Thematic seminars on the benefits of cycling in public health.
- Display of a TV spot about the benefits of this means of transport.

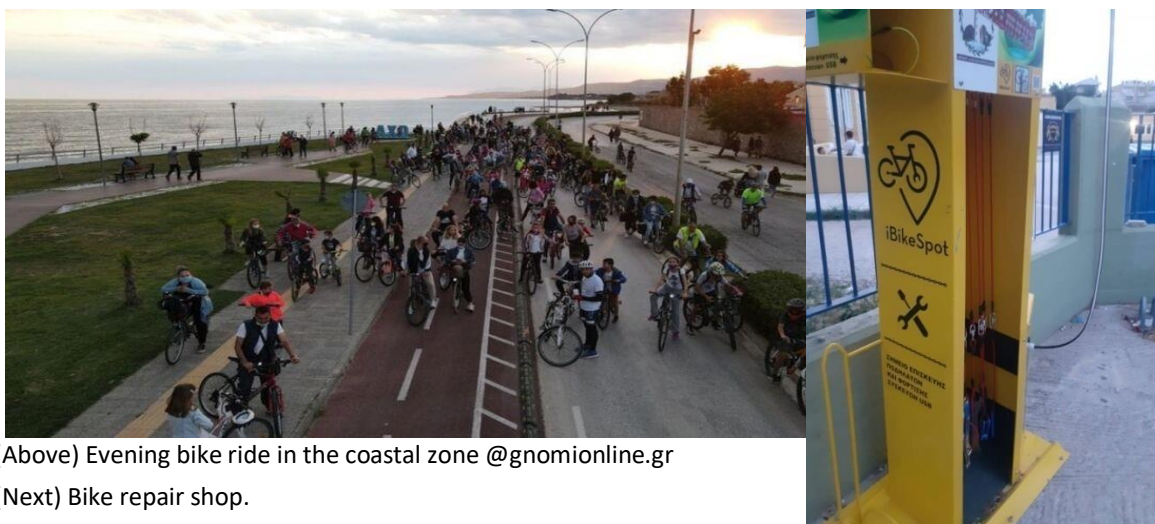
These actions could frame an integrated plan to promote cycling within the framework of the "European Mobility Week", in collaboration with schools and the Alexandroupolis BikeTeam Cycling Association.

Regulations and deterrents for individual vehicles

Although these measures are part of the wider planning of urban regeneration of the city center, they can at the same time help the promotion of cycling, through measures that are considered to be a deterrent to approaching the center by car.

- Decision for a limited time of stay of vehicles in the city center (except those for work purposes) during peak hours.
- Creation of light traffic zones around the center with a maximum permitted speed of 30 km/h.

These initiatives have also been implemented in many European cities, where data shows a significant increase in the replacement of cars with bicycles for commuting in the center.



(Above) Evening bike ride in the coastal zone @gnomionline.gr
 (Next) Bike repair shop.

2.3 SMART WASTE MANAGEMENT AND REDUCTION OF FOOD WASTE

Waste management is a huge challenge for every Greek city, as the absence of integrated systems in combination with the increased amounts of domestic and non-domestic waste causes, in addition to the creation of centers of contamination and a significant aesthetic degradation, alongside the effects on the environment (landfills, water pollution, loss of marine fauna). In addition, a large part of the discarded garbage concerns food which significantly burdens the cost of waste management, while on the other hand it creates ethical issues regarding its disposal since there are families in the area who are deprived of basic food goods.

The plan for sustainable and smart waste management in Alexandroupolis supports the current Regional Waste Management Plan (as highlighted above) and incorporates additional innovative and stylish initiatives at the level of the Municipality and businesses to reduce the volume and more rationally manage all waste, as detailed below.

2.3.1 Placement of Special Recycling Bins in Public Spaces

During the summer period, an excessively increased amount of waste of specific categories, such as aluminum beer cans and plastic bottles of soft drinks and water, has been observed, which are concentrated in specific parts of the city, such as in squares, parks, schools and the coastal zone.

Despite the increased number of recycling bins (blue bins), however, in these places there is a tendency to over-concentrate rubbish of this category which in turn leads to overflowing bins, with much of the rubbish being scattered throughout the center, creating ugly images from an aesthetic point of view but also potential foci of contamination. In addition, modern trends in waste management now require the best possible sorting by packaging material and in accordance with the principle of remunerative recycling, in order to use them more effectively in the context of the circular economy.

Therefore, this plan envisages the installation of 14 special bins, 7 for aluminum and 7 for plastic (in pairs), to deposit these two types of waste in the following spots of the city:

- ⇒ In the city parks (Altinalmazi, Independence, Proskopon, Eastern Thrace).
- ⇒ In the part of the coastal zone (below the Lighthouse).
- ⇒ In the complex of Middle and High Schools of the city.

As for their form, "innovative" reciprocating recycling bins have already been installed in central parts of the city in the form of "trash art", (in the shape of a heart) for the purpose of recycling plastic lids (see photo below). This system works in the logic of reciprocity and social corporate responsibility, as the revenues obtained are directed to the purchase of wheelchairs or the supply of school equipment. This project can be the primary material for the creation of similar bins and for other recyclable materials.

Therefore, the proposal provides for cooperation with a remunerative recycling company for the installation of a total of 14 special construction bins, which will be designed in the spirit of "trash art" (that is, the bins will have the form of an artistic creation - "installation"), and will be governed by specific commitments regarding the regime of reciprocity.



2.3.2 Measures to reduce the use of plastic coffee cups and plastic bottles

Pollution from single-use plastics is a scourge on modern civilization. The scale of the problem in numbers is revealing: according to research by Green Peace², over 300 million plastic cups just for coffee and soft drinks are thrown away in our country every year, which means 11 cups every second! We find similar numbers in the case of plastic water bottles. In fact, many of them end up on the beaches and the sea, creating huge problems both for the aesthetics of these places and for marine biodiversity.

Furthermore, since the solution of recycling (even when it is applied to a satisfactory extent) has finite limits, the most effective alternative is to drastically reduce the use of single-use plastics.

In the present case, this is translated into two objectives:

- ✓ Reducing the use of plastic water bottles.
- ✓ Reducing the use of plastic coffee cups (takeaway).

The proposed actions in this context include the following:

<i>Infrastructure for access to drinking water</i>	These include infrastructure for access to drinking water (shared taps) in high-traffic areas (parks, coastal zone, schools). The purpose is to make it easier for residents and visitors during their stay at the points in question to avoid reckless consumption of plastic water bottles. In addition, they create an attractive image that enriches the spaces in question (see the photo below).
--	--

² <https://www.iefimerida.gr/news/420741/greenpeace-300-ekat-plastika-potiria-petane-kathe-hrono-oi-ellines-mono-gia-ton-kafe>.

Network of environmentally responsible businesses It is proposed to create a network of businesses (which will be mapped on a digital map of the city's shops) that wish to contribute to the reduction of single-use plastic packaging. They will undertake the following commitments:

A. For coffee shops:

- Discount offer on coffee (takeaway) for those who wish to use their own multi-purpose glass.
- Removal of plastic coffee/beverage cups and replacement with ecological ones (from organic raw material).

B. For catering establishments (taverns, restaurants, etc):

- Eliminating plastic water bottles and replacing them with jugs or glass bottles.

Information campaigns

In order to achieve the set goals regarding the reduction of plastic bottles (coffee, water) it is very important to change mentality and social behavior, which can be implemented through information and awareness campaigns that include the following:

- Information campaigns on the importance of using a multi-type "warm" bottle, but also the quality of drinking water, and safety for consumers.
- Information and awareness campaigns on the effects on the environment from the reckless use of plastic bottles as well as on the switch to multi-purpose glasses, in collaboration with groups that implement similar actions (such as the NGO Greenpeace with the ongoing campaign stopotirimou.gr designed for to provide incentives for citizens to avoid single-use plastics in their daily lives).
- Continuous updating of the network of cooperating businesses that offer facilities for the use of a multi-purpose glass or those that have abolished plastic bottles in their services (catering and coffee).

Right: Fountain in the O.S.E. park. in Styliida. @gkordis.com/





Left: Reusable glass instead of plastic! © MarizaKaridi / Greenpeace

2.3.3 Reduction of food waste and its utilization for socially beneficial purposes

As mentioned, the disposal of unconsumed food with a limited shelf life (fresh and perishable products) is a huge problem of the Western world, with significant social, ethical, economic and environmental ramifications. according to relevant research, it has been estimated that approximately 30-35% of food ends up in the bins (for Greece it is estimated that it amounts to approximately 100 kg per person per year). A large part of them, however, could be utilized and made available to social groups facing the specter of "food poverty", through community benefit programs.



Reckless disposal of fresh fruits and vegetables in landfills. @ AthensVoice

To deal with this problem, some European countries (including Southern countries such as Spain, France and Italy) have introduced legislative measures that mainly concern catering businesses and food outlets and aim (under the imposition of a fine) to reduce of the amounts of

food that are thrown into the waste bins. Unfortunately, such a legislative framework is absent in Greece, however many companies in the sector (mainly supermarket chains) implement a food donation program close to their expiration date, as well as municipalities that promote similar initiatives.

The Municipality of Alexandroupolis, for its part, can contribute in practice in this direction with multiple benefits for the local community and the environment. Therefore, solutions should be promoted to limit food waste (at the household or business level) but also to utilize part of it for the needs of fellow citizens who are in need. In this effort, cooperation with organizations and businesses active in the agri-food sector (farmers, catering businesses, food stores, such as bakeries, greengrocers, butchers, etc.), as well as with organized collectives (groups of the society of citizens, such as NGOs, or Social Cooperative Enterprises).

The proposed measures to be adopted concern the following:

Creating synergies between social organizations and businesses It is proposed to create a network of businesses (which will be reflected on a digital map of the city's stores) that wish to contribute to the reduction of food waste through the disposal of unsold food to non-profit organizations. This action includes the following actions:

- Creation of a network of businesses that will commit to providing healthy food that is withdrawn from the field or the shelf due to a close expiration date or damaged packaging (fruits, vegetables, meat, fish, pastries) to the services of the Polysocial, which implements feeding programs (Program "Feeding at Home", Social Grocery, product distribution program in daycare centers).
- Signing of an agreement between the structure and businesses (agricultural, commercial) for the conditions of collection from them (hours and weekly frequency), storage and transport of these to the premises of the structure.

Information campaigns In order to achieve the set goals in terms of reducing food waste in households, it is very important to change mentality and social behavior, which can be implemented through information and awareness campaigns that include the following:

- Information campaigns for better family planning in terms of the quantities of food they buy in order to avoid excessive purchases of products that end up in the trash due to the inability to consume them.
- Information campaigns to promote practices to extend the shelf life of fresh fruits and vegetables (such as techniques for making juices or jams or for other domestic uses, such as turning them into animal feed, industrial by-products, compost or fuel) or their alternatives ways of disposing of them to charitable organizations in the area.



Distribution of food to sensitive social groups from the Polysocial

2.4 INCREASE OF URBAN GREEN

As mentioned, according to the GSP, the city of Alexandroupolis lacks in green spaces, as it has a very low percentage of green spaces (below 8%) and green square meters per inhabitant (2.5 sq.m.). It is pointed out that according to established international standards regarding sustainable cities (New Urban Agenda, World Health Organization, etc.) the indicated green coverage in the city should correspond to at least 10 sq.m. of greenery per inhabitant. To the above is also added the problem of the intense pruning of the few trees that are within the urban fabric as a result of which they lose a large part of their leafy surface. Another serious problem is found in the neighborhoods of the city where there are no trees on many sidewalks, instead the places where there should be trees have been covered.

But why should the "greening" of the city be a priority? The answer is given by various research centers (such as the Institute of Forestry Research) that point out the positive contribution of urban and peri-urban greenery to the improvement of indicators related to the quality of life of our city dwellers. Regulating the microclimate and relieving citizens from extreme temperatures especially in hot weather, "filtering" the air (absorbing harmful particles), reducing noise and reducing the risk of flooding are just a few examples. In addition, other research shows that green spaces improve not only the physical, but also the mental health and well-being of city dwellers.

These benefits have a multiplicative effect, positively affecting the local economy as well, through e.g. reducing the cost of living (saving energy for cooling buildings in the summer months), creating employment opportunities (developing businesses such as nurseries, technical green installation and maintenance companies), increasing the value of real estate, etc. Tourism can also benefit, as a "green" upgrade of the urban environment is proven to contribute to improving the attractiveness and visitation of an area.

From the above it is concluded that a new urban green strategy is required for the city of Alexandroupolis which could significantly increase the plant cover by both the creation of green spaces and the addition of new trees within the urban fabric. The proposed interventions in the present context include the following:

2.4.1 Improving the image of existing parks by enriching the greenery / creating an urban botanical garden

The image of many existing parks in the city lags significantly behind green. There is a significant lack of trees and other plant infrastructure (rock gardens, etc.), as a result of which it is not a fully functional, useful and attractive place to visit and stay, always in accordance with the possibilities it can offer. Therefore, significant interventions should be made in the area (planting of new trees, placement of flower beds, rock gardens, etc.) on the basis of preparing a phytotechnical study for each of these parks. These interventions and the plant or natural materials that will be used (stone, wood) should be consistent with the local, endemic flora and the local architecture, as they are an integral part of the local identity of the area. This suggests the involvement of specialized personnel (landscape architects, etc.) in order for the result to be the desired.



Altinalmazi Park in its current state where there is a significant lag in greenery (source: evrosonline.gr).



Image from the upgraded park of CHANTH in Thessaloniki, as a source of inspiration for adding points with aesthetics and attractiveness (source biscotto.gr).

In addition, the creation of a botanical garden is proposed for the said park. From field research, there appears to be space availability at the northeast entrance to the park. This garden will be able to accommodate a multitude of plant species (saplings, shrubs, aromatic plants, ornamental plants, etc.), many of which are considered endemic to the wider area. There is already a relevant study by the Democritus University of Thrace, in the framework of the "Electronic Treasure of Thrace" program, where a relevant list of approximately 1,400 species of plants found throughout Thrace was drawn up.



Image from the botanical garden of Stavroupoli (source parallaximag.gr).

2.4.2 Creating more small 'pocket parks'

Improving the image of the city by enriching small green spaces can be achieved through the creation of "pocket parks". These are free, well-maintained green spaces, which are dispersed in the residential fabric in places so that they are accessible to all citizens and make use of unused unstructured spaces (public or private). The transformation of such a space is done through small-scale actions so that they become useful to the public, giving the possibility to develop multiple functions connected to the concept of the park (rest, entertainment, play, cultural activities). In this way, the ugly image of a space full of rubble and garbage gives way to a pleasant, lively and useful place, becoming a local point of reference for the residents of the neighborhood and beyond.

Two small pocket parks have already been created in the city of Alexandroupolis. However, the scope for intervention is huge, as the number of such spaces in the city is large: abandoned lots, open spaces and "open spaces" can be potential "parks", subject to the constraints of availability and the existence of clear property boundaries. According to a related research, around 10 new pocket parks could be created in the city of Alexandroupolis, in various blocks of the city.



The first pocket park in the city on May 14 (Photo from the press office of the Municipality)

In what way, however, can such efforts be multiplied and crowned with success? International as well as domestic practice (Thessaloniki and Athens, which implements the "POLI" pilot program that finances proposals for soft interventions in the capital's neighborhoods) has shown that efforts should be made to encourage the formation of Neighborhood Groups, which will help both the identification of these areas as well as in their planning, implementation, management and protection. In this effort, the Municipality supports in practice the implementation of each proposal (offer in logistical means), without any particular financial burden.



Creation of a pocket park in a neighborhood of Thessaloniki with the active participation of residents (@Typosthes.gr)

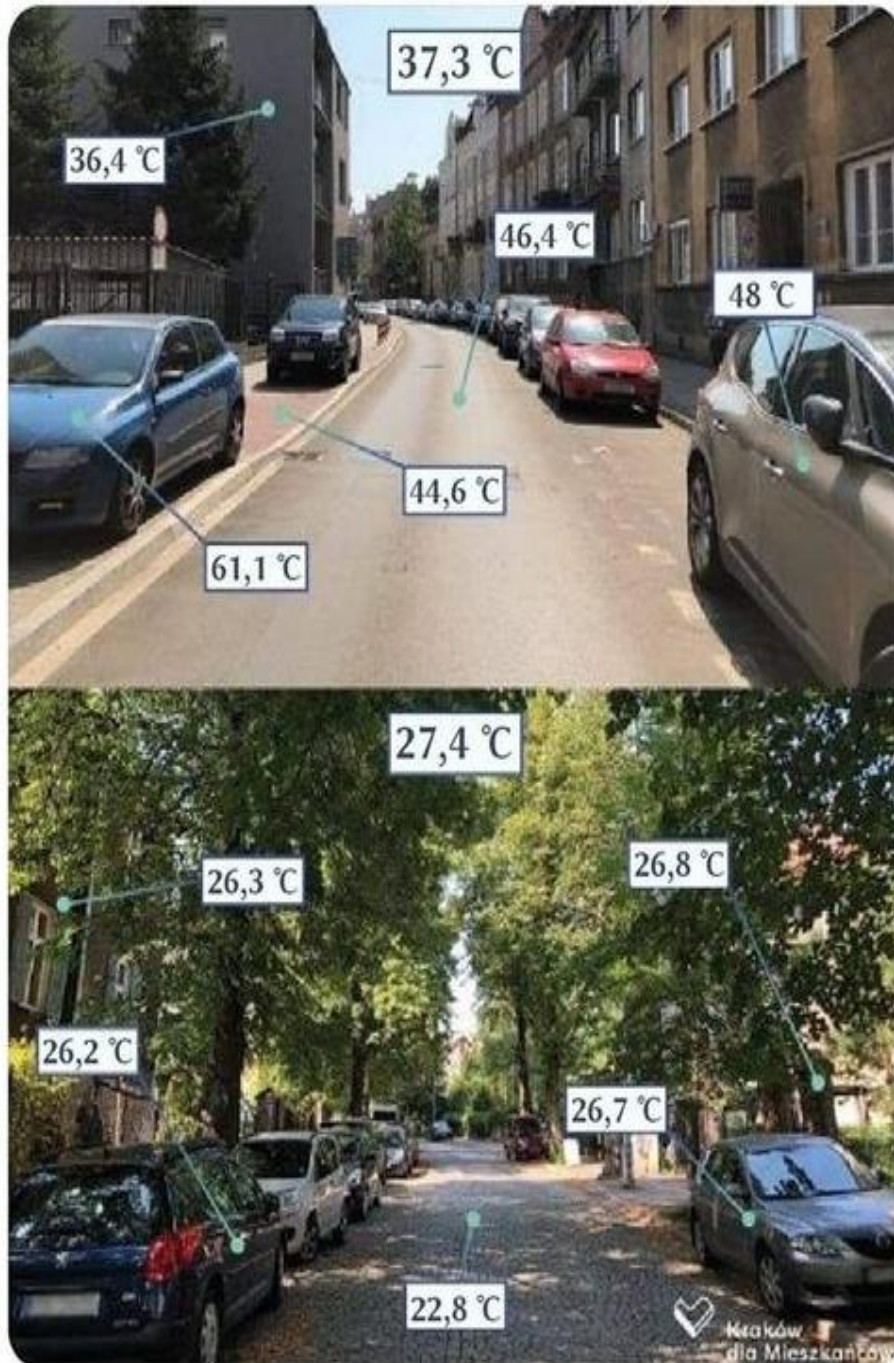
2.4.3 Increasing the plant cover of existing trees and planting new trees

The need for the specific part of this initiative arose from the observed management practices (pruning) by the municipal services of the existing trees of the city which leads to the injury of the trees and the significant reduction of the leafy branches. The rationale behind this incorrect practice is to aim for less frequent pruning due to excessive workload from Council services.

This practice, which has been observed to be applied in all the cities of the country, however, causes significant problems in relation to the management of trees, which are highlighted in a document of the GEOTEE³, such as:

- The significant injury of the trees and the disruption of their biology, which can lead to its infection and eventually to the tree drying out completely.
- The significant reduction in leaf surface coverage, which in the final analysis is what provides all these important natural functions of the tree, such as carbon absorption, providing nesting and breeding sites for the city's bird species and beneficial insects, etc..
- The deterioration of the aesthetic image of the area from the view of the fallen trees, but also the reduction of shaded surfaces resulting in the intensity of the city's overheating and an increase in the energy expenditure needs for cooling.
- The reduction of the ability to stop rapid rainfall, resulting in an increase in the possibility of flooding in the urban environment.
- The reduction of the ability to intercept noise as well as the reduction of atmospheric pollution in the city.
- The aesthetic degradation of the built environment and the deterioration of the quality of life of the inhabitants through increased thermal stress, and the shrinking of natural spaces.

³ <https://geotee.gr/MainNewsDetail.aspx?CatID=1&RefID=24991&TabID=1>



Temperature differences in parts of the same city with and without the presence of trees (@ Leafoflife)

Addressing this problem requires the production of an informative material along with information actions for the Municipality staff in charge of the specific work, on issues of pruning practices (per type of tree) and management of the city's natural capital. These actions could also be extended to the residents of the city, who are also responsible for the care of the trees located within the plots of their residences as well as on the sidewalk connected to them.



Information leaflet on the correct treatment of trees during pruning. @apaioikologi

At the same time, there should be a more ambitious plan for the "greening" of the streets within the city. The Municipality of Alexandroupolis already has at its disposal a relevant study on the increase of urban greenery, which is expected, when implemented, to significantly increase the total number of trees in the city. What is required, however, is the correct design so that the additional trees are integrated into the urban environment, but also to create the conditions for their further prominence, in the context of sustainable urban planning (such as widening sidewalks, creating sidewalks, etc.).



The change of image in a district of Vienna by the addition of greenery @BirgitHebein

2.4.4 Landscaping of the built space by adding greenery

As regards greenness in the city, the role of the Municipality can be extended to other fields, and in particular through the provision of incentives to private individuals to upgrade the surrounding area and change the appearance of houses and apartment buildings and the areas around them.

European practice offers some good practices that could also be applied in the city of Alexandroupoli. In particular, a series of incentives are advanced, such as a cost subsidy for the purchase of trees and plants, annual competitions with special prizes (annual prize for the most beautiful roof), in order to carry out actions to integrate greenery into their buildings. The most widespread practice concerns the institution of green roofs, where the uncovered areas of the roof surface are turned into small green gardens.



Example of a green roof @[enallaktikos.gr](https://www.enallaktikos.gr)

Finally, with regard to the surrounding area and especially the sidewalks of the houses, the phenomenon of removing trees and covering these areas with cement or tiles is unfortunately observed. Solving the problem requires three actions.

The first provides for the receipt of an integrated tree planting program in all the points identified by the recording study prepared by the Municipality.

The second concerns informing the citizens of their obligation (based on the Municipality's regulation) to keep trees in the prescribed positions in the areas assigned to them. In this, a useful tool is the digital recording of the premises and their identification with the building block in which they are included so that it is easier to check the condition of the places where the trees are located.

The third has to do with awareness campaigns in order to bring about a change in the mindset of residents who will embrace greenery and actively participate in its growth and preservation.

CHAPTER III – CONNECTION WITH GOALS AND EXPECTED RESULTS

The present initiative fulfills a double objective for the city of Alexandroupoli. On the one hand, it seeks to contribute, in its share, to the achievement of the Union and national objectives for dealing with climate change and the transition to a more sustainable and "green" model. On the other hand, it aims, by taking advantage of the possibilities and opportunities provided by the European Green Agreement, to improve the quality of life of the city's permanent population, to improve its functionality in terms of the basic services it offers to its citizens and also to strengthen its profile as a tourist destination by improving its attractiveness.

3.1 CONNECTION WITH STRATEGIC OBJECTIVES (EUROPEAN GREEN DEAL, JOINT PROJECT STRATEGY) AND REGIONAL AND TARGET AREA PLANNING

The measures proposed in this plan are consistent with the following Union, National, Cross-Border, Regional and Local strategies, as summarized below.

3.1.1 Link to the European Climate Strategy Objectives and the European Green Deal

1. Objectives of the E.U. for Climate for 2030 and 2050	
Achieving climate neutrality by 2050. An intermediate target was set to reduce emissions by at least 55% by 2030, compared to 1990 levels.	
<i>Contribution of the Initiative</i>	Contribution to the reduction of the emissions balance but also to the convergence towards the climate neutrality of the city.
2. Union Green Energy Policy	
The Renewable Energy Directive envisages the production of 40% of energy from renewable sources by 2030, with an emphasis on addressing the risk of energy poverty.	
<i>Contribution of the Initiative</i>	<ul style="list-style-type: none"> – Creation of a wind park for energy production to cover part of the Municipality's needs. Energy production through the Energy Community -> ensuring energy democracy and reducing energy poverty.

3. Union Policy for the Circular Economy

Aiming that the resources used will remain in the economy as much as possible, including through:

- strengthening the reuse of packaging, and the abolition of single-use plastics,
- the reduction of produced waste, its separate collection and recycling.

Contribution of the Initiative

- Creation of an integrated waste management system with an emphasis on aluminum and plastic packaging, as well as organic waste.
- Support for remunerative recycling.
- Encouraging the use of packaging from the circular economy chain (such as biodegradable bags, disposable cups made from recyclable material).

4. Union Policy for the Energy Upgrade of Buildings

Doubling the renovation rate of the building stock compared to today (around 1%), with an emphasis on their energy efficiency, energy saving and energy autonomy (for public buildings).

Contribution of the Initiative

- Encouraging the energy autonomy of municipal buildings through the installation of photovoltaic panels and energy saving interventions.

5. Union Policy for Sustainable Transport and Green Mobility

It aims to reduce transport emissions by 90% by 2050, including by encouraging electrification of road transport.

Contribution of the Initiative

- Encouraging the use of electric vehicles, through the installation of charging stations.
- Conversion of municipal vehicles and public transport vehicles to low-emission vehicles (electrically powered).
- Encouraging the use of public transport instead of the use of polluting vehicles.
- Encouraging the use of environmentally friendly means (residents and visitors) such as electric bicycles.

6. EU Agri-Food Policy: The Farm to Fork Strategy

It seeks to change the food consumption system towards a sustainable model with a low environmental footprint, achieved through sustainable food consumption and the reduction of food waste, by 30% and 50% by 2025 and 2030 respectively.

Contribution of the Initiative

- Improving family planning to reduce food waste.
- Creation of an integrated network for the utilization of non-marketable products or products with a close expiration date and their disposal for public benefit purposes.

7. European Strategy for the Conservation of Biodiversity and the Urban Environment

It aims to improve the ecological dimension of European cities, increase the percentage of green space within the urban fabric and protect local biodiversity.

<i>Contribution of the Initiative</i>	<ul style="list-style-type: none"> – Increasing urban greenery through a series of interventions. – Protection of local biodiversity through the planting of native plant species and the creation of "green corridors" to facilitate the presence of birds within the city.
---------------------------------------	--

3.1.2 Link to National Climate and Green Development Policies

1. Link to the Revised National Climate Goals (E.S.E.K.)

– Share of RES in Gross Final Energy Consumption	≥35%
– Reduction of Greenhouse Gases	≥42% compared to 1990, ≥56% compared to 2005
– Participation in clean electricity production (for 2030)	17%

2. Link to the Objectives of the National Strategy for the Circular Economy

- *Circular City Guide, for the support of LGs through the use of smart cities technologies.*
- *Sustainable Consumption, through the abolition of single-use plastics and taking actions to reduce food waste and increase household and shop recycling.*

3. Link to the Objectives of the National Built Environment Policy

- Improvement of the urban planning redesign of the spaces with an appropriate arrangement and utilization of the free spaces.
- Increasing urban greenery, through the utilization of underutilized areas (pocket parks), the integration of greenery on roofs and the creation of "green corridors" for urban flora and fauna.
- Combined use of energy saving technologies, efficient systems and use of renewable energy sources in public buildings.

4. Link to the National Policy Objectives for Sustainable Transport and Green Mobility

- Creating infrastructure and undertaking actions to promote electrification in road transport.
- Taking actions to strengthen the use of Public Transport and cycling (in accordance with the National Bicycle Strategy).
- Support of Municipalities in mobility management by strengthening accessibility and pedestrian movement (creation of pedestrian and cycle paths, light traffic roads, etc.), the policy of curbing the use of vehicles. vehicle (parking ban), the strengthening of municipal services (municipal transport, etc.), the strengthening of the movement of micro-mobility vehicles, as well as the promotion of sustainable and safe transport systems.

5. Link to the Objectives of the National Plan for the Agri-Food Sector

- Improving the food production and consumption system, through the utilization of all production and the promotion of more responsible consumption.

6. Link to the Goals of the National Strategies for Biodiversity and Adaptation to Climate Change

- Improving the resilience of the city and mitigating the effects of climate change on its basic infrastructure and its inhabitants.
- Maintaining the diversity of the urban landscape and strengthening the ecosystem functions of the urban natural environment.

3.1.3 Connection with the Objectives of the Joint Strategy of the Project

This Guide with the Action Plan to be implemented is developed in accordance with the general directions, priorities and thematic and specific objectives of the Cooperation program "INTERREGV-A Greece-Bulgaria 2014-2020", in particular:

<i>Priority Axis 2:</i>	Sustainable and climate adaptable cross-border region.
<i>Thematic Objective 06:</i>	Preserving and protecting the environment and promoting resource efficiency.
<i>Investment Priority (6d):</i>	Protecting and restoring biodiversity and promoting ecosystem services, including the NATURA 2000 network.
<i>Special Target 5:</i>	Enhancing the effectiveness of biodiversity protection activities.
<i>Action Category:</i>	Development of common strategies and processes (and their pilot applications) for sustainable resource management, green infrastructure development and biodiversity protection.

At the same time, this Action Plan contributes to the implementation of the objectives of the Joint Strategy developed in the context of the "Green Urban Territories - Better Place to Live" project, which sets as its General Strategic Objective:

“increasing the well-being of the population while protecting the environment and achieving sustainable and balanced development”.

In more detail, the implementation of this contributes to the following Strategic Goals and Priorities:

<i>Strategic objective № 1:</i>	Improving the status of components and environmental factors.
<i>Priority 1.3:</i>	Sustainable waste management, aiming to reduce the volume of waste that ends up in landfills and increase the share of waste that is separately collected and recycled to support the circular economy.

<i>Applicable measures:</i>	
<i>Measure 1.3.1:</i>	Improving systems for the collection, pretreatment and recovery of different waste streams.
<i>Measure 1.3.2:</i>	Stimulation of home composting.
<i>Measure 1.3.3:</i>	Application of good practices in waste management and experience of Svilengrad Municipality in the territory of other Municipalities.
<i>Measure 1.3.4:</i>	Public awareness and education actions.
<i>Strategic objective № 2:</i>	Reduction of negative impacts on flora, fauna, soil and water.
<i>Priority 2.1:</i>	Restoration, reforestation and maintenance.
<i>Applicable measures:</i>	
<i>Measure 2.1.4:</i>	Reducing wildlife losses.
<i>Strategic objective № 3:</i>	Reducing harmful emissions into the atmosphere and carbon footprint.
<i>Priority 3.1:</i>	Construction of environmentally friendly infrastructure
<i>Applicable measures:</i>	
<i>Measure 3.1.1:</i>	Reinforcement of protected passages for animal species.
<i>Measure 3.1.8:</i>	Implementation of traffic calming measures.
<i>Priority 3.2:</i>	Use of environmentally friendly forms of transport.
<i>Applicable measures:</i>	
<i>Measure 3.2.1:</i>	Implementation of measures to improve and stimulate the use of public transport.
<i>Measure 3.2.2:</i>	Implementation of measures to stimulate cycling and pedestrian traffic.
<i>Measure 3.3.1:</i>	Creating possibilities for the implementation of an infrastructure for charging vehicles powered by electric energy.
<i>Strategic objective № 5:</i>	Sustainable and stable municipal centres
<i>Applicable measures:</i>	
<i>Measure 5.1.2:</i>	Ensuring and maintaining a healthy, vibrant and comfortable urban environment.
<i>Measure 5.1.3:</i>	Ensuring and maintaining a sustainable urban and inter-urban mobility system.
<i>Strategic objective № 9:</i>	Developing an environmentally friendly local economy.
<i>Priority 9.1:</i>	<p>Transition to a more sustainable, responsible and intelligent tourism, with objectives (among others):</p> <ul style="list-style-type: none"> ✓ Reduction of the environmental footprint of tourist activities. ✓ Improving the conditions of the visitors' stay at the destination (options for light means of transport, waste management, etc). ✓ Connecting tourism with other sectors (agricultural production, processing).

<p><i>Applicable measures:</i></p> <p><i>Measure 9.1.4:</i></p> <p><i>Measure 9.1.6:</i></p> <p><i>Measure 9.1.8:</i></p>	<p>Protection of the environment from the tourism sector.</p> <p>Stimulating the application of a circular tourism management model.</p> <p>Networking / synergies (local brand).</p>
<p><i>Priority 9.2:</i></p>	<p>Transition to sustainable, responsible and smart businesses.</p>
<p><i>Applicable measures:</i></p> <p><i>Measure 9.2.1:</i></p> <p><i>Measure 9.2.3:</i></p>	<p>Promotion of environmentally friendly practices, introduction of ecological certificates and a circular approach to operation.</p> <p>Strengthening the image of the area as an ecological destination.</p>
<p><i>Strategic objective № 10:</i></p>	<p>Building sustainable food supply chains.</p>
<p><i>Priority 10.1:</i></p>	<p>Reducing the carbon footprint of agri-food.</p>
<p><i>Applicable measures:</i></p> <p><i>Measure 10.1:</i></p> <p><i>Measure 10.2:</i></p> <p><i>Measure 10.3:</i></p>	<p>Reducing food waste and the use of plastic food packaging.</p> <p>Increase areas for organic farming, establish and comply with clear rules to protect protected areas from agricultural activities.</p> <p>Creating short food supply chains.</p>

3.1.4 Connection with the Regional and Municipal Development Strategies

This Guide with the Action Plan to be implemented is also in line with the aspirations and development priorities at the level of the AMTH Region, as reflected in its Operational Plan, which is oriented towards the following:

- ✓ In changing the philosophy of its production model towards a more sustainable model.
- ✓ The implementation of urban planning interventions and urban renewals in urban areas.
- ✓ In improving accessibility and creating a more sustainable transportation system.
- ✓ In the transformation of the area as a tourist destination of excellence.
- ✓ In the strengthening of social cohesion.

More specifically, the priorities per intervention area that coincide with the aims of this Action Plan are located in the following:

<i>Sector</i>	<i>Priorities</i>
<i>Natural environment</i>	Development of environmental responsibility through information/awareness of citizens.
<i>Natural resources</i>	Promotion of energy savings in production, transport and the building sector.

<i>Energy</i>	Attracting investments in the production of energy from RES (wind, PV, biomass) with the aim of increasing the installed capacity from clean energy sources. These investments should be in harmony with the environment and the energy transmission network.
<i>Environmental Infrastructure</i>	Sustainable management of the environment and reduction of the human footprint at all levels with the ultimate goal of a cleaner and more beautiful natural and man-made environment. Improvement of the waste management system by better utilization of the various flows (recycling, composting, energy production).
<i>Tourism</i>	Increasing awareness and improving the attractiveness of the region as a tourist destination.
<i>Agri-food</i>	Ensuring a more sustainable system in the agri-food chain in terms of the consumption part.
<i>Social cohesion</i>	Upgrading existing social care services with the aim of covering social groups in need of protection. Services to combat extreme poverty and support social solidarity.

Regarding the Municipality of Alexandroupoli, the Initiative comes to promote the guiding political options at the level of the Municipality for its sustainable development course, which are specialized in the following:

- The utilization of its wealth-producing resources (R.E.S. projects).
- The upgrading of its historical and commercial center and the strengthening of its visitors.
- Highlighting existing and creating new green spaces.
- The creation of a competitive identity of the city (city branding).
- The improvement of conditions regarding urban mobility within the city.
- Reducing the volume and improving waste management and urban mobility within the city.
- The improvement of social infrastructure and services to support vulnerable social groups.
- Improving the administrative capacity of the Municipality's services.
- The increase of local (urban) flora and the protection of fauna.

In general, this Plan aspires to strengthen, at the implementation level, the philosophy of the Municipality to promote a new model in the context of Sustainable Urban Development.

3.2 EXPECTED RESULTS AND BENEFITS FROM ITS APPLICATION

The main objective of this Guide, together with the proposed Action Plan, is to contribute to the development of a more sustainable and functional operating model of the city, emphasizing the quality of life of its residents of all social categories.

In detail, the expected benefits from the implementation of this Initiative per axis of intervention are presented below:

Axis of Intervention	<p><i>Energy Autonomy using R.E.S. / Energy upgrade</i></p> <ul style="list-style-type: none"> ● Wind farm installation through Energy Community. ● Energy autonomy of municipal buildings.
<p><i>Expected Benefits</i></p> <ul style="list-style-type: none"> ☑ Creation of an additional source of revenue for the Municipality -> their utilization for development purposes. ☑ Saving resources from the reduction of energy costs borne by the Municipality through energy savings in municipal buildings (more than 70%). ☑ Participation of the local population in energy production (energy democracy). ☑ Mitigating the phenomenon of energy poverty, through the reduction of electricity bills in the most vulnerable households (through net metering). ☑ Reduction of the environmental footprint as well as the operating costs of municipal businesses. 	
Axis of Intervention	<p><i>Electric mobility and sustainable Mobility</i></p> <ul style="list-style-type: none"> ● Electrification of public vehicles and mass transport vehicles. ● Installation of electric vehicle charging stations. ● Enhancing the use of bicycles (electric and conventional). ● Measures to discourage the use of private vehicles.
<p><i>Expected Benefits</i></p> <ul style="list-style-type: none"> ☑ Reducing the energy costs of municipal transport. ☑ Possibilities to serve residents and visitors of the city who bring electric vehicles (since to a large extent it is road tourism). ☑ Alternative service possibilities for residents and visitors for their movements in the various parts of the city. ☑ Reduction of traffic congestion, noise and emissions caused by the use of vehicles. ☑ Improving the quality of travel and minimizing travel time within the urban fabric. 	
Axis of Intervention	<p><i>Sustainable and Smart Waste Management</i></p> <ul style="list-style-type: none"> ● Placement of Special Recycling Bins. ● Creation of a Network of Environmentally Responsible Businesses. ● Reducing food waste.

Expected Benefits	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Reduction of waste that ends up in waste management units -> reduction of waste management costs. <input checked="" type="checkbox"/> Reduction of pollution within the city as well as in ecologically sensitive areas with high traffic. <input checked="" type="checkbox"/> Utilization of recyclable materials (plastic, aluminum, glass) for the production of new products (reuse of aluminum materials, production of compost). <input checked="" type="checkbox"/> Utilization of a large amount of food and its inclusion in the social care system towards the most vulnerable social groups. 	
Axis of Intervention	<p>Improvement of Urban Greenery</p> <ul style="list-style-type: none"> ● Upgrading existing and creating new parks. ● Good urban green management practices. ● Participation of citizens in the increase of urban greenery.
Expected Benefits	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Improving the quality of life of residents and visitors. <input checked="" type="checkbox"/> Improving the image of the city as a place to live and as a tourist destination. <input checked="" type="checkbox"/> Upgrading the quality of municipal services provided. <input checked="" type="checkbox"/> Increasing the resilience of the city against the effects of climate change. 	
Possibilities from the Implementation of the Plan in a wider context for the City	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Utilization of the region's rich wind potential for the benefit of Municipalities and residents (energy that enjoys wide acceptance by the local population), with the aim of limiting carbon dioxide emissions and protecting the environment. <input checked="" type="checkbox"/> Strengthening the profile of the city as an area for attracting investment projects with an emphasis on green development and green technologies. <input checked="" type="checkbox"/> Improving the living conditions of residents and visitors / improving the attractiveness of the area as a place to live and as a destination. <input checked="" type="checkbox"/> Strengthening residents' and visitors' awareness of environmental issues. <input checked="" type="checkbox"/> Improving social cohesion. <input checked="" type="checkbox"/> Improving the administrative efficiency of municipal services. <input checked="" type="checkbox"/> Strengthening the local economy, through upgrading the city's image and functionality. 	

CHAPTER IV – SWOT ANALYSIS OF THE PROPOSED INITIATIVE

The proposed initiative includes an integrated action plan for the city of Alexandroupoli which is developed in 4 main thematic axes (a) energy production and energy upgrading of municipal buildings, b) sustainable urban mobility, c) waste management, and d) urban greening, actions which include all levels of local government (Region of A.M.Th., Municipality of Alexandroupolis), the services of the Municipality (Multi-purpose, Green Service), professionals (restaurants, cafes, shops, etc.) and producers, as well as the organized and non-collectivities of the civil society, and of course the households and the residents and visitors of the island.

The response of the target groups to the implementation of the proposed projects, actions, practices or actions depends on a series of factors linked to the character of the city as an administrative, economic and social whole, as well as the prospects arising from the developments of the external environment (promoted strategies, development tools, etc).

Therefore, in this section a brief analysis of the current position of the intervention area (Alexandroupoli Municipality) and an assessment of the internal environment (strengths and weaknesses) as well as an assessment of the perspectives of the external environment (opportunities and threats) presented in the immediate and long-term future, on the basis of a diagnostic SWOT analysis, from which the possibility and the degrees of difficulty in implementing the proposals of this research will emerge.

This recording is very important as it will provide the opportunity, at the implementation level, to make a first assessment of the implementation possibilities of the proposed actions, and to contribute to the better adaptability and effectiveness of the adopted tools, in order to achieve the set goals. The above can be grouped in the table below:

<p>Strengths</p> <ul style="list-style-type: none"> ○ Existing (natural and artificial) infrastructures ○ Institutional framework ○ Adopted practices ○ Human resources 	<p>Weaknesses</p> <ul style="list-style-type: none"> ○ Existing problems ○ Availability of resources and funds ○ Social restrictions
<p>Opportunities</p> <ul style="list-style-type: none"> ○ Promoted growth strategies ○ Economic and political developments ○ Availability of financing 	<p>Threats</p> <ul style="list-style-type: none"> ○ Institutional obstacles ○ Environmental degradation ○ Inability to change

The results of the SWOT analysis (per thematic field) are summarized in the following tables.

Strengths	Weaknesses
<p>1. Energy Production from R.E.S. (offshore wind farm)</p> <ul style="list-style-type: none"> ✓ Existence of rich wind potential and inclusion of the area in the spatial planning of the A.M.Th Region as a "high wind priority" area. ✓ The physiognomy of the coastal zone (shallow bottom), a fact that facilitates the installation of fixed wind turbines instead of floating ones which have a higher cost. ✓ The fact that there are margins for interconnected systems, therefore no additional projects are required to connect the project to the existing network (HV / MV substations), making the investment plan more affordable in terms of construction costs. ✓ The establishment of an Energy Community by the Municipality of Alexandroupoli, which could cover the high cost of its construction. ✓ The acceptance among the local population to such a project. 	<p>1. Energy Production from R.E.S. (offshore wind farm)</p> <ul style="list-style-type: none"> ✓ The high investment cost (close to €10 million) which makes it difficult for the Municipality to undertake such a scale of investment exclusively (despite the availability of resources). ✓ Yearly bureaucratic procedures for the licensing by the Energy Regulatory Authority (RAE) of each application. ✓ The increasing number of applications to the R.A.E. in the area and the existence of approved investment projects, which may limit the possibility of creating new parks. ✓ The established Energy Community remains inactive. ✓ The amended legislation (Law 4843/2021) takes away important privileges from the Energy Communities (e.g. regarding the priority in granting licenses and connection conditions).
<p>2. Energy upgrade of municipal buildings and accommodation</p> <ul style="list-style-type: none"> ✓ The rich solar potential in the area. ✓ The existence of sufficient surface area (rooftops and roofs) in municipal buildings and schools, which offers the possibility of installing photovoltaic panels for the needs of each building. 	<p>2. Energy upgrade of municipal buildings and accommodation</p> <ul style="list-style-type: none"> ✓ The majority of municipal buildings are old, therefore of low energy class, which makes their energy upgrade quite costly. ✓ The high size of the necessary interventions is an obstacle to the possibility of implementing all energy upgrading or saving projects.
<p>3. Electrification and sustainable mobility</p> <ul style="list-style-type: none"> ✓ The design for the installation of electric vehicle charging stations that will cover the entire city. ✓ The preparation of a Sustainable Urban Mobility Plan which strengthens 	<p>3. Electrification and sustainable mobility</p> <ul style="list-style-type: none"> ✓ The lack of electric vehicles in the city. ✓ The vacillations at the management level which often make decisions in favor of the use of private vehicles in the city center

<p>initiatives in favor of the adoption of more environmentally friendly modes of movement.</p> <ul style="list-style-type: none"> ✓ The operation of free urban transport within the urban network. ✓ The existence of infrastructures that support alternative forms of zero-emission transportation (e.g. a network of cycle paths). ✓ The participation of the Municipality in projects that finance actions to improve sustainable urban mobility (such as the supply of electric bicycles through the "Green Urban Territories" project). ✓ The current urban planning which provides for the expansion of pedestrian routes and other interventions that prevent the use of private vehicles down town. 	<p>(e.g. removal of pedestrian street in the city center).</p> <ul style="list-style-type: none"> ✓ The low response of the city's residents towards municipal transport and the limited utilization of the bike path network for their transportation needs. ✓ In general, the lack of culture regarding the choice of the mode of transportation where the private car occupies an important place in their preferences.
<p>4. Sustainable waste management</p> <ul style="list-style-type: none"> ✓ The improvement of waste management services in the city (new garbage trucks, etc). ✓ The existence of innovative remunerative recycling systems, albeit of a limited scale. ✓ The existence of several initiatives aimed at stimulating environmental awareness and implementing recycling methods (such as school recycling campaigns and coastal clean-up actions). 	<p>4. Sustainable waste management</p> <ul style="list-style-type: none"> ✓ The low recycling rate of city residents. ✓ The use of plastic water bottles in restaurants despite access to clean and potable water. ✓ The absence of green spaces in the city as well as a satisfactory network of public taps. ✓ The increasing difficulty of efficient waste collection due to its increasing volume. ✓ The creation of foci of pollution and aesthetic degradation in parts of the area with high traffic.
<p>5. Reducing food waste</p> <ul style="list-style-type: none"> ✓ The existence of public services that can implement programs for the utilization of discarded food. ✓ The existence of collective schemes for the supply of food of this category (professional associations, such as bakers' association, agricultural 	<p>5. Reducing food waste</p> <ul style="list-style-type: none"> ✓ The entrenched perception of excessive food purchases beyond a household's objective needs. ✓ The steadily increased volume of discarded food in the bins.

<p>cooperatives).</p> <ul style="list-style-type: none"> ✓ The strong social consciousness of the residents which could be transformed into participation in a social work. 	
<p>6. Increase of Urban Green</p> <ul style="list-style-type: none"> ✓ The existence of many unstructured spaces within the urban fabric. ✓ The existence of a study to record the urban greenery. ✓ The existence of many unstructured surfaces in apartment buildings. 	<p>6. Increase of Urban Green</p> <ul style="list-style-type: none"> ✓ The reduced availability of public spaces in the wider city center. ✓ The insufficient staffing of the Green Service in order to take care of the urban green. ✓ The hostile attitude of a large section of residents and shopkeepers towards the prospect of planting trees within the pavement that surrounds them.
<p style="text-align: center;">Opportunities</p>	<p style="text-align: center;">Threats</p>
<p>1. Energy Production from R.E.S. (offshore wind farm)</p> <ul style="list-style-type: none"> ✓ The opportunities presented by the EU Strategy for the production of 40% of energy from renewable sources by 2030. ✓ The expected completion of the new special zoning for R.E.S. but also the new legislative framework for speeding up the procedures for investments in R.E.S. ✓ The investment opportunities from the implementation of the new NSRF (2021-2027) and the new P.E.P. of the A.M.Th. Region, which selects investment projects in R.E.S.. ✓ Additional financing opportunities from bank lending that promote "green" investments. ✓ The financing from the Recovery Fund ("Greece 2.0" Project) of projects to upgrade the national distribution network and projects to increase the capacity of DEDDIE substations in order to be able to receive more energy 	<p>1. Energy Production from R.E.S. (offshore wind farm)</p> <ul style="list-style-type: none"> ✓ The risk that the region will be left out of the plans for future investments in R.E.S. projects of this category. ✓ The risk of saturation from the investment plans to be implemented by large investors, with the result that the possibility of the Municipality to proceed with the implementation of its own investment plan is undermined. ✓ The bureaucratic procedures, which can significantly delay the project in question (at least 5 – 8 years for the completion of the project according to similar cases). ✓ The risk (in case of implementation) of burdening the ecosystem and biodiversity from the installation of the wind farm.

<p>from R.E.S. units.</p> <ul style="list-style-type: none"> ✓ Opportunities to attract investment funds. 	
<p>2. Energy upgrade of municipal buildings and accommodation</p> <ul style="list-style-type: none"> ✓ The planned announcement of the "ELEKTRA" public buildings energy upgrade program with a significant budget (640 million euros). ✓ The possibility of financing municipal buildings (schools, etc.) for their energy upgrade from the P.E.P. of the Region A.M.Th. ✓ The existence of a strong Technical Service with technical competence, able to undertake the preparation of the necessary technical studies. ✓ The improvement of the economic operation of municipal buildings through reduced energy costs are an important motivation for the adoption of such measures. ✓ The commitment at the level of the Municipality for its contribution to the achievement of the "green goals" in the context of the Sustainable Urban Agenda. 	<p>2. Energy upgrade of municipal buildings and accommodation</p> <ul style="list-style-type: none"> ✓ Risk of non-participation in the "ELECTRA" program due to non-timely preparation of relevant studies due to incorrect prioritization. ✓ The limited availability of resources for the energy upgrade of municipal buildings from the P.E.P. of the Region and the high competition between the Municipalities.
<p>3. Electrification and sustainable mobility</p> <ul style="list-style-type: none"> ✓ The availability of resources from the Ministry of Environment for smart transport. ✓ The existence of additional funds from EU programs (Connecting Europe initiative) to implement "green" actions in the transport sector. ✓ The increase in fuel prices, as an incentive for residents to switch to more affordable means of transport. ✓ The opportunities to increase tourist traffic in the city through the improvement of the conditions of stay of the visitors (choices of gentle forms of transport) but also through the improvement of the attractiveness of the area as a tourist destination. 	<p>3. Electrification and sustainable mobility</p> <ul style="list-style-type: none"> ✓ Risk of not expanding the choice for electric vehicles, due to the reluctance/inability of residents to acquire electric cars. ✓ The delay in the implementation of the planned interventions that will facilitate the development of soft forms of urban mobility.

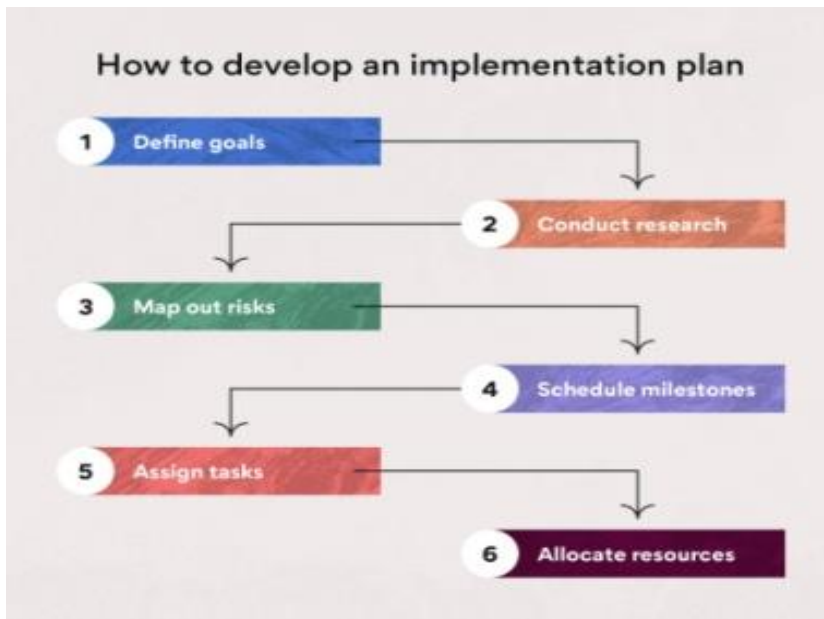
<p>4. Sustainable waste management</p> <ul style="list-style-type: none"> ✓ The launch of the construction of a Waste Treatment Unit and a landfill, as well as the placement of two "Green Points" for bulky waste. ✓ The possibility of entering into partnerships with remunerative recycling companies. ✓ The improvement of the waste management system with "sorting at source" practices (introduction of a brown bin for organic waste). 	<p>4. Sustainable waste management</p> <ul style="list-style-type: none"> ✓ The risk of residents and businesses not responding to the new interventions regarding waste sorting, due to the inability to change social behavior. ✓ The risk of over-accumulation of waste from not taking additional measures -> creation of pollution hotspots at the expense of public health and deterioration of the aesthetic image of the city.
<p>5. Reducing food waste</p> <ul style="list-style-type: none"> ✓ The obligation at Municipality level to reduce mixed waste as an incentive to adopt more efficient practices. ✓ The utilization of existing knowledge from proven practices to reduce food waste (awareness campaigns). ✓ The possibilities of creating a more integrated network of utilization of discarded food for social purposes, through the existing mechanisms of social structures. 	<p>5. Reducing food waste</p> <ul style="list-style-type: none"> ✓ The risk from the resistance of the local community to adopt new standards of social behavior, in this case regarding the reduction of the purchase of surplus quantities. ✓ The possibility of the reluctance of producers or shopkeepers to get involved in such a venture.
<p>6. Increase of Urban Green</p> <ul style="list-style-type: none"> ✓ The political commitment towards sustainable urban development goals (one of which is the increase of urban greenery). ✓ The new Spatial Plan under approval as a tool to improve the urban built environment. ✓ The gradual shift of part of the local society to environmental and green issues. 	<p>6. Increase of Urban Green</p> <ul style="list-style-type: none"> ✓ The risk of further cementing the city due to disorderly construction and the inability to reserve common areas (e.g. mistakes in city extensions, deficiencies in the G.S.P.. ✓ Issues related to the low active participation of the local community in actions to improve their quality of life.

CHAPTER V –

IMPLEMENTATION PLAN, FINANCIAL ANALYSIS AND IMPLEMENTATION SCHEDULE

The implementation plan ("implementation plan") of this initiative follows the appropriate methodology (development by stages) that is followed in every implemented project that includes actions to capitalize on the research results that precede it (see also Joint Strategy of this Project).

Schematically, the stages of actions that lead to the completion of the implementation of the initiative are illustrated in the figure below:



@asana.com

For the successful planning and implementation of the initiative, the following parameters were taken into account:

- Targeting** The target price is recorded for each action of the initiative, depending on the nature of each one (e.g. number of businesses included in the action plan, number of placed recycling bins, number of electric bicycles, increase of square meters of greenery per inhabitant, etc.).
- Economic / Financial** It refers to the financial possibility of implementing each proposal. Here the level of implementation costs and the possibility of covering them through financial programs or other sources are examined.
- Institutional / Legal** The institutional framework that frames the implementation of the initiative is mentioned, which can speed up or delay its implementation.
- Time fame** An assessment of the implementation schedule of each stage / sub-action is carried out.

In detail, the course of implementation of the initiative is reflected in the following table:

a/a	Category of Intervention	Action	Implementation Cost	Stages/ Implementation Timeframe	Expected Results	
1.1	Energy Autonomy / Energy Upgrade	Wind farm installation	10.000.000€	<ul style="list-style-type: none"> ○ Decision of the Agency (En.Com.) for the implementation of the project. ○ Assigning file compilation. ○ License granted by R.A.E. ○ Commitment of funds (own resources, bank loan, grant). ○ Announcement of a tender to find a contractor for project construction. ○ Project completion and commissioning. 	<ul style="list-style-type: none"> - 4^o semester 2022 - 2^o semester 2023 - 1^o semester 2025 - 4^o semester 2026 - 2^o semester 2027 - 2^o semester 2028 	Creation of a wind park to cover part of the Municipality's energy needs
1.2		Upgrading of municipal buildings	2.000.000€ (for the total of the buildings)	<ul style="list-style-type: none"> ○ Decision of the municipality's Council. ○ Drafting of technical studies for the energy upgrading of buildings. ○ Inclusion of projects in a financial program. ○ Announcement of a tender to find a contractor for project construction. ○ Project completion. 	<ul style="list-style-type: none"> - 4^o semester 2022 - 4^o semester 2023 - 4^o semester 2025 - 3^o semester 2026 - 4^o semester 2027 	Energy upgrade of municipal buildings and reduction of heating / electricity costs
2.1	Electrification and Sustainable Mobility	Electric municipal vehicles	450.000€	<ul style="list-style-type: none"> ○ Municipal Council (for minibus) and Polysocial (owned vehicles) decisions for purchase / conversion of vehicles to electric ones. ○ Inclusion of projects in a financial program. ○ Project completion (installation / supply of vehicles). 	<ul style="list-style-type: none"> - 4^o semester 2023 - 4^o semester 2025 - 4^o semester 2026 	Reduction of emissions in municipal transportation

“Green Urban Territories – Better Place to Live”

2.2	Installation of R.S.E.V.	200.000€	<ul style="list-style-type: none"> ○ Completion of implementation study for R.S.E.V.. ○ Decision of the Municipal Council for installation of stations. ○ Contract with a company for the installation of R.S.E.V. / preparation of application studies ○ Complete installation of R.S.E.V.. 	<ul style="list-style-type: none"> - 4° semester 2022 - 3° semester 2023 - 4° semester 2024 - 1° semester 2026 	Enhancement of electric mobility through supporting facilities
2.3	Improving infrastructure / services for urban transport / bicycles	40.000€	<ul style="list-style-type: none"> ○ Municipality decision on a) supply of electric bicycles and installation of parking spaces, b) interventions in urban transport. ○ Finding a financing tool (where possible). ○ Supply of electric bicycles / implementation of interventions in urban transport and for cycling. 	<ul style="list-style-type: none"> - 4° semester 2022 - 3° semester 2023 - 2° semester 2024 	Strengthening urban transport and cycling as a means of transport for residents and visitors
2.4	Incentives / informative actions	6.000€ / year	<ul style="list-style-type: none"> ○ Decision of the Municipal Council for approval of measures and commitment of funds in the budget code. ○ Implementation of actions. 	<ul style="list-style-type: none"> - 4° semester 2022 - every year 	Strengthening urban transport and cycling
2.5	Regulations and deterrents	0€	<ul style="list-style-type: none"> ○ Decision of the Municipal Council for interventions in the urban fabric (after preparation of a relevant application study). ○ Implementation of interventions (where required) by the Technical Agency. ○ Implementation of measures and regulations. 	<ul style="list-style-type: none"> - 4° semester 2022 - 1° semester 2023 - 2° semester 2023 	Restoration of the slopes along the road network and reinforcement of vegetation in degraded areas

“Green Urban Territories – Better Place to Live”

3.1	Sustainable Waste Management	Placement of remunerative recycling bins	0€	<ul style="list-style-type: none"> ○ Decision of the Municipal Council to undertake actions to support remunerative recycling. ○ Contact with a company for the supply of special recycling bins (plastic, aluminum). ○ Signing a contract and placing bins. 	<ul style="list-style-type: none"> - 4^o semester 2022 - 1^o semester 2023 - 2^o semester 2023 	Enhancing recycling and reducing the volume of waste
3.2		Reduction of plastic coffee cups and bottles	2.000€	<ul style="list-style-type: none"> ○ Decision of the Municipality for the installation of taps, preparation of technical studies and implementation of the project. ○ Municipality decision to create a pact to reduce plastics and create a network of businesses that will implement the agreed protocol. 	<ul style="list-style-type: none"> - From 1^o to the 4^o semester 2023 - From 1^o to the 4^o semester 2023 	Reducing the volume of waste
3.3		Reducing food waste	0€	<ul style="list-style-type: none"> ○ Decision of Multisocial for the preparation of the agreement and the approval of the specifications. ○ Invitation of interest and creation of a business network (contract). ○ Implementation of actions. 	<ul style="list-style-type: none"> - 4^o semester 2022 - 1^o semester 2023 - all year long 	Reducing food waste, strengthening social work and reducing the footprint of businesses
4.1	Increasing Urban Green	Increasing urban greenery in public spaces	30.000€	<ul style="list-style-type: none"> ○ Adding green to parks. Preparation of phytotechnical studies, approval of expenditure and implementation of intervention. ○ Creation of "Pocket Parks". Identification of free spaces, approval of intervention, technical study, approval of expenditure, implementation. 	<ul style="list-style-type: none"> - From 4^o semester 2022 to 4^o semester 2023 - From 4^o semester 2022 to 4^o semester 2023 	Increasing urban greenery in existing areas and creating new ones / increasing biodiversity
4.2		Green protection practices	0€	<ul style="list-style-type: none"> ○ Training Green Service employees on the correct way of pruning. ○ Informing citizens about proper green management / on-site inspection 	<ul style="list-style-type: none"> - 4^o semester 2022 - 4^o semester 2022 and every year 	Protection of the urban green

CHAPTER VI –

DRAFT GUIDELINES FOR MEASURING THE PERFORMANCE OF SUGGESTED PRACTICES

The draft Performance Measurement Guide is a tool for measuring the degree of implementation of the main axes of intervention promoted in this document for the city of Alexandroupolis, in other words it aims to outline the evolution of the transformation of the city as a model city that will follow and will apply established standards of sustainable urban development.

The two key elements of the performance measurement tool in the intervention axes developed under this initiative include:

- a) The evaluation of the performances based on the planned schedule, where intermediate time stops are defined until the final date.
- b) The performance evaluation by category of body that each action concerns (Municipality, businesses, citizens and visitors).

Based on the above, the Results Measurement Guide Plan is developed in accordance with the set objectives of the project as recorded in the Joint Strategy and listed in the table below.

DRAFT GUIDE FOR MEASURING THE PERFORMANCE OF ALEXANDROUPOLIS TOWARDS THE ACHIEVEMENT OF THE SET OBJECTIVES					
PILLAR	INDEX	EXISTING POSITION IN REPORTING YEAR	INDEX PERFORMANCE	TARGET (2028)	INDEX PERFORMANCE
A. MUNICIPALITY OF ALEXANDROUPOLI					
Production of R.E.S.	Power generated by R.E.S.	0 MW	0.00	20 MW	1.00
Upgrade of municipal buildings	Number of buildings with PV on roofs	5 from 30 in total	0.16	10 buildings	0.50
Electric vehicles	Number of Municipal minibuses and electric vehicles of the Polysocial	0 from 15 in total	0.00	5 vehicles	0.33
Instalation of C.S.E.V.	Number of electric vehicle charging stations	3 stations from 100 proposed	0.03	40 stations	0.40
Turn to cycling	A. Number of electric bikes	A.16 bikes from 200	A. 0.08	A. 100 bikes	A. 0.50

	available B. Number of parking spaces	proposed B. 10% of the target	B. 0.00	B.8 parking spots	B. 0.30
Installation of compensatory recycling bins	Number of compensatory recycling bins	1 out of 3 proposed categories	0.33	Bins for the 2 categories	1.00
Installation of public taps	Number of public taps	3 out of 10 proposed	0.30	7 taps	1.00
Increasing urban greenery	A. Number of interventions in parks	A.2 out of 5 proposed	A. 0.40	A. 3 interventions	A. 1.00
	B. Number of pocket parks	B. 2 out of 10 proposed	B. 0.20	B.6 parks	B. 0.80
B. BUSINESSES					
Sustainable waste management	Number of businesses turning to sustainable management methods	10 out of 100 enterprises	0.10	60 enterprises	0.60
Reducing food waste	Number of businesses participating in food distribution actions	0 out of 200 enterprises	0.00	50 enterprises	0.25
C. LOCAL POLULATION					
Increase in PMT / bicycle use	A. Share of trips by public transport	A. 2,5% of total	A. 0.025	A. share 5%	A. 0.05
	B. Number of bicycles	B. 2.000 out of 10.000 targeted	B. 0.20	B. 3.500 cyclists	B. 0.35
Increase of green spaces	A. Percentage of trees / sidewalk	A. 40% of total based on available spots	A. 0.40	A. 2.000 trees	A. 0.80
	B. Number of green roofs	B. Below 5% of the eligible	B. 0.05	B. 30 roofs	B. 0.15

CONCLUDING REMARKS

As pointed out, this initiative seeks to propose a series of large and small interventions that cover a wide range of the city's operation, in order for it to keep up with the imperatives of the new planning and commitments regarding the planning of sustainable cities (Sustainable Urban Agenda, etc.) . At the same time, the aim is to contribute to the achievement of the objectives of the Union and National policy for the climate and green development alongside the improvement of the quality of life of its inhabitants as well as the improvement of the city's development conditions.

Along with the proposed actions, a guide for measuring the performance as a whole as well as in parts, per category of intervention, was drawn up in order to facilitate but also to give a motivation and a common vision that will involve every representative of the local society, from the institutions to the businesses and residents and visitors individually.

Finally, an additional pursuit is through each initiative to create the appropriate conditions for the change of perceptions and behaviors ("behavioral change") at the level of society, which in the end (in its various aspects) is the main bearer of changes in practice, improving the effectiveness of the promoted measures.

For the implementation of the proposed proposals, the O.T.D. will carry out a series of informational actions in order to transfer the required know-how to support in practice the implementation of the proposed actions.

The progress that will be made will also be the occasion for the continuation of the cooperation between the partners of the "GreenUrbanTerritories" project in order to transform the results of the Joint Strategy at the participants' headquarters.