

Climate City Contract

2030 Climate Neutrality Action Plan

2030 Climate Neutrality Action Plan of Municipality of IOANNINA

Appendix IV:

Individual Actions Outline





Disclaimer

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B-2-2.1 Energy Systems Actions

Action: ES_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|---|
| Action outline | Action name | Supply and Installation of Internal monitoring system for water network of Ioannina City |
| | Action type | Technical & Energy Systems interventions |
| | Action description | <p>The action includes 11.900 smart water meters (devices) for household consumption, to monitor the data on a daily basis remotely, for the internal water supply network of the city of Ioannina. Today the leakage percentage of water supply network is estimated to be more than 60%.</p> <p>With the proposed action the leakage percentage will go down to 50% (estimated saving of more than 20%), while saving also will be achieved through remote monitoring, and can be estimated to 10% energy saving on Main infrastructure. and an estimated saving on Diesel consumption of 25%.</p> |
| Reference to impact pathway | Field of action | Energy Systems Energy and CO2 efficiency on Water sector |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | - Municipal Enterprise for Water and WasteWater |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - households |
| | Involved stakeholders | - Municipal Enterprise for Water and WasteWater |
| | Comments on implementation | <p>Funding is provided through NSRF 2014-2020 (Funded by EU).The funding is 4,880,020 € and its budget will be allocated as follows: 4,880,020 € for supply and installation of Internal monitoring system for water network of Ioannina City, that includes 11,900 smart water meters for household consumption</p> <p>This action is already ongoing, with a tender being on the air.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Waste & Wastewater on Public Sector / Electricity usage by 10% • Waste & Wastewater on Public Sector / Diesel usage by 25% |
| Impact & cost | Generated renewable energy (if applicable) | - |



| | | |
|--|---|---|
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel <p>Estimated : 157 MWh / year (for diesel usage) 2,557.57 MWh / year (for electricity usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | <p>42.29 tn CO₂e / year (for diesel usage) 1,543.88 tn CO₂e / year (for electricity usage)</p> |
| | Total costs and costs by CO ₂ e unit | <p>4,880.020.00 € (~3,076.59€/tn CO₂e)</p> |



Action: ES_2

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Supply and Installation of external monitoring system for water network of Ioannina City |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action includes 50 Monitoring stations for external water network of Ioannina City, and upgrade of existing hardware on boreholes. Today the leakage percentage of water supply network is estimated to be more than 60%. The proposed action will help saving at least 15% of water, and generally energy saving of 25%. |
| Reference to impact pathway | Field of action | Energy Systems Energy and CO2 efficiency on Water sector |
| | Systemic lever | - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | - Municipal Enterprise for Water and WasteWater |
| | Action scale & addressed entities | - City scale - Water Network Infrastructure |
| | Involved stakeholders | - Municipal Enterprise for Water and WasteWater |
| | Comments on implementation | The funding is 4,116,589 € and its budget will be allocated as follows: 4,116,589 € 50 Monitoring stations for external water network of Ioannina City, and upgrade of existing hardware on boreholes. This action is already ongoing, with a tender being on the air. Funding is provided through EU RRF Greece 2.0 fund. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Waste & Wastewater on Public Sector / Electricity usage by 25% • Waste & Wastewater on Public Sector / Diesel usage by 15% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel Estimated : 6,393.93 MWh / year |



| | | |
|--|---|--|
| | GHG emissions reduction estimate (total) per emission source sector | 3,885.09 tn CO ₂ e / year |
| | Total costs and costs by CO ₂ e unit | 4,116,589.20 € (~1,059.59 €/tn CO ₂ e) |



Action: ES_3

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Upgrade of Existing Wastewater Network Infrastructure |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action includes full scale upgrading of existing wastewater network infrastructure. It is estimated that the action will help save at least 15% energy |
| Reference to impact pathway | Field of action | Energy Systems Energy and CO2 efficiency on WasteWater sector |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | - Municipal Enterprise for Water and WasteWater |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - WasteWater Network Infrastructures |
| | Involved stakeholders | - Municipal Enterprise for Water and WasteWater |
| | Comments on implementation | <p>The funding is 11,168,602.29 € and its budget will be allocated as follows: 11,168,602.29 € for upgrade of existing Wastewater infrastructure.</p> <p>This action is already ongoing, with a tender being on the air. Funding is provided through EU RRF Greece 2.0 fund.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Waste & Wastewater on Public Sector / Electricity usage by 12% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel <p>Estimated : 3,836.25 MWh / year (for electricity usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 1,852.66 tn CO2e / year (for electricity usage) |
| | Total costs and costs by CO2e unit | 11,168,602.29 € (~6,028.41.00 €/tn CO2e) |

Action: ES_4

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Installation of RES on Water Sector – 1 PV station |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action includes the supply and installation of 1 PV stations 999.54kW, for net metering of electrical consumption of Water and WasteWater Sector (Municipal Enterprise for Water and WasteWater). |
| Reference to impact pathway | Field of action | Energy Systems RES |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - RES production |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipal Enterprise for Water and WasteWater |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Holy Metropolis of Epirus |
| | Comments on implementation | <p>The program requests funding for 1,000,000 € and its budget will be allocated as follows: 1,000,000 € Installation of RES on Water Sector – 1 PV station.</p> <p>The program will start when funding is obtained, and is estimated to end by 2027. It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Waste & Wastewater on Public Sector / Electricity usage by 5.50% |
| Impact & cost | Generated renewable energy (if applicable) | 1,418 MWh / year (for electricity usage) |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity Estimated : 1,418 MWh / year (for electricity usage) |
| | GHG emissions reduction estimate (total) per emission source sector | <ul style="list-style-type: none"> - 849,14 tn CO2e / year (for electricity usage) |
| | Total costs and costs by CO2e unit | 1.000.000,00 € (~1,177.67 €/tn CO2e) |



Action: ES_5

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Installation of RES – 4 PV stations |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action includes the supply and installation of 4 PV stations 999.54kW each, which will be shared with Energy Community of Municipality of Ioannina and Holy Metropolis. The PV stations will be privately funded. Today the proposal is being evaluated by HEDNO Greece |
| Reference to impact pathway | Field of action | Energy Systems RES |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - RES production |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Holy Metropolis of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Holy Metropolis of Epirus |
| | Comments on implementation | <p>The program requests funding for 4,260,000 € and its budget will be allocated as follows: 4,260,000 € Installation of RES on Water – 4 PV stations.</p> <p>The program will start when funding is obtained, and is estimated to end by 2027. It is estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / Electricity usage by 4.00% • Buildings on Private Sector / Electricity usage by 10.00% |
| Impact & cost | Generated renewable energy (if applicable) | 5,672.6 MWh / year (for electricity usage) |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity Estimated : 5,672.6 MWh / year (for electricity usage) |
| | GHG emissions reduction estimate (total) per emission source sector | 3,110.02 tn CO2e / year (for electricity usage) |



| | | |
|--|---------------------------------------|---|
| | Total costs and costs by CO2e unit | 4,260,000,00 € (~1,369.76 €/tn CO2e) |
|--|---------------------------------------|---|



Action: ES_6

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Upgrade in the traffic light infrastructure of the Municipality of Ioannina |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action included the upgrade of the most traffic lights in the general metropolitan area of Ioannina city with newer ones of LED type |
| Reference to impact pathway | Field of action | Energy Systems Energy and CO2 efficiency on Water sector |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Cars |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Benefitted entities including citizens and visitors using cars |
| | Comments on implementation | <p>The funding was 830,000 € and its budget was allocated as follows: 830,000 € for upgrading the traffic light infrastructure of the Municipality of Ioannina This action is Already Completed and funded by the Region of Epirus.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity usage by 2.00 % |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity Estimated : 104.00 MWh / year (for electricity usage) |
| | GHG emissions reduction estimate (total) per emission source sector | 100.29 tn CO2e / year (for electricity usage) |
| | Total costs and costs by CO2e unit | 830,000,00 € (~8.275.70 €/tn CO2e) |



Action: ES_7

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|---|
| Action outline | Action name | ICT Actions - Digital services and equipment e-governance in the Municipality of Ioannina |
| | Action type | ICT & Smart City Actions |
| | Action description | <p>The actions include:</p> <ul style="list-style-type: none"> - Development and operation of a process management system - Web-based applications – moving to the cloud - Business Intelligence system development and operation - Electronic Service System for Citizen and Business Transactions - Complete human occupancy control system in closed spaces - Electronic Virtual Tour & Tour System in the field of culture – tourism - System for Monitoring Environmental Conditions and Informing Citizens - Integrated Intelligent Access Control System to Municipal Infrastructure Using Mobile Devices - Health store management system - Development of vehicle fleet management services - Early warning system for civil protection (floods, fires) |
| Reference to impact pathway | Field of action | ICT Smart City Electronic governance Municipality digitization |
| | Systemic lever | Technology/E-gov |
| | Outcome (according to module B-1.1) | The estimated outcome of the ICT Actions is the improvement of the quality of life and the creation of a measurable benefit for the citizens and businesses of the Municipality. The implementation will have impact on indirect reduction on GHG emissions. |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City wide – Citizens |
| | Involved stakeholders | <ul style="list-style-type: none"> - City scale - Citizens - Businesses |
| | Comments on implementation | <p>The program has been funded with 1,300,000 € and its budget will be allocated as follows: 1,300,000 € for digital services and equipment e-governance in the Municipality of Ioannina These actions are proposed in the Greek Public Funding program Antonis Tritsis The program estimated to end by 2027. It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / Electricity usage by 3.00% |



| | | |
|---------------|---|---|
| | | <ul style="list-style-type: none"> Buildings on Public Sector / Electricity usage by 2.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> Fuel type : <ul style="list-style-type: none"> Electricity |
| | GHG emissions reduction estimate (total) per emission source sector | 2,056.71 tn CO ₂ e / year (for electricity usage) |
| | Total costs and costs by CO ₂ e unit | 1,300,000 € (~632.08€/tn CO ₂ e) |



Action: ES_8

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|---|
| | Action name | ICT Actions - Investments in infrastructure and SSC systems for a sustainable & green urban future |
| | Action type | ICT & Smart City Actions |
| Action outline | Action description | <p>The actions include:</p> <ul style="list-style-type: none"> - Smart crossing System - Traffic Safety Systems and System for Intelligent Collection of Traffic Statistics - Smart bus stops - System with Optical sensors for monitoring safety of critical infrastructure traffic, prevention of illegal and anti-social parking using Artificial Intelligence - Smart solar tree - Coordination and Crisis Management System, for Early Detection and Management of Forest Fires - Digital City Guide with multi-channel functionality (Mobile-Web-Infokiosks) - Smart City management center LoraWAN & Public Wifi Wireless Network Extension - Cyber Security Systems <p>City's Digital Twin</p> |
| Reference to impact pathway | Field of action | ICT Smart City Electronic governance Municipality digitization |
| | Systemic lever | - Technology/E-gov |
| | Outcome (according to module B-1.1) | - The estimated outcome of the ICT Actions is the improvement of the quality of life and the creation of a measurable benefit for the citizens and businesses of the Municipality. The implementation will have impact on indirect reduction on GHG emissions. |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - City wide – Citizens |
| | Involved stakeholders | - City scale - Citizens - Businesses |
| | Comments on implementation | <p>The program has been funded with 3,069,000 € and its budget will be allocated as follows: 3,069,000€ Investments in infrastructure and SSC systems for a sustainable & green urban future. The actions have already been funded by RRF Greece 2.0 , and will have been completed by the end of 2025 It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / Electricity usage by 3.00% |



| | | |
|---------------|---|---|
| | | <ul style="list-style-type: none"> Buildings on Public Sector / Electricity usage by 2.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> Fuel type : <ul style="list-style-type: none"> Electricity |
| | GHG emissions reduction estimate (total) per emission source sector | 2,056.71tn CO ₂ e / year (for electricity usage) |
| | Total costs and costs by CO ₂ e unit | 3,069,000.00 € (~1,492.19 €/tn CO ₂ e) |



Action: ES_9

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Public-private partnership for the upgrade of energy efficiency of road and urban lighting system and infrastructure with LED systems |
| | Action type | Technical & Energy Systems interventions |
| | Action description | The action includes the replacement of 17,624 light bulbs, of Municipal Lightning, with LED, that consume less energy compared to conventional ones. The electricity consumption of the new Modern Lighting System (using modern LED bulbs/projectors/light fixtures) will be 4,592,969 kWh, and the corresponding cost for the Municipality will amount to €734,875.03 per year. According to the project, achieving a total energy savings of at least 50% is envisaged. |
| Reference to impact pathway | Field of action | Energy Systems Energy and CO2 efficiency on Municipal Lightning |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Private Companies |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Vehicles - Citizens |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipal of Ioannina - Region of Epirus |
| | Comments on implementation | <p>The program has been funded with 20,000,000 € and its budget will be allocated as follows: 20,000,000 € for the upgrading of energy efficiency of road and urban lighting system and infrastructure with LED systems.</p> <p>The actions have already been funded by European Local Energy Assistance, and will be completed by the end of 2025.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity usage by 65.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity <p>Estimated : 3,715.25 MWh / year</p> |



| | | |
|--|---|--|
| | GHG emissions reduction estimate (total) per emission source sector | 3.279.09 tn CO ₂ e / year (for electricity usage) |
| | Total costs and costs by CO ₂ e unit | 20,000,000 € (~6,099.26 €/tn CO ₂ e) |



Action: ES_10

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Transition Team Support – Action/Investment Plan Monitoring |
| | Action type | Technical & Energy Systems interventions |
| | Action description | This action included the financing of the Transition team in order to keep monitoring and continue supporting the Ioannina city for new actions / investment plans. |
| Reference to impact pathway | Field of action | All actions |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Private Companies |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Municipal of Ioannina |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipal of Ioannina - Universities |
| | Comments on implementation | The idea over this action is the financial support on the transition team, who will be responsible for monitoring the action plan, the investment plan and the commitment plan. Moreover, the team will act over the plans in order to change them to follow the path towards neutrality by 2030 |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | - |
| | GHG emissions reduction estimate (total) per emission source sector | - |
| | Total costs and costs by CO2e unit | 2,000,000 € estimated |



B-2-2.2 Mobility & transport

Action: MT_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|--------------------|--|
| Action outline | Action name | Walking and cycling: a push towards a real sustainable modal shift |
| | Action type | <ul style="list-style-type: none"> - Physical/ spatial interventions - Infrastructure |
| | Action description | <p>This action includes 2 sub-actions:</p> <ul style="list-style-type: none"> - 1A. Boosting walking as a commuting mode & 1B. Enhancing cycling as a commuting mode. The action aims to increase active mobility infrastructure and boost walking and cycling as commuting modes. Expansion of the pedestrian streets in the CC and the neighborhoods, increase in the city's sidewalks in major roads, cycle lanes and traffic calmed streets shall be at the core of the city's new image. Reducing car travel by 20% will be achieved through investing in new active mobility infrastructure and policies, tightening car policies and freedoms etc. This action includes various projects, both common regeneration infrastructure and soft/ hard policy measures. The key aim is to create a car-free downtown and vivid neighborhoods that limit car-presence and pollution. Cyclist- and pedestrian- friendly streets and complementary infrastructure and policies promoting active mobility will act as the drivers in changing mobility habits. 1A. Boosting walking as a commuting mode includes projects that aim to a) activate urban plans and implement foreseen pedestrian streets (+ number of KM provided), b) implement new emblematic pedestrian and cycle-friendly streets as demonstrated in the SUMP (i.e. Averof Str.), and c) apply street regeneration schemes for traffic calming and accessibility enhancement for new sidewalks, equipment for disabled people. Some of the strategic interventions are demonstrated in the following graphs/maps. |

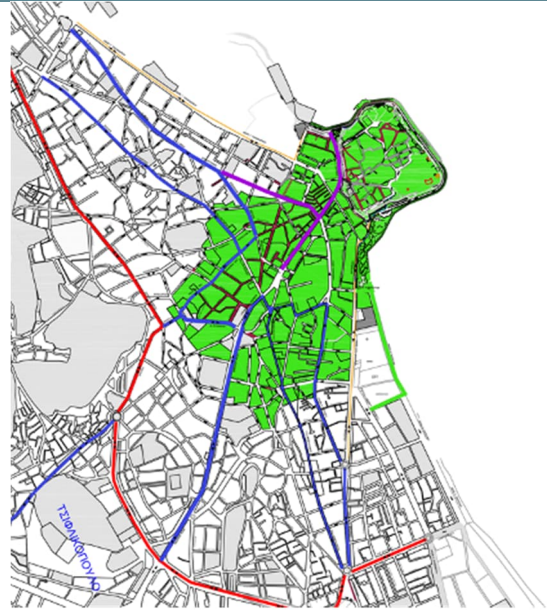


Figure 1:



Figure 2:

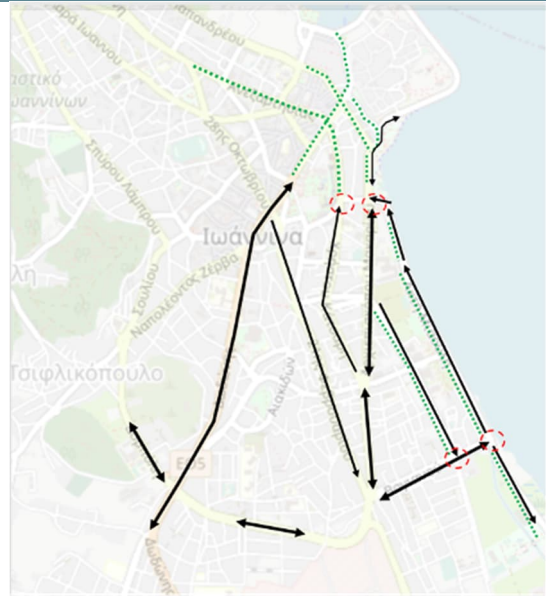


Figure 3:

- 1B. Enhancing cycling as a commuting mode includes projects that aim to a) implement new cycle lanes as demonstrated in the Municipal Masterplan for Cycling (with more than 30km of separated cycle lanes, 21+ km of traffic calmed streets, 19+ km of new pedestrian/ cyclists' lanes, 11+ km new advisory cycle lanes in pedestrian streets) . This new cycling infrastructure will be enhanced with new bike sharing infrastructure and 24/7 services and bike parking facilities all over the city. Some of the strategic interventions are demonstrated in the following graphs/maps;

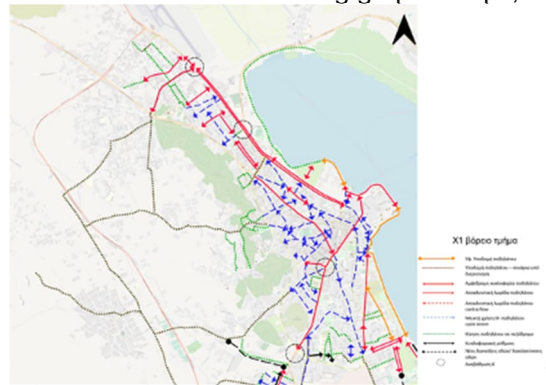


Figure 4:

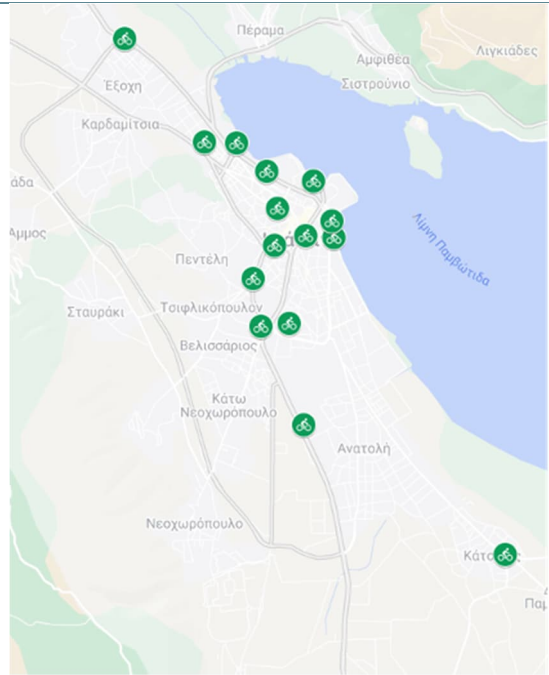


Figure 5:

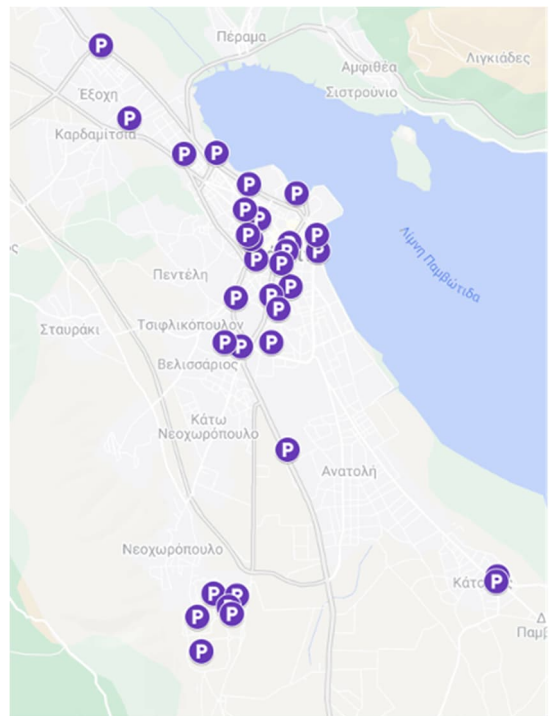


Figure 6:

Overall, the action consists of 25 distinctive projects and many of them are already in progress (>11).



| | | |
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| | | <p>Reducing car travel by more than 20% will be achieved through investing in new active mobility infrastructure and policies, tightening car policies and freedoms etc.</p> <p>Encouraging walking and cycling as key commuting modes is inextricably related to car restrictions, parking, and car circulation policies. The scale of the interventions in the proposed action is massive, as more than 50km of urban streets shall be radically transformed.</p> <p>Indispensable changes include:</p> <ul style="list-style-type: none"> - institutional changes regarding the maturation procedures and timetables (incl. studies, approvals, implementation) – NATIONAL scale, - Bonus-malus schemes (tax-redemption, direct subsidies, purchase rebates, car/bike replacement rebates etc.) for incentivising car -owners to reduce single-occupancy vehicle traffic and/or replace one household car with an active mobility alternative – NATIONAL scale supported by local actions, - Structural changes in car ownership system (correlation between car and private parking space ownership) – NATIONAL scale, - Structural changes in land use planning for obligatory neighbourhood scale parking areas and park and ride areas - NATIONAL scale supported by local actions. |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Technology/ Infrastructure, - Local development strategies, - Governance & Policy |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing car travel share by 20% - Increasing walking share at 20% - Increasing cycling share at 14% - Reducing air and noise pollution from ICE vehicles, - Reducing road traffic, delays, travel fatigue while increasing road capacity and functionality, - Enhancing public health and social cohesion, - Enhancing physical/ mental well-being |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina (local network in their jurisdiction) - Epirus Region (supra-local network in their jurisdiction) - Private Sector (through PPPs for projects including bike sharing service, bike parking facilities) |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale (streets and public spaces) - Benefitted entities include; citizens and visitors (incl. people with physical and mobility limitations, children, elderly etc.) |
| | Involved stakeholders | <ul style="list-style-type: none"> - Local Traders association, - Café-bar owners' association, - National Confederation of Disabled People, - Local Confederation of Disabled People (region-based entity), |



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| | | <ul style="list-style-type: none"> - Technical Chamber of Greece – Epirus Department, - ECO-Ioannina Environmental Protection Association of Ioannina, - TAXI Owners' Union, - Public Transport Operator (KTEL) |
| | Comments on implementation | <p>The program is already funded by NSRF with the amount of 82,638,827.77 € and requests funding for 81,103,500 €.</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 15.00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 15.00% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline <p>Estimated : 83,542.00 MWh / year (for fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 22,628.85 tn CO ₂ e / year (for diesel/fuel usage) |
| | Total costs and costs by CO ₂ e unit | Cost: 163,742,327.77 € (~7,236.00 €/tn CO ₂ e) |



Action: MT_2

| B-2.2: Individual action outlines | |
|-----------------------------------|---|
| | Action name Greening the bus fleet and strengthening the public transport role |
| | Action type <ul style="list-style-type: none"> - Physical/ spatial interventions - Infrastructure - Organisational and Governance Innovation - Incentive scheme (purchase grants/ tax incentives) |
| Action outline | <p>The action includes the upgrading of the current bus fleet with cleaner (electric, hydrogen etc) vehicles and the upgrading of the overall quality of the public transport provided. On-demand transportation services, new bus circulation plans, mini-bus services for the CC. KTEL of Ioannina (sole public transport operator) is the key stakeholder to apply the needed changes in accordance with the city's needs.</p> <p>This action includes sub-projects- as thoroughly examined and approved through Ioannina's Sustainable Urban Mobility Plan (SUMP) - such as the re-routing of bus lines with three (3) core axis and eight (8) routes serving the dense CC and the surrounding urban areas. It also includes the fleet replacement with a local scheme for buses and EV chargers for fast charging in the city.</p> <p>Some of the strategic interventions are demonstrated in the following graphs/map;</p> <div style="text-align: center;"> </div> |
| | Action description |



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| | | <p>Increasing public transport's role as key commuting mode is inextricably related to car restrictions, parking, and car circulation policies. The scale of the interventions in the proposed action is critical, as more the projects include the replacement of the current bus fleet with EVs and the needed charging equipment, the re-routing of current service connections, and the introduction of a new means of public transport – the Cable Car- connecting currently disconnected areas. Cable cars remain one of the most economically viable public transport services that can connect marginal communities, however it is a system that is not applied in a city scale in Greece...</p> <p>Needed changes include ;</p> <ul style="list-style-type: none"> - Regulating the current PT operator's monopoly -NATIONAL scale, - Regulating procurement time-NATIONAL scale, - institutional changes for the replacement of the current bus fleet with EVs (and the needed charging equipment) BONUS -MALUS SCHEME (for replacement with new incentive scheme with purchase redemption/ tax incentives etc)- NATIONAL scale, - Structural changes for new / innovative Public Transport Solutions (Cable Car Operation)– NATIONAL scale supported by local actions and investment, - Structural changes in the Epirus Spatial Plan (Provision for new Cable Car Service/ indicative route and connection nodes)- NATIONAL scale supported by local actions. |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Technology/ Infrastructure, - Local development strategies, - Governance & Policy - Technological Innovation |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing car travel share by 20% - Increasing public transport share at 12% - Reducing air and noise pollution from ICE vehicles, - Reducing air and noise pollution from current PT vehicles (buses), - Reducing road traffic, delays, travel fatigue while increasing road capacity and functionality, - Enhancing public health and social cohesion, - Enhancing physical/ mental well-being |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Public Transport Operator (KTEL – Private BUS Operator/ union of owners), - Private Sector (through PPPs for projects like the Cable Car Innovation), - Municipality of Ioannina (route service enhancement in their jurisdiction), - Epirus Region (supra-local network in their jurisdiction/ interregional route service enhancement) |

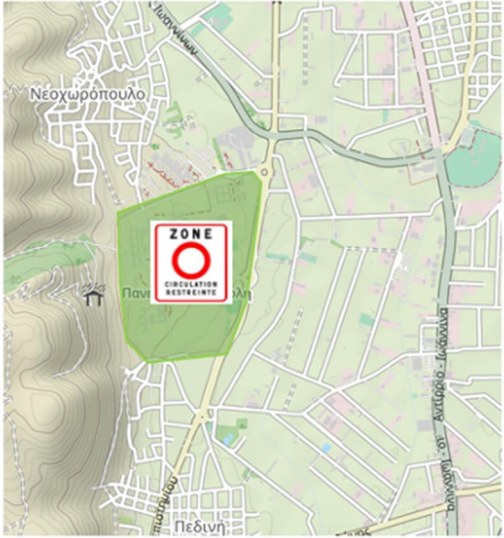


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| | Action scale & addressed entities | <ul style="list-style-type: none"> - Municipal scale (streets and public spaces, bringing connectivity to inaccessible areas i.e. Drabatova) - Benefitted entities include the PT Operator (as a business) and citizens and visitors (incl. people with physical and mobility limitations, children, the elderly etc.) |
| | Involved stakeholders | <ul style="list-style-type: none"> - The Municipality of Ioannina, - The Epirus Region, - Local Traders association, - National Confederation of Disabled People, - Local Confederation of Disabled People (region-based entity), - Technical Chamber of Greece – Epirus Department, - ECO-Ioannina Environmental Protection Association of Ioannina, - TAXI Owners' Union |
| | Comments on implementation | <p>The program has been already funded with the amount of 120.000 € by Green Fund and requests funding for 79,950,000 €</p> <p>The program will start when the funding has been received, and is estimated to end in 2028.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 10,00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 10,00% • Transport of Private Sector by City Bus/Diesel usage by 70% • Transport of Private Sector by Intercity Bus/Diesel usage by 75% • Transport of Public Sector/ Gasoline usage by 10% • Transport of Public Sector/ Diesel usage by 10% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline <p>Estimated : 55,717.00 MWh / year (for diesel/fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 21,487.23 tn CO2e / year (for diesel/fuel usage) |
| | Total costs and costs by CO2e unit | Cost: 80.070.000 € (~3,726.40 €/tn CO2e) |

Action: MT_3

| B-2.2: Individual action outlines | | |
|-----------------------------------|--------------------|--|
| | Action name | Low to zero emission zones: Thorough and JUST transition for pilot zones |
| | Action type | Infrastructure (Signage) Organisational and Governance Innovation |
| Action outline | Action description | <p>This action sets out the key steps to gradually apply a LEZ/ ZEZ scheme in three pilot zones in the city. The city center, the island and the university campus take the lead and by 2025 aspire to present replicable results for the rest of the city. By 2028 and 2030, more and more areas are planned to apply restrictions related to GHG emissions and car-circulation. Emphasis is given on policies to ensure a just transition, while also develop a medium-term plan to ban diesel vehicles and all ICE vehicles in the city. The suggested UVAR schemes are in accordance with the overall SUMP strategy for a car-free downtown and green- University Campus, while also focus on altering the norms in the high and middle-density districts of the city.</p> |



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| | |  <p>Indicative application phases:</p> <p>Phase 1 up to 2025 Applied in the CC (incl. the Castle) & the University Campus Time: April to October (07.00-23.00) Vehicles: Euro 4 + (Euro 5+ for diesel) Fines: YES Exceptions: YES (incl. residents of the CC)</p> <p>Phase 2 up to 2028 Time: April to October for overall central area (07.00-23.00) All-year and all day for CC & Campus Vehicles: Euro 5 + (Euro 6+ for diesel) Fines: YES Exceptions: YES ++</p> <p>Phase 3 up to 2030 – LEZ & ZEZ ZEZ: Applied in the center (inc. neighborhoods, the CC) & the University Campus LEZ: city boundaries Time: All-year all day Vehicles: Euro 5 + (NO diesel) Fines: YES Exceptions: YES ++</p> <p>Establishing low emission zones in cities is a challenge that has both technical and societal difficulties. The expected opposition shall be handled with detailed policies, awareness raising and local exceptions (to an extent). Fees shall be clearly redistributed for public transport and urban mobility investments or park and ride infrastructure.</p> <p>Necessary changes include:</p> |
|--|--|---|

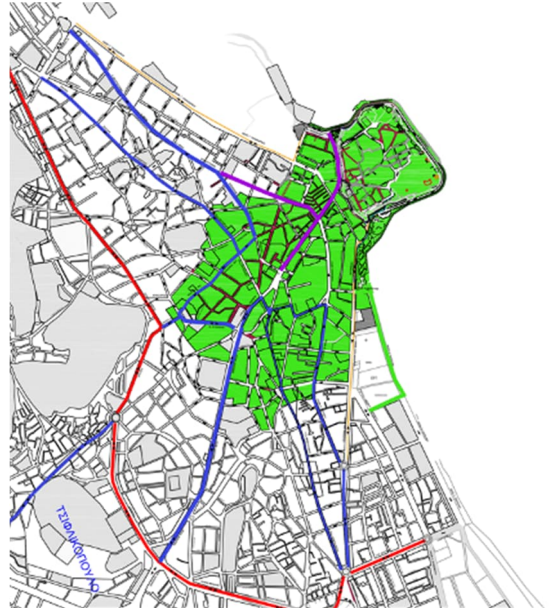


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| | | <ul style="list-style-type: none"> - institutional changes for the implementation of LEZ/ ZEZ/ UVAR schemes - NATIONAL scale, - strong Awareness raising for clean air zones and benefits - Local scale, - Structural changes in the local urban development plans (Provision for LEZ/ZEZ zones)- - Local scale |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies, - Governance & Policy - Technological Innovation |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing emissions in a gradual way, - Increasing cycling and walking share, - Altering freight delivery methods, - Reducing air and noise pollution by ICE vehicles, - Reducing air and noise pollution by current PT vehicles (buses), - Enhancing public health and social cohesion, - Enhancing physical/ mental well-being |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina (implementing the LEZ scheme, procurement of software and service, signage etc.) |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale (streets and public spaces) - Benefitted entities include; CC citizens and visitors (incl. people with physical and mobility limitations, children, elderly etc.) and Students, - All citizens/ visitors by 2030 |
| | Involved stakeholders | <ul style="list-style-type: none"> - Old City residents' Association, - University, - Local Traders association, - Technical Chamber of Greece – Epirus Department, - ECO-Ioannina Environmental Protection Association of Ioannina, - PT Operator (KTEL), - TAXI Owners' Union, |
| | Comments on implementation | <p>The program requests funding for 200.000 € The program will start when the funding is received, and is estimated to end by 2030.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 5.00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 15.00% • Transport of Private Sector by City Bus/Diesel usage by 70% • Transport of Public Sector/ Gasoline usage by 10% • Transport of Public Sector/ Diesel usage by 10% |



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| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline <p>Estimated : 63,336.00 MWh / year (for fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 17.463,55 tn CO ₂ e / year (for diesel/fuel usage) |
| | Total costs and costs by CO ₂ e unit | Cost : 200,000 € (~11,45,00 €/tn CO ₂ e) |

Action: MT_4

| B-2.2: Individual action outlines | | | | | |
|-----------------------------------|--|-------------|--------------------------------|-------------|--|
| | <table border="1" style="width: 100%;"> <tr> <td style="width: 30%;">Action name</td> <td style="background-color: #00bcd4; color: white;">Less cars- cleaner cars</td> </tr> <tr> <td>Action type</td> <td>Infrastructure Organisational and Governance Innovation</td> </tr> </table> | Action name | Less cars- cleaner cars | Action type | Infrastructure Organisational and Governance Innovation |
| Action name | Less cars- cleaner cars | | | | |
| Action type | Infrastructure Organisational and Governance Innovation | | | | |
| Action outline | <p>This action is at the core of urban mobility strategy and aims to assist the overall urban redevelopment by limiting car presence and boosting e-mobility with a comprehensive and extended EV chargers' network. The action takes into account the 'avoid-shift-improve' approach and deploys a new policy paradigm for the city. This network goes along with incentivizing private car users to minimize the use of conventional cars/ motorcycles and/ or replace their vehicles with cleaner ones that fully or partially run on electricity, such as battery electric vehicles or plug-in hybrid electric vehicles.</p>  <p>The actions include a project for EV charging stations allocation scheme which provides 136 EV car chargers, 23 EV TAXI chargers, 3 EV chargers for trucks and lorries, 7 chargers for cars owned by disabled people, 2 chargers for tourist buses, 2 chargers for public buses (KTEL), 12 chargers for e-bikes and has a 2025 implementation time horizon. It is expected that the project will have secured financial implementation with the help of central government incentives' scheme.</p> | | | | |

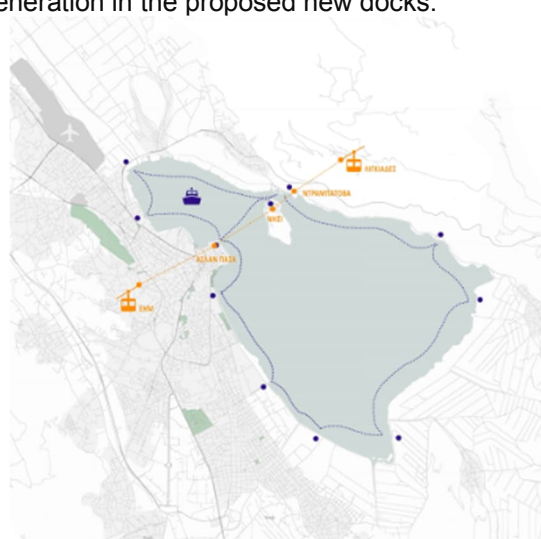


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| | | <p>Moreover the action deals with the replacement of city-owned fossil fuel vehicles fleet with green vehicles and other policies and practices that limit internal combustion engine vehicles' circulation in the city. *This action is complementary to actions XX,XY and XZ in the GREEN INFRASTRUCTURE & NBS axis</p> <p>The overall strategy of the action is based on the approved SUMP strategy of the city. New street hierarchy, protected zones and new circulation plan are formally accepted but not yet realized by the wide public and the stakeholders.</p> <p>Imperative changes include ;</p> <ul style="list-style-type: none"> - Structural changes in the local urban development plans (incl. Provision for new street hierarchy, bicycle Masterplan provisions)- National scale supported by local actions - strong Awareness raising for the new approach 'Avoid-Shift- Improve; clean air zones and benefits – both national and Local scale, - Structural changes for immediate implementation of local urban planning studies - National scale supported through local actions |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies, - Governance & Policy - Technology & Infrastructure |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing car travel share by 20% - Increasing walking share at 20% - Increasing cycling share at 14% - Increasing PT share at 12%, - Reducing air and noise pollution from ICE vehicles, - Reducing road traffic, delays, travel fatigue while increasing road capacity and functionality, - Enhancing public health and social cohesion, - Enhancing physical/ mental well-being |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - The Municipality of Ioannina (local network in their jurisdiction) - The Epirus Region (supra-local network in their jurisdiction) |



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| | | <ul style="list-style-type: none"> - *responsible bodies for functionality/ control of applied policies UVAR/LEZ/ZEZ - Role of Traffic Police Control Department |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale (streets and public spaces) - Benefitted entities include; citizens and visitors (incl. people with physical and mobility limitations, children, elderly etc.) |
| | Involved stakeholders | <ul style="list-style-type: none"> - Local Traders association, - Old City residents' Association, - University, - Café-bar owners' association, - National Confederation of Disabled People, - Local Confederation of Disabled People (region-based entity), - Technical Chamber of Greece – Epirus Department, - ECO-Ioannina Environmental Protection Association of Ioannina, - TAXI Owners' Union |
| | Comments on implementation | <p>The program has been already funded by NSRF with the amount of 6.349.892€ and requests funding for 136,620,00 €</p> <p>The program will start when the funding has been, and is estimated to end by 2025.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 5.00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 15.00% • Transport of Private Sector by City Bus/Diesel usage by 70% • Transport of Public Sector/ Gasoline usage by 15% • Transport of Public Sector/ Diesel usage by 15% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline |
| | GHG emissions reduction estimate (total) per emission source sector | 22,857.26 tn CO ₂ e / year (for fuel usage) |
| | Total costs and costs by CO ₂ e unit | Cost :143,000,000 € (~6,256.22.00 €/tn CO ₂ e) |

Action: MT_5

| B-2.2: Individual action outlines | | |
|-----------------------------------|--------------------|--|
| | Action name | Cleaning and strengthening waterborne transportation |
| | Action type | Technical Intervention Infrastructure Organisational and Governance Innovation |
| Action outline | Action description | <p>This action aims to increase the role of waterborne transportation by adding services and ease the replacement of diesel boats serving currently the connection between the city and the island. Lake Pamvotis can become an extra transportation corridor for connecting different areas of the city and the overall Ioannina conurbation with currently limited access to public transit through clean, electric and fast taxi-boats. The actions includes projects such as; the diesel boat replacement with electric boats (14), the development of a new boat service (boat taxi) connecting 11 stops with an average distance of 22 km with the relevant regeneration in the proposed new docks.</p>  <p>Needed changes include:</p> <ul style="list-style-type: none"> - Structural changes for promoting waterborne transportation and boat taxis - National scale supported by local actions - strong Awareness raising for the new approach and the upcoming benefits for the retrofitted areas—both the national and Local scale |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies, - Governance & Policy - Technology & Infrastructure - Capacity and capacity development |



| | | |
|----------------|---|---|
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Decreasing water pollution from diesel boats, - Reducing air and noise pollution from ICE vehicles (since a number of travels will be conducted via the new service), - Enhancing public health and social cohesion - Developing new landscapes and lake corridors |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Boat Owners Association, - Epirus Region - Municipality of Ioannina (regeneration of new docking stations) |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Municipal and Regional scale - Benefitted entities include; aquatic ecosystem of Lake Pamvotida, terrestrial ecosystem of the lakeside areas - citizens and visitors |
| | Involved stakeholders | <ul style="list-style-type: none"> - The Natural Environment & Climate Change Agency- Management Unit of the Protected Areas of Epirus - The Local Traders association - Old City residents' Association - The University - the Café-bar owners' association, - The Technical Chamber of Greece – Epirus Department, - The ECO-Ioannina Environmental Protection Association of Ioannina |
| | Comments on implementation | <p>The program requests funding for 9,420,000 € The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 2.00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 2.00% • Transport of Private Sector by Lake Boats/Diesel usage by 100% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline <p>Estimated 83,681.00 MWh / year (for diesel/fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 3,202.93 tn CO ₂ e / year (for diesel/fuel usage) |
| | Total costs and costs by CO ₂ e unit | Cost : 9,420.000 € (~2,941.06 €/tn CO ₂ e) |

Action: MT_6

| B-2.2: Individual action outlines | |
|-----------------------------------|---|
| Action name | Greening logistics. A new era in goods transportation |
| Action type | Technical Intervention Infrastructure Organisational and Governance Innovation |
| Action outline | <p>This action aims to reduce urban freight emissions through regulatory schemes that promote clear timetables, encourage clean vehicles, promote cargo bikes and infrastructure that allow for this transition. Smaller, cleaner and quieter vehicles shall deliver goods in the conurbation of Ioannina with the support of UCCs and loading/unloading platforms. Replacing ICE van and lorries entering the city will directly have an impact on local health and pollution, while also for vehicles serving the overall logistics chain which will allow for lowering emissions beyond our borders.</p> <div style="text-align: center;"> </div> <p>The action includes the development of a new UCC in the area north-west of Katsikas, the development of new loading platforms, a truck replacement incentive scheme with a 10,000 incentive for 70% of current trucks in the municipality, the promotion and incentivization of e-car bikes, a smart logistics system and a new signage and enforcement system. The action includes projects such as the development of a new UCC in the area north-west of Katsikas, the development of new loading platforms, a truck</p> |



| | | |
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| | | <p>replacement incentive scheme with a 10,000 incentive for 70% of current trucks in the municipality, the promotion and incentivization of e-car bikes, a smart logistics system and a new signage and enforcement system.</p> <p>Needed changes include ;</p> <ul style="list-style-type: none"> - Structural changes for obligatory UCC in large cities - National scale supported by local actions - Administrative changes for last-mile deliveries– both national and Local scale, - Bonus-malus schemes (tax-redemption, direct subsidies, purchase rebates, car/bike replacement rebates etc.) for incentivising truck -owners to replace trucks with EVs – NATIONAL scale supported by local actions |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies - Governance & Policy - Technology & Infrastructure - Digital transformation - Business models |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing urban freight emissions - Reducing air and noise pollution from ICE vehicles - Building new business models and realizing cost savings (for public and private sector) - Enhancing public health and social cohesion |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - The Association of Enterprises of the Industrial Area of Ioannina - The Epirus Region - The Municipality of Ioannina (licensing of new land uses, loading/unloading zones implementation) |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Municipal and Regional scale - Benefitted entities include industries inside the administrative boundaries of the Municipality, citizens and visitors |
| | Involved stakeholders | <ul style="list-style-type: none"> - The Local Traders association - The Industry Association - The Old City residents' Association - The University - The Café-bar owners' association - The Technical Chamber of Greece – Epirus Department |
| | Comments on implementation | <p>The program requests funding for 131,420,000 € The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 10.00% • General Transport In&Out Boundaries / Fuel of Citizens usage by 10.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |



| | | |
|--|---|---|
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline <p>Estimated 83,681.00 MWh / year (for fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 15085,90 tn CO ₂ e / year (for fuel usage) |
| | Total costs and costs by CO ₂ e unit | Cost : 131,420.000 € (~8.71 €/tn CO ₂ e) |



Action: MT_7

| B-2.2: Individual action outlines | | |
|--|--|---|
| Action outline | Action name | Using Sustainable Transportation on waste collection |
| | Action type | Organisational and Governance Innovation |
| | Action description | <p>This action aims to build on the existing waste strategy and rearrange waste collection with cleaner and smaller vehicles.</p> <p>The action includes projects such as smart waste collection system, supply of new waste collection vehicles (EVs) etc. Needed changes include;</p> <ul style="list-style-type: none"> - Structural changes on a National scale supported by local actions - Administrative changes on both a national and a Local scale |
| Reference to impact pathway | Field of action | Mobility & Transport |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies, - Governance & Policy - Business models |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reducing waste collection travel kms/time and emissions - Reducing air and noise pollution from ICE waste collection vehicles - Building new business models and realizing cost savings (for waste collection services) - Enhancing public health and social cohesion - Building a new narrative for waste collection |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - The Epirus Region - The Municipality of Ioannina - The Hellenic Recovery Recycling Corporation (HERRCO) - The Hellenic Recycling Agency (HRA/EOAN) - The P.K. Recycling North West Ltd - The Epirus Aeiforiki - The Association of Technical Companies of the Epirus Region (for ECDW) |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Municipal and Regional scale - Benefitted entities include : - Industries inside the administrative boundaries of the Municipality - citizens and visitors |
| | Involved stakeholders | <ul style="list-style-type: none"> - The Hellenic Recovery Recycling Corporation (HERRCO) - The Hellenic Recycling Agency (HRA/EOAN) - P.K. Recycling North West Ltd - Epirus Aeiforiki - Association of Technical Companies of the Epirus Region (for ECDW) |



| | | |
|---------------|---|--|
| | Comments on implementation | <p>The program has been already funded by NSRF with the amount of 630.000 € and requests funding for 50,000 €</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport of Waste (Public Sector) in the city boundaries/ Fuel of Citizens usage by 30.00% • Transport of Waste (Public Sector) out of the city boundaries/ Fuel of Citizens usage by 30.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : Diesel <p>Estimated 111.00 MWh / year (for diesel/fuel usage)</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 22,17 tn CO ₂ e / year (for diesel/fuel usage) |
| | Total costs and costs by CO ₂ e unit | <p>Cost : 680,000 € (~30,679.00 €/tn CO₂e)</p> |



B-2-2.3 Waste & circular economy

Action: WCE_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Separate collection of paper & cardboard |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Planning, maturation and development of a separate paper collection network |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | <ul style="list-style-type: none"> - Technology/infrastructure - Circular Economy |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - High quality recycled materials - Increased recycling rate of paper |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City buildings - Outside the major producers facilities - Streets and public spaces |
| | Involved stakeholders | <ul style="list-style-type: none"> - Hellenic Recovery Recycling Corporation (HERRCO) - Hellenic Recycling Agency (HRA/EOAN) - P.K. Recycling North West |
| | Comments on implementation | <p>The program requests funding for 516,832 € The program will start when funding is obtained, and it is planned to start in 2024 and end in 2027. The timeline of the proposed funding is by NSRF, starting in 2021 and ending in 2027.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 3.40% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 306.81 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 516,832 € (~1,684.55.00 €/tn CO ₂ e) |



Action: WCE_2

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Brown bins (food and garden waste) and separate bio-waste collection |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Planning and maturation of a separate bio-waste collection network Sorting at the source by households and major producers Development of the separate bio-waste collection network with 2,186 brown bins and 2 trucks at the 1st stage and utilisation of financial tools to cover all equipment needs at the 2nd stage Capacity: 5,127 tn of household bio-waste |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | - Reduced methane (CH ₄) emissions |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - City buildings, streets and public spaces |
| | Involved stakeholders | - Municipality of Ioannina - Epirus Aeiforiki |
| | Comments on implementation | Funding is provided through Transportation Infrastructure, Environment, and Sustainable Development 2014-2020. The funding is 1,229,617.31 € and its budget will be allocated as follows: 1,229,617.31 € for separate bio-waste collection. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 26.60% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 2,400.31 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 1,229.617.31 € (~512.27 € €/tn CO ₂ e) |

Action: WCE_3

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Development of a household composting network |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Supply of 950 household composters of 300 lt capacity(190 tn of household bio-waste) and 20 composters in schools Mechanism to monitor and control the operation of household composters and the implementation of a guidance system for participating households and schools |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | <ul style="list-style-type: none"> - Technology/infrastructure - Local development strategies - Social innovation |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduced methane (CH4) emissions |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Public and private spaces |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Citizens - Local Stakeholders |
| | Comments on implementation | <p>The program requests funding for 1,229,617.31 € The program will start when funding is obtained, and it is estimated to end in 2024.</p> <p>It can be estimated that this program will benefit the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 1.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 90.24 tn CO2e |
| | Total costs and costs by CO2e unit | 1,229,617.31 € (~13,626.49 € €/tn CO2e) |



Action: WCE_4

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Organisation of separate waste collection in municipal buildings |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Separate collection of paper, plastic, glass, metal and other waste streams in sports facilities, playgrounds, nurseries and other municipal assembly facilities Supply of 100 recycling bin-arrays for paper, plastic, glass, metal |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | - High quality recycled materials - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Municipal buildings |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) - P.K. Recycling North West Ltd |
| | Comments on implementation | The program requests funding for 300,000 € The program will start when funding is obtained, and is estimated to start in 2024 and end in 2026. It can be estimated that this program will benefit the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0.17% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 15.34 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 300.000 € (~19,556.28 € €/tn CO ₂ e) |



Action: WCE_5

| B-2.2: Individual action outlines | | |
|-----------------------------------|--------------------|---|
| Action outline | Action name | a) Strengthening of the present waste collection network, b) create a network for separate collection, c) organization of the collection waste management, of specific types of waste |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | <p>Types of waste:</p> <ul style="list-style-type: none"> - clothing and footwear - textiles - bulky waste - carpets - mattresses - furniture and wood - edible oils and fats - lubricating oils - glass - electrical and electronic devices and equipment (WEEE) as well as solar panels - batteries and accumulators - excavation, construction and demolition waste (ECDW) - tires - end-of-life vehicles - pharmaceuticals intended for household use - Small quantities of hazardous waste (insect repellents and pesticides, wood cleaners/preservatives/polishes, adhesives/resins, inks, paints, varnishes, solvents, cleaning products and disinfectants) - greenhouse plastics - irrigation pipes - electric scooters and electric bicycles - toys - books <p>Strengthening of the cooperation of the existing Collective Systems for Alternative Management of waste</p> <p>Contract with a corresponding Collective System for Alternative Management if this will exist in the future or alternatively with legally licensed recyclers</p> <p>Creation of a suitable infrastructure for collection at the Recycling Corners, Green Points, Center for Creative Reuse of Materials or other available spaces</p> |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | <ul style="list-style-type: none"> - Technology/infrastructure - Local development strategies |



| | | |
|----------------|---|---|
| | Outcome (according to module B-1.1) | - High quality recycled materials - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - The Municipality of Ioannina |
| | Action scale & addressed entities | - Administrative area of the Municipality |
| | Involved stakeholders | - The Regional Association of Solid Waste Management Agencies of Epirus Region (FODSA) – for Hazardous waste - The Hellenic Recycling Agency (HRA/EOAN) - The Hellenic Recovery Recycling Corporation (HERRCO) - The Association of Technical Companies of the Epirus Region (for ECDW) - The Pharmaceutical Association of Ioannina - Private Recycling Companies |
| | Comments on implementation | The program requests funding for 150.000€ The program will start when funding is obtained, and is estimated to start in 2023 and end in 2028. It can be estimated that this program will affect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 7,50% • Transport cost of Municipal Waste within city Boundaries / Diesel usage by 15% • Transport cost of Municipal Waste outside city Boundaries / Diesel usage by 20% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal • Fuel : Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 688.20 tn CO2e |
| | Total costs and costs by CO2e unit | 150,000 € (~217.96 €/tn CO2e) |



Action: WCE_6

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Construction of Green Points |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Construction of 1 Green Point for separate collection of bulky waste (furniture, electrical appliances, carpets, etc.) with capacity of 7,695.6 t/year |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure |
| | Outcome (according to module B-1.1) | - High quality recycled materials - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Public spaces in the administrative area of the Municipality |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) |
| | Comments on implementation | The funding comes through Transportation Infrastructure, Environment, and Sustainable Development 2014-2020. The total sum is 967,200.60 € and will be allocated as follows: 967,200,60 € for the construction of Green Points. The program will start in 2023 and end in 2025. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 17.00% • Transport of Municipal Waste within city Boundaries / Diesel usage by 15.00% • Transport of Municipal Waste outside city Boundaries / Diesel usage by 20.00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal • Fuel : Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 1,545.46 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 967,200.60 € (~625.83 €/tn CO ₂ e) |



Action: WCE_7

| B-2.2: Individual action outlines | | |
|--|---|--|
| Action outline | Action name | Supply of Mobile Green Points |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Supply of a mobile green point to serve remote settlements of the Municipality. Through this, the separate collection is strengthened as well as the information and awareness of citizens in more inaccessible areas. |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure - Social Innovation |
| | Outcome (according to module B-1.1) | - High quality recycled materials - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Public spaces in the administrative area of the Municipality |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) |
| | Comments on implementation | Funding is provided through Transportation Infrastructure, Environment, and Sustainable Development 2014-2020. The funding is 987.200 € and its budget will be allocated as follows: 987.200€ for supply of mobile Green Points. The program will start at 2024 and ends at 2026. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 3,00% • Transport of Municipal Waste within city Boundaries / Diesel usage by 15,00% • Transport of Municipal Waste outside city Boundaries / Diesel usage by 20,00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal • Fuel : Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 282,14 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 987.200 € (~3.499,03 €/tn CO ₂ e) |



Action: WCE_8

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Construction of Recycling Corners |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Construction of 11 Recycling Corners for the separate collection of materials such as: paper, metal, plastic, glass, mixed packaging, edible fats and oils, waste electrical and electronic equipment (WEEE) of small size and others |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure |
| | Outcome (according to module B-1.1) | High quality recycled materials\ Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Public spaces in the administrative area of the Municipality |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) |
| | Comments on implementation | Funding is provided through the programme Antonis Tritsis. The funding is 1.326.800 € and its budget will be allocated as follows: 1.326.800 € for construction of Recycling corners. The program will start at 2023 and ends at 2026. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 3,00% • Transport of Municipal Waste within city Boundaries / Diesel usage by 10,00% • Transport of Municipal Waste outside city Boundaries / Diesel usage by 10,00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal • Fuel : Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 278,21 tn CO2e |
| | Total costs and costs by CO2e unit | 1.326.800 € (~4.768,99 €/tn CO2e) |



Action: WCE_9

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Establishment of a Center for Creative Reuse of Materials |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | One organized space within a building infrastructure, which is properly configured, so that citizens can deposit, repair and reuse used items, such as electrical and electronic equipment, toys, furniture, bicycles, books, textiles, appliances, carpets, etc. An area with a repair cafe will be included. Either an existing building can be used with the necessary modifications/configurations or a new one can be built, as it can also be chosen to install it in the area of the Municipality's Green Point. |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure |
| | Outcome (according to module B-1.1) | - High quality recycled materials - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Public spaces in the administrative area of the Municipality |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) |
| | Comments on implementation | The program requests funding for 310.000€ The program will start when funding is obtained, and is estimated to start at 2024 and end 2026. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0,10% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 9,02 tn CO2e |
| | Total costs and costs by CO2e unit | 310.000 € (~34.353,86 €/tn CO2e) |



Action: WCE_10

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Digital transformation: applying digital tools to waste collection and management |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Integrated monitoring application and monitoring of fullness of garbage bins Application for the collection and management of environmental data through sensors Intelligent Garbage Truck Monitoring System Optimization of transport routes to reduce journeys and improve the waste collection service |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Digital transformation - Technology/infrastructure - Social innovation |
| | Outcome (according to module B-1.1) | Reduced methane (CH ₄) emissions |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - Administrative area of the Municipality |
| | Involved stakeholders | - Municipality of Ioannina - Vehicles for Blue Bins |
| | Comments on implementation | The program requests funding for 2.610.820 € The program will start when funding is obtained, and is estimated to start at 2024 and end 2027. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 11,00% • Transport of Municipal Waste within city Boundaries / Diesel usage by 15,00% • Transport of Municipal Waste outside city Boundaries / Diesel usage by 10,00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal • Fuel : Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 496,31 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 2.610.820 € (~2.601,21 €/tn CO ₂ e) |



Action: WCE_11

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Information and awareness programs for citizens and visitors (Prevention, reuse, repair, proper recycling) |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Awareness campaigns on waste prevention, reuse, repair and proper recycling Information on recycling points |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Democracy/participation |
| | Outcome (according to module B-1.1) | - Households Economy - Household participation in recycling - Increased recycling rate |
| Implementation | Responsible bodies/person for implementation | - Regional Association of Solid Waste Management Agencies of Epirus Region (FODSA) - Municipality of Ioannina |
| | Action scale & addressed entities | - Administrative area of the Municipality |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) - Primary and Secondary Education - University of Ioannina - Epirus Regional Authority - Holy Metropolis of Ioannina |
| | Comments on implementation | The program requests funding for 368.280 € The program will start when funding is obtained, and is estimated to start at 2024 and end 2029. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 5,50% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 496,31tn CO2e |
| | Total costs and costs by CO2e unit | 368.280 € (~742,04 €/tn CO2e) |



Action: WCE_12

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Greek Public Procurement |
| | Action type | Organisational and Governance Innovation Intervention |
| | Action description | <ul style="list-style-type: none"> - Procurement of goods, services and projects with lower environmental impact throughout their life cycle in line with EU Policies & Legislation and the National Action Plan on Green Public Procurement. - Training of the employees of the Municipality on the integration of environmental criteria in procurements |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | Governance and policy |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Lower environmental impact - Municipality employees Participation |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | Municipal procedures |
| | Involved stakeholders | <ul style="list-style-type: none"> - Private companies - Suppliers |
| | Comments on implementation | <p>The program requests funding for 10.000 €</p> <p>The program will start when the funding is obtained, and is estimated to start at 2024 and end 2030.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 1,50% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 135,36 tn CO2e |
| | Total costs and costs by CO2e unit | 10.000 € (~73,88€/tn CO2e) |



Action: WCE_13

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Adoption of the circular economy in the sector of silver jewellery designers and makers |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Training of the Silversmiths on adopting circular economy in their sector |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | Business models |
| | Outcome (according to module B-1.1) | +++ |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Association of Ioannina Silversmiths "Gianiotiki Tehni" - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Silver jewellery designers and makers located in the City |
| | Involved stakeholders | Traditional Crafts Center of Ioannina (KEPAVI) |
| | Comments on implementation | <p>The program requests funding for 50.000 €</p> <p>The program will start when funding is obtained, and is estimated to start at 2024 and end 2027.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0,05% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 4,51 tn CO2e |
| | Total costs and costs by CO2e unit | 50.000 € (~11.081,89€/ tn CO2e) |



Action: WCE_14

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Pilot implementation of circular economy and zero waste on Pamvotis Island |
| | Action type | Technical intervention / Social and Other Innovation Intervention |
| | Action description | Engagement of households and businesses in the island in order to sort their waste into recyclables (for all the waste streams), organic waste and non-recyclables. Door-to-door separate waste collection. Diverted all residual waste away from landfill. Incentives for inhabitants, visitors and businesses to reduce waste and to sort waste properly. |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | - Technology/infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | +++ |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | Pamvotis Island |
| | Involved stakeholders | - Hellenic Recycling Agency (HRA/EOAN) - Hellenic Recovery Recycling Corporation (HERRCO) P.K. Recycling North West Ltd |
| | Comments on implementation | The program requests funding for 400.000 € The program will start when funding is obtained, and is estimated to start at 2024 and end 2027. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0,30% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 27,07 tn CO2e |
| | Total costs and costs by CO2e unit | 400.000 € (~14.775,86€/ CO2e) |



Action: WCE_15

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Utilisation and distribution of surplus food from supermarkets, cafes, restaurants |
| | Action type | Social and Other Innovation Intervention |
| | Action description | <ul style="list-style-type: none"> - Implementation of a local food waste reduction program - Organisation of food distribution and leftover food notification |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | Social innovation |
| | Outcome (according to module B-1.1) | +++ |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | Administrative area of the Municipality |
| | Involved stakeholders | <ul style="list-style-type: none"> - Ioannina Region Hotels Association - Corporation of cafe, bars, restaurants "Pamvotis" |
| | Comments on implementation | <p>The program requests funding for 100.000 €</p> <p>The program will start when funding is obtained, and is estimated to start at 2024 and end 2026.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0,15% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 13,54 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 100.000 € (~7.387,93 €/ CO ₂ e) |



Action: WCE_16

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Support (inform, empower) private sector businesses to adopt circular production models |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Circular design, refurbishment, remanufacture |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | Learning and capabilities |
| | Outcome (according to module B-1.1) | - |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina - Chamber of Ioannina |
| | Action scale & addressed entities | Administrative area of the Municipality |
| | Involved stakeholders | - |
| | Comments on implementation | The program requests funding for 150.000 € The program will start when funding is obtained, and is estimated to start at 2025 and end 2027. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 0,10% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 9,02 tn CO2e |
| | Total costs and costs by CO2e unit | 150.000 € (~16.622,84 € /CO2e) |



Action: WCE_17

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Industrial symbiosis |
| | Action type | Social and Other Innovation Intervention |
| | Action description | Development of a electronic platform in order to strengthen the utilisation of residues and by-products from industries and the agricultural, livestock and fishing sector in the wider area (e.g. cheese factories, poultry farms, olive mills, food industries) for animal feed, energy production, compost, raw materials and others |
| Reference to impact pathway | Field of action | Waste and Circular Economy |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Digital Transformation - Business models - Local development strategies |
| | Outcome (according to module B-1.1) | +++ |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Industries inside the administrative boundaries of the Municipality - Wider area of the Municipality, inside the administrative boundaries |
| | Involved stakeholders | <ul style="list-style-type: none"> - Chamber of Ioannina - Association of Enterprises of the Industrial Area of Ioannina - Cooperative Bank of Epirus - General Agricultural Cooperative of Ioannina - Association of farmers - Agricultural Poultry Cooperative of Ioannina "Pindos" |
| | Comments on implementation | <p>The program requests funding for 300.000 €</p> <p>The program will start when funding is obtained, and is estimated to start at 2025 and end 2027.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 4,50% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 406,07 tn CO ₂ e |
| | Total costs and costs by CO ₂ e unit | 300.000 € (~738,79 € /tn CO ₂ e) |



B-2-2.4. Green infrastructure & nature based solutions

Theme A - Forest & Rural Areas

Action: GI_A_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|--|
| Action outline | Action name | Alternative use of forest areas as recreational areas |
| | Action type | <ul style="list-style-type: none"> - Physical/Spatial Interventions - Infrastructure |
| | Action description | Specific located areas in the forest to be used as recreational. These interventions will follow the protection guidelines of each area (case study – urban forest of Goritsa – location Zevgaria) |
| Reference to impact pathway | Field of action | <ul style="list-style-type: none"> - Green infrastructure - Nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies - Infrastructure |
| | Outcome (according to module B-1.1) | <p>The purpose of the study is the execution of fire protection works, cultivation and improvement of the recreation infrastructure in the forest at "Psili Goritsa" location.</p> <p>The proposed maintenance works consist of construction works of a new path, clearing of vegetation, cutting and removal of dry, badly shaped, gnarled trees, planting of new broad-leaved trees and shrubs, treatment of existing vegetation, installation of new seating areas (benches) and wooden pavillions, placement of waste bins, maintenance of water tank pumping station and fire hydrants.</p> |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina, local community of Goritsa |
| | Action scale & addressed entities | Project specific (Goritsa area) |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina, - Epirus Region, - External Associates – Contractors, - Forest office, - Environmental NGOs |
| | Comments on implementation | <p>The program has already been funded with the amount of 100.000 €.</p> <p>The program will start when funding is obtained, and is estimated to end by 2025.</p> |



| | | |
|---------------|---|--|
| | | <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport on Private Sector / Fuel of Citizens usage by 0,50% • Transport on City Bus (Private Sector) / Diesel usage by 1,00% • Transport on Public Sector / Diesel usage by 5,00% • Transport on Public Sector / Gasoline usage by 5,00% • General Transport In& Out (Private and Public)/ Fuel usage by 2,00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline |
| | GHG emissions reduction estimate (total) per emission source sector | 1.473,28 tn CO _{2e} |
| | Total costs and costs by CO _{2e} unit | 100.000 € (~67,88 € /tn CO _{2e}) |

Action: GI_A_2

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Education and awareness training programs |
| | Action type | Other interventions |
| | Action description | <ul style="list-style-type: none"> - Training programs for farmers in sustainable agricultural practices - organic farming, agroforestry, permaculture. - Information/awareness workshops for the visitors and local communities |
| Reference to impact pathway | Field of action | <ul style="list-style-type: none"> - Green infrastructure - nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Social Participation, - Awareness, - Local development strategies |
| | Outcome (according to module B-1.1) | Redefining agricultural practices with the aim of increasing production in the future as well as adopting a more sustainable economic model. At the same time, the action seeks to cultivate culture in the productive sector but also to raise the awareness of the local population regarding the available productive resources of the region. |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City-wide - Peri-urban |
| | Involved stakeholders | Municipality of Ioannina, Epirus Region, NGOs, agricultural cooperatives, local communities |
| | Comments on implementation | <p>The program requests funding for 1.000.000 €</p> <p>The program will start when funding is obtained, and is estimated to start at 2024 and end 2029.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Municipal Waste (Public Sector) / Waste Disposal by 5,00% • Agriculture Private Sector/ Diesel usage by 10% • Animal Husbandry Private Sector/ Diesel usage by 10% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Waste Disposal • Fuel type : <ul style="list-style-type: none"> ○ Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 538,85 tn CO _{2e} |



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|--|---------------------------------------|---------------------------------------|
| | Total costs and costs by CO2e unit | 1.000.000 € (~1.855,80 € /tn CO2e) |
|--|---------------------------------------|---------------------------------------|

Theme B - Urban Areas

Action: GI_B_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|---|
| Action outline | Action name | Creation of 5 Climate Neutral Zones (CNZ) |
| | Action type | Physical/Spatial Interventions |
| | Action description | Separation of five (5) zones in the city of Ioannina based on specific characteristics. This action will be implemented in 2 phases and will include the LEZ action. The first phase will be implemented in the following areas: <ul style="list-style-type: none"> - Castle - From Kaloutsianis Mosque to Sapundzakis Square (Ka' February street and some perpendiculars to it) - From Alsos to Ioannina Nursing Home - Second phase: to be confirmed |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies - Governance & Policy |
| | Outcome (according to module B-1.1) | Preparation of studies and implementation of individual projects in selected areas with the aim to be climate neutral. |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale, - Areas within the city |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina, - Technical Chamber, - local businesses, - NGOs, - International Environmental organizations, - Management units according to selected area (e.g. Castle area – Ioannina Antiquity Dpt etc.) |
| | Comments on implementation | <p>The program requests funding for 1.000.000 €</p> <p>The program will start when funding is obtained, and is estimated to start at 2024 and end 2029.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings of Private Sector / Electricity usage by 5,00% • Buildings of Private Sector / Diesel usage by 5,00% • Buildings of Private Sector / LPG usage by 5,00% • Buildings of Private Sector / Natural Gas usage by 5,00% • Buildings of Private Sector / Firewood / Pellet usage by 5,00% |



| | | |
|---------------|---|--|
| | | <ul style="list-style-type: none"> • Transport of Public Sector / Diesel usage by 5,00% • Transport of Public Sector / Gasoline usage by 5,00% • Transport of Private Sector / Fuel of citizens usage by 5,00% • Transport of Private Sector (City Bus)/ Diesel usage by 5,00% • General Transport of Private/Public Sector (In&Out Boundaries)/ Fuel usage by 5,00% • Municipal Waste (Public Sector) / Waste Disposal by 5,00% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline ○ Natural Gas ○ Firewood/Pellet ○ Electricity • Municipal Waste |
| | GHG emissions reduction estimate (total) per emission source sector | 16.404,14 tn CO _{2e} |
| | Total costs and costs by CO _{2e} unit | 50.000.000 € (~3.048,01 € /tn CO _{2e}) |



Action: GI_B_2

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|--|
| Action outline | Action name | Creation of 5 Climate Neutral Offices (CNO) and Climate Neutral Observatory |
| | Action type | Physical/Spatial Interventions |
| | Action description | <ul style="list-style-type: none"> - Creation of 5 CNOs – one for each selected pilot area. Each office will be responsible for the publicity, information and awareness for actions and energy behavior, the promotion of RES and the implementation of interventions. - Creation of 1 Climate Neutral Observatory in the Municipality that will centralize, coordinate and monitor the effects of the actions. |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies - Organisational and Governance Innovation Intervention - Social Participation |
| | Outcome (according to module B-1.1) | <p>The Offices will form a comprehensive plan for each pilot area, in alignment with the European Green Deal objectives. They will be staffed with experts in fields like environmental science, urban planning, civil engineering, or community outreach. The offices will also have the ability to effectively engage, educate, and motivate diverse community groups.</p> <p>The Observatory will provide technical advice, share best practices and ensure a consistent approach across CNZs. They will track the performance of each CNZ and act as the main link between CNOs, the Municipality and external stakeholders.</p> |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City Scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina, - Technical Chamber, - Local businesses, - NGOs, - International Environmental organizations, local communities (POSSIBILITY OF FUNDING FROM ERDF, RECOVERY FUND) |
| | Comments on implementation | <p>The program requests funding.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings of Private Sector / Electricity usage by 2,00% • Buildings of Private Sector / Diesel usage by 2,00% • Buildings of Private Sector / LPG usage by 2,00% |



| | | |
|---------------|---|--|
| | | <ul style="list-style-type: none"> • Buildings of Private Sector / Natural Gas usage by 2,00% • Buildings of Private Sector / Firewood / Pellet usage by 2,00% • Transport of Public Sector / Diesel usage by 5,00% • Transport of Public Sector / Gasoline usage by 5,00% • Transport of Private Sector / Fuel of citizens usage by 2,00% • Transport of Private Sector (City Bus)/ Diesel usage by 2,00% • General Transport of Private/Public Sector (In&Out Boundaries)/ Fuel usage by 2,00% • Municipal Waste (Public Sector) / Waste Disposal by 1,00% • Agriculture Private Sector/ Diesel usage by 5,00% • Animal Husbandry Private Sector/ Diesel usage by 5,00% • Industry Private Sector/ Diesel usage by 5,00% • Industry Private Sector/ LPG usage by 5,00% • Industry Private Sector/CNG usage by 5,00% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline ○ Natural Gas ○ Firewood/Pellet ○ Electricity • Waste Disposal |
| | GHG emissions reduction estimate (total) per emission source sector | 6.829,71 tn CO _{2e} |
| | Total costs and costs by CO _{2e} unit | |



Action: GI_B_3

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Creation of climate-neutral green spaces |
| | Action type | - Physical/Spatial Interventions - Infrastructure |
| | Action description | Re-design of large urban green areas within the city of Ioannina based on bioclimatic axes. This will be implemented in areas such as Pysinella Park, Katsari Park |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | - Local development strategies - Infrastructure |
| | Outcome (according to module B-1.1) | The creation of functional and recreational areas of supralocal importance where the interventions will contribute to the improvement of pedestrian mobility. The project incorporates bioclimatic design techniques and energy saving techniques, creating "green infrastructures". |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City scale |
| | Involved stakeholders | - Municipality of Ioannina, - Technical Chamber |
| | Comments on implementation | The project is in progress and will be implemented by 2025. It can be estimated that this program will effect the following sectors by reducing GHG emissions : <ul style="list-style-type: none"> • Transport of Private Sector / Fuel of citizens usage by 2,00% • Transport of Private Sector (City Bus)/ Diesel usage by 2,00% • General Transport of Private/Public Sector (In&Out Boundaries)/ Fuel usage by 2,00% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline |
| | GHG emissions reduction estimate (total) per emission source sector | 3.059,64 tn CO2e |



| | | |
|--|------------------------------------|---|
| | Total costs and costs by CO2e unit | 32.059.922 € (~10.478,34 € /tn CO2e) |
|--|------------------------------------|---|



Action: GI_B_4

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Ensuring Shared and Community spaces through programs and funding |
| | Action type | Physical/Spatial Interventions |
| | Action description | Strategic action plan for securing public and common spaces such (ESEKK). |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | Governance & Policy |
| | Outcome (according to module B-1.1) | A Strategic action plan that creates a portfolio of all the institutionalized public and common spaces. This will showcase the ones that have not been expropriated and the set of actions that should be done so that the city plan will be completed as initially planned. |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina, - National Cadastre, - Private individuals |
| | Comments on implementation | <p>The project is in progress and will be implemented by 2030 as it starts at 2023.</p> <p>The project is funding from the Green Fund. It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Transport of Private Sector / Fuel of citizens usage by 2,00% • Transport of Private Sector (City Bus)/ Diesel usage by 2,00% • General Transport of Private/Public Sector (In&Out Boundaries)/ Fuel usage by 2,00% |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Diesel ○ LPG ○ Gasoline |
| | GHG emissions reduction estimate (total) per emission source sector | 3.059,64 tn CO2e |
| | Total costs and costs by CO2e unit | 49.980 € (~16,34 € /tn CO2e) |

Action: GI_B_5

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Renovation-redesign and enhancement of specific mid-sized green area |
| | Action type | - Physical/Spatial Interventions - Infrastructure |
| | Action description | Renovation-redesign and enhancement of specific green areas of local importance in urban areas such as Kardamitsi, Bizani, Ioannina, Anatoli - Maglaraika area, K. Perivleptou, Pyrrou square) |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | - Local development strategies, - Infrastructure |
| | Outcome (according to module B-1.1) | The creation of functional and recreational areas where the interventions will contribute to the improvement of pedestrian mobility. The project incorporates bioclimatic design techniques and energy saving techniques, creating "green infrastructures". |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City scale |
| | Involved stakeholders | - Municipality of Ioannina - Technical Chamber |
| | Comments on implementation | Years: 2024 - 2025 |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | - Kardamitsi – 1.000.000 € (in progress) - Bizani – 400.000 € (in progress) - Ioannina – 350.000 € (in progress) - Anatoli - Maglaraika area – 1.095.000 € - K. Perivleptou – 170.000 € - Pyrrou square – 5.200.000 € (auction status) |



Action: GI_B_6

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Reuse of small public spaces and upgrade them into pocket parks |
| | Action type | - Physical/Spatial Interventions - Infrastructure |
| | Action description | Upgrading of small unused or misused public spaces into pocket parks. |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | - Local development strategies, - Infrastructure |
| | Outcome (according to module B-1.1) | Small enclaves within the Municipality will become green recreational areas that would improve the everyday quality |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | City Scale |
| | Involved stakeholders | Municipality of Ioannina |
| | Comments on implementation | |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 1.500.000 € (POSSIBILITY OF FUNDING: REGIONAL OPERATION PROGRAM OF EPIRUS-COSTED BY THE SUSTAINABLE URBAN DEVELOPMENT PLAN) |



Action: GI_B_7

| B-2.2: Individual action outlines | | |
|--|---|--|
| Action outline | Action name | Enhancement and upgrading of Schoolyards |
| | Action type | - Physical/Spatial Interventions - Infrastructure |
| | Action description | Aesthetic interventions in schoolyards using bioclimatic materials, reinforcement of plantings, etc. |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | - Local development strategies, - Infrastructure |
| | Outcome (according to module B-1.1) | Schoolyards will be upgraded by participatory processes with the involvement of children/youth in the decision making processes. Schools in all different municipal divisions (Ioannina, Anatoli, Bizani, Pamvotida, Perama, Ioannina island) will be enhanced with bioclimatic materials according to users' needs. |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina, - School committees |
| | Action scale & addressed entities | City Scale |
| | Involved stakeholders | - Municipality of Ioannina, - School committees, - Youth |
| | Comments on implementation | The program requests funding for 3.000.000 €. The program will be implemented within different phases. - A phase – One school as a pilot project from each municipal division - B phase – schools to be confirmed according to the population of the each municipal division. The program will start when funding is obtained, and is estimated to end by 2030. |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO ₂ e unit | 3.000.000 € (POSSIBILITY OF FUNDING: GREEN FUND, REGIONAL OPERATION PROGRAM OF EPIRUS) |



Theme C - Areas of Special Interest

Action: GI_C_1

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Bioclimatic design and enhancement of the surrounding area |
| | Action type | <ul style="list-style-type: none"> - Physical/Spatial Interventions - Infrastructure |
| | Action description | Study and implementation of the bioclimatic design and enhancement of the surrounding area of the University of Ioannina and University General Hospital of Ioannina |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | Local development strategies, Infrastructure |
| | Outcome (according to module B-1.1) | Upgraded and bioclimatic designed surrounding spaces in accordance to the interventions and energy upgrade of the buildings |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - University of Ioannina, University General Hospital of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale, - Project specific |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina, - University of Ioannina, - University General Hospital of Ioannina, - visitors, - students |
| | Comments on implementation | <p>The program requests funding for 10.000.000 € and its budget will be allocated as follows: 10.000.000 € for Preparation of studies and implementation of individual projects in areas with supra-local importance with the aim to be climate neutral.</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO ₂ e unit | 10.000.000 € (POSSIBILITY OF FUNDING: GREEN FUND, REGIONAL OPERATION PROGRAM OF EPIRUS) |

Action: GI_C_2

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Re-demarcation of Pamvotida lake |
| | Action type | <ul style="list-style-type: none"> - Physical/Spatial Interventions - Nature-based solutions |
| | Action description | Re-demarcation of Lake Pamvotida including its periodically flooded areas based on orthophoto maps of the 1960s in the ongoing Special Environmental Study of the Lake |
| Reference to impact pathway | Field of action | Green infrastructure & nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Governance & Policy - Environmental protection - Infrastructure |
| | Outcome (according to module B-1.1) | The re-demarcation study of the lake will solve every land-use conflicts which will have an aggravating effect on the lake and protect the ecosystem. |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Epirus Region - Ministry of Environment and Energy |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Ministry of Environment and Energy - Epirus Region - Municipality of Ioannina - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus - Forest office - Environmental NGOs |
| | Comments on implementation | <p>The program requests funding for 2.500.000 € and its budget will be allocated as follows: 2.500.000 € for the Re-demarcation of Lake Pamvotida including its periodically flooded areas based on orthophoto maps of the 1960s in the ongoing Special Environmental Study of the Lake. It is based to 'Preparation of Special Environmental Studies, Drafting of Presidential Protection Decrees and Management Plans for the Areas of the Natura 2000 Network</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |



| | | |
|--|------------------------------------|-------------|
| | Total costs and costs by CO2e unit | 2.500.000 € |
|--|------------------------------------|-------------|



Action: GI_C_3

| B-2.2: Individual action outlines | | |
|--|--|---|
| Action outline | Action name | Pamvotida Lake restoration |
| | Action type | <ul style="list-style-type: none"> - Physical/Spatial Interventions - Nature-based solution - Infrastructure |
| | Action description | Study and implementation that includes permanent biomonitoring of the population situation and their protection, bottom cleaning, etc.). |
| Reference to impact pathway | Field of action | Green infrastructure and Nature-based solutions |
| | Systemic lever | Local development strategies, Social Innovation |
| | Outcome (according to module B-1.1) | Enhancement of the existing environment of the lake by improving water quality, 24-hour protection of the ecosystem, re-forming recreational areas for the users (i.e. swimming water) |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Epirus Region - NGOs - agricultural cooperatives - local communities - Ministry of Agriculture - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus |
| | Comments on implementation | <p>The program requests funding for 16.000.000 € and its budget will be allocated as follows:</p> <p>Conduct studies for the lake restoration (Year: 2024-2026)</p> <p>Implement the outcomes of the studies, which may include permanent biomonitoring of the population situation and their protection, bottom cleaning, (Year 2026-2030.)</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> |



| | | |
|---------------|---|---|
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 16.000.000 € (POSSIBILITY OF FUNDING: GREEN FUND, REGIONAL OPERATION PROGRAM OF EPIRUS) |



Action: GI_C_4

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Monitoring the flood situation of Lake Pamvotida |
| | Action type | <ul style="list-style-type: none"> - Nature-based solutions - Other intervention |
| | Action description | Creation of a database, monitoring with telescopic means using orthophoto maps or using a drone on a monthly basis |
| Reference to impact pathway | Field of action | Green infrastructure and Nature-based solutions |
| | Systemic lever | <ul style="list-style-type: none"> - Local development strategies - Social Innovation |
| | Outcome (according to module B-1.1) | A database which will be accessible to researchers for further research. It will also showcase basic information for the local users. |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - University of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Epirus Region - NGOs - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus - University of Ioannina - Researchers |
| | Comments on implementation | <p>The program requests funding for 400.000 € and its budget will be allocated as follows: 400.000 € for monitoring means, such as orthophoto maps and drones for monthly monitoring of the lake. Also for information systems equipment to create a database and an application development for dynamic data process.</p> <p>The program will start when funding is obtained, and is estimated to end by 2025.</p> |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 400.000 € |

Action: GI_C_5

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|---|
| Action outline | Action name | Addressing rainwater accumulation to protect Pamvotida Lake |
| | Action type | - Physical/Spatial Interventions - Infrastructure |
| | Action description | Technical works for addressing rainwater accumulation to protect Lake Pamvotida |
| Reference to impact pathway | Field of action | Green infrastructure and Nature –based solutions |
| | Systemic lever | - Local development strategies - Technological Innovation - Infrastructure |
| | Outcome (according to module B-1.1) | This infrastructure project serves the planning regarding the protection of the lake from surface runoff |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina |
| | Action scale & addressed entities | - City scale |
| | Involved stakeholders | - Municipality of Ioannina - Epirus Region - NGOs - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus - University of Ioannina - Researchers |
| | Comments on implementation | The program is already funded and planned and its budget will be allocated as follows: <ul style="list-style-type: none"> 4.000.000 € for technical works for addressing rainwater accumulation to protect Lake Pamvotida <p>The program is in progress and it will end by the end of 2025</p> |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 4.000.000 € (in progress) |



Action: GI_C_6

| B-2.2: Individual action outlines | | |
|--|---|--|
| Action outline | Action name | Study and implementation of restoration of mining zones (e.g. quarries) |
| | Action type | <ul style="list-style-type: none"> - Physical/Spatial Interventions - Infrastructure |
| | Action description | <p>Studies of restoration of mining zones that facilitate alternative uses of the areas, plantation etc. The abandoned mining zones are the following:</p> <ul style="list-style-type: none"> -A2-IO1 / location Agia Paraskevi (16.500 m2) -A2-IO2/ location Social Housing area (87.000 m2) -A2-AN1 / location Baфра stadium (5.000 m2) - A2-AN2 / location Hersolivado (4.000 m2) - A2 - AN3/ location Vrisoka (58.000 m2) -A2-B11/ location Kastalata (46.000 m2) - G3-16 / (80.000 m2) |
| Reference to impact pathway | Field of action | Green infrastructure and Nature –based solutions |
| | Systemic lever | Local development strategies, Infrastructure |
| | Outcome (according to module B-1.1) | Restoration of old Mining Zones |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Project specific |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Epirus Region - NGOs - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus - University of Ioannina - Researchers |
| | Comments on implementation | <p>The program requests funding for 1.940.000 € and its budget will be allocated as follows: 1.940.000 € for studies of restoration of mining zones surrounding Ioannina City. The purpose of these studies will be to facilitate alternative uses of these areas</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> |
| Impact & cost | Generated renewable energy (if applicable) | To be studied |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |



| | | |
|--|------------------------------------|-------------|
| | Total costs and costs by CO2e unit | 1.940.000 € |
|--|------------------------------------|-------------|

Action: GI_C_7

| B-2.2: Individual action outlines | | |
|-----------------------------------|--|--|
| Action outline | Action name | Management and systematization of the upgrading process of the newest monuments |
| | Action type | Technical Interventions |
| | Action description | This action, specific to the Municipality of Ioannina, focuses on the planning, coordination, and organized execution of upgrades and improvements to recently constructed or contemporary monuments of historical or cultural significance within the municipality's jurisdiction. Its primary goal is to enhance and preserve the value and relevance of these modern landmarks while also contributing to GHG emissions reduction and decreased energy consumption. |
| Reference to impact pathway | Field of action | Green infrastructure and Nature –based solutions |
| | Systemic lever | - Local development strategies, Infrastructure |
| | Outcome (according to module B-1.1) | Reduced GHG emissions Reduced harmful ecological footprint |
| Implementation | Responsible bodies/person for implementation | Municipality of Ioannina |
| | Action scale & addressed entities | - City scale - Project specific |
| | Involved stakeholders | - Municipality of Ioannina - Epirus Region - NGOs - Natural Environment & Climate Change Agency-Management Unit of the Protected Areas of Epirus - University of Ioannina - Researchers |
| | Comments on implementation | This action is currently in the research phase, and no precise implementation plan has been established as of yet. However, the primary objectives could include: <ol style="list-style-type: none"> Assessment and Prioritization: Evaluate modern monuments, focusing on those with the most significant energy-saving potential. Efficiency Upgrades: Integrate energy-efficient technologies like LED lighting and smart HVAC systems, considering monument aesthetics. Behavioral Change: Promote energy-saving practices among staff, visitors, and the community. Maintenance and Monitoring: Establish regular maintenance and real-time monitoring to ensure efficiency. Partnerships and Funding: Collaborate with stakeholders and seek funding support for upgrades. |



| | | |
|---------------|---|---|
| | | <p>6. Documentation: Keep records, report progress, and engage the public through tours and exhibitions.</p> <p>7. Evaluation and Adaptation: Continuously assess and adjust measures for improved efficiency and emissions reduction.</p> <p>The program is currently in the process of research and fundraising, with a target funding goal of €15.000.000. Implementation of the program is expected to commence upon securing the necessary funds and is estimated to conclude by 2028.</p> |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 15.000.000 € |

Theme D - Urban Design

Action: GI_D_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Urban Greenways: City-Lake Transverse Connections |
| | Action type | Physical/spatial interventions |
| | Action description | The irregular and dense city fabric of Ioannina prevents perceptual, visual and physical connection to the lake. Two exemplary urban axes-greenways are proposed: a. The cultural axis connecting significant city landmarks (former Pedagogical Academy, Kaloutsiani Mosque, lakeside Traditional Crafts Center etc). b. The functional axis connecting Albania, Zagori provinces, the airport and the bus terminal to the center, and the lakeside Katsari Park. |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | - Citizen engagement and participation - Local development strategies |
| | Outcome (according to module B-1.1) | Increase walking share |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | - City scale - Public Space - Streets |
| | Involved stakeholders | - |
| | Comments on implementation | The program requests funding for 10.000.000 € and its budget will be allocated as follows: 10.000.000 € for public interventions to urban accessibility from City Center to the Lake. Such interventions are building two urban axis-greenways. The program will start when funding is obtained, and is estimated to end by 2028. |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO ₂ e unit | 10.000.000 € |



Action: GI_D_2

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Vertical Connections : Public Stairs - Public Elevators |
| | Action type | Physical/spatial interventions |
| | Action description | Ioannina has a relatively sharp topography that creates accessibility and connectivity issues. A series of vertical connections are proposed in the form of public stairs and/or public elevators that enhance accessibility and act as urban landmarks and viewing points. Three elevators are initially proposed: in the northern part of the Castle (Aslan Mosque), in the eastern part of the Castle (<i>Iç Kale</i>) and in Litharitsia Park (former bastion). |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | Citizen engagement and participation Local development strategies |
| | Outcome (according to module B-1.1) | Increase walking share Decrease using Cars |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | - City scale - Public Space |
| | Involved stakeholders | - Municipality of Ioannina - Region of Epirus |
| | Comments on implementation | The program requests funding for 15.000.000 € and its budget will be allocated as follows: 15.000.000€ for public interventions to urban accessibility. Such interventions as building new public stairs and elevators to difficult accessible points of interest in Ioannina. The program will start when funding is obtained, and is estimated to end by 2028. |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO ₂ e unit | 15.000.000 € |



Action: GI_D_3

| B-2.2: Individual action outlines | | |
|--|---|--|
| Action outline | Action name | Green necklace |
| | Action type | Physical/spatial interventions / nature based solutions |
| | Action description | The peri-urban hilly wooded areas west of Ioannina constitute its major green area. These pine woods include pathways currently lacking in design, comfort, and safety. Reforestation, the enrichment of flora and fauna and the building of pathways for hiking, mountain running, and biking are envisioned. Public transport, (electric) bicycle and pedestrian connections to the inhabited areas will be provided. Similar plans will be applied on the historic Island grove. |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Local development strategies - Social innovation |
| | Outcome (according to module B-1.1) | Increase walking/bicycle/public transport share Improve air quality ++ |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City borders - Public Space |
| | Involved stakeholders | - |
| | Comments on implementation | <p>The program requests funding for 10.000.000 € and its budget will be allocated as follows: 10.000.000 € for Public interventions to the peri-urban hilly wooded areas west of Ioannina. Such interventions as reforestation, enrichment of flora and fauna, creation of pathways for hiking, mountain running, and biking. Also Public transport, (electric) bicycle and pedestrian connections to the inhabited areas will be provided.</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 10.000.000 € |



Action: GI_D_4

| B-2.2: Individual action outlines | | |
|--|---|---|
| Action outline | Action name | Lakeside promenade |
| | Action type | Physical/spatial interventions / nature based solutions |
| | Action description | The surroundings of Lake Pamvotida consists of urban, rural, and protected natural areas, including tourist spots and sports facilities, only partly accessible on foot and bike. A continuous lakeside promenade is proposed which will include areas for education, rest and contemplation. These areas, including the historic Island settlement, will be interconnected via the proposed lake public transport system. Part of the lakeside route will be the perimeter route of the Castle |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Local development strategies - Culture - Capacity and capability development |
| | Outcome (according to module B-1.1) | ++++ |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - Cityscale - Lake |
| | Involved stakeholders | - |
| | Comments on implementation | <p>The program requests funding for 15.000.000 € and its budget will be allocated as follows: 15.000.000 € for Public interventions to the surroundings of Lake Pamvotida. Such interventions as creation of tourist sports, sports facilities, walking and cycling routes.</p> <p>The program will start when funding is obtained, and is estimated to end by 2027.</p> |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 15.000.000 € |



Action: GI_D_5

| B-2.2: Individual action outlines | | |
|--|---|--|
| | Action name | Thematic areas |
| Action outline | Action type | Physical/spatial interventions / nature based solutions |
| | Action description | Trade routes: The city of Ioannina is one of the last large cities in Greece, that maintains active workshops of local craft tradition within their centre. The action includes a pedestrian network that will connect the areas of the centre with the workshops. aaReligious routes: The action includes the restoration of the city hall building, the reconstruction of the municipal market, and its connection to the municipal conservatory and the neighbouring square. Also, the redevelopment of the Metropolitan Cathedral's surrounding area and the reconstruction of Agia Marina street and Kyrgiou street. |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | - Business models - Local development strategies - Culture |
| | Outcome (according to module B-1.1) | Increase walking share +++ |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | - City scale - Public space - Buildings |
| | Involved stakeholders | - Workshop & shop owners - Holy Metropolis of Ioannina |
| | Comments on implementation | The program requests funding for 30.000.000 € and its budget will be allocated as follows: 30.000.000 € for Public and Private Sector in order to create Trade and Religious routes, so as to highlight the traditional workshops and the Cathedrals. The program will start when funding is obtained, and is estimated to end by 2027. |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | To be studied |
| | GHG emissions reduction estimate (total) per emission source sector | To be studied |
| | Total costs and costs by CO2e unit | 30.000.000 € |



Theme E - Absorption

Action: GI_E_1

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | New planting |
| | Action type | Physical/spatial interventions / nature based solutions |
| | Action description | The action describes the efforts for new planting in the general area of Ioannina. As per proposed, around 300.000 trees can be planted by 2030 |
| Reference to impact pathway | Field of action | Green infrastructure |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Local development strategies - Culture - Capacity and capability development |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions - Better urban environment - Better way of life |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | - |
| | Involved stakeholders | - |
| | Comments on implementation | <p>The program requests funding for 10.000.000 € and its budget will be allocated as follows: 10.000.000 € for planting 300.000 new trees in the general area of Ioannina City.</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity usage by 0,25% • Buildings on Public Sector / Diesel usage by 10% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | - |
| | GHG emissions reduction estimate (total) per emission source sector | 10.000 tn CO2e / year |
| | Total costs and costs by CO2e unit | 10.000.000,00€ (1.000,00 €/tn CO2e) |



B-2-2.5. Built environment

Action: BE_1

| B-2.2: Individual action outlines | | |
|--|--|---|
| Action outline | Action name | Energy efficiency interventions in educational facilities of the Municipality of Ioannina |
| | Action type | Technical interventions |
| | Action description | <p>The scope of the project is the energy upgrade of the building envelope of the four school buildings in the Kiasas complex, specifically the 6th, 7th, and 8th Secondary Schools, and the 1st High School of Ioannina</p> <p>List of Actions:</p> <ul style="list-style-type: none"> • Thermal insulation and waterproofing of the wooden roof • External thermal insulation of the building envelope • Installation of new aluminum frames with the appropriate technical specifications • Replacement of the lighting with new LED fixtures, where feasible • Replacement of the old boiler and installation of a new heating system, with simultaneous insulation of the distribution pipe network |
| Reference to impact pathway | Field of action | Built environment |
| | Systemic lever | - Technology/ infrastructure |
| | Outcome (according to module B-1.1) | - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | - Buildings - City scale - Public Schools |
| | Involved stakeholders | - Municipality of Ioannina - Schools of Ioannina - Public Power Corporation (PPC) |
| | Comments on implementation | <p>The program requests funding for 5.000.000 € and its budget will be allocated as follows: 5.000.000 € for energy efficiency interventions in educational facilities of the Municipality of Ioannina.</p> <p>The program will start when funding is obtained, and is estimated to end by 2027.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity usage by 0,25% • Buildings on Public Sector / Diesel usage by 10% |



| | | |
|---------------|---|---|
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel Estimated 56.86 MWh / year |
| | GHG emissions reduction estimate (total) per emission source sector | 15.31 tn CO2e / year (Diesel) |
| | Total costs and costs by CO2e unit | 5.000.000,00€ (300.000,00 €/tn CO2e) |



Action: BE_2

| B-2.2: Individual action outlines | | |
|--|--|---|
| | Action name | Replacement of lighting fixtures and installation of a control system in buildings of the Municipality of Ioannina |
| | Action type | Technical interventions |
| Action outline | Action description | <p>The scope of the project is to achieve not only energy and resource savings but also to meet the requirements of a human-centric and sustainable lighting, which satisfies the visual comfort, performance, and safety of the building users.</p> <p>Special attention will be given to the utilization of natural lighting to provide artificial lighting where and when needed (proper light at the proper time). The intervention will fully comply with European standards EN 12464-1 for indoor spaces and EN 12464-2 for outdoor spaces, as well as specific requirements. The process to be followed is as follows:</p> <ul style="list-style-type: none"> • Categorization of lighting needs for spaces according to the aforementioned standards and/or internal regulations and operational specifications. • Lighting studies for all indoor and outdoor spaces, and identification of typical lighting fixtures. • Determination of Building Management Systems (BMS) for controlling the installations both at the building level and holistically |
| Reference to impact pathway | Field of action | Energy Efficiency in Buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies - Capacity and capability development |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Buildings of Municipality of Ioannina |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Comments on implementation | <p>The program requests funding for 2.000.000 € and its budget will be allocated as follows: 2.000.000 € for Replacement of lighting fixtures and installation of a control system in buildings of the Municipality of Ioannina.</p> <p>The program will start when funding is obtained, and is estimated to end by 2025.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity usage by 34% |



| | | |
|---------------|---|---|
| | | <ul style="list-style-type: none"> • Buildings on Public Sector / Diesel usage by 20% • Buildings on Public Sector (Schools) / Diesel usage by 20% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel Estimated 2.907,87 MWh / year |
| | GHG emissions reduction estimate (total) per emission source sector | 1.755,13 tn CO ₂ e / year (Electricity) |
| | Total costs and costs by CO ₂ e unit | 2.000.000,00€ (1.139,60 €/tn CO ₂ e) |



Action: BE_3

| B-2.2: Individual action outlines | | |
|--|--------------------|--|
| Action outline | Action name | Energy efficiency interventions in buildings and infrastructure of the Municipality of Ioannina |
| | Action type | Technical interventions |
| | Action description | <p>Five existing buildings have been selected for energy-saving interventions. These include two (2) municipal service buildings of the Municipality of Ioannina (Pirsinella Mansion and the building housing the Citizen Service Centers), two (2) buildings of the Public Benefit Enterprise for Culture, Environment, Youth, and Sports of the Municipality of Ioannina, located in Kourampas Park (K.D.A.P. Building and Philharmonic Building), and one (1) building of the Social Protection - Solidarity & Preschool Education Organization of the Municipality of Ioannina (1st K.A.P.H.), also situated in Kourampas Park.</p> <p>According to the building energy efficiency regulation, significant emphasis is placed on the thermal insulation of the building envelope, as the required heating and cooling loads depend on it. Therefore, limiting thermal exchanges with the environment is crucial. To achieve a reduction in the building's thermal losses, it is proposed to thermally insulate their structural elements (where feasible without major issues), such as installing thermal insulation layers on vertical external structural elements and beneath non-insulated roofs. The replacement of all building windows and doors is recommended. For each type of window (sliding, opening, fixed), new windows will be selected, with indicative types sourced from market products. Additionally, the replacement of the lighting systems is proposed.</p> <p>The objective goes beyond energy and resource savings; it aims to meet the requirements of a human-centric and sustainable lighting, which satisfies visual comfort, performance, and safety of the building users, while giving particular attention to utilizing natural lighting. Finally, the installation of Building Management Systems (BMS) will be carried out to control and monitor all the installations</p> <p>List of Actions:</p> <ul style="list-style-type: none"> • installing thermal insulation layers on vertical external structural elements and beneath non-insulated roofs • replacement of all building windows and doors • replacement of the lighting systems |
| Reference to impact pathway | Field of action | Energy Efficiency in Buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies - Capacity and capability development |



| | | |
|----------------|---|--|
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Buildings of Municipality of Ioannina |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Comments on implementation | <p>The program requests funding for 5.000.000 € and its budget will be allocated as follows: 5.000.000 € for energy efficiency interventions to the Municipality buildings and infrastructures.</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / Diesel usage by 20% • Buildings on Public Sector (Schools) / Diesel usage by 20% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed Energy :</p> <ul style="list-style-type: none"> • Fuel type : <ul style="list-style-type: none"> ○ Electricity ○ Diesel <p>Estimated 10,79 MWh / year</p> |
| | GHG emissions reduction estimate (total) per emission source sector | 2,67 tn CO2e / year (Diesel) |
| | Total costs and costs by CO2e unit | 5.000.000,00€ (22.721,49 €/tn CO2e) |



Action: BE_4

| B-2.2: Individual action outlines | | |
|--|--|--|
| | Action name | Interventions for the energy upgrade of the Municipality's buildings |
| Action outline | Action type | Technical interventions |
| | Action description | <p>Energy upgrade of eight (8) existing Municipal buildings</p> <p>The technologies that will be applied to achieve the savings will include:</p> <ul style="list-style-type: none"> • use of Geothermal and Heliothermic Systems for Heating the main areas, • interventions in the shell of the Buildings such as e.g. addition of building thermal insulation and • installation of new technology frames and glazing • installation of Building Energy Management Systems (BEMS) • Replacement of heating, cooling, air conditioning and/or interventions in these facilities • Interventions in the thermal insulation of the building envelope. • Replacement of light fixtures • Installation of solar DHW systems for the production of Domestic Hot Water in Municipal buildings (Closed Gymnasiums, nurseries) that show an increased demand for DHW. • Installation of sunshades outside the building envelope <p>The cost of the interventions in the building facilities of the Municipality was calculated based on a ratio of the total cost of interventions per building surface equal to 150 €/m². The total cost of this action up to the year 2030, was calculated for 20% of the total area of the Municipality's buildings and amounts to €8,026,275.</p> <p>This action is recommended by the Sustainable Energy Action Plan.</p> |
| Reference to impact pathway | Field of action | Energy Efficiency in Buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies - Capacity and capability development |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO₂ emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Buildings of Municipality of Ioannina |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina |



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| | | - Region of Epirus 12.477.000 € for interventions to the Municipality buildings The program will start when funding is obtained, and is estimated to end by 2030. It can be estimated that this program will effect the following sectors by reducing GHG emissions : • Buildings on Public Sector / Electricity usage by 17% • Buildings on Public Sector / Diesel usage by 20% • Buildings on Public Sector (Schools) / Diesel usage by 20% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy : • Fuel type : ○ Electricity ○ Diesel Estimated 2.600 MWh / year |
| | GHG emissions reduction estimate (total) per emission source sector | ~1.000 tn CO ₂ e / year |
| | Total costs and costs by CO ₂ e unit | ~ 13.000.000,00€ (~ 13.000 €/tn CO ₂ e) |



Action: BE_5

| B-2.2: Individual action outlines | | |
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| Action outline | Action name | Installation of RES in existing municipal infrastructure |
| | Action type | Technical interventions |
| | Action description | <p>The Municipality of Ioannina has already proceeded with the installation of Renewable Energy Sources (RES) technologies with the installation of Photovoltaic Systems on the roof of the 8th High School of Ioannina, the Anatoli High School and the 11th & 27th Kindergarten of Ioannina.</p> <p>For the year 2030, the Municipality aims to install photovoltaic systems on municipal buildings with a total installed capacity of 400kW, to install photovoltaic systems on municipal plots with a total installed capacity of 2,000kW and to operate a biogas power plant with an installed capacity of 425kW. This action will result in the production of 6,920,400 kWh per year, which will offset CO2 emissions by 5,128 tCO2 per year.</p> <p>The cost of this action for the year 2030 was calculated at €3,538,000 based on a ratio of €1,070/kW for PV systems and at €970,000 for the biogas power plant. This action is recommended by the Sustainable Energy Action Plan.</p> |
| Reference to impact pathway | Field of action | RES production |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies - RES production |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - Production of Renewable Energy by photovoltaic stations |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Buildings of Municipality of Ioannina |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Comments on implementation | <p>The program requests funding for 3.538.000 € and its budget will be allocated as follows: 3.538.000 € for installation of RES in existing municipal infrastructure.</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 2% |



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| | | <ul style="list-style-type: none"> • Buildings on Public Sector / Electricity by 27% • Buildings on Public Sector / Municipal Lighting usage by 35% |
| Impact & cost | Generated renewable energy (if applicable) | 6.920,4 MWh/year |
| | Removed/substituted energy, volume or fuel type | - |
| | GHG emissions reduction estimate (total) per emission source sector | 5.128 tCO ₂ e/year |
| | Total costs and costs by CO ₂ e unit | 3.538.000€ (~ 670 €/tn CO ₂ e) |



Action: BE_6

| B-2.2: Individual action outlines | | |
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| Action outline | Action name | Organizing events and issuing guides, brochures and other forms in order to inform the citizens and visitors of the Municipality about the benefits and advantages of RES |
| | Action type | Social participation and awareness |
| | Action description | <p>The citizens and entrepreneurs of the Municipality will be informed every four years with informative events and the distribution of brochures, about the advantages of the use of RES technologies such as solar thermal, geothermal, biomass, cogeneration of electricity and heat and small wind turbines. The Municipality will collaborate with scientists, public and private stakeholders to present and promote these technologies and their installation within the Municipality.</p> <p>In total, the installation of RES within the administrative boundaries of the Municipality is expected to produce energy from RES of 6,690,956 kWh/year for the Residential sector, 55,040,324 kWh/year for the Tertiary sector and a total emission reduction of 4,958 tCO₂/year and 40,785 tCO₂/year respectively for each sector by the end of 2030.</p> <p>In the above energy saving and CO₂ emission reduction values for the milestone years, the energy production from RES which was already installed before the reference year is also taken into account, as these units will continue to operate and will continue to contribute to local energy production. These units have been recorded in Deliverable 2 of the study entitled "Inventory of Reference Emissions" and their energy production is 24,420,398kWh/year, which corresponds to a reduction in emissions of 28,059tCO₂/year by the end of 2030.</p> <p>As a cost for the implementation of the action, the cost of the informational material (distribution of brochures) is calculated, as well as the costs of organizing information days for the participation of approximately five hundred (500) interested citizens, costing €5,000 each. At the same time, a relevant publication on the websites of the Municipality, the Regional Unit and the Chamber is proposed.</p> <p>The total cost of this action by 2030, was calculated at €15,000 (3 events).</p> <p>This action is recommended by the Sustainable Energy Action Plan.</p> |
| Reference to impact pathway | Field of action | Built environment |
| | Systemic lever | <ul style="list-style-type: none"> - Learning & capabilities - Citizen engagement and participation - Capacity and capability development |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO₂ emissions and energy consumption |



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| | | <ul style="list-style-type: none"> - Reduced energy costs - RES production |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Private buildings |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Local Stakeholders - Citizens |
| | Comments on implementation | <p>The program requests funding for 30.000 € and its budget will be allocated as follows: 30.000 € for informative events, brochures etc.</p> <p>The program will start when funding is obtained, and is estimated to end by 2030.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 5% • Buildings on Private Sector / diesel usage by 5% • Buildings on Private Sector / LPG usage by 5% • Buildings on Private Sector / Natural Gas usage by 5% • Buildings on Private Sector / Firewood/Pellet usage by 10% • Transport - Public Sector / Diesel usage by 2% • Transport - Public Sector / Gasoline usage by 2% • Transport - Private Sector / Fuel of Citizens Vehicles usage by 2% • Transport - Private Sector / Diesel (City Bus) usage by 2% • Transport - General Transportation / In&Out Boundary emissions by 2% • Waste - Municipal Waste Disposal 1% • IPPU – Industry/ Diesel usage by 5% • IPPU – Industry/ LPG usage by 5% • IPPU – Industry/ CNG usage by 5% • AFOLU – Agriculture/ Diesel usage by 5% • AFOLU – Animal husbandry/ Diesel usage by 5% |
| Impact & cost | Generated renewable energy (if applicable) | 61,73 MWh/year |
| | Removed/substituted energy, volume or fuel type | <p>Removed/substituted energy :</p> <ul style="list-style-type: none"> • Electricity • LPG • Natural Gas • Firewood/Pellet • Diesel |



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| | GHG emissions reduction estimate (total) per emission source sector | 4,57 tCO ₂ e/year |
| | Total costs and costs by CO ₂ e unit | 30.000 € (~ 1 €/tn CO ₂ e) |



Action: BE_7

| B-2.2: Individual action outlines | | |
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| | Action name | Saving energy and increasing energy efficiency with energy upgrading of existing buildings |
| | Action type | Technical interventions |
| Action outline | Action description | <p>Energy upgrade of Traditional Craft Center and its transformation into an "intelligent building" as a core of administrative and functional integration of municipal services.</p> <p>In more detail it is recommended:</p> <p>A) Energy upgrade:</p> <ul style="list-style-type: none"> • Insulation of basements so they don't flood. • Insulation of all external walls and its supporting body building. • Roof and roof insulation. • Replacement of frames. <p>B) Functional upgrade:</p> <ul style="list-style-type: none"> • Construction of a new entrance, larger and brighter corridors so that citizens can clearly navigate their way to services. • Construction of new, larger staircases to meet the building's fire protection specifications. • Closing the open corridors to make them operational. • Removal of the small openings to the south and creation of new ones. • Layout of the offices according to the needs of each service. • Removal of the many different levels of the buildings in order to functionally unify the spaces. <p>The proposed action is estimated that it will support on removing 15% of Municipal Administrative Building Energy Consumption and GHG emissions reduction This action is recommended by the Sustainable Urban Development Plan.</p> |
| Reference to impact pathway | Field of action | Built environment |
| | Systemic lever | <ul style="list-style-type: none"> - Technology - Infrastructure - Local development strategies - Capacity and capability development - Finance |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Municipal buildings |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Local Stakeholders |



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| | | <ul style="list-style-type: none"> - Residents of Ioannina City - Businesses |
| | Comments on implementation | <p>The program requests funding for 5.000.000 € and its budget will be allocated as follows: 5.000.000 € for Public Sector Buildings/ Schools.</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Public Sector / electricity usage by 5% • Buildings on Public Sector (Schools) / diesel usage by 25% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Removed Energy: <ul style="list-style-type: none"> • Electricity • Diesel Estimated reduction 1.250 MWh/year |
| | GHG emissions reduction estimate (total) per emission source sector | 752 tCO ₂ e/year |
| | Total costs and costs by CO ₂ e unit | 5.000.000 € (~ 6.650 €/tn CO ₂ e) |



Action: BE_8

| B-2.2: Individual action outlines | | |
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| Action outline | Action name | Home Energy Saving Program |
| | Action type | Technical interventions |
| | Action description | <p>The Home Energy Saving Program is the new program for the energy upgrading and autonomy of residential buildings, with a total budget of approximately 900 million euros (national level). The design of the Program considers a comprehensive approach to energy-saving interventions in the residential building sector and aims to:</p> <ul style="list-style-type: none"> • Reduce the energy needs of buildings and the emissions of pollutants contributing to the aggravation of the greenhouse effect. • Save costs for citizens, improve daily living conditions and comfort, as well as the safety and health of citizens during the use of these buildings. • Achieve a cleaner environment. <p>The Program provides incentives for energy-saving interventions and the enhancement of energy autonomy in the residential building sector, with the objective of reducing energy needs and consumption of conventional fuels, within the framework of transitioning to a 'Smart Home.'</p> <p>The Program applies to buildings that have a building permit or other legal document, are used as the primary residence, and whose owners meet specific income criteria. Specifically, the Program includes five (5) categories of incentives, to which beneficiaries are assigned based on their income. Additional incentives are given in the lignite regions of the country, as a fair transition clause. Moreover, incentives are provided for energy upgrading interventions in multi-apartment buildings with individual applications for separate apartments, including both common and non-common areas upgrades. Additionally, a special category of incentives is provided for autonomous interventions concerning only the common areas of multi-apartment buildings, excluding interventions in individual apartments.</p> <p>The program covers various energy upgrades, such as thermal insulation of the building envelope, replacement of fixtures, installation of new and more efficient heating systems, installation of photovoltaic systems, and many others. These energy upgrades help reduce the energy operational expenses of buildings and improve their energy efficiency.</p> <p>The program is in process.</p> |
| Reference to impact pathway | Field of action | Built environment |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Local development strategies - Technology |



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| | | <ul style="list-style-type: none"> - Infrastructure - Local development strategies - Capacity and capability development - Finance |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - Citizens and businesses engagement |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Private buildings |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Local Stakeholders - Residents of Ioannina City - Businesses - European Union |
| | Comments on implementation | <p>The program is funded by resources from the Recovery and Resilience Fund, and its budget will be allocated as follows:</p> <ul style="list-style-type: none"> • 30.000.000 € for Private Sector Buildings/ Households. <p>The program is on progress and ends by the end of 2027.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 10% • Buildings on Private Sector / diesel usage by 15% • Buildings on Private Sector / LPG usage by 10% • Buildings on Private Sector / Natural Gas usage by 10% • Buildings on Private Sector / Firewood/Pellet usage by 25% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | <p>Removed energy:</p> <ul style="list-style-type: none"> • Fuel Type: <ul style="list-style-type: none"> ○ Electricity ○ Diesel ○ LPG ○ Natural Gas <p>Estimated reduction 6.652,36 MWh</p> |
| | GHG emissions reduction estimate (total) per emission source sector | <ul style="list-style-type: none"> - Diesel : 778,48 tn CO2e /year - LPG : 28,45 tn CO2e /year - Natural Gas : 72,27 tn CO2e /year - Electricity : 1.076,08 tn CO2e /year |
| | Total costs and costs by CO2e unit | <p>30.000.000 € (Ioannina City) (~ €/tn CO2e)</p> |



Action: BE_9

| B-2.2: Individual action outlines | | |
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| | Action name | Recycle-Change of Water Heater |
| | Action type | Technical interventions |
| Action outline | Action description | <p>The program "Recycle-Change Water Heater" subsidizes households for the replacement of energy-intensive Electric Water Heaters with new, modern Solar Water Heaters. The program includes:</p> <ul style="list-style-type: none"> • Subsidy for the purchase of a new Solar Water Heater with modern technology. • Subsidy for the cost of necessary additional works required for the replacement of the old Electric Water Heater with the new Solar Water Heater (e.g., transportation cost, installation of the New Solar Water Heater, or removal of the old Water Heater, consumables, and accessories, etc.). • Mandatory delivery of the old electric water heater to the retail dealer from whom the new Solar Water Heater is acquired. |
| Reference to impact pathway | Field of action | Energy Efficiency in Buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Technology - Infrastructure - Local development strategies - Capacity and capability development - Finance |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - Citizens and businesses engagement |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Private buildings |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Local Stakeholders - Residents of Ioannina City - Businesses - European Union |
| | Comments on implementation | <p>The program is funded by resources from the Recovery and Resilience Fund, and its budget will be allocated as follows:</p> <ul style="list-style-type: none"> • 1.000.000 € for the replacement of energy-intensive Electric Water Heaters with new, modern Solar Water Heaters. <p>The program will start by the end of 2023 and end by the end of 2027</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> |



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| | | <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 5% • Buildings on Private Sector / Diesel usage by 10% • Buildings on Private Sector / LPG usage by 5% • Buildings on Private Sector / Natural Gas usage by 5% • Buildings on Private Sector / Firewood/Pellet usage by 25% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | Substituted energy: 3.763,5 MWh / year |
| | GHG emissions reduction estimate (total) per emission source sector | 2.271,58 tn CO ₂ e /year (electricity) |
| | Total costs and costs by CO ₂ e unit | 107.700.071 € (National Level) Estimated for Ioannina City 1.000.000 € (~ 450 €/tn CO ₂ e) |



Action: BE_10

| B-2.2: Individual action outlines | | |
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| | Action name | Energy Upgrade of the Municipality's Building Stock through ESCOs |
| | Action type | Technical interventions |
| Action outline | Action description | <p>The action to upgrade the energy efficiency of the Municipality's building stock through ESCOs is a pivotal step towards achieving Ioannina's climate neutrality goals. However, the successful realization of this action requires a meticulous approach to several key aspects:</p> <ul style="list-style-type: none"> - ESCO Selection and Collaboration: The choice of ESCOs is crucial. The Municipality should prioritize ESCOs with a proven track record in similar projects and ensure transparent and collaborative working relationships. Regular meetings and progress reports will be essential to monitor the ESCO's performance and adherence to the project's goals. - Stakeholder Engagement: While the action primarily involves ESCOs, it's essential to engage with building occupants, local communities, and other stakeholders. Their feedback and cooperation can provide valuable insights and facilitate smoother implementation. - Technical Challenges: Upgrading older buildings can present unforeseen technical challenges. It's vital to conduct thorough building assessments before initiating upgrades to anticipate potential issues and plan accordingly. - Financing Mechanisms: The proposed financing model, which combines national and European resources, green loans, and third-party financing through ESCO contracts, is innovative. However, it's essential to ensure clarity in financial agreements, timelines, and responsibilities to prevent potential disputes or delays. - Monitoring and Verification: Post-upgrade, a robust monitoring and verification system should be in place to assess the energy performance of the upgraded buildings. This system will validate the effectiveness of the upgrades and ensure the anticipated energy savings are realized. - Regulatory and Legal Considerations: The Municipality should be aware of any regulatory or legal implications related to building upgrades, especially when altering historical or culturally significant structures. - Capacity Building: Training sessions for municipal staff and building occupants can enhance the long-term sustainability of the upgrades. Educating stakeholders about the benefits and maintenance |



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| | | <p>of the new systems will ensure they are utilized efficiently.</p> <ul style="list-style-type: none"> - Integration with Broader Climate Goals: While this action focuses on energy upgrades, it should be integrated with the Municipality's broader climate neutrality objectives. Synergies with other actions, such as sustainable transportation or waste management, can amplify the overall impact. - The action to upgrade the Municipality's building stock through ESCOs is a commendable initiative. By addressing the above considerations and maintaining a collaborative and adaptive approach, the Municipality of Ioannina can ensure the successful and sustainable implementation of this action, making significant strides towards its 2030 climate neutrality target. <p>Projected Timeline:</p> <ul style="list-style-type: none"> - With an emphasis on public infrastructure and educational institutions, we anticipate delineating the complete financial outlay for the requisite energy enhancements in each CNZ. Furthermore, we've charted an implementation timeline for the upgrades, focusing especially on structures falling below the B+ energy classification. <p>Timeline:</p> <ul style="list-style-type: none"> • By 2025: Complete upgrade of all educational institutions within each CNZ. • By 2027: Full upgrade of every public building within the Municipality across each CNZ. • By 2025: Enhancement of 30% of residential structures. • By 2025: Refurbishment of 30% of hospitality establishments. • By 2028: Upgrade of 70% of artisanal and industrial facilities. • By 2028: Comprehensive upgrade of all Municipality-owned public edifices. <p>By 2030: Full-scale upgrade of every structure within each CNZ, irrespective of its function.</p> |
| Reference to impact pathway | Field of action | Built environment |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Technology - Infrastructure - Local development strategies - Capacity and capability development - Finance / Local economy - Promotion of Cultural Shift - Energy security - Benchmark project / beacon for other Municipalities |



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| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO₂ emissions and energy consumption - Reduced energy costs |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City Scale - Municipal Buildings - Private buildings |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality's Transition Team - Climate Neutrality Offices - Technical Chamber of Greece (TEE) - Greek Climate Neutrality Observatory - Financial Entities (ESCOs) - Local stakeholders - Central Government and Other Municipal Groups - University of Ioannina |
| | Comments on implementation | <p>The program requests funding for 100.000.000 €</p> <p>The program will start when funding is obtained, and is estimated to end by 2028.</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 15% • Buildings on Private Sector / diesel usage by 15% • Buildings on Private Sector / LPG usage by 15% • Buildings on Private Sector / Natural Gas usage by 10% • Buildings on Private Sector / Firewood/Pellet usage by 15% • Transport - Private Sector / Fuel of Citizens Vehicles usage by 5% • Transport - Private Sector / Diesel (Intercity Bus) usage by 5% • Transport - Private Sector / Diesel (City Bus) usage by 2% • Transport - General Transportation / In&Out Boundary emissions by 6% |
| Impact & cost | Generated renewable energy (if applicable) | ~ 13.500,00 MWh / year |
| | Removed/substituted energy, volume or fuel type | ~ 100.000,00 MWh / year |
| | GHG emissions reduction estimate (total) per emission source sector | <p>~ 10.000,00 tn CO₂e / y (RES)</p> <p>~ 40.000,00 tn CO₂e / y (removed)</p> |
| | Total costs and costs by CO ₂ e unit | <p>(2.000,00 €/tn CO₂e)</p> <p>100.000.000,00 €</p> |



Action: BE_11

| B-2.2: Individual action outlines | | |
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| | Action name | Businesses Energy-Saving Program |
| | Action type | Technical interventions |
| Action outline | Action description | <p>Through the Businesses Energy-Saving Program, traders, professionals in the Services sector, as well as those in the Tourism industry, secure subsidies reaching up to €250,000. This funding encompasses, thermal insulation, interventions in heating and cooling systems, shading or ventilation of spaces, and even photovoltaic or small wind turbines. These grants cover a portion of the cost with free state funds.</p> <p>Eligible expenditures are categorized as expenses for the implementation of energy efficiency upgrades:</p> <ul style="list-style-type: none"> • Energy efficiency interventions on building envelopes, such as thermal insulation of opaque structural elements, replacement of transparent structural elements, installation of shading systems • Energy efficiency interventions on lighting systems, both interior and exterior, including replacement of light fixtures with new LED technology, installation of automation systems for linking artificial and natural lighting, installation of automation systems for reducing consumption during user absence/presence. • Energy-saving interventions in space heating systems, such as replacing boilers with heat pumps, enhancing thermal insulation of distribution networks, replacing terminal units with newer, more energy-efficient models • Energy-saving interventions in space cooling systems, such as replacing chillers with newer technology heat pumps or coolers, enhancing thermal insulation of distribution networks, replacing terminal units with newer, more energy-efficient models • Energy-saving interventions in space ventilation systems, such as replacing exhaust fans with newer technology ones that feature heat recovery from rejected air, enhancing thermal insulation of distribution networks, replacing fan units with newer, more energy-efficient models controlled by electronic devices (inverters). • Energy-saving interventions in hot water supply systems, such as replacing boilers with heat pumps, enhancing thermal insulation of distribution networks, replacing storage units with newer, more energy-efficient models |



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| | | <ul style="list-style-type: none"> • Installation of renewable energy systems, such as solar thermal systems, photovoltaic systems, energy storage systems, small wind turbines, and geothermal heat pumps, including ground source heat pumps • Installation of automation, control, and management systems at both local and central levels |
| | | Power quality improvement systems |
| Reference to impact pathway | Field of action | Energy Efficiency in Buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Technology - Infrastructure - Local development strategies - Capacity and capability development - Finance |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - Citizens and businesses engagement |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Private Companies - Recovery and Resilience Fund |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Businesses - Tourism Industry |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Local Stakeholders - Residents of Ioannina City - Businesses - Ministry of Energy and Environment |
| | Comments on implementation | <p>The program is funded by resources from the Recovery and Resilience Fund, and its budget will be allocated as follows:</p> <ul style="list-style-type: none"> • 12.500.000 € for the Commerce and Services sectors • 12.500.000 € for the Tourism sector <p>The program will start by the end of 2023 and end by the end of 2027</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 15% • Buildings on Private Sector / LPG usage by 15% • Buildings on Private Sector / Natural Gas usage by 15% • Buildings on Private Sector / Firewood/Pellet usage by 15% • Transport - Private Sector / Fuel of Citizens Vehicles usage by 5% |



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| | | <ul style="list-style-type: none"> • Transport - Private Sector / Diesel (Intercity Bus) usage by 5% • Transport - Private Sector / Diesel (City Bus) usage by 5% • Transport - General Transportation / In&Out Boundary emissions by 5% |
| Impact & cost | Generated renewable energy (if applicable) | |
| | Removed/substituted energy, volume or fuel type | Removed energy : <ul style="list-style-type: none"> • Electricity • LPG • Natural Gas • Firewood/Pellet • Diesel |
| | GHG emissions reduction estimate (total) per emission source sector | 25.035,42 tn CO2e / y (removed) |
| | Total costs and costs by CO2e unit | 25.000.000,00 € (~ 1.000€/tn CO2e) |

Action: BE_12

| B-2.2: Individual action outlines | | |
|-----------------------------------|---|--|
| Action outline | Action name | Renovate - Energy Saving on monument buildings |
| | Action type | Technical interventions |
| | Action description | |
| Reference to impact pathway | Field of action | Energy Efficiency on monument buildings |
| | Systemic lever | <ul style="list-style-type: none"> - Citizen engagement and participation - Technology - Infrastructure - Local development strategies |
| | Outcome (according to module B-1.1) | <ul style="list-style-type: none"> - Reduction of CO2 emissions and energy consumption - Reduced energy costs - Citizens and businesses engagement |
| Implementation | Responsible bodies/person for implementation | <ul style="list-style-type: none"> - Municipality of Ioannina - Private Companies - NSRF 2021-2027 |
| | Action scale & addressed entities | <ul style="list-style-type: none"> - City scale - Businesses - Tourism Industry |
| | Involved stakeholders | <ul style="list-style-type: none"> - Municipality of Ioannina - Region of Epirus - Local Stakeholders - Residents of Ioannina City - Businesses - Ministry of Energy and Environment |
| | Comments on implementation | <p>The program is funded by resources from the Recovery and Resilience Fund, and its budget will be allocated as follows:</p> <ul style="list-style-type: none"> • 30.000.000 € on monument buildings <p>The program will start by the end of 2023 and end by the end of 2027</p> <p>It can be estimated that this program will effect the following sectors by reducing GHG emissions :</p> <ul style="list-style-type: none"> • Buildings on Private Sector / electricity usage by 5% |
| Impact & cost | Generated renewable energy (if applicable) | - |
| | Removed/substituted energy, volume or fuel type | - |
| | GHG emissions reduction estimate (total) per emission source sector | 3.260,69 tn CO2e / y (removed) |
| | Total costs and costs by CO2e unit | 20.000.000,00 € (~ 9.200,50 €/tn CO2e) |

Climate City Contract

2030 Climate Neutrality Action Plan

2030 Climate Neutrality Action Plan of Municipality of IOANNINA

Appendix IV:

Individual Actions Outline





Climate City Contract

2030 Climate Neutrality Commitments

2030 Climate Neutrality Commitments of Municipality of Ioannina





Disclaimer

The content of this document reflects only the author’s view. The European Commission is not responsible for any use that may be made of the information it contains.

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1 Introduction

Explain your city's motivation to join the EU Mission "100 climate-neutral and smart cities by 2030" and highlight your city's present commitments to climate action. You may also want to include the aims of this document.

Your text

The Municipality of Ioannina, a proud participant in the 100 Climate Neutral Cities initiative, is embarking on a transformative journey towards achieving climate neutrality by 2030. This Commitment Plan serves as a solemn pledge, outlining the strategic imperatives that will bridge the gap between our current greenhouse gas (GHG) emissions inventory and our ambitious 2030 climate neutrality target.

Ioannina, the jewel of northwestern Greece and the capital of the Epirus Region, is a city that embodies both historical richness and forward-thinking dynamism. With a population exceeding 110,000, it serves as a strategic nexus, situated at the intersection of two major highways—Egnatia and Ionia—and in close proximity to Albania and the international port of Igoumenitsa.

Nestled amidst verdant mountains and fast-flowing rivers, the city is further adorned by Lake Pamvotida and its unique inhabited island. This natural beauty, coupled with a multicultural tapestry woven from Christian, Muslim, and Jewish communities, makes Ioannina a city of diverse cultural and environmental assets.

In recent years, Ioannina has evolved into a vibrant hub of academic excellence, technological entrepreneurship, and civic engagement. Home to one of Greece's most significant university institutions, comprising 26 departments across 11 schools and over 20,000 students, the city is also the birthplace of the Epirus Science and Technology Park. This confluence of intellectual and technological capital positions Ioannina as a city ready to embrace the challenges and opportunities of sustainable development.

Our motivation for joining the EU Mission "100 climate-neutral and smart cities by 2030" is rooted in our commitment to leverage these assets for the betterment of our community and the world at large. We see this as a natural progression of our existing efforts to improve living conditions, protect our rich natural environment, and foster a sustainable future.

Over the past few years, Ioannina has become a burgeoning tourist destination, boasting both a robust hospitality sector and a high-quality business-tourism infrastructure. This growth has been paralleled by a focus on sustainability, as evidenced by our ongoing initiatives in renewable energy, sustainable transport, energy efficiency, and waste management. We are already in the process of implementing a range of climate actions, many of which align with the EU's climate neutrality goals.

The Municipality's commitment to climate neutrality is not a recent development. Since 2016, the Mayor signed the Covenant of Mayors, setting an optimistic target of reducing emissions by 40% by 2023 and committing to climate neutrality by 2050. The late Mayor Moses Elisaf, a visionary in his own right, took the optimistic decision to participate in the European Commission's invitation for the 100 European cities aspiring to become climate-neutral and smart cities by 2030. This decision was not made in isolation but was the result of collaborative efforts with academic institutions, private companies, and local stakeholder.

The journey towards climate neutrality for Ioannina is not a newfound ambition. Since 2016, our city has been a signatory to the Covenant of Mayors, initially setting an optimistic target of reducing emissions by 40% by 2023. The late Mayor Moses Elisaf, a visionary in sustainable urban development, further accelerated our efforts by leading the decision of the Economic Committee for the Municipality to join the European Commission's invitation for the 100 European cities aspiring to become climate-neutral by 2030. This Commitment Plan is a tribute to his legacy and a continuation of the work initiated under his leadership.



The Imperative for Action: The global climate crisis and the European Green Deal have heightened the urgency for a more proactive and targeted approach to climate action. The Municipality of Ioannina acknowledges this urgency and is committed to transcending traditional policy frameworks to adopt innovative methodologies and strategies that align with both local imperatives and global climate goals.

Methodological Framework: Inspired by the European Environment Agency's urban environment mapping and assessment, we have adopted the Climate Neutrality Zones (CNZs) methodology. This allows us to divide our territory into distinct zones, each with its unique environmental characteristics, thereby enabling tailored strategies for maximum effectiveness.

Institutional Mechanisms: To ensure systematic monitoring and implementation, we have established Climate Neutrality Offices (CNOs) and a Climate Neutrality Observatory. These institutions will work in close collaboration with the Technical Chamber of Greece (TEE) and other stakeholders to roll out comprehensive climate action initiatives.

Stakeholder Engagement: This Commitments Plan is a product of extensive multi-stakeholder engagement, involving academic institutions, local businesses, civil society, and citizens. It is a living document that will be periodically updated to reflect new commitments, stakeholder inputs, and advancements in climate science and policy.

Strategic Priorities: Our strategic priorities include decarbonizing the energy sector, promoting sustainable mobility, enhancing waste management, and fostering digital innovation for environmental monitoring. These priorities are aligned with our broader Sustainable Energy Management Plan, Local Waste Management Plan, and Sustainable Urban Mobility Plan.

Our journey towards climate neutrality is guided by a comprehensive set of commitments:

1. **Climate Neutrality:** Our primary goal is to achieve climate neutrality by 2030. This ambitious target is focused on stationary energy and transport, two sectors that are pivotal in our city's carbon footprint. We are investing in renewable energy sources and promoting energy efficiency in buildings to reduce our stationary energy emissions. In transport, we are encouraging the use of bicycles and electric cars, and envisioning a pedestrianized city center to reduce our reliance on fossil fuels.
2. **Co-Creation:** We believe in the power of collaboration and are working closely with academic institutions and local citizens to co-create a future Climate Neutral and smart City. This approach ensures that our climate action plans are rooted in the needs and aspirations of our community.
3. **Strategic Planning:** We have developed several strategic plans, including the Sustainable Energy Action Plan, Sustainable Urban Mobility Plan, Sustainable Urban Development Strategy, and Waste Management Plan. These plans provide a roadmap for our climate action efforts and are being implemented with the active participation of our community.
4. **Organizational Change:** Recognizing the need for dedicated resources, we intend to create a new administrative unit focusing on climate neutrality planning and monitoring. This unit will be responsible for coordinating our climate action efforts and ensuring that we stay on track to achieve our goals.
5. **Data Monitoring:** We are committed to data-driven decision making. To this end, we are renewing collected data, creating a tool for monitoring and reporting, evaluating the current situation, and proposing policies/actions for updating the existing plans.
6. **Nature-Based Solutions:** We are exploring nature-based solutions to address global societal challenges. This includes co-creating urban green infrastructure that not only enhances the beauty of our city but also contributes to our climate neutrality goals.
7. **Lake Pamvotis Waterway:** We are considering the development of a waterway on Lake Pamvotis. This project has the potential to provide a sustainable transport alternative and contribute to our climate neutrality goals.
8. **Waste Management:** We are improving waste management, with a focus on separate collection at Green Points, mobile Green Points, and municipal spaces. We are also



enhancing the separate collection of special waste streams. These efforts will not only reduce our carbon footprint but also contribute to a cleaner and healthier environment for our community.

9. **Awareness Campaign:** We are planning to implement an awareness campaign to sensitize and prevent waste generation. This campaign will educate our community about the importance of waste reduction and recycling, and encourage them to contribute to our climate neutrality goals.

The aim of this document is to detail these commitments and provide a roadmap for how the Municipality of Ioannina will maintain and enhance its climate neutrality status. This document serves as a testament to our dedication to the fight against climate change and a guide for our ongoing efforts.

Our approach is guided by key principles such as accountability, transparency, and innovation. We believe in co-creation, multi-actor and citizen engagement, and systemic and demand-driven actions. We are committed to thorough monitoring and joint learning, ensuring that our actions are effective and our progress is measurable.

We understand that the Climate City Contract is a living document and should be updated periodically to review its effectiveness, accountability to commitments, and to include new stakeholders and commitments in line with budgetary and monitoring cycles and citizen engagement processes.

Our commitments capture the outcomes of the co-creation process with local, regional, and national stakeholders, establishing new ways of working together to meet the 2030 climate neutrality challenge. Our overall priorities aim to bring about systemic change in the city as a whole, including in the sectors responsible for most emissions in the city.

We are committed to making meaningful changes that will have a profound impact on reducing GHG emissions in our city. We are setting ambitious objectives that will bring about real measurable change and radically reduce GHG emissions. We are providing a concrete timeline and monitorable targets for achieving these changes, as well as identifying which stakeholders need to be involved and how.

We, the undersigned, hereby commit to making the Municipality of Ioannina climate neutral by 2030. We agree on the joint vision and commitments, as formulated in the Municipality of Ioannina's Climate City Contract. We are dedicated to this mission and will work tirelessly to achieve our goals.

This Commitment Plan is not merely a document; it is a manifestation of our collective will, shared vision, and steadfast commitment to a sustainable and climate-neutral future. It sets the stage for a transformative journey that will not only make Ioannina a beacon of sustainability but also contribute to the global fight against climate change.

2 Goal: Climate neutrality by 2030

Articulate your 2030 climate neutrality ambition, as expressed and defined in your Cities Mission Expression of Interest (EoI). This should include your ambition and commitment to a 2030 horizon as a whole city, as well as describe any exclusion areas and summarise how these areas would be addressed beyond 2030. (A more detailed plan for exclusion areas should be included in the 2030 Climate Neutrality Action Plan.) Your 2030 ambition should be supported at a minimum by a Council decision, and it is recommended that it is also supported by a wider stakeholder group. We also recommend you to list other co-benefits you aim to achieve when working towards the climate neutrality goal, like well-being, health, equity, justice, financial savings.

Your text



The Municipality of Ioannina, with its unwavering commitment to climate neutrality by 2030, is driven by a sense of urgency and opportunity. This ambitious goal is not only a response to the global climate crisis but also a chance to foster a healthier, more sustainable, and equitable city for all its residents.

Our commitment to climate neutrality by 2030 is explicitly articulated in our Cities Mission Expression of Interest (EoI). This commitment encompasses the entirety of Ioannina and is backed by a Council decision (473/2023), as well as the support of a broad group of stakeholders, including local citizens, academic institutions, and businesses.

Our primary focus areas are stationary energy and transport. However, we acknowledge that there may be sectors that cannot be fully addressed by 2030. For these areas, we will formulate a comprehensive plan within our 2030 Climate Neutrality Action Plan, outlining strategies to address these sectors beyond 2030. This ensures that no area is overlooked in our pursuit of climate neutrality.

Our commitment to climate neutrality extends beyond the reduction of greenhouse gas emissions. We envision a city that is healthier, more sustainable, and equitable for all its residents. Our climate action efforts aim to yield several co-benefits, including:

- ✓ **Well-being:** By fostering a cleaner and healthier environment, we aim to enhance the overall well-being of our residents.
- ✓ **Health:** By mitigating air pollution and increasing access to green spaces, we aim to improve public health.
- ✓ **Equity:** By ensuring all residents are involved in our climate action efforts, we aim to distribute the benefits of climate action equitably.
- ✓ **Justice:** By actively addressing the climate crisis, we contribute to climate justice, ensuring future generations inherit a healthy and sustainable planet.
- ✓ **Financial Savings:** By endorsing energy efficiency and renewable energy, we aim to assist residents and businesses in reducing their energy costs.

In addition to these co-benefits, we are dedicated to transforming Ioannina into a smart city, leveraging technology and data to enhance the quality of life, sustainability, and efficiency of urban services.

Our commitment to climate neutrality by 2030 is a testament to our dedication to combating climate change and creating a brighter future for our city and our planet. We are eager to embark on this journey and are committed to working relentlessly to achieve our goals.

Our approach is underpinned by key principles such as accountability, transparency, and an innovative mindset. We believe in the power of co-creation, engaging multiple actors and citizens, and implementing systemic and demand-driven actions. We are committed to rigorous monitoring and joint learning, ensuring our actions yield measurable results and our progress is transparent.

In our journey towards climate neutrality, we are considering the creation of a new department focusing on planning and managing actions for climate neutrality - the Climate Crisis and Sustainable Development Unit. This unit, under the supervision of the Mayor, will target the development of a NetZero2030 plan, create a Task Team of experts, renew all collected data, create a new tool for monitoring and reporting, and propose policies/actions to reach the aim of climate neutrality. Closer engagement of the local community will also be a unit's aim. This innovative approach will ensure that our city is not only prepared for the challenges ahead but also poised to seize the opportunities that come with the transition to a climate-neutral future.

3 Key priorities and strategic interventions

This is the core section of the Commitments document that should summarise **at least 3 or 4 systemic strategic priorities** that need to be implemented for your city to become climate neutral by 2030. These

should be meaningful changes that will have a profound impact on reducing GHG emissions in your city, like decarbonising the heating system in the city or generating 100% energy from renewables. The individual commitments between your city and other stakeholders should address these key priorities and contribute to reaching them. The annexed 2030 Climate Neutrality Action Plan should describe the all interventions, including those to reach your priorities as well as all further actions, in detail and describe how your city plans to implement them.

Your text

The Municipality of Ioannina, in its journey towards climate neutrality by 2030, has identified several key priorities and strategic interventions that will have a profound impact on reducing GHG emissions in our city. These priorities are not only ambitious but also systemic, addressing the root causes of our city's emissions and paving the way for a sustainable future.

Key Priorities and Strategic Interventions

1. Promoting Renewable Energy Sources

- While we acknowledge that achieving 100% of our energy consumption from renewable energy sources (RES) immediately may not be feasible, we are committed to taking advantage of programs to install photovoltaic systems on the roofs of buildings as part of the net metering program. We will also seek the promotion of RES in all industrial, craft, and hotel facilities, both for energy and for heating and cooling. This gradual transition to renewable energy will not only reduce our emissions but also improve air quality and reduce energy costs for our residents.

Specific Actions in Energy Systems

- Action ES_1: Supply and Installation of Internal monitoring system for water network of Ioannina City
- Action ES_2: Supply and Installation of external monitoring system for water network of Ioannina City
- Action ES_3: Upgrade of Existing Wastewater Network Infrastructure
- Action ES_4: Installation of RES on Water Sector – 1 PV station
- Action ES_5: Installation of RES – 4 PV stations
- Action ES_6: Upgrade in the traffic light infrastructure of the Municipality of Ioannina
- Action ES_7: ICT Actions - Digital services and equipment e-governance in the Municipality of Ioannina
- Action ES_8: ICT Actions - Investments in infrastructure and SSC systems for a sustainable & green urban future
- Action ES_9: Public-private partnership for the upgrade of energy efficiency of road and urban lighting system and infrastructure with LED systems

2. Building Infrastructure for Sustainable Transport

- Our second priority is to build infrastructure for sustainable transport. We plan to invest in public transport, cycling and walking infrastructure, and electric vehicle charging stations. We also plan to explore innovative transport solutions, such as a waterway on Lake Pamvotis. By promoting sustainable transport, we aim to reduce emissions from the transport sector, improve air quality, and enhance the livability of our city.

Specific Actions in Mobility & Transport

- Action MT_1: Walking and cycling: a push towards a real sustainable modal shift

- Action MT_2: Greening the bus fleet and strengthening the public transport role
- Action MT_3: Low to zero emission zones: Thorough and JUST transition for pilot zones
- Action MT_4: Less cars- cleaner cars
- Action MT_5: Cleaning and strengthening waterborne transportation
- Action MT_6: Greening logistics. A new era in goods transportation
- Action MT_7: Using Sustainable Transportation on waste collection

3. **Enhancing Energy Efficiency**

- Our third priority is to enhance energy efficiency in buildings and industries. We plan to implement a range of measures, including energy audits, retrofitting programs, and energy management systems. By improving energy efficiency, we can reduce energy consumption, lower emissions, and save costs.

Specific Actions in Built Environment

- Action BE_1: Energy efficiency interventions in educational facilities of the Municipality of Ioannina
- Action BE_2: Replacement of lighting fixtures and installation of a control system in buildings of the Municipality of Ioannina
- Action BE_3: Energy efficiency interventions in buildings and infrastructure of the Municipality of Ioannina
- Action BE_4: Interventions for the energy upgrade of the Municipality's buildings
- Action BE_5: Installation of RES in existing municipal infrastructure
- Action BE_6: Organizing events and issuing guides, brochures and other forms in order to inform the citizens and visitors of the Municipality about the benefits and advantages of RES
- Action BE_7: Saving energy and increasing energy efficiency with energy upgrading of existing buildings
- Action BE_8: Home Energy Saving Program
- Action BE_9: Recycle-Change Water Heater
- Action BE_10: Energy Upgrade of the Municipality's Building Stock through ESCOs

4. **Implementing a Local Waste Management Plan**

- Our fourth priority is to implement a local waste management plan. This plan will focus on reducing waste generation, promoting recycling and composting, and improving waste management practices. By managing our waste more effectively, we can reduce emissions from the waste sector and contribute to a cleaner and healthier environment.

Specific Actions in Waste & Circular Economy

- Action WCE_1: Separate collection of paper & cardboard
- Action WCE_2: Brown bins (food and garden waste) and separate bio-waste collection
- Action WCE_3: Development of a household composting network
- Action WCE_4: Organization of separate waste collection in municipal buildings
- Action WCE_5: Strengthening of the present waste collection network, creating a network for separate collection, and organization of the collection waste management of specific types of waste
- Action WCE_6: Construction of Green Points
- Action WCE_7: Supply of Mobile Green Points
- Action WCE_8: Construction of Recycling Corners
- Action WCE_9: Establishment of a Center for Creative Reuse of Materials
- Action WCE_10: Digital transformation: applying digital tools to waste collection and management
- Action WCE_11: Information and awareness programs for citizens and visitors (Prevention, reuse, repair, proper recycling)
- Action WCE_12: Green Public Procurement



- Action WCE_13: Adoption of the circular economy in the sector of silver jewellery designers and makers
- Action WCE_14: Pilot implementation of circular economy and zero waste on Pamvotis Island
- Action WCE_15: Utilisation and distribution of surplus food from supermarkets, cafes, restaurants
- Action WCE_16: Support (inform, empower) private sector businesses to adopt circular production models
- Action WCE_17: Industrial symbiosis

These strategic interventions will be implemented in collaboration with a wide range of stakeholders, including local citizens, businesses, and academic institutions. We believe that this collaborative approach is key to achieving our climate neutrality goal. The detailed plan for these interventions, including timelines, targets, and stakeholder roles, as well as the actions that have been conducted during the development of the plans (Action - Investment - Commitment plans) are included in our 2030 Climate Neutrality Action Plan.

We understand that achieving climate neutrality by 2030 is a challenging task. However, we are committed to this goal and believe that it is not only achievable but also beneficial for our city. By reducing our emissions, we can improve air quality, enhance public health, create jobs, stimulate local innovation, and save costs. We are excited about this journey and look forward.

4 Principles and process

Highlight the key principles that will guide your city as it implements its Climate City Contract, like accountability, transparency, or an open attitude to new approaches. The process should encompass principles like **co-creation, innovation, multi-actor and citizen engagement**, and should be **systemic and demand-driven in nature**. It should also be based on **monitoring** and **joint learning**. The Commitments Guidance document provides more specific guidance on how integrate these principles into your own process.

Your text

As the Municipality of Ioannina advances on its ambitious path towards achieving climate neutrality by 2030, we are steadfastly guided by a set of core principles. These principles serve as both the bedrock of our strategy and the navigational compass steering us through the intricate landscape of challenges and opportunities that await.

Foundational Principles

- ✓ **Accountability:** Our commitment to accountability is unwavering. Recognizing its pivotal role in engendering stakeholder trust, we will consistently report on our progress and remain receptive to external scrutiny and feedback.
- ✓ **Transparency:** We uphold transparency as a cardinal principle, pledging to disseminate information in an open and honest manner. This ensures that our stakeholders are not only well-informed but also effectively engaged in our climate neutrality initiatives.
- ✓ **Openness to New Approaches:** Innovation is the linchpin of our strategy. We are open to pioneering ideas and methodologies that can accelerate our journey towards climate neutrality.
- ✓ **Co-creation:** We are advocates of the co-creation paradigm, working in close collaboration with local citizens, businesses, and academic institutions to formulate and execute our Climate City Contract.
- ✓ **Multi-Actor and Citizen Engagement:** Our approach is inclusive, involving a diverse array of actors ranging from local citizens to governmental agencies. We believe that collective action is instrumental in combating climate change.
- ✓ **Systemic and Demand-Driven Approach:** We adopt a holistic and demand-driven strategy, targeting the root causes of emissions in our city and crafting interventions that are both comprehensive and integrated.



- ✓ **Monitoring and Joint Learning:** We are committed to a culture of continuous improvement, facilitated by regular monitoring and a willingness to adapt. Learning is a two-way street; we will share our insights with other cities and assimilate their best practices.

Stakeholder Engagement and Communication

In alignment with these principles, we have instituted multiple platforms for stakeholder consultation and public engagement:

- ✓ **Consultation Platforms:** We have launched various consultation mechanisms, including questionnaires and a dedicated Municipality consultation platform, to gather valuable insights from our community.
- ✓ **Workshops:** A series of workshops have been conducted, serving as forums for collaborative dialogue and co-creation of solutions.
- ✓ **Information and Communication Campaign:** Our public engagement strategy employs a multi-faceted approach, leveraging both digital and traditional media channels to maximize reach and impact. Central to this effort is our specialized information portal, 2030.ioannina.gr, which serves as a comprehensive resource for educating and keeping the community updated on our climate initiatives. In addition to the portal, we have an active presence on various Social Media platforms, collectively referred to as SoMe, where we disseminate timely updates, educational content, and calls to action. To ensure a unified and recognizable brand identity across all communication channels, our campaign features its own distinct logo, as illustrated in the figure below:



- ✓ **Mission Friday for the Transition Team:** This internal initiative serves as a regular checkpoint for our Transition Team to review progress, strategize, and align their actions with our overarching goals.

All of our accomplishments in rallying pertinent stakeholders, as well as our comprehensive strategies for future engagement, are meticulously detailed in Chapter 2, titled "Work Process," of our Action Plan. This chapter serves as both a record of our past successes in mobilizing community actors and



a blueprint for how we intend to involve various stakeholders in upcoming iterations of our Climate City Contract (CCC).

Future Commitments

We intend to continue these consultation and workshop platforms, recognizing their invaluable contribution to our mission. Our partnerships with a multitude of agencies and organizations, including but not limited to the Energy Regulatory Authority, Industrial Area, and various academic institutions, underscore our collective commitment to this monumental task.



5 Signatories

Include a list of stakeholders who have committed to help your city achieve its goal to reach climate neutrality by 2030. Detailed commitments and agreements between individuals or groups of stakeholders should be appended to this Commitments document. This list will likely increase over time.

The table below enumerates the stakeholders who have formalized their commitment to Ioannina's climate objectives by signing the "Memorandum of Understanding and Cooperation (MoU) for Participation in the European Commission's '100 Climate-Neutral and Smart Cities' Program." Through this legally binding document, each stakeholder has pledged not only to support but also to actively engage in our collective endeavor. The MoU further delineates the specific actions that each signatory is responsible for, thereby providing a detailed roadmap for transforming Ioannina into a climate-neutral and smart city.

| Name of the institution | Sector/Area | Legal form | Name of the responsible person | Position of the responsible person |
|---|--|---|---|-------------------------------------|
| Region of Epirus | Urban Planning – Buildings Transportation and Sustainable Mobility Circular Economy – Waste Management | Memorandum of Understanding and Cooperation | Alexandros Kachrimanis | District Governor |
| Panhellenic Union of Certified Public Works Contractors Engineers | - | Memorandum of Understanding and Cooperation | Georgios Ntatsis | President |
| Cooperative Bank of Epirus | Urban Planning – Buildings Transportation and Sustainable Mobility Circular Economy – Waste Management | Memorandum of Understanding and Cooperation | Ioannis Vougioukas Vasileios Tsoukanelis | CEO Designated Executive Advisor |



| | | | | |
|---|---|---|----------------------|-----------|
| Technical Chamber of Greece – Epirus Department | Urban Planning – Buildings Transportation and Sustainable Mobility | Memorandum of Understanding and Cooperation | Ioannis Tsigkros | President |
| Intercity transport operator of the Prefecture of Ioannina | Transportation and Sustainable Mobility | Memorandum of Understanding and Cooperation | Grigorios Gkikas | CEO |
| Urban transport operator of the Prefecture of Ioannina | Transportation and Sustainable Mobility | Memorandum of Understanding and Cooperation | Stefanos Moustaklis | CEO |
| Poultry Industry TH. NITSIKOS ABEE | Transportation and Sustainable Mobility Tree Planting | Memorandum of Understanding and Cooperation | - | - |
| Directorate of Secondary Education of Ioannina | Information and awareness programs | Memorandum of Understanding and Cooperation | Stamatoula Logotheti | Director |
| Union of Silversmiths of Ioannina | Waste & circular economy | Memorandum of Understanding and Cooperation | Konstantinos Zervas | CEO |
| Association of Cafes - Bars, Entertainment Centers & Related Professions of the Prefecture of Ioannina "Pamvotis" | Waste & circular economy Transportation and Sustainable Mobility | Memorandum of Understanding and Cooperation | Christos Tatsis | President |
| Federation of Professional Craft and Trade Associations of the Prefecture of Ioannina | Waste & circular economy | Memorandum of Understanding and Cooperation | Christos Tatsis | President |



| | | | | |
|--|---|---|------------------------|------------------------------|
| | Transportation and Sustainable Mobility | | | |
| General Hospital of Ioannina G. Chatzikosta | Energy Saving | Memorandum of Understanding and Cooperation | Spyridon Derdemezis | Hospital Manager |
| Ioannina Basin Water Supply Association | Energy Saving | Letter of Commitment | George Arletos | President |
| Directorate of Primary Education of Ioannina | Information and awareness programs | Memorandum of Understanding and Cooperation | Evangelia Giannakou | Director |
| Association of Hoteliers of the Prefecture of Ioannina | Waste & circular economy | Memorandum of Understanding and Cooperation | Spyridon Sourelis | President |
| University of Ioannina | Transportation and Sustainable Mobility Information and awareness programs Waste & circular economy Urban Planning – Buildings | Memorandum of Understanding and Cooperation | Anna Batistatou | Chancellor of the University |
| Ioannina Chamber | Urban Planning – Buildings Transportation and Sustainable Mobility Circular Economy – Waste Management | Memorandum of Understanding and Cooperation | Eythimios Chrisostomou | President |



| | | | | |
|--|--|--|------------------------------|--|
| <p>Agricultural Poultry Cooperative Ioanninon "PINDOS"</p> | <p>Transportation and Sustainable Mobility Tree Planting Circular Economy – Waste Management</p> | <p>Memorandum of Understanding and Cooperation</p> | <p>Ioannis Patounas</p> | <p>Director of research, development and operations management</p> |
| <p>Municipal Water Supply and Sewerage Company of Ioannina</p> | <p>Energy Saving</p> | <p>Memorandum of Understanding and Cooperation</p> | <p>Aristeides Mpartzokas</p> | <p>President</p> |



Appendix I: Individual Signatory Commitments

Specific agreements that articulate the details of the climate action(s) between the municipality and other stakeholders (individual or groups) can be added to the Commitments document appendix.

For achieving the milestones of climate neutrality, Ioannina Municipality received a number of support letters, such as by other political parties, by the Central Government, as well as by Educational Institutions, Chambers and Associations of the local Society and Private Sector Enterprises and Companies.

In addition, Ioannina proceeded to the signing of Memoranda of Cooperation (MoUs) with important supra-local bodies, all the neighbouring municipalities, as well as other municipalities in Greece and abroad that share the same goals and perspectives. Among them stand the Hellenic Network of Small Islands (ESIN), the Cities Network for Sustainable Development and Circular Economy “Sustainable City”, the UNESCO Chair in Northern Greece, the Network of Cities with Lakes, the Network of European Cities for Sustainable Development “Efxeini Poli”.

At the same time, as the goal of the green transition is supranational, Ioannina has signed memoranda of cooperation and understanding with the Municipalities of Limassol and Aradippou, the Municipality of Kiryat Ono in Israel, as well as the Spanish city of Valladolid.

These documents can be found on the Appendix and are listed below. They are also posted on our website: https://2030.ioannina.gr/?page_id=559

✓ **Laboratories and Universities**

- Laboratory of Climatology and Atmospheric Environment (LACAE) of the Department of Geology and Geoenvironment at the National and Kapodistrian University of Athens (NKUA)
- Sustainable Mobility Unit – National Technical University of Athens, School of Rural Surveying and Geoinformatics Engineering
- UNESCO Chair Con – E – Ect, International Hellenic University
- University of Ioannina

✓ **Greek Municipalities**

- Municipality of Dodoni
- Municipality of Zagori
- Municipality of Zitsa
- Municipality of Metsovo
- Municipality of Voria Tzoumerka
- Municipality of Konitsa
- Municipality of Pogoni

✓ **Foreign Municipalities**

- Kiryat Ono Municipality
- Municipality of Valladolid
- Municipality of Aradippou
- Lemosos (Limassol) Municipality

✓ **Greek Ministry of Environment and Energy**

- General Secretariat of Natural Environment and Water
- General Secretariat of Design & Urban Planning

✓ **Greek Ministry of Transport**

✓ **Local Stakeholders**

- Panhellenic Association of Certified Engineers of Public Works Contractors



- Poultry Organization of Ioannina
 - Secretariat for Primary education of Ioannina
 - Secretariat of Secondary education of Ioannina
 - Regional federation of persons with disabilities of Epirus
 - Organization of urban transport of Ioannina
 - Organization of suburban transport of Ioannina
 - Police Station of Ioannina
 - Municipal Enterprise of Water & WasteWater of Ioannina
 - Bar Association of Ioannina
 - Economic Chamber of Ioannina
 - Hoteliers union of Epirus
 - Association of property owners of Ioannina City
 - Greek Water Airports
 - Transports Association of Ioannina City
 - Association of industry enterprises of Ioannina
 - Association café-Bar
 - Technical Chamber of Greece – Epirus Department
- ✓ **Cities Networks**
- Network of Cities with Lakes
 - Greek network of small islands
 - EOTC Efxini Poli
 - Sustainable Cities
- ✓ **Private Companies**
- ABB SA Greece
 - TERNA SA
 - ZAGORI Water
 - VIKOS Water
 - Nea Idea Metaforiki
 - Lakiotis Metaforiki
 - SIGFOX HELLAS