



**EUROPEAN  
CLIMATE  
PACT**

**HARVESTING SUSTAINABILITY  
IN THE REGION OF PELOPONNESE  
HOW ENERGY COMMUNITIES  
AGRICULTURE, AND  
CIRCULAR ECONOMY  
ARE SHAPING THE FUTURE**

MALLIAROPOULIO THEATER | TRIPOLI - PELOPONNESE REGION

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**SESSION III: NAVIGATING CLIMATE CHALLENGES IN MODERN AGRICULTURE**

**#MyWorldOurPlanet  
#EUClimatePact**

# *Building an Innovative and Sustainable Agricultural Ecosystem in the Face of Climate Change & Crisis*

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# The Greek Agricultural Ecosystem in the Context of Climate Change

- The agricultural sector is pivotal, contributing significantly to the country's GDP and employing a large segment of the population.



# Key Statistics

- According to ELSTAT, agriculture contributes approximately 4% to Greece's GDP.
- Eurostat data indicates that around 12% of Greece's workforce is employed in agriculture, compared to the EU average of 4.5%.
- The OECD reports that climate change could reduce Greece's agricultural output by up to 10% by 2050 if adaptive measures are not implemented.
- FAO data shows that Greece's average annual temperature has risen by 0.5°C over the past century, impacting the growing seasons of key crops like olives and grapes.
- The World Bank highlights that droughts and extreme weather events in Greece have increased by 30% over the past two decades, severely affecting agricultural productivity.

# Comparison with the European Agricultural Ecosystem

EU policies, such as the Common Agricultural Policy (CAP), aim to support farmers, enhance productivity, and ensure environmental sustainability.

- The CAP allocates around 30% of its budget to climate action and environmental measures.
- According to the World Bank, the EU's agricultural sector employs about 9.7 million people.
- The IMF notes that European agriculture contributes roughly 1.6% to the EU's GDP.
- Eurostat reports that EU agricultural productivity increased by 1.5% annually over the past decade, partly due to technological advancements and sustainable practices.

# Strategic Management and Climate Change

1. Crop Diversification: Farms in Europe have 20% higher productivity and 30% greater resilience to climate change.
2. Water Management: Efficient irrigation can reduce water use by up to 50%, according to the OECD.
3. Soil Health: Soil practices can increase crop yields by 15-20%.



# Innovations in Agriculture

- Drones: Used for precision agriculture, drones can monitor crop health, optimize pesticide use, and manage irrigation. In Spain, drone technology has reduced pesticide use by 30% and increased crop yields by 15%.
- Digital Tools: Platforms and apps that provide real-time data on weather, soil conditions, and crop performance.
- Greece's "GAIA Epicheirein" platform helps farmers with decision-making by offering insights based on big data and AI.
- Vertical Farming: An innovative approach that allows farming in urban environments using less space and resources.
- Robotics and Automation: The European project "AgroBot" aims to develop robots that can handle delicate crops like strawberries, improving efficiency and reducing labor costs.

# Role of Cybernetics and Artificial Intelligence

1. Cybernetics and Artificial Intelligence (AI) are revolutionizing agriculture.
2. Applications of Cybernetics and AI
3. Precision Farming: Using sensors and AI to monitor soil moisture, nutrient levels, and crop health.
4. Automated Irrigation Systems: AI-controlled systems that adjust water delivery based on real-time data.
5. Pest and Disease Management: AI algorithms can predict pest outbreaks.
6. Supply Chain Optimization: AI helps manage logistics.
7. AI-Driven Crop Management Platforms: Systems that use AI to provide real-time recommendations.
8. Automated Harvesting: AI-powered machines that can harvest crops efficiently and with minimal waste.
9. AI-Enabled Soil Analysis: Using AI to analyze soil health and recommend the best crops and fertilizers.
10. Livestock Monitoring: AI systems that monitor the health and productivity of livestock.
11. Climate Prediction Models: AI algorithms that predict climate patterns and help farmers plan accordingly.
12. AI-Driven Market Analysis: Tools that analyze market trends

SUSTAINABLE  
DEVELOPMENT  
GOALS



# Sustainable Development Goals (SDGs)

## Relevant SDGs and Their Correlation with Agriculture and Climate Change

- SDG 3 (Good Health and Well-being): Ensuring healthy lives through sustainable food systems.
- SDG 4 (Quality Education): Promoting lifelong learning opportunities, especially in sustainable agriculture.
- SDG 5 (Gender Equality): Empowering women in agriculture.
- SDG 6 (Clean Water and Sanitation): Ensuring availability and sustainable management of water.
- SDG 7 (Affordable and Clean Energy): Enhancing energy efficiency and using renewable energy sources in agriculture.
- SDG 8 (Decent Work and Economic Growth): Promoting sustainable economic growth through agriculture.
- SDG 9 (Industry, Innovation, and Infrastructure): Building resilient infrastructure and fostering innovation.
  - Statistics: The World Bank notes that investment in agricultural technology can boost productivity by up to 25%.
- SDG 11 (Sustainable Cities and Communities): Promoting sustainable urban-rural linkages.
- SDG 13 (Climate Action): Taking urgent action to combat climate change.
- SDG 14 (Life Below Water): Protecting marine ecosystems impacted by agriculture.
- SDG 15 (Life on Land): Protecting terrestrial ecosystems impacted by agriculture.
- SDG 17 (Partnerships for the Goals): Strengthening global partnerships to support sustainable agriculture.

# Implementing AI and Cybernetic Technologies in Greece's Rural Agriculture

- Phased Implementation (Pilot Programs: Start with small-scale pilot programs to demonstrate the effectiveness of AI technologies).
- Cost-Effective Solutions (Affordable Technologies: & Microfinancing Options).
- Local Adaptation (Customized Solutions & Farmer Involvement: Involve local farmers in the development and adaptation of technologies)
- Monitoring and Evaluation & Community Engagement and Awareness

*Thank  
you!*

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