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Vasileios Filippou

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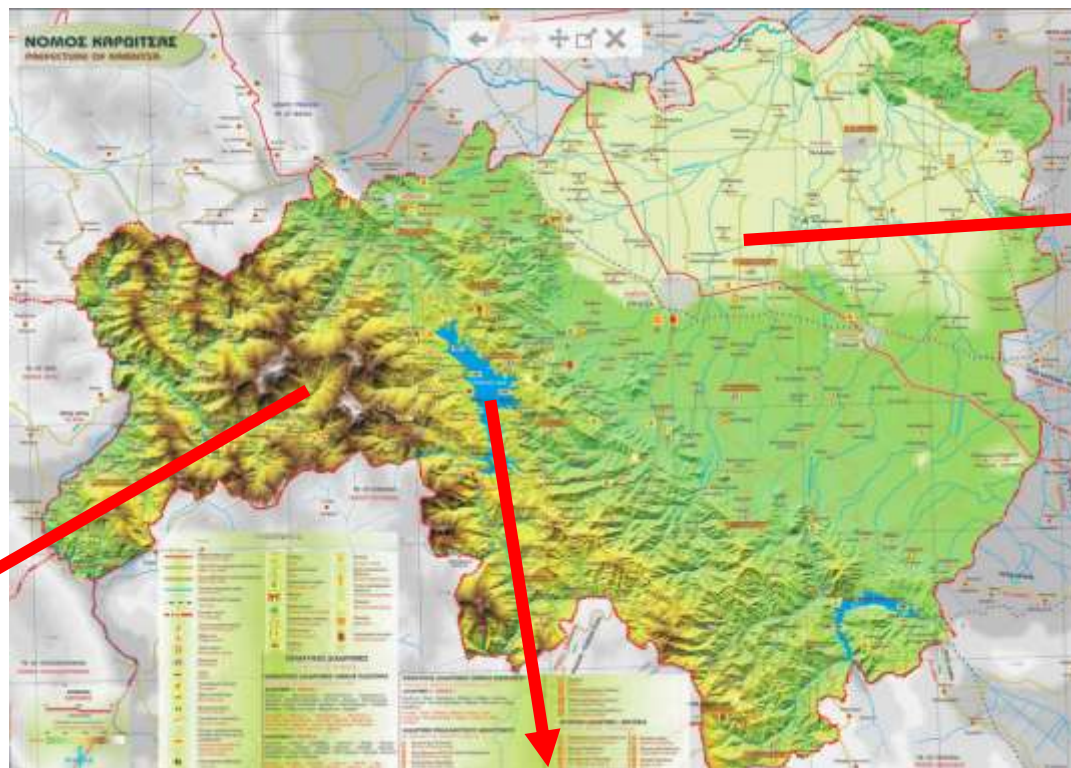
*Forest engineer, Aristotle University of Thessaloniki (PhD)*



# The Regional Unit of Karditsa



**Agrafa Mountains**



**Plastira Lake**



**The Karditsa plain**



- **Population: 113,544 inh. (2011 census)**
  - 1 % of the Greek population
  - 34 % of the local population lives in the city of Karditsa
- **Area: 2.636 Km<sup>2</sup>**
  - Flat land: 47.7 %
  - Mountainous areas: 44 %
  - Semi-mountainous areas: 8.3 %
- **Eastern part: part of the Thessaly plain**
- **Western part: Agrafa mountains**

# The Energy Community of Karditsa – a short history



The Energy Cooperative of Karditsa (ESEK) is the first collective effort at country level for the exploitation of forest biomass and agro-biomass.

Its foundation contributes both:

to find and implement practical solutions that can lead to energy self-sufficiency at the local level, and

to the restructuring of the primary sector which is in crisis, unable to choose conclusive strategic direction

# The Energy Community of Karditsa – a short history



- It is a civic cooperative. It is based in the participation of citizens and SMEs of Karditsa's prefecture (or originating from it) who are sharing a common vision of an energy independent prefecture. More than 400 citizens are members.
- It is supported by local authorities:
  - Chamber of Commerce,
  - Regional Authority,
  - Municipalities,
  - Cooperative bank
- It was hosted in the “incubator” of the Development Agency

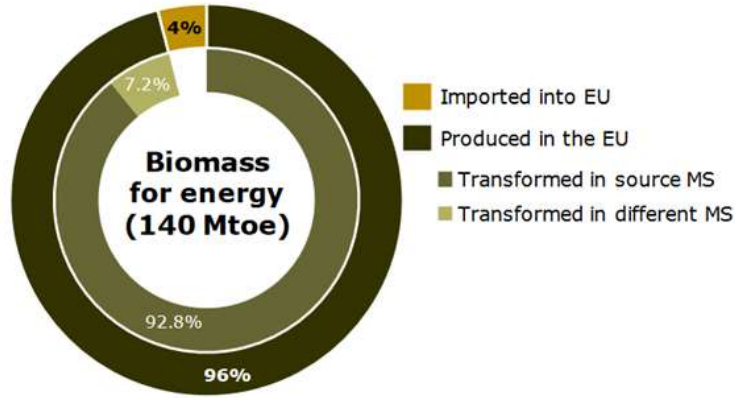
# The Energy Community of Karditsa – a short history



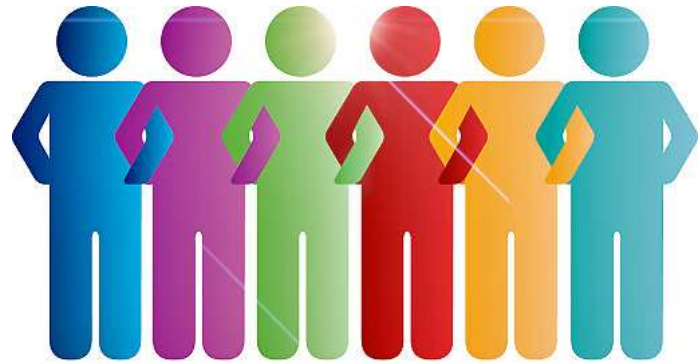
- **Establishment:** in 2012 as a civic cooperative, with over 400 members (citizens, municipalities, etc.) / “spin-off” of the Regional Development Agency of Karditsa (ANKA)
- **Initial plan:** utilize the abundant local biomass resources → construct / operate a 1 MWe biomass power plant
- **Vicious circle:** no biomass supply contracts → cannot mobilize funding → plant construction does not start → suppliers not convinced and do not sign supply contracts
- **Breaking the vicious circle:** start activities with a biomass processing (pellet) plant and continue later with the power plant
- **First steps:** raising capital from members, purchasing land, successful application for funding through LEADER (500,000 € investment - 50 % public funding, 50 % own funds)
- Wood pellet production started in October 2017, using raw material (sawdust) from local saw mills
- Transformation in “Energy Community” according to Law 4513/2018
- Ongoing process for a 1 MW photovoltaic plant to cover energy needs of the members
- Continued discussions with other potential biomass suppliers (farmers, cooperatives, municipalities, etc.)
- November 2020 → **start of the H2020 BECoop project**



# Why Biomass??



Origin of biomass supplied for energy in 2016 in the EU-28. Source: [NREAP Progress Reports](#).



Community Resilience



# Potential biomass in the prefecture of Karditsa



<https://www.neuropublic.gr/en/news-en/neuropublic-participates-in-teleconference-on-smart-farming-in-cotton-production/>  
<https://www.healthline.com/nutrition/soluble-corn-fiber>  
<https://www.fwi.co.uk/business/markets-and-trends/higher-straw-prices-expected-for-harvest-2020>  
<https://www.linkedin.com/pulse/7-best-vineyards-india-intoxicating-experience-pallavi-shah/>  
<https://visitmeteora.travel/lake-plastira/>  
<https://timbeter.com/sawmills-manufacturers/>

# Residual biomass in the prefecture of Karditsa

Residual **agricultural** biomass: 150.000 – 200.000 ton/year

Residual **forest** biomass: 40.000 – 100.000 ton/year

Wood **industries** residues: 6.000 – 10.000 ton/year

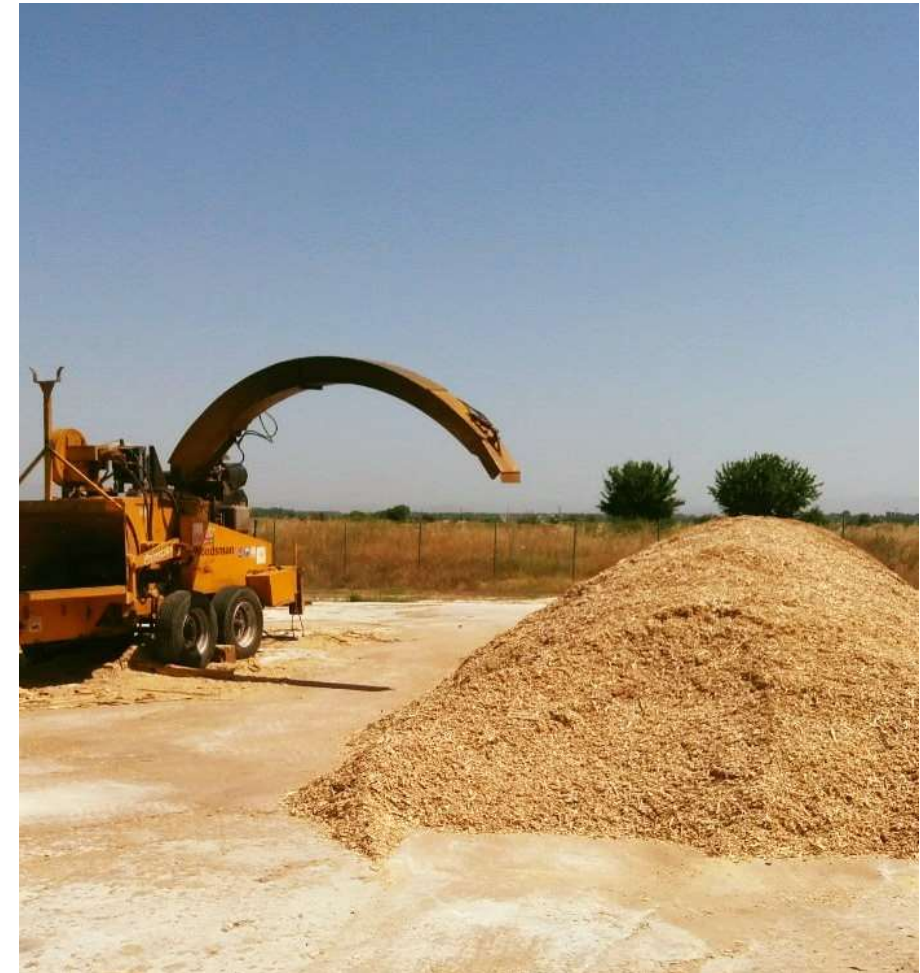
Residual **Municipal** biomass : 2.000 – 4.000 ton/year







# Industrial residual Biomass



# Forest logging residues



# Energy Crops



# Agricultural residuals



## City prunings



# Coffee residues



# Solid biofuel plant





# BECoop: Project in a nutshell

H2020 / GA 952930 Topic: LC-SC3-RES-28-2018-2019-2020 - Market Uptake support

- BECoop mobilises people around community bioenergy and creates a better image for such initiatives  
**reduces the development efforts** of community bioenergy heating projects

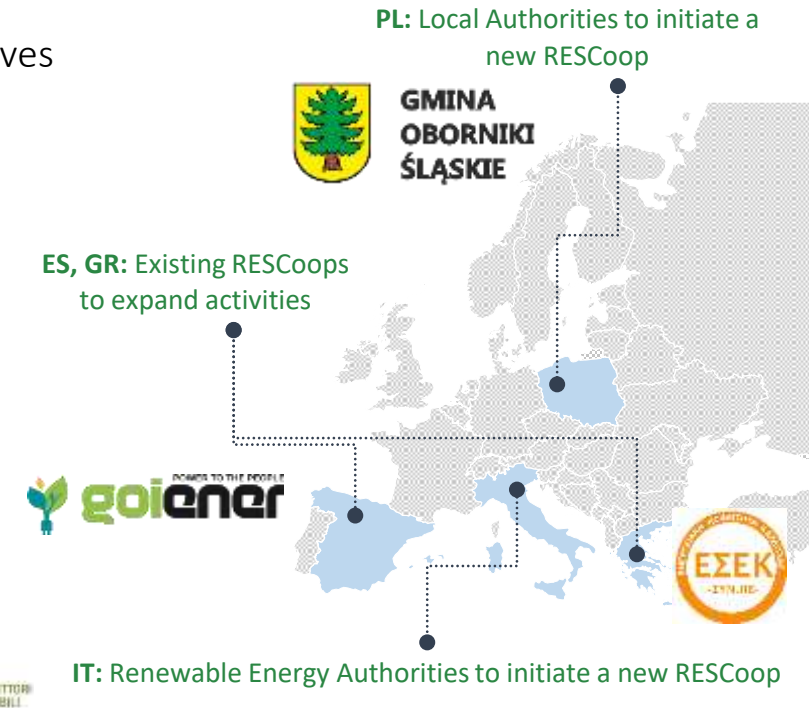
- market research, social, technical, business, knowledge transfer and policy components
- A suite of supporting resources and tools for community bioenergy project development
- exploration and support of **4 new bioenergy heating communities** (BECoop RESCoops)

We test the implementation of community bioenergy heating support scheme in diverse, complementary pilot cases in regions with high replication potential across EU

- We validate our results and **open the policy debate** on *how* community bioenergy at local, national and EU level can be fostered.

**20+** community bioenergy cases analysed    **50+** events (co-creation workshops, consultations, webinars, info days, etc.)    **10+** sister projects synergies

- We empower the community bioenergy **ecosystem to scale** - **8** additional replication cases of our concept



# Expanding the ESEK business model through BECoop

## Current ESEK activity

Sawdust & wood residues

Fuels: wood pellets



## New BECoop activities

### New Feedstocks

Spent coffee grounds

Green waste / urban prunings

Forest & agricultural residues

### New Products

Fuels: mixed pellets, chips

Energy: direct heat sales

# New ESEK activities: biomass sourcing



Municipality of Karditsa

City tree pruning

Chipping

Loading of the woodchips and transportation



Local cafeterias

Collection of the residual coffee

Transportation of the residual coffee



Municipality of Lake Plastira in collaboration with local forest cooperative

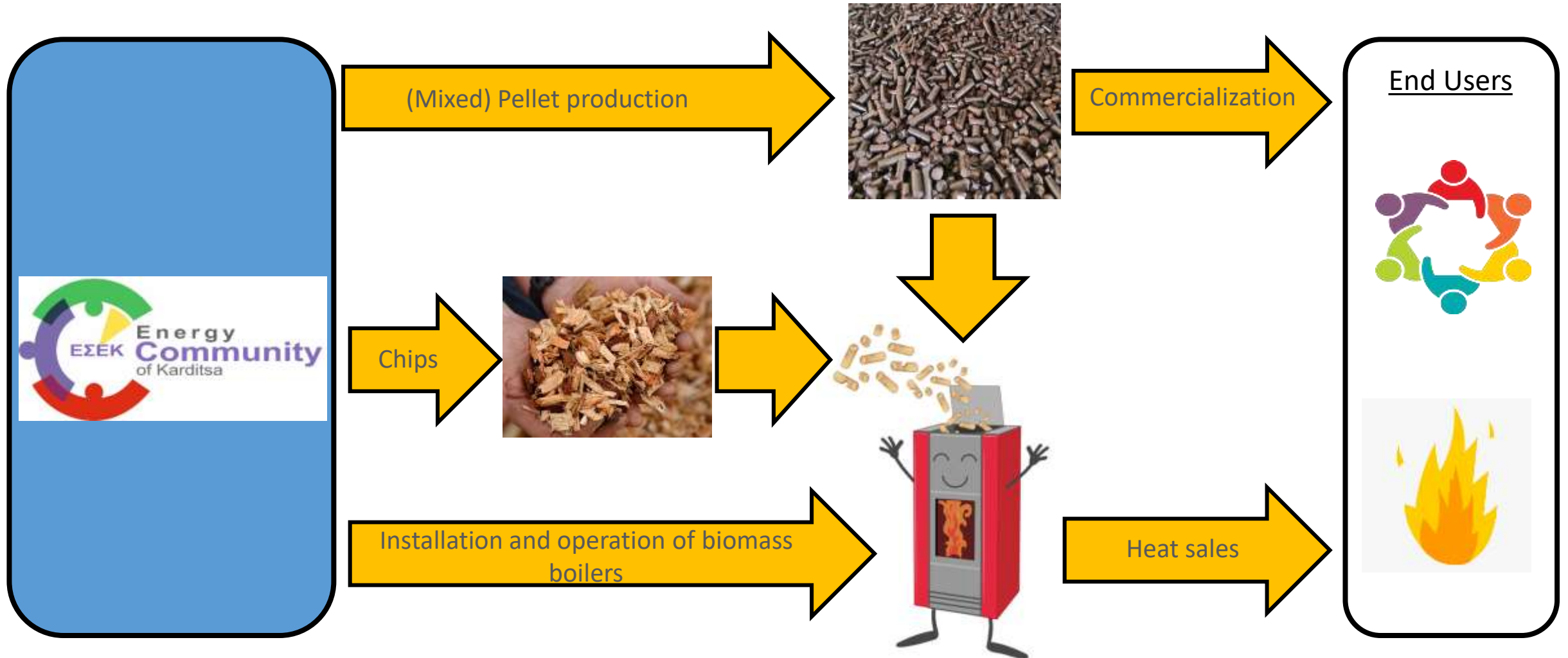
Removal of forest residues from local forests

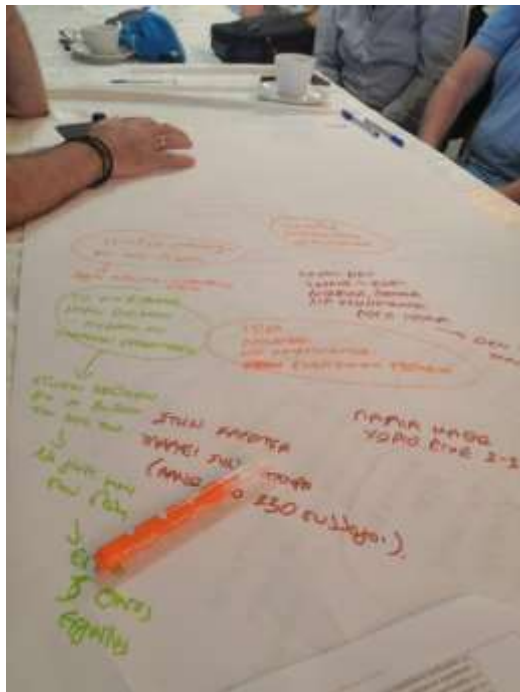
Chipping

Loading of the woodchips and transportation



# New ESEK activities: fuels & heat sales





# ON GOING PROJECT



Install a biomass boiler in a kindergarten to cover the thermal needs





## UP COMING PROJECT

# FREE SOLAR

A residential self-consumption installation can provide free energy from the sun that can reduce the energy bill by hundreds of euros annually.

**FREE SOLAR will allow consumers and small or medium-sized enterprises to self-finance the cost of their PV installation without any capital expenditure**, based on savings generated by the PV installation once it is functional and generate free solar energy for over 25 years!

Our ambition is to provide solar energy to every Greek citizen and help our country to stop climate change, while contributing to the creation of a fair solar economy for all.

We are **starting with our first pilot FREE SOLAR** program in the **Region of Thessaly** and soon we will be near you in other regions of Greece!

# UP COMING PROJECT







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