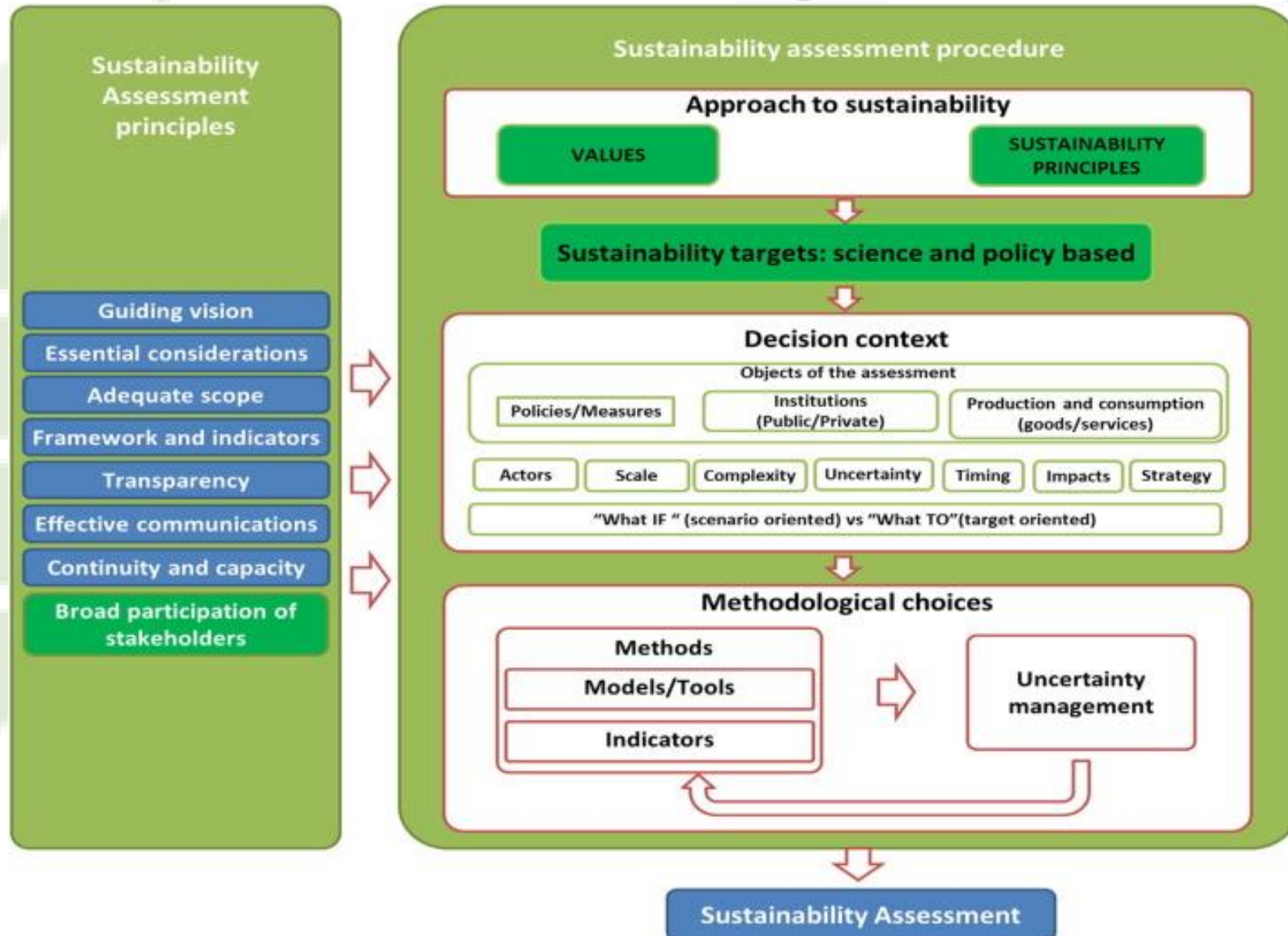


My Research and technical assistance activity on «Sustainability assessment»

Stefano Fabiani

OK... but what is S.A.??? 🤔



- **H2020 project**
FATIMA – FORBIO – BIOPLAT EU

- **Technical assistance (MiPAAFT)**
Bioeconomy – renewable/bio-energy

- **Istitutional activities**
GBEP



Energy Efficiency

This tool is the first draft developed in the context of the WP 4.1 Water-Food-Energy survey on the performance of direct and indirect energy indicators at different spatial scales and for different agricultural systems.

Environmental indicators

Italian pilot area full analysis

Cumulative NO₃ Loss by Leaching - kg/ha

ORN-1.4

SRN-2.4

SNF-14.4

Total energy input - Mj/ha

14,717

24,540

26,950

Non renewable energy input - Mj/ha

9,502

20,433

22,214

Yield - ton/ha

4.3

5.3

6.7

N recovery efficiency (%)

60

80

110

Crop yield/N fertilizer (kg/kg)

33

41

52

Agronomic indicators

Gross Production Value (GDV) - €/ha

824

1.015

1.290

Economic indicators

150 €/ha for agro-climatic-environmental payments (RDP Measure 10 – Lazio Region)
(Total mineral nitrogen removal)

974 €/ha

316 €/ha

Value of environmental benefits for ORN?????:
less N (NO₃) loss (water quality)
less not renewable energy use (lower emissions)

TURKISH PILOT AREA Menemen



PRODUCE MORE WITH LESS

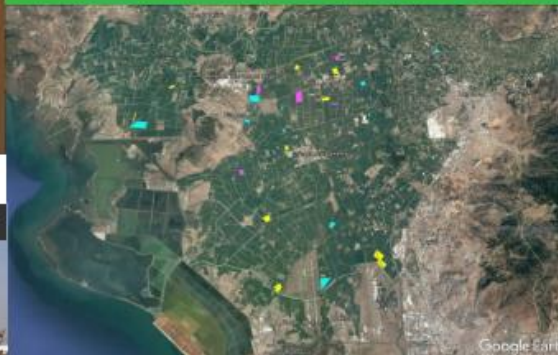
- Menemen plain is at the end of downstream of Gediz River (275 km long)
- Menemen is one the richest plain regarding to the crop pattern.
- The plain is effected by river pollution and drought extremely because of being at the end of the river.

General Description

- MENEMEN: Total Area: **69.400 ha** // Agricultural Area: **22.994 ha**
- TOTAL POPULATION: **160.000**
- LAND USES: **Agriculture 33%, Forest and semi-natural land 23%, Meadow 4%, other 40%**
- IRRIGATED AREA: **19.483 ha** // NON-IRRIGATED AREA: **898 ha**
- GROUNDWATER IRRIGATED AREA: **1150 ha**
- AVERAGE ANNUAL RAINFALL: **540 mm**
- IRRIGATION SYSTEMS: **2% drip, 98 % furrow**
- MAJOR CROP TYPES: **Field Crops 52%, Vegetables 17%, Vineyard 13%, Olives 10%, Others 8%**
- CROPS IN THE PROJECT : **Wheat 1500 ha, Cotton 8500 ha, Maize (first and second crop) 2107 ha**

Pilot Area features

- Competition among different water uses; irrigation vs domestic consumption especially on groundwater resources
- Degradation in surface water quality threatens agricultural activities
- Frequent droughts and intensive groundwater consumption decrease water tables
- High costs for agricultural inputs such as fertilizers decrease net economic benefits obtained by agriculture
- Unplanned Crop Production
- Divided Lands & Small Field Plots Average farm size: 2 ha



Menemen Plain satellite view

Experiments in Turkish Pilots

Drip irrigated "Cotton 2016"



- **Marginal, Underutilized and Contaminated (MUC)** lands are usually unavailable or not suitable for food production. Therefore, the cultivation of these areas with crops dedicated to bioenergy purposes does not compete with other food or feed uses.
- The cultivation of MUC to produce biomass for the production of **advanced biofuels** and, more in general, for the settlement of sustainable bioenergy value chains is of high interest in Europe.
- FORBIO project, focused on the **area of Sulcis (Sardinia)**, located in the largest Contaminated Sites of National Interest and has experienced de-industrialization and land abandonment as a consequence of a significant heavy metals pollution (mainly Pb, Cu, Cd, Co and Zn) from industrial flumes derived from coal power generation and aluminium production.
- The GIS-based analysis has revealed that about **51,000 ha** in this area are **suitable to cultivate biomass** for bioenergy purposes, if a radius of 70 km from a hypothetical bio-refinery is considered.
- **5,700 ha are available in a conterminous irrigated area**, and approximately **1,000 ha are available on a rainfed area** near the most contaminated zone. Giant reed, cardoon and milk thistle emerged as suitable biomass crops for advanced ethanol production in this area.
- The **sustainability** of a hypothetical bioenergy value chain was assessed through the implementation of the Global Bioenergy Partnership (GBEP) sustainability indicators (FAO, 2011), opportunely adapted for being applied to an *ex-ante* analysis.





The poster features a background of wood chips. On the left, there is a vertical strip with the BIOPLAT-EU logo at the top and a photograph of a rural landscape with trees and fields below. The main title 'BIOMASS for ENERGY' is written in large green letters on a yellow background. Below the title, it says '15th International Conference'. On the right, the year '2019' is displayed in large green numbers. A white circular graphic contains the number '4'. Below this, the text reads: 'The strategic role of biomass in the European Policy Framework on climate energy and in the RED II. An insight into opportunities for agriculture in Italy and the BIOPLAT-EU platform'. The speakers' names, 'Stefano Fabiani, Guido Bonati, Tiziana Pirelli', and their affiliation, 'Council for Agricultural Research and Economics (CREA) Centre of Policy and Bio-economy', are listed. The date and location, 'Kyiv, 24 September 2019', are at the bottom right.

BIOPLAT-EU

BIOMASS for ENERGY

15th International Conference

2019

4

The strategic role of biomass in the European Policy Framework on climate energy and in the RED II. An insight into opportunities for agriculture in Italy and the BIOPLAT-EU platform

Stefano Fabiani, Guido Bonati, Tiziana Pirelli
Council for Agricultural Research and Economics (CREA)
Centre of Policy and Bio-economy

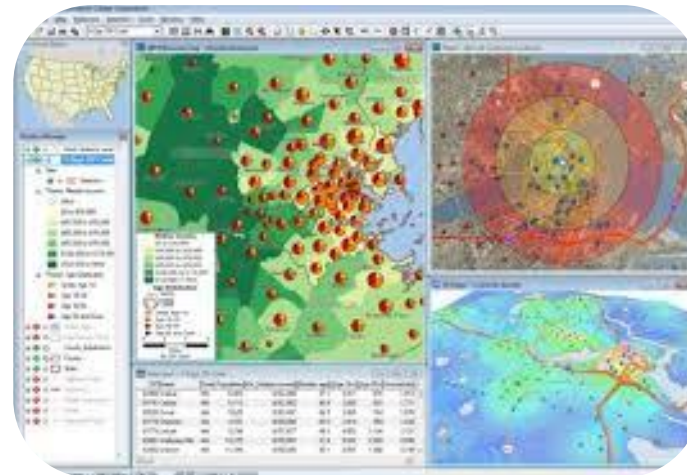
Kyiv, 24 September 2019

WP 6. Technical and financial guidance to remove market uptake barriers on bioenergy projects in MUC lands

Task 6.1 – Provision of technical support in BIOPLAT Platform



Indicators
(UCLM)

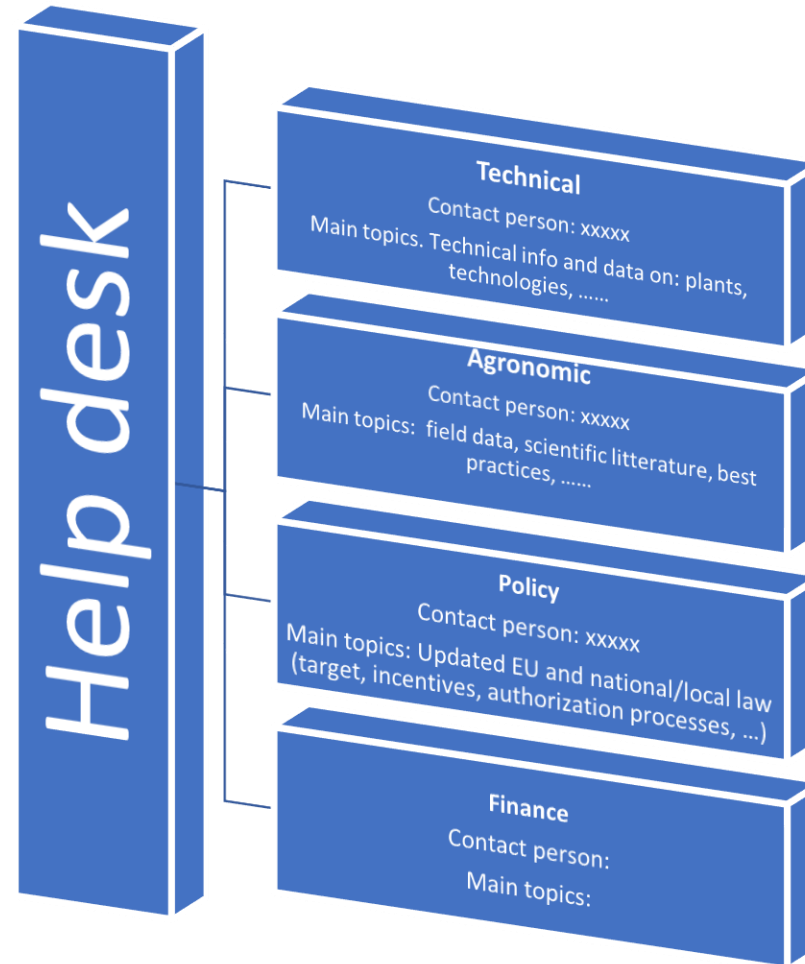


GIS
(FAO)



Help desk
(CREA)

Help desk architecture





ministero delle politiche
alimentari, forestali e d

POSIZIONE DEL MINISTERO
AGRICOLE ALIMENTARI, F
TURISMO E SUL PIANO CL
SULLA RED I

luglio 2019



European Commission > The European Network for Rural Development (ENRD) > News & Events > Events > 1st Thematic Group Meeting on 'Bioeconomy and Climate Action in Rural Areas'

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1st Thematic Group Meeting on 'Bioeconomy and Climate Action in Rural Areas'



Dates: 25/09/2019 - 09:00 **Location:** Brussels, Belgium

Event type: Thematic Group meeting **Organiser:** ENRD Contact Point

This first meeting discussed the areas within the rural bioeconomy that have most potential to produce climate outcomes, such as reductions in GHG emissions, carbon sequestration or conservation, and replacing fossil based materials.

Participants looked into necessary actions to ensure that such climate outcomes can be valorised and upscaled in bio-based

The aim of the Thematic Group (TG) is to identify incentives and support measures to upscale climate action in bioeconomy value chains, in the framework of the Rural Development Programmes and the Common Agricultural Policy post 2020.

TOOLS



myENRD



Project Database



LAG Database

> Background paper for the Thematic Group

Presentations

> Introduction to the day, Laura Jalasjoki, ENRD Contact Point

> Towards carbon neutrality in 2050: the role of the bioeconomy, Valeria Forlin, DG CLIMA (Unit C.3)

> CAP, rural bioeconomy and climate action, Christine Falter, DG AGRI (Unit F.1)

> How can rural bioeconomy value chains contribute to climate change mitigation?, Catherine Bowyer, ENRD/IEEP

> Policy framework for the climate & bioeconomy: MIPAA (Contact: MIPAA@ec.europa.eu)



GBEP Indicators to assess biogas value chain sustainability

**THE GLOBAL BIOENERGY
PARTNERSHIP SUSTAINABILITY
INDICATORS FOR BIOENERGY**
FIRST EDITION

Stefano Fabiani, Guido Bonati, Giuseppe Pulighe
Research Centre for Agricultural Policies and Bioeconomy
Council for Agricultural Research and Economics (CREA)

Guido Bezzi
Italian Biogas Consortium (CIB)



Thank You!!!

Stefano FABIANI

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