



# 10th Meeting UNECE Group Experts of Gas

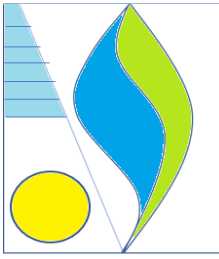
## Panel 1 : item 5

### SUSTAINABLE DEVELOPMENT GOALS

24 March 2023

Lluís Bertrán  
LOUBERA  
Honorary IGU' Secretary General

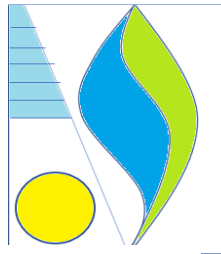
# Content



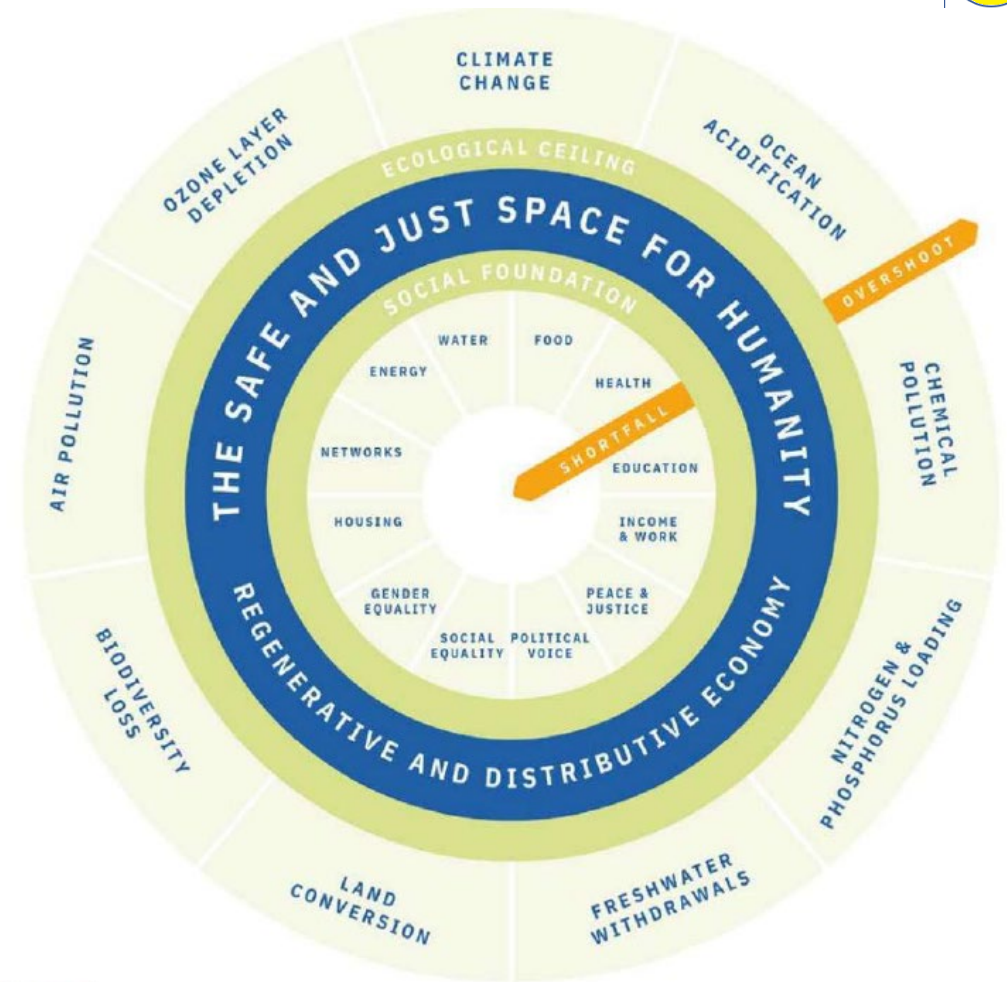
## Sustainable Development Goals

1. Framework of SDG
2. Bioenergy as key for the sustainability
3. Implementation of the UN 2030 Agenda for SD
4. Nexus natural gas-health
5. Energy poverty and Africa
6. Experience on developing biomethane in Spain

# 1. Framework of the SDG 2030

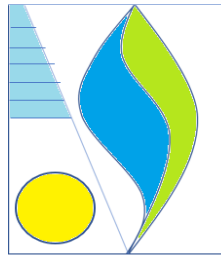


*The safe and just space for humanity lies between the resources needed to secure social foundation and the ecological ceiling*

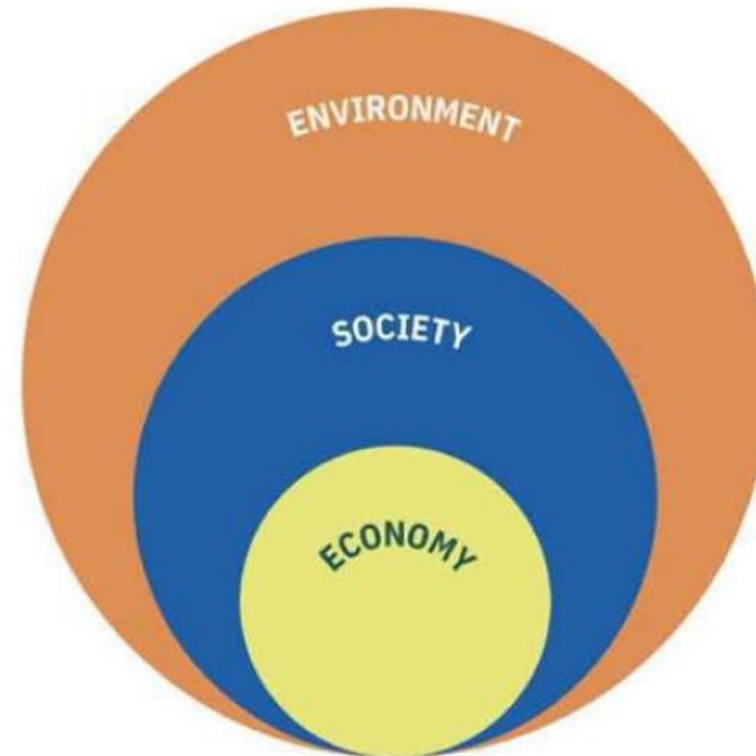
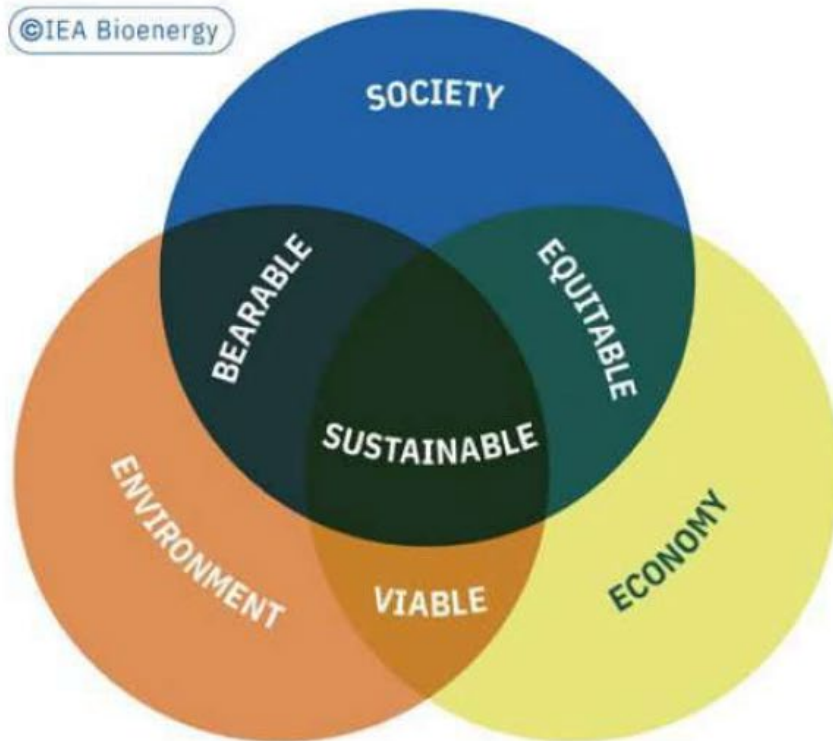


# 1. Framework of the SDG 2030

*New modern concept of sustainability*

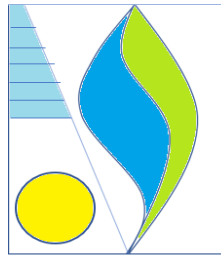


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*Sustainability: Venn diagram (left side) opposed to the concentric circles diagram or nested approach for sustainability (right side) based on [Giddings et al. \(2002\)](#).*

## 2. Bioenergy as key for the sustainability



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around the world confirm that

**bioenergy contributes to a broad range of SDGs,** most notably, Decent Work and Economic Growth (SDG 8) and Responsible Production and Consumption (SDG 12)

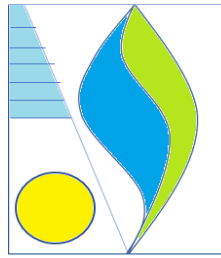
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Up to

**50% of the bioenergy demand** in 2050 could be met by biomass residues

## 2. Bioenergy as key for the sustainability -2



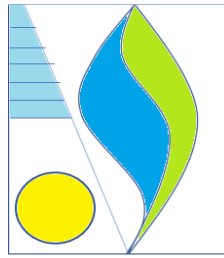
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15 out of 17 SDGs are directly or indirectly **linked to biomass** and its production



# 3. Implementation of the UN 2030 for SDG



*The direct and multiple contributions of a biodigester to the UN SDG*

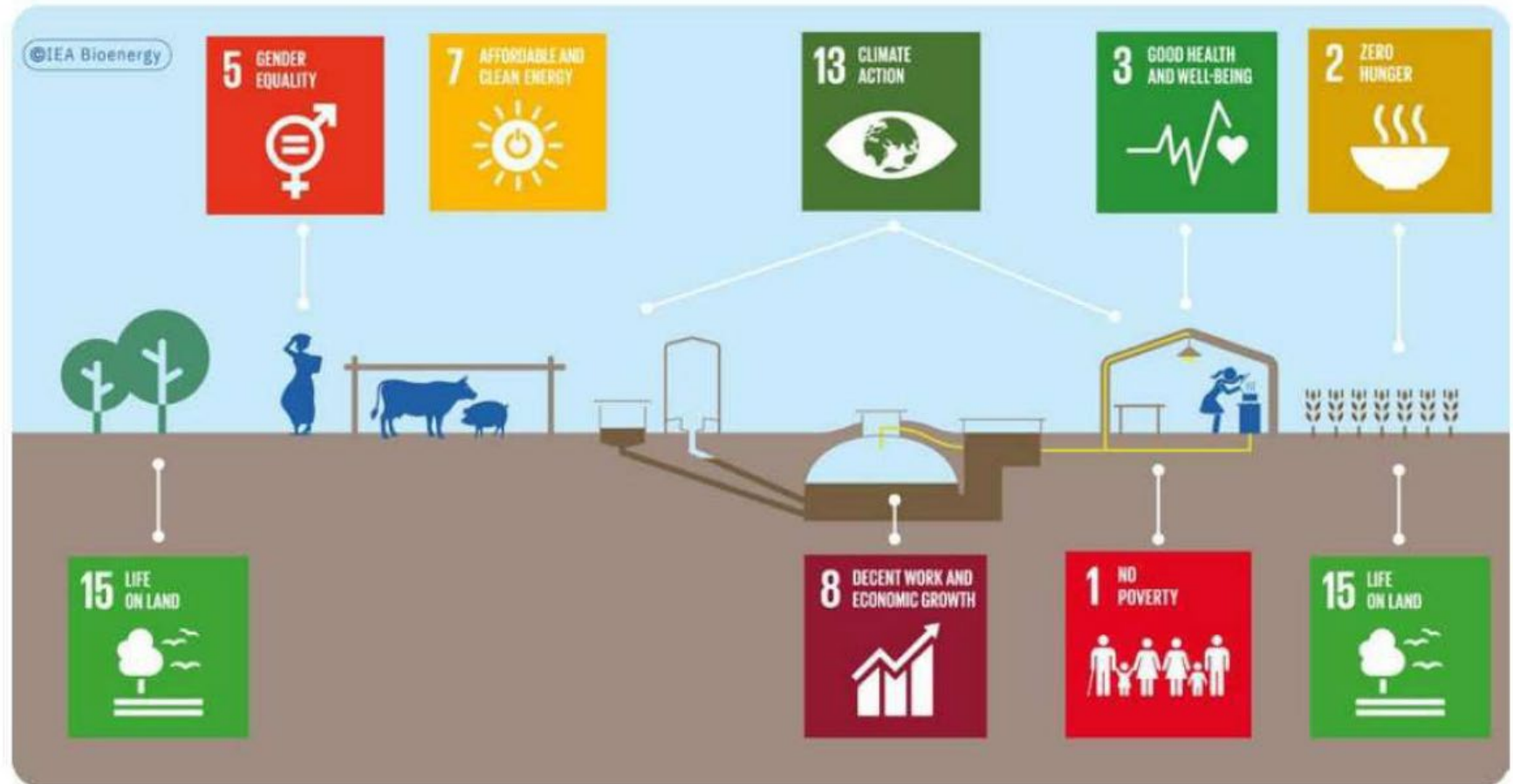
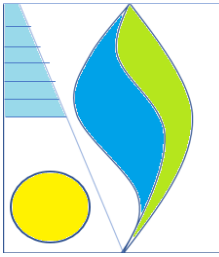
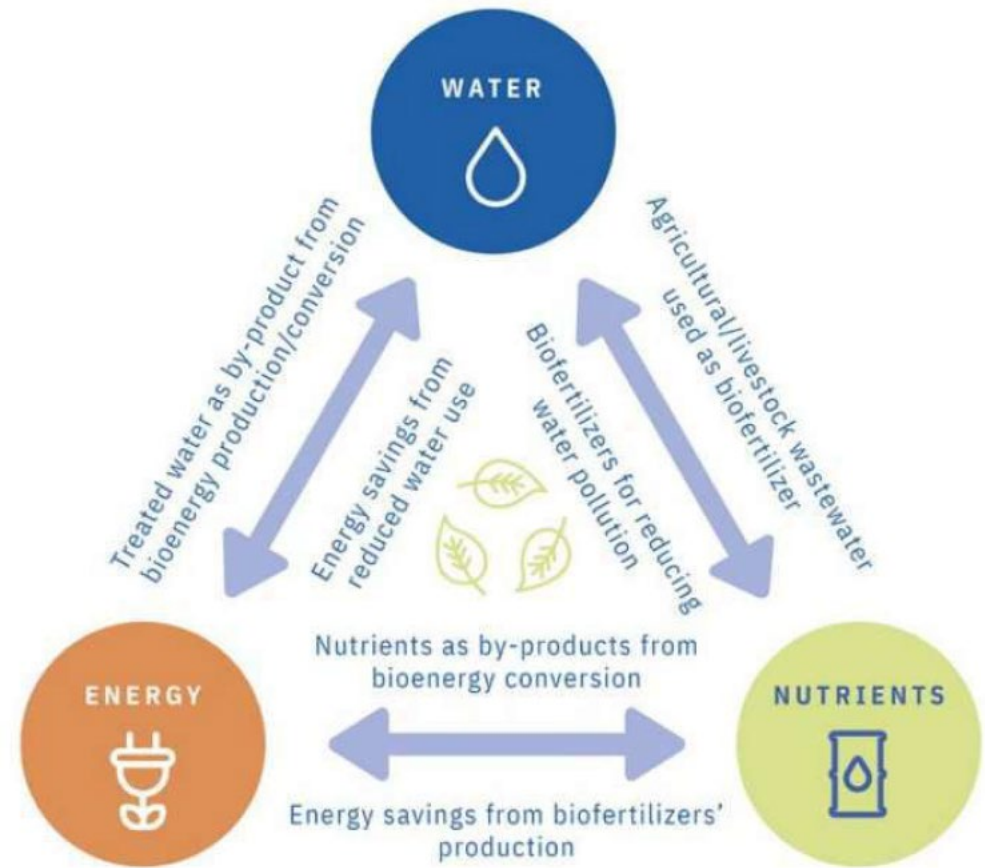


Image courtesy Hiyps

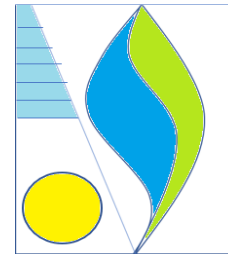
# 4. Nexus of Natural Gas and health



*The nexus of natural gas as energy with water (osmosis from sea water) and fertilizers to develop sustainable healthy environment and avoiding pollutants in the air*

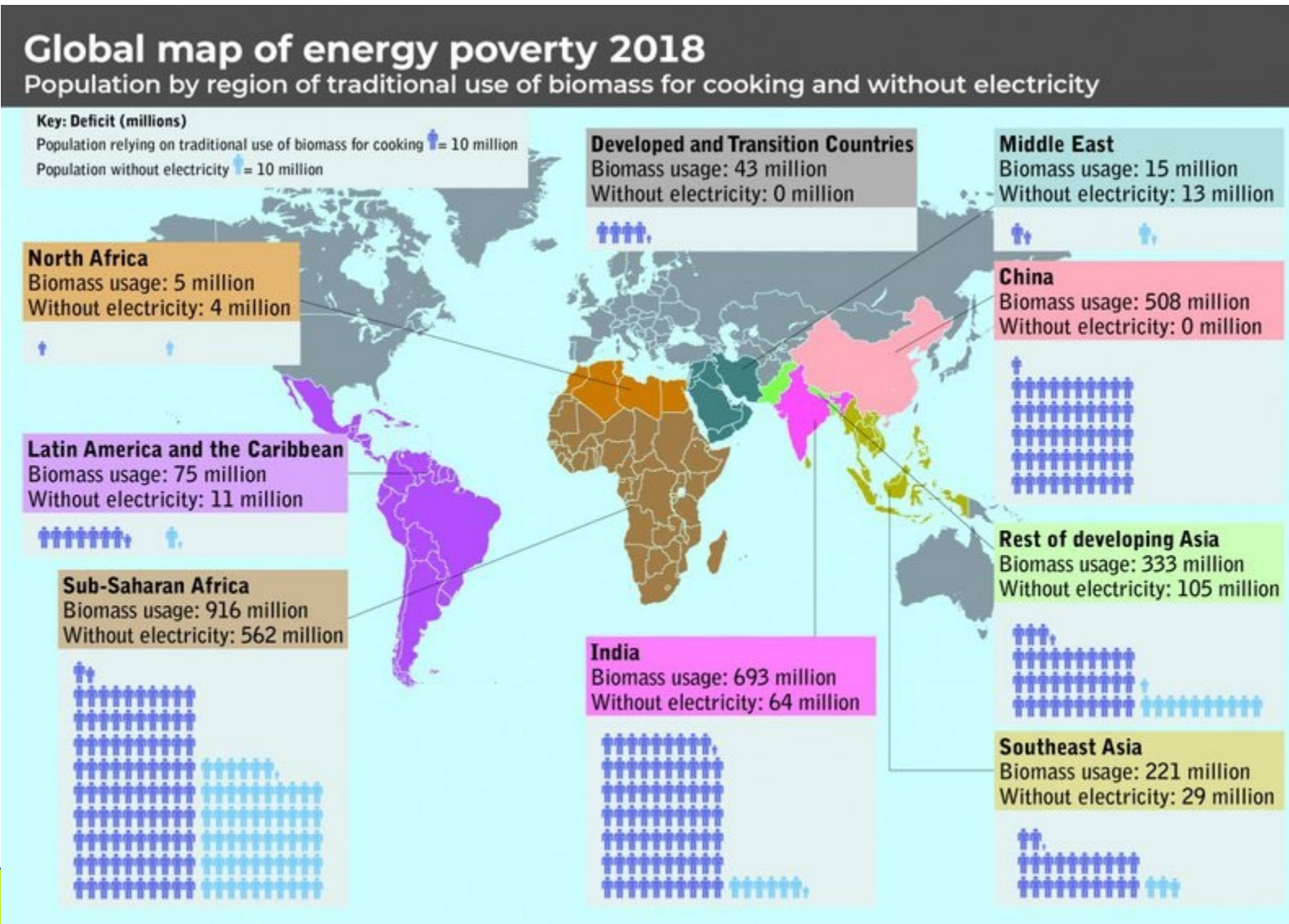




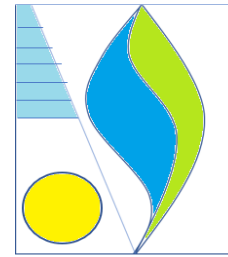


# 5. Energy poverty and Africa

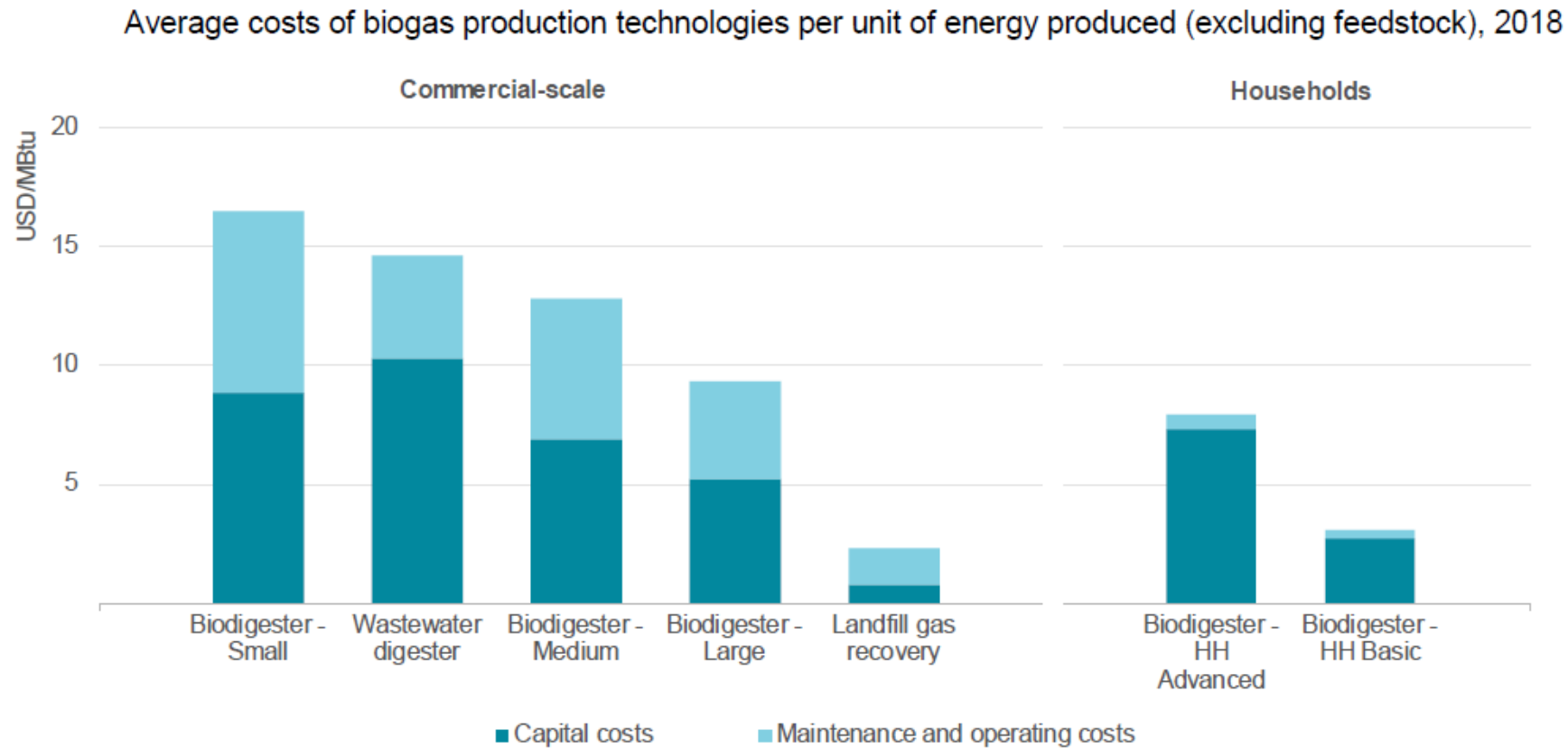
*While nearly 1 billion people across the globe do not have access to modern energy (electricity) in their homes, and Sub-Saharan Africa (SSA) accounts for 75% of this number*



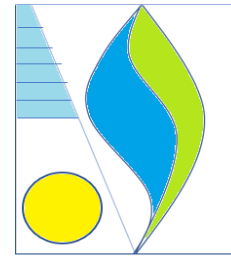
# 6. Experience on developing biomethane in Spain



**A range of technologies are available to produce biogas from different waste streams**



# 6. Experience on developing biomethane in Spain

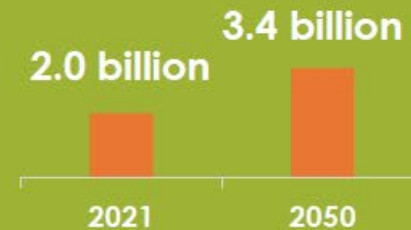


## LANDFILLS, THE SIMPLEST AND CHEAPEST SOLUTION FOR WASTE MANAGEMENT, BUT A FAST GROWING SOURCE OF POLLUTION

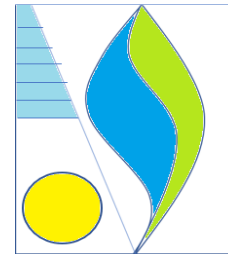


Landfill model is the **main way** to manage household waste

### Tons of waste per year

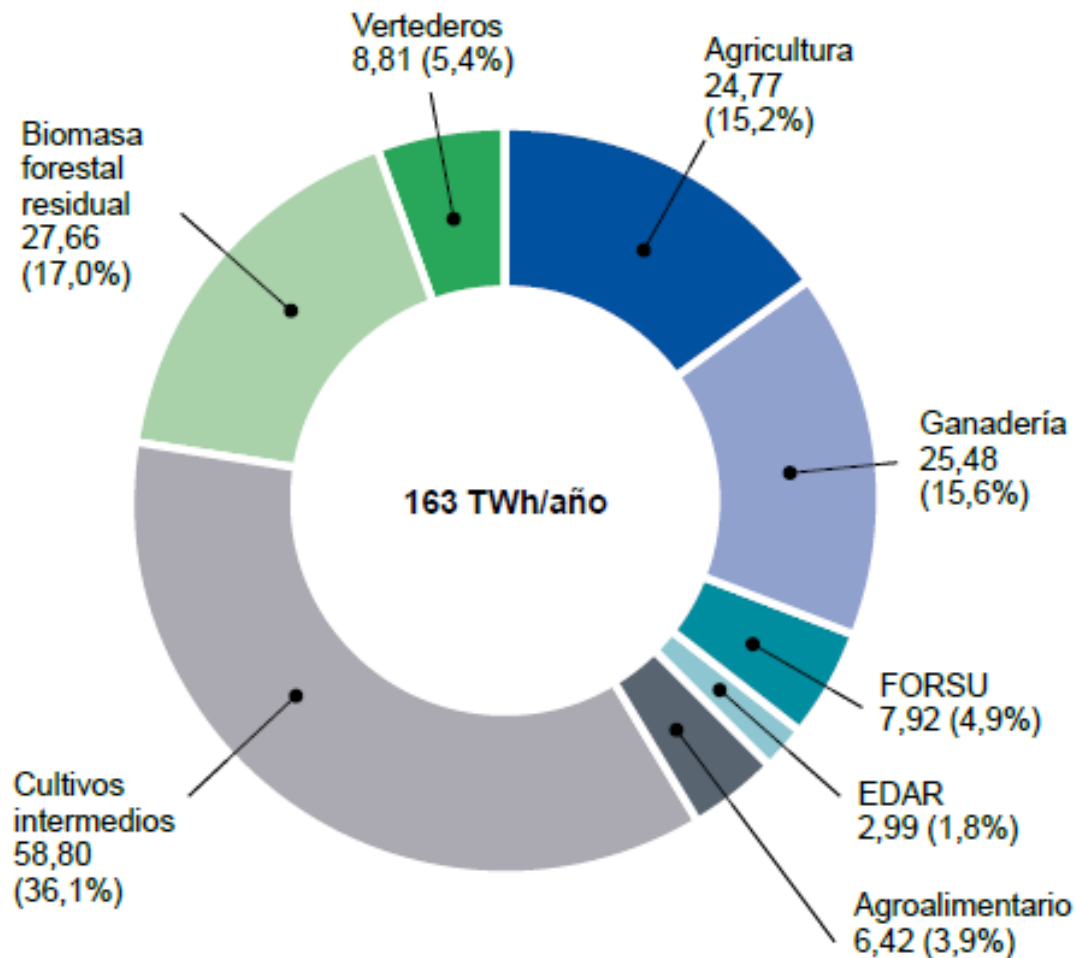


**70%** of household waste is landfilled worldwide in **>20,000 landfills**

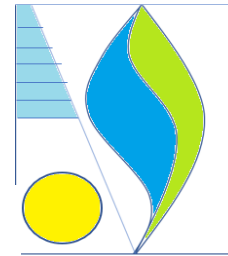


## 6. Experience on developing biomethane in Spain

*While a total biomethane potential of 163 TWh/year, the landfill gas shows a potential of 8,8 TWh/year*



# 6. Experience on developing biomethane in Spain

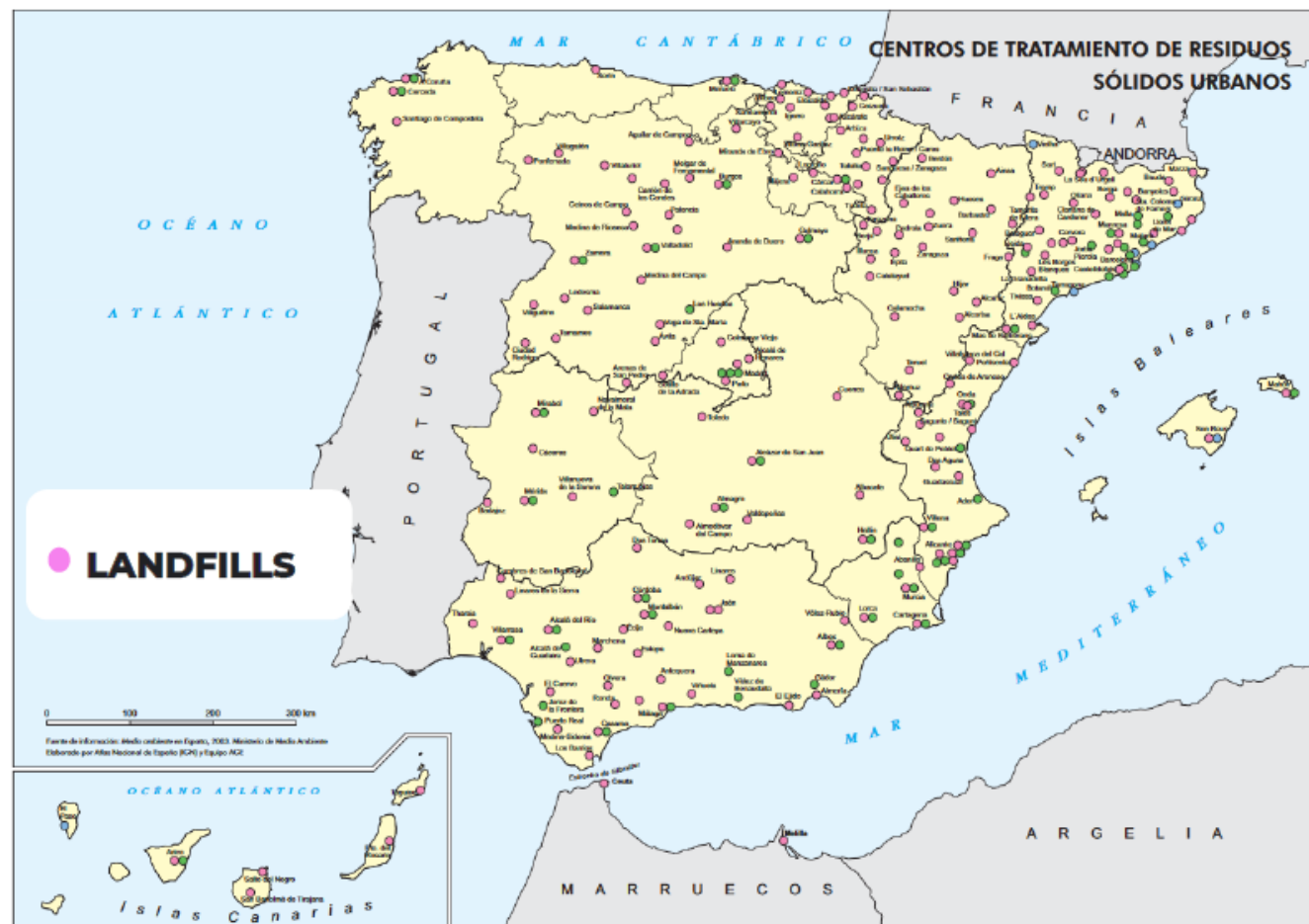


**IN SPAIN, LOTS OF WASTE ARE TREATED IN LANDFILLS AND THERE IS A GREAT POTENTIAL FOR RECOVERING BIOMETHANE**

- 164 landfills
- 138 millions of tons treated each year (2018)
- 48% volumes in landfills

**For Spain, potential of 14 TWh of biomethane production out of Landfill gas (3,7% of total Spain gas consumption)**

**3.400.000 tn CO2 eq avoided/year (32% of 2030 goal of Catalonia)**



# 6. Experience on developing biomethane in Spain



# PROYECTOS WAGABOX® EN EL MUNDO

## FRANCIA

- 1 SAINT-FLORENTIN  
Coved
- 2 SAINT-MAXIMIN  
Suez
- 3 PAVIE  
Trigone
- 4 SAINT-PALAIS  
Veolia
- 5 GUELTAS  
Suez
- 6 CHEVILLY  
Suez
- 7 INZINZAC-LOCHRIST  
Lorient Agglomeration
- 8 LES VENTES-DE-BOURSE  
Suez
- 9 LIÉOUX  
Sivom SGMAM
- 10 LE HAM  
Veolia
- 11 BLARINGHEM  
Baudalet Environnement
- 12 GOURNAY  
SEG
- 13 CLAYE-SOUILLY  
Veolia
- 14 CHATUZANGE-LE-GOUBET   
Veolia
- 15 MILHAC-D'AUBEROCHE   
Suez
- 16 SEPTÈME-LES-VALLONS   
Veolia
- 17 FRESNOY-FOLNY   
Paprec
- 18 MONTOIS-LA-MONTAGNE   
Suez



## ESPAÑA

- 1 ELS HOSTALET DE PIEROLA   
PreZero

## CANADÁ

- 1 SAINT-ÉTIENNE-DES-GRÈS   
Energycycle
- 2 COWANSVILLE   
RIGMRBM

## ESTADOS UNIDOS

- 1 BATH, NY   
Steuben County
- 2 DELAVAN, WI   
Air Liquide
- 3 WINNEBAGO, IL   
Air Liquide

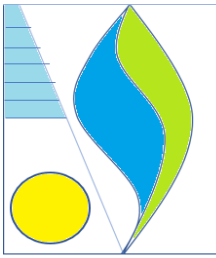


# 6. Experience on developing biomethane in Spain



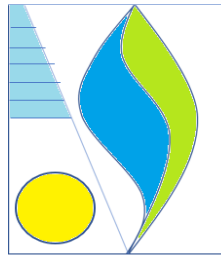
## Proyecto Can Mata (Els Hostalets de Pierola)

- Proyecto “Innovation Fund Small Scale”: alto grado de Innovación y de reducción de emisiones GEI.
- 70 GWh/año inyectados en la red de NEDGIA
- 14 000 hogares alimentados con gas renovable
- 17 000 ton de CO<sub>2</sub> evitadas cada año





# Appendix. The WAGABOX technology



## WAGABOX, A DISRUPTIVE TECHNOLOGY TO UPGRADE LANDFILL GAS INTO BIOMETHANE

YESTERDAY

No technology to efficiently upgrade landfill gas into biomethane:

2 CHALLENGES:

- ✘ Separate the **oxygen** and the **nitrogen** included in landfill gas (main challenge)
- ✘ Manage **high volatility** over time and **high composition**

TODAY

✓ **WAGABOX®**

the **only standardized solution** to recover landfill gas and upgrade it into biomethane

**PATENTED TECHNOLOGY**  
15+ years of R&D



Air Liquide

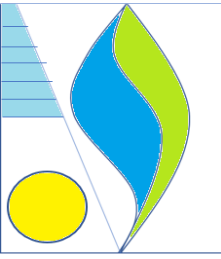


WAGA ENERGY



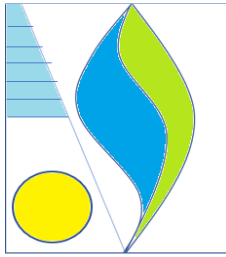
*Biomethane for all*

# Appendix. The energy democracy



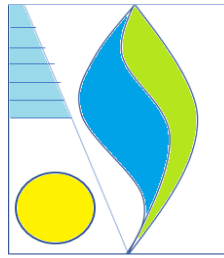
**To empower energy democracy and harness multiple societal benefits, we need to acknowledge that the potential for societal participation in circular bioeconomy supply chains is remarkably high**

# Appendix. The 17 SDG



<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 
<b>6</b> CLEAN WATER AND SANITATION 	<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 
<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>THE GLOBAL GOALS</b> For Sustainable Development			<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE AND JUSTICE STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 





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**Thanks for your attention!**

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**Honorary Secretary General of the IGU**