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A proposal for a new classification to monitor actions that benefit the environment of Households, Enterprises, and Public Administration

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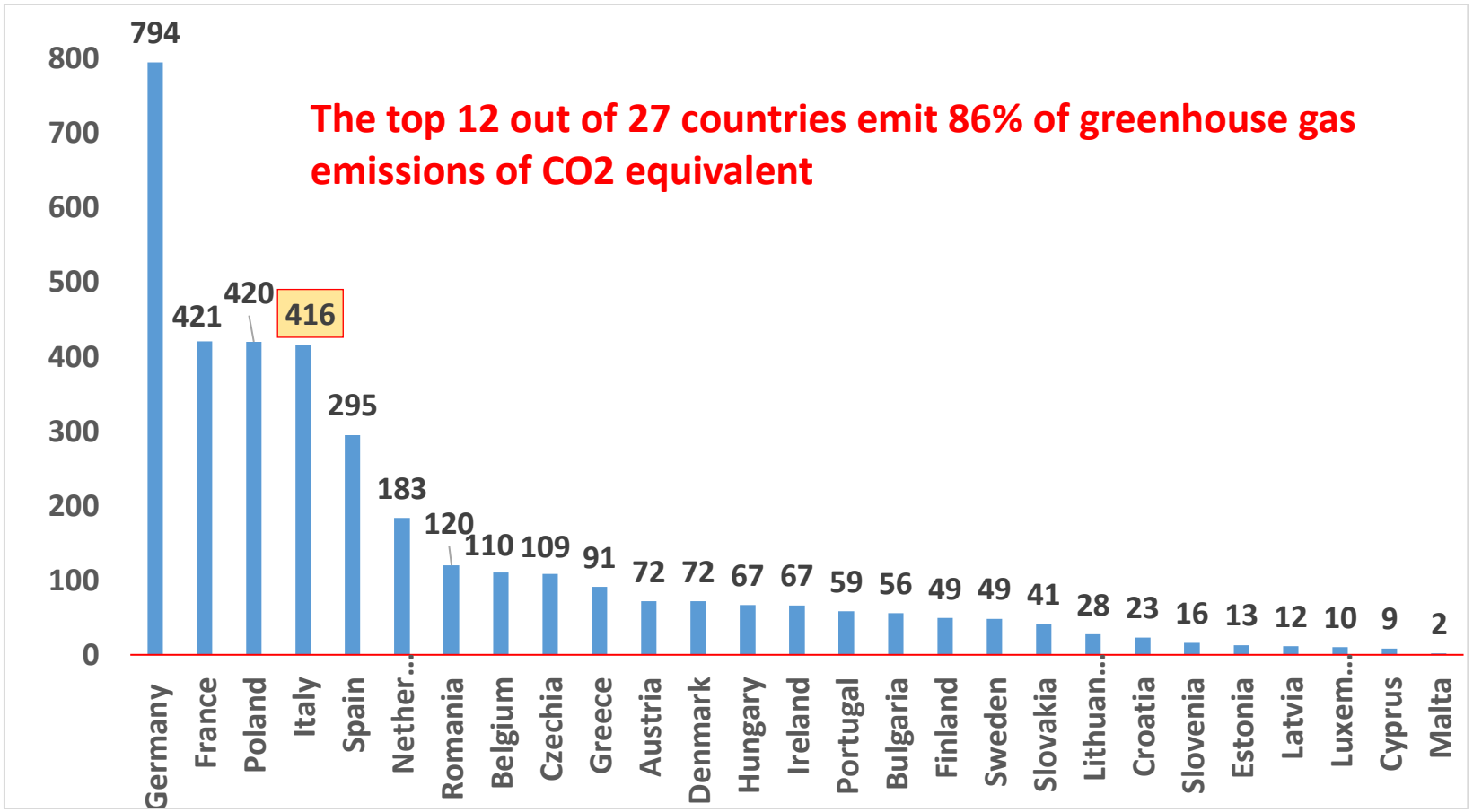
Emissions CO2 in Europe

Europe – Greenhouse gas emissions (NAMEA) by Member State, by total Nace Rev. 2 production activities and by households – Year 2021 (millions of tons of CO2 equivalent).



Source: Eurostat, data processing

Greenhouse gas emissions

Europe

- Greenhouse gas emissions in 2021 by the 27 European countries were 3.605 million tonnes of CO2 equivalent.
- The energy sector accounts for around 75% of the European Union's greenhouse gas emissions and therefore plays a key role in climate change mitigation and adaptation.
- In Europe, Italy together with Poland, after Germany and France, is the country that contributes, with 416 million tons of greenhouse gas emissions, to global warming.
- Go beyond the "**do not significant harm**" principle to instead measure positive actions related to six environmental objectives of the European taxonomy.

Italy

- The Italian production system generates 3 quarters of the total climate-changing emissions (industry 48%, services 17%, and agriculture 10%) of the entire economy, compared with households which contribute only 25% to emissions.
- In particular, the manufacturing and energy industries absorb around 166 million tonnes of CO2 out of a total of 199 million tonnes and contribute significantly to greenhouse gas emissions .

How can we monitor sustainable economic growth?

Source: Eurostat, data processing

For monitor sustainable economic growth

- We need a new classification to monitor the positive actions related to six environmental objectives introduced with the European taxonomy undertaken by the main economic actors such as enterprises, households, and public administration.
- A list of eco-sustainable economic activities must be established in line with the European taxonomy with the four general conditions that meet the technical criteria of environmental sustainability:
  - -"Eco-sustainable economic activity";
  - -"Transitional economic activity";
  - -"Enabling economic activity";
  - -"Eligible economic activity for the taxonomy".

Source: EU

European Commission

- The European Commission has presented a plan to reduce the EU's greenhouse gas emissions by at least 55% in 2030 (compared to 1990 levels).
- It is, therefore, necessary to propose new indicators capable of measuring in progress.
- The New European Taxonomy (EU Regulation 2020/8524 entered into force on 12 July 2020), describes the actions of eco-sustainable economic activities, the principle of "*do no significant harm*", enshrined in article 17, introduces in fact a new "**classification system of eco-sustainable economic activities**".
- However, to build new indicators, it is necessary at the same time to use a common language to define the actions taken at the European level.

How can EU-wide coordinated action to meet the six targets to be measured?

Source: EU

Monitor the achievement of the environmental

- **Industries** are required to communicate a lot of information on the environmental impact of their business model and strategy. Also must demonstrate the activities carried out for the transition to a sustainable and climate-neutral economy including information on climate change mitigation, climate change adaptation, the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention and control and the protection and restoration of biodiversity and ecosystem.
- **Households** can contribute to helping measure the actions implemented through data on household consumption in the economic territory.
- **Public Administration** should adopt an ECO- SEA - codification of environmentally sustainable economic activities - to measure public policies in favour of the climate, also budget revenue and expenditure.

Classification of six environmental objectives

Goal 9 SDGs (Industry, innovation and infrastructure)

The adoption of production processes is based on the efficiency and sustainable use of natural resources and responsible consumption models.

The European taxonomy has introduced the classification of six environmental objectives to which an economic activity by the industries shall qualify to connect such as:

1. **Climate change mitigation (starting from 1 January 2022);**
2. **Climate change adaptation (starting from 1 January 2022);**
3. **The sustainable use and protection of water and marine resources (starting from 1 January 2023);**
4. **The transition to a circular economy (starting from 1 January 2023);**
5. **Pollution prevention and control (starting from 1 January 2023);**
6. **The protection and restoration of biodiversity and ecosystems (starting from 1 January 2023).**

Industries- monitor the achievement of the environmental

Based on information made available as a result of the European Taxonomy Regulation is possible to create a table of correspondence between the different classifications for activities and products-services (ISIC/NACE/ATECO, CPC/CPA, PRODCOM, etc.) and a list of activities, products, and services considered relevant for the purposes of compliance with the principle "**do not significant harm**" connected to six environmental objectives with which economic activity is associated under the EU technical criteria for environmentally sustainable economic activities.

ITALY - In order to be able to monitor how Italy reduces CO2 emissions by 33% and the economic impact that this environmental policy may have on the national economy, it is necessary that all possible information be collected from the companies' side, including through their own financial statements (report sustainability). The main advantage of adding questions to existing surveys is limiting the additional cost for the statistical institutes. Furthermore, it is often simpler to add an extra variable to an existing survey than to launch an entirely new survey.

Industries

The use of this classification will allow industries to collect information for their environmental projects in line with the criteria established in the European taxonomy.

We can measure a new ECO-GDP indicator.

New classification ECO - codification of eco-sustainable economic activity qualifies as environmentally sustainable	Economic activity NACE REV.2			Production	Costs	Added value at market prices
	A: Agriculture, forestry and fishing	BTF: mining, manufacturing, supply of electricity, gas, steam and air conditioning, water, sewage, waste treatment and remediation, construction	GTU: service			
	NACE 1 - 2	NACE 1 - 2	NACE ...			
A. "eco-sustainable economic activity" that respects criteria an economic activity qualifies as environmentally sustainable;						
1. the mitigation of climate change			X	X	X	X
OAMCC 1.1						
OAMCC 1.1.1 improving energy efficiency etc.						
2. adaptation to climate change		X		X	X	X
3. sustainable use and protection of water and marine resources	X			X	X	X
4. the transition to a circular economy		X		X	X	X
5. the prevention and reduction of pollution		X		X	X	X
6. the protection and restoration of biodiversity and ecosystems	X			X	X	X
B. "transitional economic activities" which contribute substantially to the mitigation of climate change;	X			X		X
C. "enabling economic activity" which contributes substantially to one or more of the environmental objectives;						
D. "economic activity eligible for taxonomy" described in the acts delegated by the European Commission;		X		X		X
E. "non-eco-sustainable economic activity - not eligible for taxonomy" not described in documents, that which causes significant damage to the environment.	X	X	X	X		X
Tot A	X	X	X	X	X	ECO GDP (10%)
Tot B-D	X	X	X	X	X	TRANSITION GDP (30%)
Tot E	X	X	X	X	X	No ECO GDP (60%)
Total economy						GDP (Year 2021- 1.787.675)

Source: Montella, Poster IAERE 2023

Households

By linking the consumption expenditure of households classified with the COICOP with ECO-sustainable economic activities it is possible to reclassify household consumption for the six environmental objectives. We can measure a new eco-sustainable consumption indicator.

Codification of eco-sustainable economic product qualifies as environmentally sustainable	Classification of individual consumption by purpose (COICOP)													Total consumption by eco-sustainable action
	01 FOOD AND NON-ALCOHOLIC BEVERAGES	02 ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS	03 CLOTHING AND FOOTWEAR	04 HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS	05 FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE HOUSEHOLD MAINTENANCE	06 HEALTH SERVICES	07 TRANSPORT	08 INFORMATION AND COMMUNICATION	9 RECREATION, SPORT AND CULTURE	10 EDUCATION SERVICES	11 RESTAURANTS AND ACCOMMODATION SERVICES	12 INSURANCE AND FINANCIAL SERVICES	13 PERSONAL CARE, SOCIAL PROTECTION AND MISCELLANEOUS GOODS AND SERVICES	
New classification ECO	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	COICOP ...	
A. "eco-sustainable economic activity" that respects criteria an economic activity qualifies as environmentally sustainable;														
1. the mitigation of climate change	X			X	X	X	X						X	X
OAMCC 1.1											X			
OAMCC 1.1.1 improving energy efficiency etc.									X					
2. adaptation to climate change				X									X	X
3. sustainable use and protection of water and marine resources														X
4. the transition to a circular economy		X							X					X
5. the prevention and reduction of pollution								X						X
6. the protection and restoration of biodiversity and ecosystems				X										X
B. "transitional economic activities" which contribute substantially to the mitigation of climate change;			X	X										X
C. "enabling economic activity" which contributes substantially to one or more of the environmental objectives;														
D. "economic activity eligible for taxonomy" described in the acts delegated by the European Commission;														
E. "non-eco-sustainable economic activity - not eligible for taxonomy" not described in documents, that which causes significant damage to the environment.	X	X	X	X	X	X	X	X	X	X	X		X	X
Tot A by purpose (COICOP)	X	X		X	X	X	X	X	X		X		X	ECO Consumption (10%)
Tot B-D by purpose (COICOP)	X	X	X	X	X	X	X	X	X	X	X		X	TRANSITION consumption (30%)
Tot E by purpose (COICOP)	X	X	X	X	X	X	X	X	X	X	X		X	No ECO Consumption (60%)
Total Household consumption in the economic territory by purpose (COICOP)														(Year 2021- 1.028.391)

Public Administration

Politicians can divert financial resources to industries that have invested in environmental sustainability. These data are broken down by function according to the Classification COFOG and by economic nature. We can measure a new Eco-expenditure of the P. Administration indicator.

Codification of eco-sustainable economic activity qualifies as environmentally sustainable	Classification of General government expenditure by function (COFOG)										General government expenditure by eco-sustainable action
	1 General public services	2 Defense	3 Public order and safety	4 Economic affairs	5 Environmental protection	6 Housing and community amenities	7 Health	8 Recreation, culture and religion	9 Education	10 Social protection	
New classification ECO-SEA	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	COFOG...	
A. "eco-sustainable economic activity" that respects criteria an economic activity qualifies as environmentally sustainable;											
1. the mitigation of climate change	X			X	X	X	X				
OAMCC 1.1											
OAMCC 1.1.1 improving energy efficiency etc.									X		
2. adaptation to climate change				X			X				
3. sustainable use and protection of water and marine resources						X					
4. the transition to a circular economy		X							X		
5. the prevention and reduction of pollution					X			X			
6. the protection and restoration of biodiversity and ecosystems	X			X							
B. "transitional economic activities" which contribute substantially to the mitigation of climate change;			X	X							
C. "enabling economic activity" which contributes substantially to one or more of the environmental objectives;											
D. "economic activity eligible for taxonomy" described in the acts delegated by the European Commission;											
E. "non-eco-sustainable economic activity - not eligible for taxonomy" not described in documents, that which causes significant damage to the environment.	X	X	X	X	X	X	X	X	X	X	X
Tot A by function (COFOG)	X	X		X	X	X	X	X	X	X	ECO expenditure (10%)
Tot B-D by function (COFOG)	X	X	X	X	X	X	X	X	X	X	TRANSITION expenditure (30%)
Tot E by function (COFOG)	X	X	X	X	X	X	X	X	X	X	No ECO expenditure (60%)
Total General government expenditure by function (COFOG)											(Year 2021- 986.167)

Satellite accounts of the environment

- Thanks to the coherence with the national accounts, the monetary satellite accounts of the environment allow a joint reading of the relevant phenomena from the point of view of the environment and those relating to the economic sphere correlated to them, constituting a valuable information base, among other, for policies in the green economy and for modeling, including for forecasting purposes.
- The environmental goods and services account also called the eco-industry account, measures how much of the value of the goods and services that the system produces has as its main purpose the protection of the environment (prevention, reduction or elimination of pollution and any other form of degradation of the natural environment) or the management of natural resources (conservation, maintenance and enhancement of stocks of natural resources and their protection from depletion).
- **The problem is that this account has an important limitation: it focuses only on the value supply of goods and services that directly serve environmental purposes, regardless of who produces them (environmental product supply). Instead, we all need to know more about who produces, how they produce, and what actions they take to meet the six environmental goals for climate change.**

New value-added in Environmental goods and services account

New classification ECO - codification of eco-sustainable economic activity qualifies as environmentally sustainable	**CEPA 1**: air and climate protection	**CEPA 2:** waste water management	**CEPA 3:** waste management	**CEPA 4:** protection and remediation of soil, groundwater and surface water	**CEPA 6:** protection of biodiversity and landscape	**CREMA 10:** water management	**CREMA 11:** management of forest resources	**CREMA 13:** management of energy resources	**CREMA 13A:** production of energy from renewable sources	**CREMA 13B:** saving and heat/energy management	**CREMA 13C:** minimization of the use of fossil energy as raw materials	**CREMA 14:** management of minerals
1. the mitigation of climate change												
OAMCC 1.1.1 improving energy efficiency										X		
OAMCC 1.1.6 establishing energy infrastructure required for enabling the decarburization of energy systems								X			X	
OAMCC 1.2.1 has greenhouse gas emission levels that correspond to the best performance in the sector or industry								X			X	
2. adaptation to climate change												
3. sustainable use and protection of water and marine resources												
OAUSPAM 3.1 protecting the environment from the adverse effects of urban and industrial waste water discharges, including from contaminants of emerging concern such as pharmaceuticals and microplastics, for example by ensuring the adequate collection, treatment and discharge of urban and industrial waste waters		X										
OAUSPAM 3.3 improving water management and efficiency, including by protecting and enhancing the status of aquatic ecosystems, by promoting the sustainable use of water through the long-term protection of available water resources, inter alia, through measures such as water reuse, by ensuring the progressive reduction of pollutant emissions into surface water and groundwater, by contributing to mitigating the effects of floods and droughts, or through any other activity that protects or improves the qualitative and quantitative status of water bodies						X						
4. the transition to a circular economy												
OATEC 4.1.2 resource and energy efficiency measures								X				
OATEC 4.7 prevents or reduces waste generation, including the generation of waste from the extraction of minerals and waste from the construction and demolition of buildings												X
OATEC 4.8 increases preparing for the re-use and recycling of waste			X									
OATEC 4.9 increases the development of the waste management infrastructure needed for prevention, for preparing for re-use and for recycling, while ensuring that the recovered materials are recycled as high-quality secondary raw material input in production, thereby avoiding downcycling			X									
5. the prevention and reduction of pollution												
OAPRI 5.1 preventing or, where that is not practicable, reducing pollutant emissions into air, water or land, other than greenhouse gasses	X											
OAPRI 5.2 improving levels of air, water or soil quality in the areas in which the economic activity takes place whilst minimizing any adverse impact on, human health and the environment or the risk thereof				X								
6. the protection and restoration of biodiversity and ecosystems												
OAPRBE 6.3 sustainable agricultural practices, including those that contribute to enhancing biodiversity or to halting or preventing the degradation of soils and other ecosystems, deforestation and habitat loss				X								
OAPRBE 6.4 sustainable forest management, including practices and uses of forests and forest land that contribute to enhancing biodiversity or to halting or preventing degradation of ecosystems, deforestation and habitat loss							X					

ECO-GDP in Environmental goods and services account

Gross Value Added of Environmental Goods and Services Sector Accounts

Classification CEPA-CREMA	2018	2019	2020	2019/2018	Example linked to the six environmental objectives
CEPA 1 - PROTECTION OF AMBIENT AIR AND CLIMATE	1.019	998	887	-2,1	1. - Climate change mitigation 2. - Climate change adaptation
CEPA 2 - WASTEWATER MANAGEMENT	4.183	4.292	4.353	2,6	3. The sustainable use and protection of water and marine resources
CEPA 3 - WASTE MANAGEMENT	9.120	9.225	9.277	1,2	1. Climate change mitigation 4. the transition to a circular economy 5. pollution prevention and control
CEPA 4 - PROTECTION AND REMEDIATION OF SOIL, GROUNDWATER AND SURFACE WATER	2.426	2.499	2.558	3,0	3. The sustainable use and protection of water and marine resources
CEPA 5 - NOISE AND VIBRATION ABATEMENT (EXCLUDING WORKPLACE PROTECTION)	233	279	240	19,7	5. Pollution prevention and control
CEPA 6 - PROTECTION OF BIODIVERSITY AND LANDSCAPES	1.402	1.410	1.401	0,6	6. The protection and restoration of biodiversity and ecosystems
CEPA 7 - PROTECTION AGAINST RADIATION (EXCLUDING EXTERNAL SAFETY)	1.848	1.825	1.807	-1,3	5. Pollution prevention and control
Total activities for environmental protection	**20.230**	**20.527**	**20.522**	**1,5**	
CREMA 10 - MANAGEMENT OF WATER	120	140	137	17,1	3. The sustainable use and protection of water and marine resources
CREMA 11 - MANAGEMENT OF FOREST RESOURCES (**CREMA 11A**: MANAGEMENT OF FOREST AREAS **CREMA 11B**: MINIMISATION OF THE INTAKE OF FOREST RESOURCES)	1.319	1.382	1.459	4,8	6. the protection and restoration of biodiversity and ecosystems
CREMA 12 - MANAGEMENT OF WILD FLORA AND FAUNA	222	207	209	-6,7	1. - Climate change mitigation 2. - Climate change adaptation
CREMA 13 - MANAGEMENT OF ENERGY RESOURCES	17.936	17.385	16.204	-3,1	1. Climate change mitigation 4. the transition to a circular economy
***CREMA 13A** : PRODUCTION OF ENERGY FROM RENEWABLE SOURCES*	*11.814*	*11.137*	*10.650*	*-5,7*	1. - Climate change mitigation
***CREMA 13B** : HEAT/ENERGY SAVING AND MANAGEMENT*	*5.829*	*5.946*	*5.220*	*2,0*	1. - Climate change mitigation
***CREMA 13C** : MINIMISATION OF THE INTAKE OF FOSSIL ENERGY RESOURCES AS RAW MATERIAL*	*292*	*302*	*334*	*3,4*	ABI 1. Enabling activities
CREMA 14: MANAGEMENT OF MINERALS	2.374	2.457	2.320	3,5	4. the transition to a circular economy
Total of natural resource management activities	**21.970**	**21.571**	**20.328**	**-1,8**	**Total of the six environmental objectives**
TOTAL	**42.200**	**42.097**	**40.850**	-0,2	
GDP	**1.771.391**	**1.796.649**	**1.661.020**	1,4	**GDP**
Eco-industry - Gross Value Added/GDP	**2,38**	**2,34**	**2,46**		**ECO-GDP**

The eco-industry sector in Italy is mainly concentrated in two areas of intervention: waste management and management of energy resources.

Conclusions and Outlook

- ✓ The objective of this work is to suggest the adoption of a new classification, starting from the European taxonomy, to be included in the environmental accounts.
- ✓ This classification focuses on the system of sustainable economic activities, or "ECO list" as the new ECO-SEA classification - codification of environmentally sustainable economic activities.
- ✓ An EU-wide classification system will mean that we will have a uniform and harmonized way of determining which economic activities can be considered sustainable.
- ✓ This is essential for the EU to become the first climate-neutral continent by 2050, as well as for urgently tackling biodiversity loss and other environmental challenges.
- ✓ To build new indicators it is necessary to use a common language to define the actions in favor of the climate undertaken at the European level. It is therefore essential to propose new indicators capable of measuring in progress.
- ✓ Eco-GDP, PA eco-expenditure, and household eco-consumption can represent the new indicators, useful for having a macro measure of the economic actors favorable to environmental sustainability.
- ✓ This also helps to understand where we are in achieving the goals of the 2030 Agenda for sustainable global development.
- ✓ This first step of using the ECO classification may help to better identify environmental objectives, but this proposal will require further investigation by environmental accountants.

Thanks for your attention

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