Smart Transportation Alliance

Transportation infrastructures in the EU taxonomy

DISCUSSION PAPER 1/2023

September 2023

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1. What is the EU taxonomy?

According to the European Commission, "*the EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. It could play an important role helping the EU scale up sustainable investment and implement the European green deal*"[1].

The Smart Transportation Alliance (STA) congratulates the European Commission on the launch of this ambitious strategy and would like to extend these congratulations to all public and private stakeholders who will join forces in fulfilling the EU's objectives on the environment and climate change. Modern societies demand efficient, climate-resilient and socially-meaningful transportation infrastructures and Smart Cities, and at STA we are firmly convinced that a solid EU taxonomy has to the potential to provide a common framework for all aforementioned objectives, supporting the elimination of green washing and other negative practices.

The Discussion Paper below presents some recommendations from a transportation infrastructure perspective.

2. Why do we need an EU taxonomy?

Smart transportation infrastructures must satisfy high mobility demands, but at the same time they should secure the lowest possible energy consumption and CO_2 emissions when it comes to their construction, operation, and maintenance.

Combining today's social demand for better mobility with a more extensive care for the environment is an essential move, vital to meet a long-term sustainable economic development.

The European Commission recognizes that "*in order to meet the EU's climate and energy targets for 2030 and reach the objectives of the European green deal, it is vital that we direct investments towards sustainable projects and activities. The EU taxonomy would provide companies, investors and policymakers with appropriate definitions for which economic activities can be considered environmentally sustainable. In this way, it should create security for investors, protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed*"[2].

3. Framework and references.

The following figure summarises the main milestones on the evolution of sustainable financing and taxonomy, which are explained above:

[1] https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en#what
[2] https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en#what

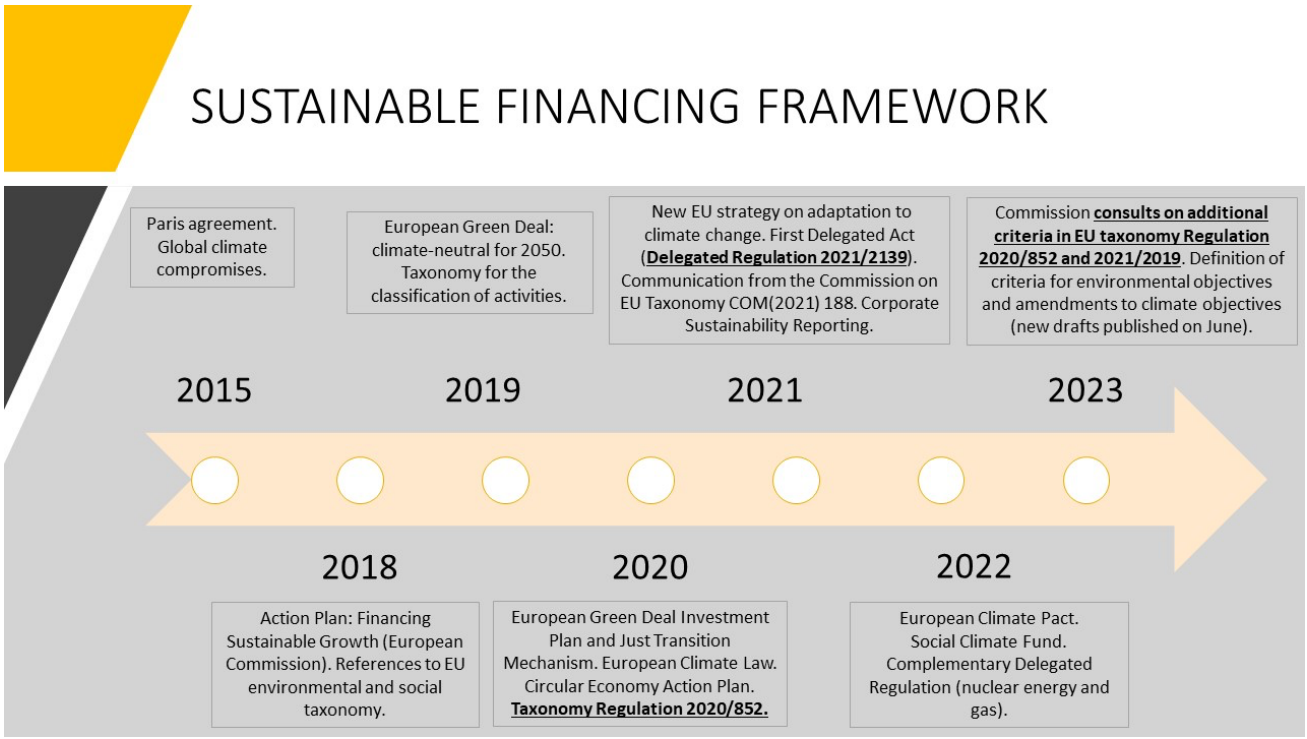


Figure 1: Milestones on sustainable financing (based on European Commission publications)

Although the origin of the growing concern for sustainability dates back several decades, the year 2015 (Paris Agreement) could be cited as a key starting point for sustainable financing in the context of the United Nations Conference on Climate Change. This agreement mentions the need to establish the necessary financing mechanisms to achieve sustainable growth in line with the objective of containing the rise in global temperature.

Since then, the following key steps have been taken by the European Union:

- In 2018, the European Commission published the **Action Plan for Financing Sustainable Growth** (I), which already established as its first action "Developing a European Union classification system for sustainable activities."

- In 2019, the **European Green Deal** was announced with the objective for the European Union to achieve climate neutrality by 2050. It is a "roadmap to make the EU's economy sustainable by transforming climate and environmental challenges into opportunities in all policy areas and making the transition fair and inclusive for all" (II).

- In January 2020, the **Investment Plan for the European Green Deal and the Just Transition Mechanism** were presented. The plan announced the mobilization of EU financing and the creation of a conducive framework to facilitate and stimulate the necessary public and private investments for the transition to a climate-neutral, ecological, competitive, and inclusive economy (III).

- In March 2020, the proposal for the **European Climate Law** was approved to ensure the EU's climate neutrality by 2050. A public consultation on the European Climate Pact, presented in December 2020, was opened.

- Also in 2020, in the context of the COVID-19 pandemic, the **Next Generation EU** mechanism was approved, a temporary instrument designed to boost recovery, constituting the largest stimulus ever financed in Europe (IV). In the development of the entire plan, climate and digital transition are among the key elements.

- Other significant milestones in 2020 included the presentation of the proposal for a **Circular Economy Action Plan** (focused on the sustainable use of resources), strategies for integrating the energy system, the Climate Target Plan for 2030, or specific strategies such as the Chemicals Sustainability Strategy, Methane Strategy, or Marine Renewable Energy Strategy.

- In the more specific field of taxonomy, the **Taxonomy Regulation (2020/852)** was published in 2020 (V), establishing the basis for the European Union taxonomy by setting out the general conditions that an economic activity must meet to be classified as environmentally sustainable. The Taxonomy Regulation establishes six environmental objectives:

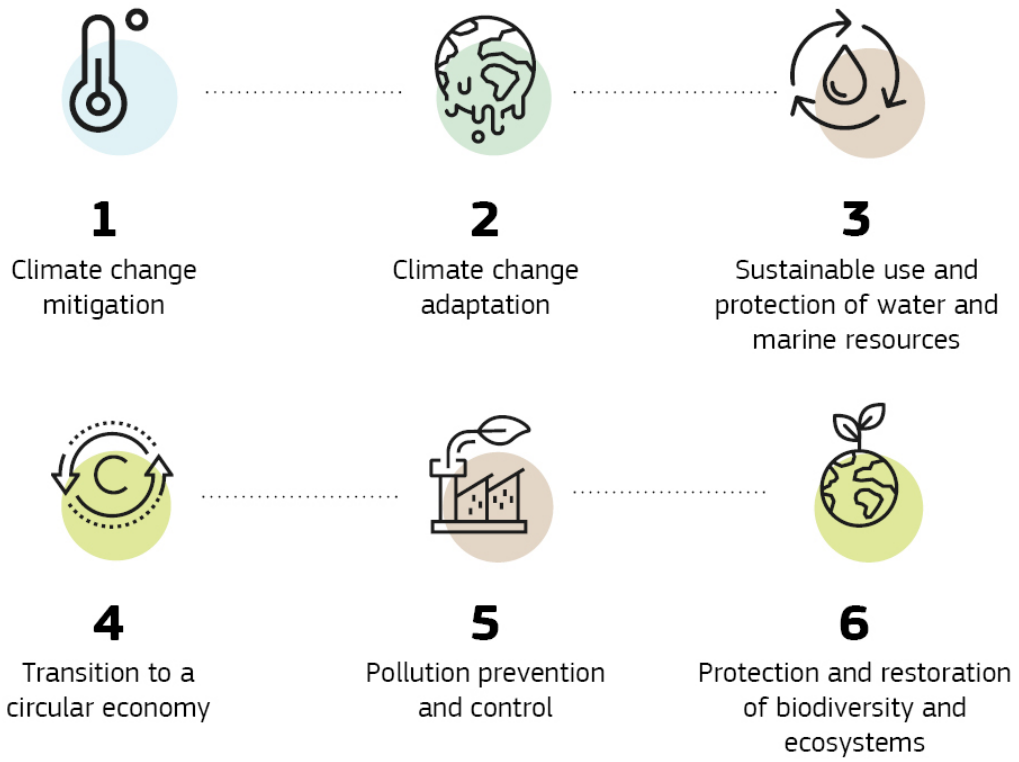


Figure 2: Six climate and environmental objectives of the Taxonomy Regulation (Source: European Commission: https://ec.europa.eu/sustainable-finance-taxonomy/)

- In 2021, notable highlights include the presentation of the EU's N**ew Strategy on Climate Change Adaptation**, the **Green Action Plan**, and the **Zero Pollution Action Plan**.
  In the specific field of taxonomy, the first delegated act (**Delegated Regulation 2021/2139**) was published in 2021 to determine whether economic activities contribute to the environmental objectives of climate change adaptation and mitigation (VI). Additionally, in 2021, the European Commission published the Communication on the European Union Taxonomy, focusing on the role of sustainable financing in climate transition (VII).

This act was complemented by another publication in December 2021, regarding the content, methodology, and presentation of information from companies on environmentally sustainable economic activities (VIII).

- In 2022, the European Commission joined the **European Climate Pact** and committed to making its operations climate-neutral by 2030. In December 2022, the European Union agreed to strengthen and expand emissions trading and create a Social Climate Fund to assist people during the transition. Regarding taxonomy, in March 2022, the Commission adopted a complementary Delegated Act on Climate that includes, under strict conditions, specific nuclear energy and gas activities in the list of economic activities covered by the EU taxonomy (IX).

- In April 2023, the European Commission published a public consultation on the content of a **new delegated act that supplements Regulation 2020/852,** developing the four outstanding environmental objectives: sustainable use and protection of water and marine resources, transition to a circular economy, prevention and control of pollution, and restoration of biodiversity and ecosystems. This consultation also includes a proposed **amendment to Delegated Regulation 2021/2139**, which expands and details the contents of the climate objectives (climate change mitigation and adaptation).

- In June 2023, after analysing the contributions made in the public consultation process, the European Commission has released **new drafts of Delegated Regulations**, referring to the climate and environmental objectives (X, XI). These drafts, already approved by the European Commission, are pending approval by the European Parliament and Council for their final publication, which is expected to take place before the end of 2023.

4. Main concepts about taxonomy.

4.1. Taxonomy and environmentally sustainable activities.

As it was mentioned above, the concept of taxonomy emerges to respond to the need to harmonize criteria for identifying whether a particular economic activity can be considered environmentally sustainable, with the idea of eliminating possible obstacles to attracting funds for sustainability projects. **Taxonomy is defined as a green classification system that translates the European Union's environmental and climate objectives into criteria for specific economic activities to guide investments**.

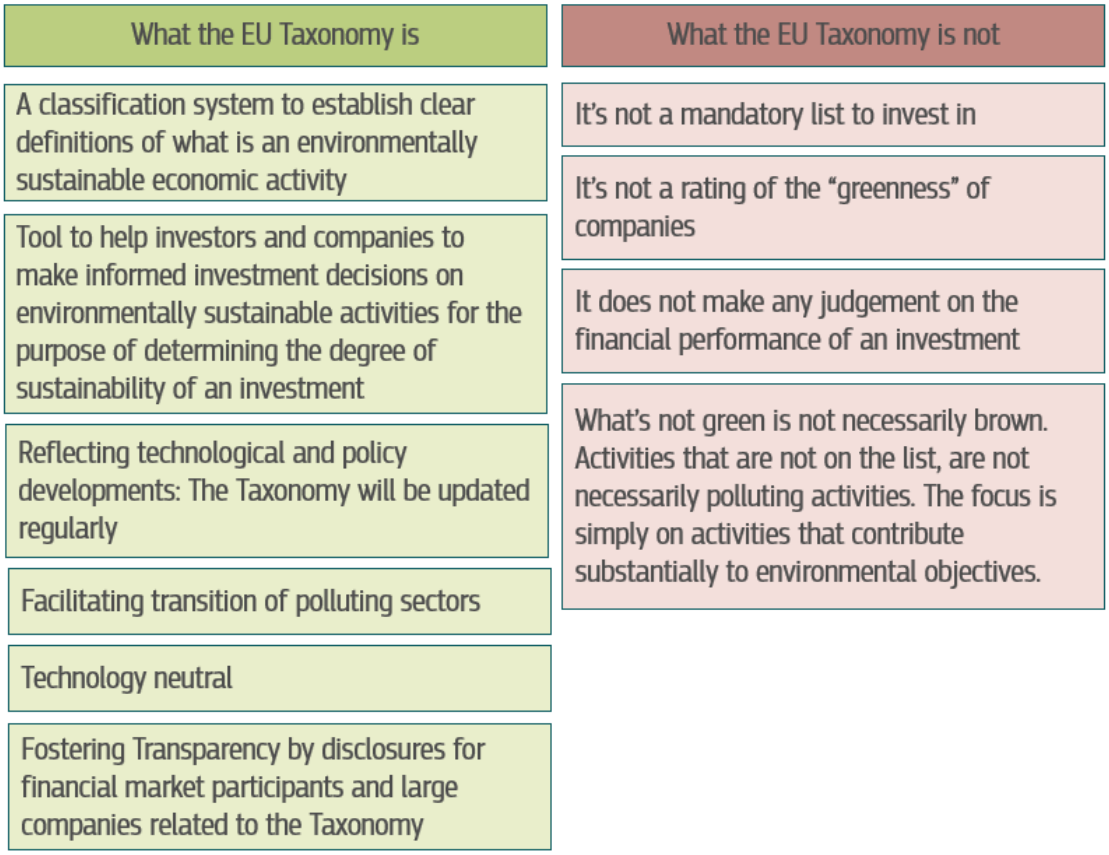


Figure 3: Description of Taxonomy (Source: European Commission: https://ec.europa.eu/sustainable-finance-taxonomy/)

The Taxonomy Regulation explains how an activity can make a substantial contribution to each of the six objectives. Therefore, an economic activity is considered environmentally sustainable if it substantially contributes to at least one of the climate and environmental objectives of the European Union, while not causing significant harm to any of the other objectives, meeting minimum social safeguards, and complying with the technical criteria established for the specific objective it contributes to without undermining them. These activities are aligned with the European Union Taxonomy and the criteria have been established based on the recommendations of a Technical Expert Group.

To assess the sustainability of activities from the perspective of the European Taxonomy, their eligibility and alignment must be evaluated, as summarised in the following graph:

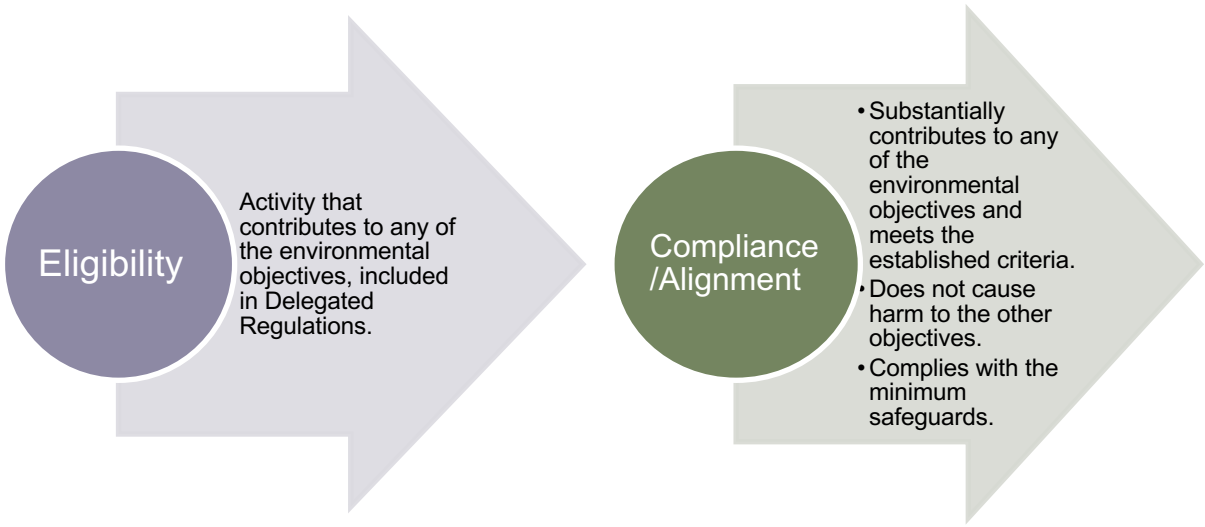


Figure 4: Eligibility and alignment of activities with the European Union Taxonomy (based on European Commission)

Consequently, an environmentally sustainable investment is an investment that finances one or more economic activities that can be considered environmentally sustainable according to the Taxonomy Regulation.

4.2. Steps to assess alignment with the EU Taxonomy.

Following the publication released by the European Commission (XII), the following steps are suggested to identify the alignment of activities with the EU Taxonomy:

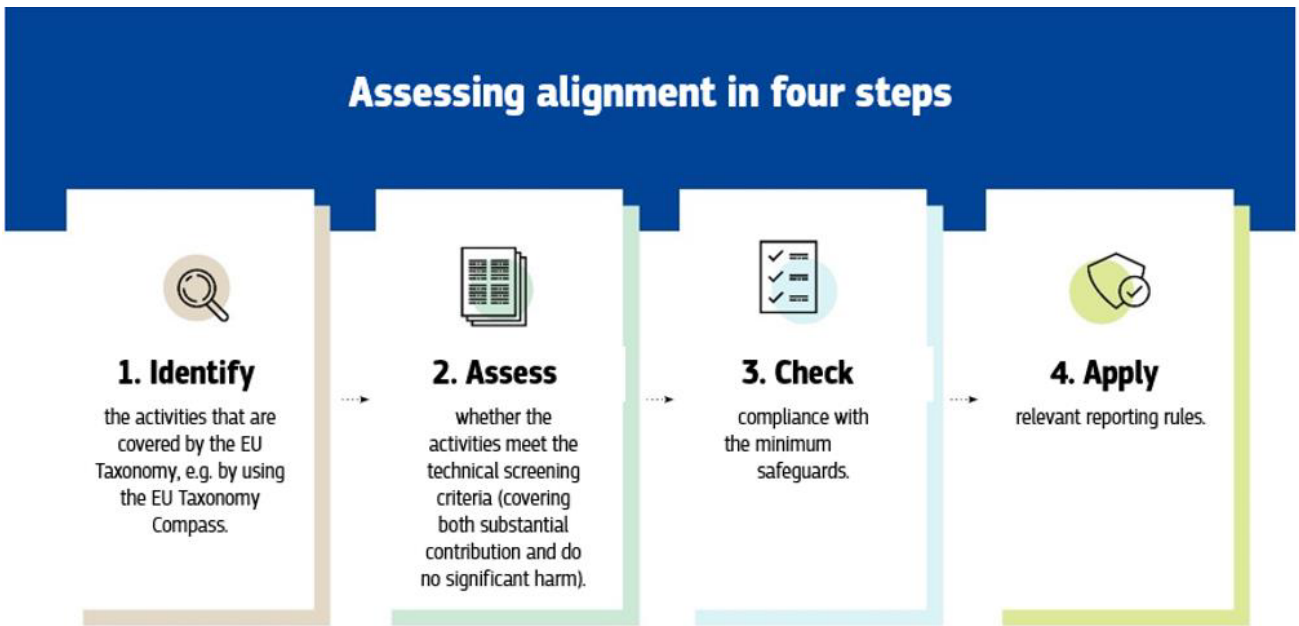


Figure 5: Steps to assess alignment with the EU Taxonomy (Source: A user guide to navigate the EU taxonomy for Sustainable Activities)

4.3. What activities are included in the European Union Taxonomy?

In the first delegated act (Delegated Regulation 2021/2139), the European Parliament and the Council have prioritised economic activities that can make a more significant contribution to the two climate objectives (climate change mitigation and climate change adaptation). Therefore, it includes the most relevant activities for reducing greenhouse gas emissions and improving climate resilience. This includes sectors with the highest contribution to CO_2 emissions (energy, manufacturing, transportation, building construction), as well as activities that enable their transformation, since transforming activities in these sectors is necessary to achieve the EU's climate objectives. These activities, specified in the Regulation, are known as "eligible activities."

It is estimated that with the taxonomy criteria applied to the two climate objectives, approximately 40% of publicly-listed companies' economic activities are covered, in sectors responsible for nearly 80% of direct greenhouse gas emissions in Europe.

However, it was not possible to develop criteria for all sectors where activities could potentially make a substantial contribution. The EU taxonomy will be developed gradually over time, and it is likely that more delegated acts or revisions of existing ones will include other economic activities from different sectors and sub-sectors of the economy as they become relevant and feasible to integrate into the EU.

The Taxonomy Regulation also distinguishes, within the eligible activities, between:

- "**Enabling activities**": an economic activity shall qualify as contributing substantially to one or more of the environmental objectives by directly enabling other activities to make a substantial contribution to one or more of those objectives, provided that such economic activity: (a) does not lead to a lock-in of assets that undermine long-term environmental goals, considering the economic lifetime of those assets; and (b) has a substantial positive environmental impact, on the basis of life-cycle considerations.

- "**Transition activities**," solely related to the climate change mitigation objective: An economic activity for which there is no technologically or economically viable low-carbon alternative will be considered to make a substantial contribution to climate change mitigation when it supports the transition to a climate-neutral economy consistent with a plan to limit the temperature increase to 1.5ºC above pre-industrial levels (through the progressive removal of greenhouse gases, ensuring good performance, and not hindering the development of cleaner technologies).

The following figure (XIII) summarises the sectors and activities covered by the EU taxonomy:

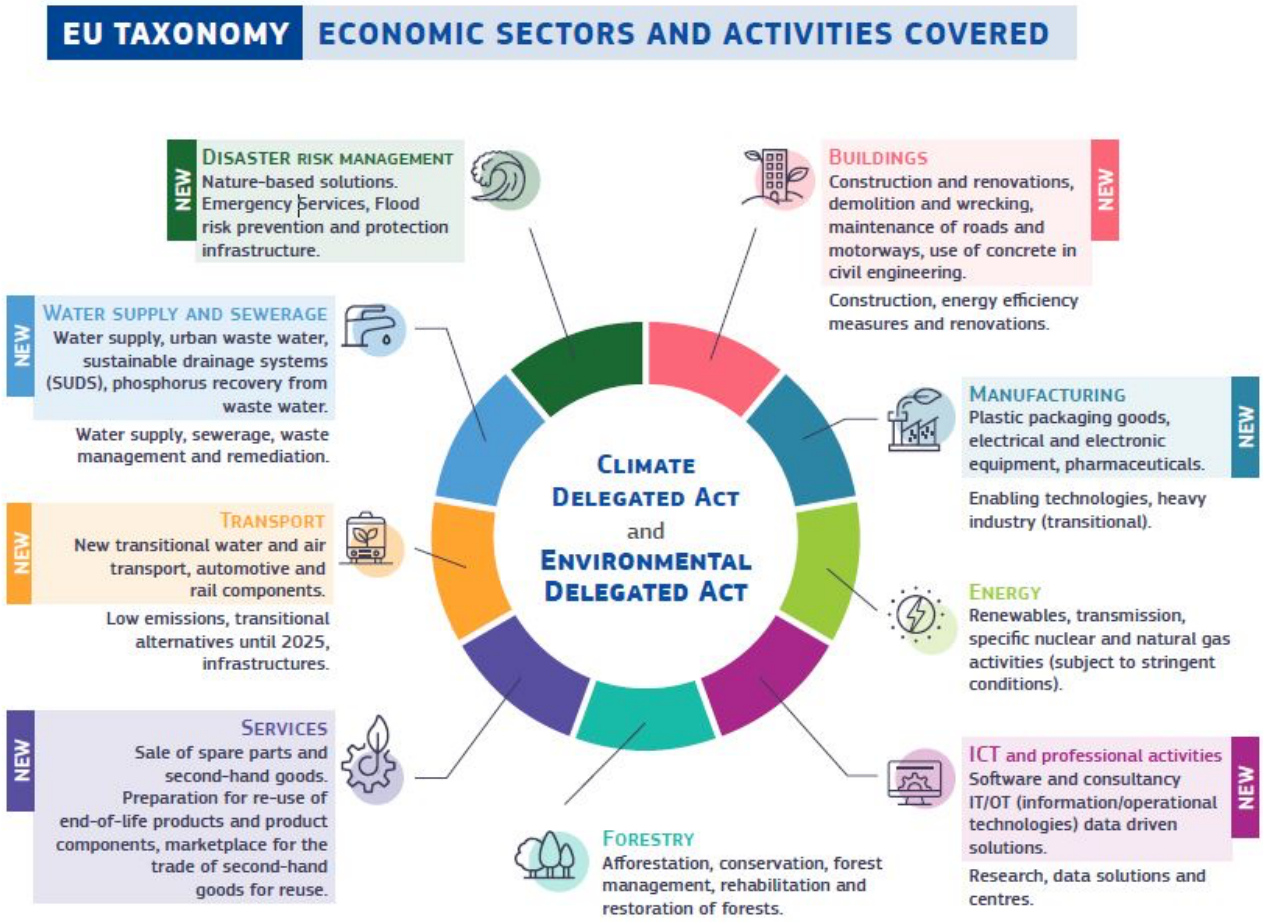


Figure 6: Economic sectors and activities covered in the EU Taxonomy (Source: European Commission)

To be considered eligible, an activity must be assessed using the CNAE/NACE codes and checked if they are included in the Regulation. A single company may have multiple codes depending on the activities it performs, and some activities may be eligible while others are not.

If an activity is not considered eligible, it is not within the European Union Taxonomy. If, on the other hand, it is eligible, the compliance with the criteria must be evaluated to determine if it aligns with the European Union Taxonomy. As mentioned earlier, for an activity to be considered environmentally sustainable (and therefore aligned with the European Union Taxonomy), the following requirements must be met (Article 3 of Regulation 2020/852):

- Substantially contribute to one or more of the environmental objectives, complying with the established criteria.
- Not cause any significant harm to any of the environmental objectives, complying with the established criteria.
- Carried out in accordance with the established minimum safeguards:
    - OECD Guidelines for Multinational Enterprises.
    - United Nations Guiding Principles on Business and Human Rights.
    - Principles and rights established in the eight fundamental conventions of the International Labour Organization concerning fundamental principles and rights at work.
    - International Bill of Human Rights.

The Platform on Sustainable Finance is also working on designing a **Social Taxonomy** for the European Union (XIV), based on three fundamental pillars:

- Respect for human rights.
- Governance.
- Promote adequate living conditions for all.

5. Consideration of transport infrastructures in the EU taxonomy.

From a STA perspective, it is important to identify how the EU Taxonomy affects transport infrastructures. Although transport operations are also linked to infrastructure, this analysis will only be focused on the infrastructures themselves.

5.1. Climate change mitigation

The following activities related to transport infrastructure are considered as eligible for the objective "climate change mitigation" according to (VI) and (X, annex 1):

6. Transport

6.13. Infrastructure for personal mobility, cycle logistics

6.14. Infrastructure for rail transport

6.15. Infrastructure enabling low-carbon road transport and public transport

6.16. Infrastructure enabling low carbon water transport

6.17. Low carbon airport infrastructure

In addition, there are several activities included under paragraph "3. Manufacturing" which are directly linked to the construction of transport infrastructures, such as "3.7. Manufacture of cement", "3.8. Manufacture of iron and steel" or "3.17. Manufacture of plastics". However, these activities have not been included in this document. Activity 6.15 "Infrastructure enabling low-carbon road transport and public transport" is described as "*Construction, modernisation, maintenance and operation of infrastructure that is required for zero tailpipe CO2 operation of zero-emissions road transport, as well as infrastructure dedicated to transshipment, and infrastructure required for operating urban transport"*. The criteria for these activities are explained in the following table:

Substantial contribution to climate change mitigation for Activity 6.15 "Infrastructure enabling low-carbon road transport and public transport".	1. The activity complies with one or more of the following criteria: (a) the infrastructure is dedicated to the operation of vehicles with zero tailpipe CO_2 emissions: electric charging points, electricity grid connection upgrades, hydrogen fuelling stations or electric road systems (ERS). (b) the infrastructure and installations are dedicated to transhipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transhipment of goods. (c) the infrastructure and installations are dedicated to urban and suburban public passenger transport, including associated signalling systems for metro, tram and rail systems. 2. The infrastructure is not dedicated to the transport or storage of fossil fuels.
Do no significant harm ('DNSH')	
Climate change adaptation	The physical climate risks that are material to the activity have been identified by performing a robust climate risk and vulnerability assessment. The climate risk and vulnerability assessment are proportionate to the scale of the activity and its expected lifespan. The climate projections and assessment of impacts are based on best practice and available guidance. For existing activities and new activities using existing physical assets, the economic operator implements physical and non-physical solutions ('adaptation solutions'), over a period of time of up to five years, under an adaptation plan. For new activities and existing activities using newly-built physical assets, the economic operator integrates the adaptation solutions that reduce the most important identified physical climate risks that are material to that activity at the time of design and construction and has implemented them before the start of operations. The adaptation solutions implemented do not adversely affect other adaptation efforts.
Sustainable use and protection of water and marine resources	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential as defined in the European Regulations. Where an Environmental Impact Assessment is carried out in accordance European Regulations, no additional assessment of impact on water is required, provided the risks identified have been addressed.
Transition to a circular economy	At least 70 % (by weight) of the non-hazardous construction and demolition waste generated on the construction site is prepared for reuse, recycling and other material recovery, in accordance with European regulations. Operators limit waste generation in processes related construction and demolition, in accordance with the European regulations.
Pollution prevention and control	Where relevant, noise and vibrations from use of infrastructure are mitigated by introducing open trenches, wall barriers or other measures and comply with European regulations. Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.
Protection and restoration of biodiversity and ecosystems	An Environmental Impact Assessment (EIA) or screening has been completed in accordance with European regulations.

	Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented. Where relevant, maintenance of vegetation along road transport infrastructure ensures that invasive species do not spread. Mitigation measures have been implemented to avoid wildlife collisions.

Table 1: Technical screening criteria for activity "Infrastructure enabling low-carbon road transport and public transport" for the objective "climate change mitigation" (Source: Commission Delegated Regulation 2021/2139)

5.2. Climate change adaptation

The following activities related to transport infrastructure are considered as eligible for the objective "climate change adaptation" according to (VI) and (X, annex 2):

6. *Transport*
   - *6.13. Infrastructure for personal mobility, cycle logistics*
   - *6.14. Infrastructure for rail transport*
   - *6.15. Infrastructure enabling road transport and public transport*
   - *6.16. Infrastructure for water transport*
   - *6.17. Airport infrastructure*

Similarly, as it was explained in the objective of "climate change mitigation", there are several activities included under paragraph "3. Manufacturing" which are directly linked to the construction of transport infrastructures. However, these activities have not been included in this document.

Activity 6.15 "Infrastructure enabling road transport and public transport", is described as "*Construction, modernisation, maintenance and operation of motorways, streets, roads, other vehicular and pedestrian ways, surface work on streets, roads, highways, bridges or tunnels and construction of airfield runways, including the provision of architectural services, engineering services, drafting services, building inspection services and surveying and mapping services and the like as well as the performance of physical, chemical and other analytical testing of all types of materials and products, and excludes the installation of street lighting and electrical signals"*. The criteria for these activities are explained in the following table:

Substantial contribution to climate change adaptation for Activity 6.15 "Infrastructure enabling road transport and public transport".	1. The economic activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that activity. 2. The physical climate risks that are material to the activity have been identified by performing a robust climate risk and vulnerability assessment with the following steps: (a) screening of the activity to identify which physical climate may affect the performance of the economic activity during its expected lifetime; (b) where the activity is assessed to be at risk from one or more of the physical climate risks, a climate risk and vulnerability assessment to assess the materiality of the physical climate risks on the economic activity; (c) assessment of adaptation solutions that can reduce the identified physical climate risk. The climate risk and vulnerability assessment is proportionate to the scale of the activity and its expected lifespan, such that: (a)for activities with an expected lifespan of less than 10 years, the assessment is performed, at least by using climate projections at the smallest appropriate scale; (b)for all other activities, the assessment is performed using the highest available resolution, state-of-the-art climate projections across the existing range of future scenarios consistent with the expected lifetime of the activity, including, at least, 10- to 30-year climate projections scenarios for major investments. 3. The climate projections and assessment of impacts are based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models. 4. The adaptation solutions implemented: (d) do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; (e) favour nature-based solutions or rely on blue or green infrastructure to the extent possible; (f) are consistent with local, sectoral, regional or national adaptation plans and strategies; (g) are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; (h) where the solution implemented is physical and consists in an activity for which technical screening criteria have been specified in this Annex, the solution complies with the do no significant harm technical screening criteria for that activity.
Do no significant harm ('DNSH')	
Climate change mitigation	The infrastructure is not dedicated to transportation or storage of fossil fuels. In case of new infrastructure or major renovation, the infrastructure has been climate proofed in accordance with the appropriate climate proofing practice that includes carbon footprinting and clearly defined shadow cost of carbon. Such carbon footprinting covers scope 1-3 emissions, and demonstrates that the infrastructure does not lead to additional relative greenhouse gas

	emissions, calculated on the basis of conservative assumptions, values and procedures
Sustainable use and protection of water and marine resources	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential as defined in the European Regulations. Where an Environmental Impact Assessment is carried out in accordance European Regulations, no additional assessment of impact on water is required, provided the risks identified have been addressed
Transition to a circular economy	At least 70 % (by weight) of the non-hazardous construction and demolition waste generated on the construction site is prepared for reuse, recycling and other material recovery, in accordance with European regulations. Operators limit waste generation in processes related construction and demolition, in accordance with the European regulations.
Pollution prevention and control	Where relevant, noise and vibrations from use of infrastructure are mitigated by introducing open trenches, wall barriers or other measures and comply with European regulations. Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.
Protection and restoration of biodiversity and ecosystems	An Environmental Impact Assessment (EIA) or screening has been completed in accordance with European regulations. Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented. Where relevant, maintenance of vegetation along road transport infrastructure ensures that invasive species do not spread. Mitigation measures have been implemented to avoid wildlife collisions.

Table 2: Technical screening criteria for activity "Infrastructure enabling road transport and public transport" for the objective "climate change mitigation" (Source: Commission Delegated Regulation 2021/2139)

5.3. Transition to a circular economy

According to the supplement to Regulation (EU) 2020/852 (XI, annex II), the following activities related to transport infrastructure are considered as eligible for the objective "transition to a circular economy", under the paragraph "3. Construction and real estate activities":

3.3. Demolition and wrecking of buildings and other structures.
3.4. Maintenance of roads and motorways.
3.5. Use of concrete in civil engineering.

Activity 3.4 "Maintenance of roads and motorways"", is described as "*Maintenance of streets, roads and motorways, other vehicular and pedestrian ways, surface work on streets, roads, highways, bridges, tunnels, aerodrome runways, taxiways and aprons, defined as all actions undertaken to maintain and restore the serviceability and level of service of roads. For bridges and tunnels, the economic activity only includes the*

maintenance of the road that runs on the bridge or through the tunnel. It does not include the maintenance of the bridge or tunnel itself. The economic activity includes routine maintenance, which can be scheduled on a periodical basis. The economic activity also includes preventive maintenance and rehabilitation which are defined as works undertaken to preserve or restore serviceability and to extend the service life of an existing road. The maintenance operation is mainly dedicated to pavement management and concerns only the following main elements of the road: binder course, surface course and concrete slabs. The roads in the scope of this economic activity are made of asphalt, concrete or a combination of the two". The criteria for these activities are explained in the following table:

Substantial contribution to transition to circular economy for Activity 3.4 "Maintenance of roads and motorways".	1. Where main road elements (binder course, surface course or concrete slabs) are demolished or removed, the preparing for re-use or recycling of the non-hazardous waste generated onsite is 100% (by mass in kilogrammes), excluding backfilling. 2. Where the road elements (binder course, surface course and concrete slabs) are newly installed after demolition or removal, including any roads which are built on a temporary basis for the purpose of carrying out the maintenance works, at least 50% (by mass in kilogrammes) of the structural road elements used are re-used or recycled materials or non-hazardous industrial by-products. 3. The re-used or recycled materials are not moved over distances greater than 2.5 times the distance between the construction site and the nearest production facility for equivalent primary raw materials, to avoid that the use of re-used or recycled materials leads to higher CO2 emissions than the use of primary raw materials. 4. Where newly installed, the binder course has a service lifetime no shorter than 20 years. 5. The use of primary raw material for road furniture is minimised through the use of secondary raw materials. The operator of the activity ensures that for metals, such as steel restraint systems, a maximum of 30% of the material come from primary raw material. The threshold is calculated by subtracting the secondary raw material from the total amount of each material category used in the works measured by mass in kilogrammes. Where the information on the recycled content of the construction product is not available, it is to be counted as comprising 100% primary raw material. In order to respect the Waste Hierarchy and thereby favour re-use over recycling, re-used construction products, including those containing non-waste materials reprocessed on site, are to be counted as comprising zero primary raw material.
Do no significant harm ('DNSH')	
Climate change mitigation	A traffic congestion mitigation plan to be implemented during the maintenance works is presented.
Climate change adaptation	The physical climate risks that are material to the activity have been identified by performing a robust climate risk and vulnerability assessment. The climate risk and vulnerability assessment are proportionate to the scale of the activity and its expected lifespan. The climate projections and assessment of impacts are based on best practice and available guidance. For existing activities and new activities using existing physical assets, the economic operator implements physical and non-physical solutions ('adaptation solutions'), over a period of time of up to five years, under an adaptation plan. For new activities and existing activities using newly-built physical assets, the economic operator integrates the adaptation solutions that reduce the most important identified physical climate risks that are material to that

	activity at the time of design and construction and has implemented them before the start of operations. The adaptation solutions implemented do not adversely affect other adaptation efforts.
Sustainable use and protection of water and marine resources	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential as defined in the European Regulations. Where an Environmental Impact Assessment is carried out in accordance European Regulations, no additional assessment of impact on water is required, provided the risks identified have been addressed.
Pollution prevention and control	Measures are taken to reduce noise, vibrations, dust and pollutant emissions during construction or maintenance works. When choosing road surface types, low noise road surfaces are preferred.
Protection and restoration of biodiversity and ecosystems	An Environmental Impact Assessment (EIA) or screening has been completed in accordance with European regulations. Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.

Table 3: Technical screening criteria for activity "Maintenance of roads and motorways" for the objective "transition to a circular economy" (Source: European Commission C(2023) 3851 final)

5.4. Sustainable use and protection of water and marine resources

The activities included in this objective are not related to transport infrastructure (XI, annex I).

5.5. Pollution prevention and control

The activities included in this objective are not related to transport infrastructure (XI, annex III).

5.6. Protection and restoration of biodiversity and ecosystems

The activities included in this objective are not related to transport infrastructure (XI, annex IV).

6. STA's vision on transportation infrastructures in the framework of the EU taxonomy.

STA's vision on EU taxonomy attempts to provide an answer to the following uncertainties:

- *How far are European transportation infrastructures from the EU taxonomy criteria?*

With a long network of existing transportation infrastructures which have not been designed or built with taxonomy criteria, it is likely that a large proportion of those networks is quite far from the current environmental and climate regulations. Thus, it is essential to emphasise criteria for the existing infrastructures, trying to avoid approaches which limit their contribution to the environmental and climate objectives. In this approach, there are several actions which are usually implemented in infrastructures and are not included in the taxonomy criteria (examples are provided later in this sub-chapter).

- *Is it possible to develop a roadmap to achieve taxonomic infrastructures, defining intermediate milestones?*

It is definitively not easy, but it is necessary. And, again, it is essential to consider the existing transport infrastructure networks. Public and private entities need a roadmap, which should be considered at a policy-making level, while it is also necessary to strengthen its relevance in research and innovation programs.

- *Best practices and positive experiences implemented in the European transport infrastructures, are they valid for EU taxonomy, even if they do not fit exactly in the criteria defined in Regulations?*

As mentioned in the first answer above, supporting actions to achieve the environmental and climate objectives of the existing transport infrastructures, although not strictly aligned with the taxonomy criteria, will put the existing network in a better position to fit the Green Deal objectives for 2050.

From STA we highlight the following facts regarding transportation infrastructures and the EU taxonomy:

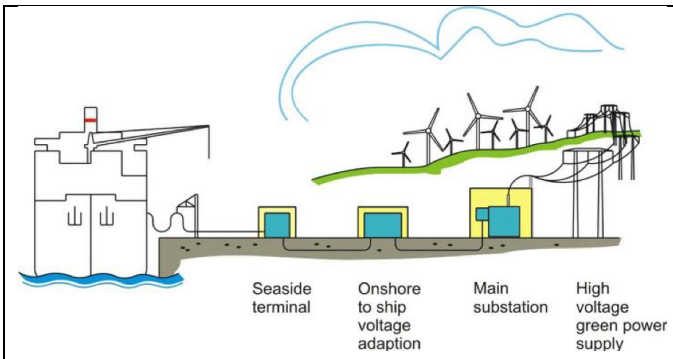
- In the specific case of road infrastructures, "traditional" road construction or maintenance, which does not incorporate electric charging points or hydrogen fuelling stations, will not be considered as activities supporting the objective "climate change mitigation".

  This fact introduces a significant limitation for road infrastructure construction and maintenance, as it ignores the role that a proper maintenance condition has in the reduction of greenhouse gas emissions and, consequently, in the contribution to climate change mitigation. Several research studies show that improving pavement condition can reduce vehicle CO_2 emissions by up to 12%, with variations depending on the type of vehicle and the original pavement condition (XV).

	As an example, in the Brebemi concession in Italy, up to 20% recycled asphalt pavement (RAP) is used, which allows for a reduction in production temperatures of up to 20°C (from 180°C to 160°C for production, and from 150°C to 130°C for asphalt placement). This helps to improve the environmental impact.

- Specific compensation measures, such as the installation of solar farms in the areas of a transport infrastructure, or the construction of green hydrogen power plants, are already best practices implemented by some motorway operators or constructors. In order to support and incentivise these activities for the reduction of emissions from a global perspective, it would be necessary to consider them as milestones in the achievement of a taxonomic infrastructure.

- Regarding the objective “pollution prevention and control”, it is important to highlight the interest in considering mobility as a whole, where roads and vehicles play an inherently interconnected role. From an infrastructure perspective, measures can be implemented throughout their lifecycle to prevent and reduce vehicle pollution.

	The project Onshore Power Supply (OPS) technology deployment and decarbonisation of the electrical supply in Spanish ports of Pasaia, Vigo and Alicante consists of the connection of ships to the land electrical network during their stay in port, so that the engines used for their auxiliary systems can be kept off during the entire time that the ship remains docked for the loading and unloading of goods or people.

- Considering the future development of the social taxonomy and how it fits in the climate and environmental taxonomy, it is important to consider the situation of emerging economies. While the economic growth will need additional efforts from some specific sectors which might be far from environmental taxonomy, there is a challenge to reduce their negative climate and environmental impact. Finding the balance between social and environmental taxonomy is a key element for sustainable development.

	As an example, transport operator Aleatica provides local communities with recycled material from motorways in Mexico, which is then used for the pavement of paths, creating more opportunities for the local population.

- Regarding the taxonomy of materials related to public works, from STA we must highlight, as an example, the following facts and figures on cement: cement falls into the scope of article 10.2 of European Regulation 2020/852; this is, there is not technologically and economically feasible low-carbon alternative to it.

  For this reason, taxonomy criteria have been defined to its application to public works mainly focusing on its contribution to adaptation of infrastructures to climate change, where cement and concrete can contribute by including recycled materials within their composition or by increasing the resilience of infrastructures thanks to their excellent mechanical performance and long durability.

  Together with this contribution to adaptation, the use of cement must guarantee the DNSH principle and, for this reason, a value of 0.816 tCO2e per tonne of grey cement clinker (main constituent of cement) or a value of 0,530 tCO2e per tonne of cement have been defined to make sure that, by fulfilling any of these two values, cement used in public works also permits achieving the goals established for mitigation of climate change.

- Finally, regarding specific elements of the roads, we want to show the example of the vision on vehicle restraint systems, where taxonomy must go further than the reduction of carbon footprint.

  A lower carbon footprint is a must for all actors involved in a road infrastructure, since it entails a reduction of the pollution but does not involve a zero or negative effect (we might expect that current research provides in short term with mechanisms for the capture of CO_2 to be implemented in infrastructure material to achieve roads with a negative contribution). In this context, taxonomy must go further and take in consideration another two topics: Circularity and Resiliency.

  Circularity means being capable to take existing waste and convert it into safety features and doing it in an efficient way, safe and durable. Rejected plastics can be an example and a good exercise, since the only solution today is burial or burning.

  Resiliency means not only the construction of roads more durable but also promoting the installation of safety devices that can be reused after impact or even behaving as self-restoring systems that immediately recover their initial shape and full performances after collision.

7. Conclusions.

The European Union taxonomy emerges to promote and drive the necessary capital to finance sustainable growth and decarbonisation of the European economy, in line with established climate objectives.

In this context, taxonomy forms the basis for the development of European regulations on sustainable finance. It will be necessary to understand and apply these regulations not only in financial markets but also inside companies.

There has already been a certain lack of consensus regarding the sensitive issue of nuclear energy and gas, with some Member States governments expressing opposition to the position of the European Commission.

The development of social taxonomy can significantly influence the direction of sustainable investments if the social component of sustainability is considered, and both the environmental and social components are addressed together.

STA acknowledges taxonomy is a key matter which needs further analysis and development in future actions, so maximal sectoral impact is guaranteed in the medium- and long-run. It is essential to develop guidelines and practical examples for the application of taxonomy criteria, as there are numerous novel concepts that may hinder their adoption.

Both eligible activities and technical criteria associated with contributions to objectives will undergo periodic review, which is necessary not only to incorporate innovation but also to broaden the range of eligible activities, even if they have a lesser impact on meeting environmental commitments than those included to date.

Apart from the STA vision explained in the previous chapter, there are still some **uncertainties and challenges** that need to be overcome in the development and implementation of taxonomy criteria:

- Uncertainties arising from delays in implementing the European taxonomy due to delays in defining the technical criteria for specific activities.

- Difficulties in applying taxonomy concepts, sustainable financing, and required information due to a lack of data or high costs associated with data collection. Although the European Commission emphasises the need for clear, achievable, and easy-to-apply selection criteria to avoid unnecessary administrative burdens, this still requires extra effort from companies, particularly small and medium-sized enterprises. The incomplete description of all objectives and the uncertainty regarding the integration of environmental and social taxonomy adds complexity to the current situation.

- Challenges in dealing with new concepts and operations which require sector-specific guidelines and examples for entities involved to better understand how to adapt to these procedures.

- Concerns about the impact of the European taxonomy on small and medium-sized enterprises, which may face difficulties accessing financing due to potential "labelling" of activities. European SMEs specialising in construction have already expressed concerns about these potential difficulties.

- Possible lack of consensus in defining activities with the greatest contribution to each objective, especially when defining low-impact activities.

- Integration of social taxonomy into environmental taxonomy, creating a space to prioritise investments considering both criteria, where assigning appropriate representativeness to each element may not be easy.

- Isolation in terms of sector consideration. For example, in the case of roads, the potential contribution to environmental objectives throughout their lifecycle is not being fully considered. While it is understood that economic activities are being considered separately, where vehicle manufacturing is clearly distinct from road construction and management, this isolated approach masks interactions that are highly relevant to achieving environmental objectives, especially climate change mitigation. Therefore, a holistic approach to mobility, considering the "mobility ecosystem," could complement the current approach and recognise the significant benefits for climate change mitigation that well-maintained roads can bring by substantially reducing CO2 emissions from vehicles.

- Outside the European Union, considering the influence of European policies worldwide, there are doubts about the feasibility of applying the European taxonomy to other regions, especially in emerging countries where directing financing towards activities that may not be eligible under the European environmental taxonomy but are essential for economic and social development remains a priority. This is where the development of social taxonomy can serve as an example, providing more flexibility for countries that require it.

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