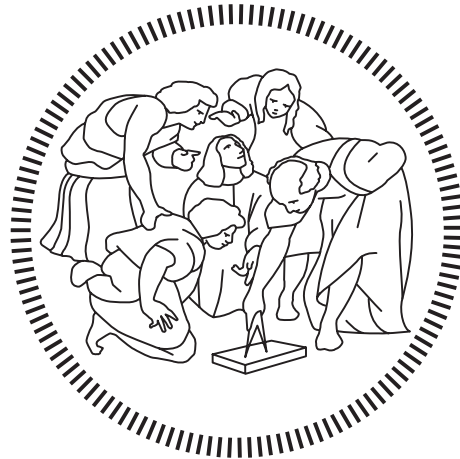


Politecnico di Milano

SCHOOL OF ARCHITECTURE URBAN PLANNING CONSTRUCTION ENGINEERING

SCHOOL OF INDUSTRIAL AND INFORMATION ENGINEERING

Master of Science – Management of Built Environment



Exploring ESG as a tool for Public Administrations. Innovative strategies for the sustainable urban development

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Abstract (ENG):

Socially Responsible Property Investments (SRPI) are gaining popularity among institutional investors and Public Administrations are raising awareness about environmental, Social and Governance (ESG) reporting in their development strategies. Every year international organizations issue policy initiatives and best practices outlining urban's growth strategy towards the objectives of climate-neutrality, resource efficiency and social inclusiveness. The main objective of the research is investigating how local authorities are accounting for ESG factors in their provisions for sustainable urban development. The purpose is to explore some of the initiatives undertaken by European institutions and National governments in providing guidelines and frameworks to steer the urban development on an ESG perspective. The research investigates the following topics: the integration of ESG criteria for the evaluation and selection of public projects, financing strategies for local projects and enterprises, administrative frameworks for projects' implementation and monitoring actions on operational management. All the examined frameworks will be interpreted in their applicability to the regional and local public sphere, highlighting their administrative, legislative, and economic strengths and limitations. The final part of the research will consist of a methodological proposal that Public Administrations can adopt for drafting a sustainable urban development plan. The proposal will be structured according to the sections of project evaluation and selection, financing strategies, alignment and selection of contractors, administrative frameworks for project implementation and monitoring strategies in operational management. The research intends to deeper understand how Public Administrations are moving towards the introduction of innovative policy tools, trying to evaluate their effectiveness in supporting initiatives on large scale public regeneration and development projects.

Abstract (ITA):

I Socially Responsible Property Investment (SRPI) stanno acquisendo grande popolarità tra gli investitori e le Pubbliche Amministrazioni stanno esplorando l'integrazione dei parametri ESG nelle loro strategie di sviluppo urbano. Le organizzazioni internazionali pubblicano ogni anno iniziative strategiche e best practices che arricchiscono la letteratura degli investimenti pubblici sostenibili, indirizzando la crescita urbana verso gli obiettivi di neutralità climatica, efficienza nell'uso di risorse e inclusività sociale. L'obiettivo principale della ricerca è indagare su come gli enti locali stiano tenendo conto dei fattori ESG nelle politiche di gestione urbana e nei progetti di sviluppo. Lo scopo è quello di osservare le iniziative intraprese dalle istituzioni europee e dai governi nazionali nel fornire linee guida e riferimenti per guidare lo sviluppo urbano in una prospettiva ESG. La ricerca indaga i seguenti temi: l'integrazione di criteri ESG per la valutazione e la selezione di progetti pubblici, le strategie di finanziamento per progetti e imprese locali, i framework amministrativi e le azioni di monitoraggio sulla gestione operativa. Gli strumenti esaminati saranno interpretati nella loro applicabilità alla sfera pubblica regionale e locale, evidenziandone i punti di forza ed i limiti amministrativi, legislativi ed economici. La parte finale della ricerca consisterà in una proposta metodologica che le Pubbliche Amministrazioni possono osservare per la redazione di un piano di sviluppo urbano sostenibile. La proposta sarà strutturata secondo le azioni di: valutazione e selezione dei progetti, strategie di finanziamento, allineamento e selezione dei contraenti, strumenti amministrativi per l'attuazione dei progetti e strategie di monitoraggio ed acquisizione dati. La ricerca intende comprendere più a fondo come le Pubbliche Amministrazioni si stanno muovendo verso l'introduzione di strumenti politici innovativi, cercando di valutare la loro efficacia nel sostenere iniziative su progetti pubblici di rigenerazione e sviluppo urbano su larga scala.

Keywords

ESG – SRPI – Impact Investing - Urban Development – Sustainable Development – Social Responsibility - Social Inclusiveness - Sustainability Reporting – UE Commission – Public Administration – Public Provisions – Local Authorities

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Abbreviations:

- **APAC:** Asia - Pacific
- **BREEAM:** Building Research Establishment - Environmental Assessment Methodology
- **COSME:** The Program for the Competitiveness of Small and Medium-sized Enterprises
- **DDM:** Dividend – Discount Method
- **DG REGIO:** Directorate-General for Regional and Urban Policy
- **EFAMA:** European Fund and Asset Manager Association
- **EIA:** Environmental Impact Assessment
- **EMEA:** Europe – Middle East – Africa
- **ERDF:** European Regional Development Fund
- **ESG:** Environmental, Social and Governance
- **EUROSIF:** European Sustainable Investment Forum
- **GBC:** Green Bond Principles.
- **GPP:** Green Public Procurements
- **GRESB:** Global Real Estate Sustainability Benchmark
- **GSIA:** Global Sustainable Investing Alliance
- **ICMA:** International Capital Market Association
- **LA:** Local Administration
- **LCA:** Life cycle assessment
- **LCCA:** Life Cycle Costing Assessment
- **LEED:** Leadership in Energy and Environmental Design
- **NZEB:** Nearly Zero Energy Buildings
- **PA:** Public Administration
- **REALPAC:** Real Property Association of Canada
- **RICS:** Royal Institution of Chartered Surveyors
- **SRI:** Socially Responsible Investment
- **SRPI:** Socially Responsible Property Investment
- **UNEP FI:** United Nations Environment Program Finance Initiative
- **UNESCO IBE:** United Nations Educational, Scientific and Cultural Organization - International Bureau of Education
- **UNGC:** United Nations Global Compact
- **UNPRI:** United Nations Principles for Responsible Investment
- **UNSDGs:** UN Strategic Development Goals
- **USGBC:** United States Green Building Council

1. Introduction to the ESG Universe

The acronym ESG, which stands for "*Environmental, Social and Governance*" is an umbrella term encompassing different investment styles that seek environmental and social impact in addition to financial returns. Currently there is no international agreement on the various types of investment, and we will see that there is a certain overlap of definitions in this field¹. According to J. Hill the use of the acronym ESG and related instruments is currently arbitrary and that sometimes it is used "as a catch-all label" to classify all investments that aspire to have an environmental or social impact². The term ESG can be attributed to the 2004 report of the UN Global Compact³, which describes the agreement of 20 of the largest international financial institutions to use the acronym ESG for the verification, selection, and risk assessment of securities in financial portfolios. This information might make us think that instruments incorporating ESG are only to be found in the public debt and equity markets, i.e., in the field of financial securities. Apparently, this topic is far from the research we are going to undertake because it will focus on the application of such systems to the real asset market and, more specifically, to how Public Administrations can integrate ESG to undertake sustainable urban provision.

To bring us closer to the research topic, we introduce a type of ESG investment that deals with real assets instead, namely *Impact Investing*. This term, says J. Hill, was coined in 2007 by "*The Rockefeller Foundation*" and refers to a style of direct investing that aims to achieve environmental and social impact along with a possible economic return. Unlike other ESG categories that we will look at later, Impact Investing includes investments in several asset classes. As Hill reports, 22% of the investments in this category are in Real Assets. In this regard we must make a further premise, depending on the point of view from which we act, real estate investment can be categorized as "direct" or "indirect".

¹ Sustainable Investing Forum (SIF): "*Sustainable Investing Basics*" (2021)
<https://www.ussif.org/content.asp?contentid=173>

² -John Hill: "*Environmental, Social and Governance (ESG) investing: A Balanced Analysis of the Theory and Practice of a sustainable Portfolio*"- Elsevier Inc. – New York City (NY) - 2020

³ United Nations: "*The Global Compact Leaders' Summit 2004 – Final Report*" – 24 June 2004

A direct investment involves the acquisition or construction of a property, or the acquisition of a "stake" in a property or company that owns a particular real asset. Indirect involves the purchase of a share in a real estate fund or the stock of a publicly listed real estate company. Given the nature of this research, the objective remains to focus on direct investments and on strategies for integrating ESG parameters for the construction, or selection of a public real estate project. To observe how these instruments can be applied to the public sphere, it will be necessary to investigate possible regulatory frameworks, risks, policies already undertaken and traditional public instruments to which the ESG component can be added. After these premises, the aim of this research will be to investigate the methods of evaluation, selection and implementation of operations that fall into the category of "Impact Investing", but the use of the acronym ESG will be necessary to analyze these instruments and systematically analyze their characteristics under the latest purposes of sustainable urban development.

A starting point for the study of ESG principles is the United Nations Principles for Responsible Investing (UNPRI) framework⁴. Established in 2005, this program coordinates financial institutions, companies, researchers, and now national governments in standardizing the characteristics and definitions of sustainable investments. Our aim, still in the public sphere, is to explore tools at a sub-national geographical level, dealing with how municipal or regional governments could introduce ESG tools in the implementation of urban sustainability. The objective of the research is therefore to observe such tools and trying to apply them on the local public sphere, considering the limitations of legal, administrative, managerial, and economic capacity of the authorities.

Before approaching a more specific study on the applicability to the urban sphere, let us outline the six Principles for Sustainable Investments drawn up by the United Nations with the collaboration of approximately 2000 signatory entities. Each of the following principles can be interpreted in different asset classes, our objective will be to apply the following principles to the sphere of construction and public provision. The six principles are as follows:

⁴ UNPRI: "Policy frameworks for long term responsible investment: the case for investor engagement in public policy" (2015)

- *Incorporate ESG issues in investment analysis and decision-making*
- *Acquire or realize primarily ESG assets and apply these initiatives in the ownership policy.*
- *Seek appropriate disclosure in ESG analysis before investing in an asset.*
- *Promote the implementation of ESG strategies across industries and sectors.*
- *Work together to promote the internal implementation of these principles.*
- *Apply these principles to any internal development activities and projects to be undertaken.*

In parallel with the principles of application, we will analyze the various instruments during the research and identify their risks and limitations. As stated by the CFA Institute⁵ we can identify three main issues that can be positively and negatively considered within the Real Estate market as well as the public opportunities for urban development. Three stand out:

- *ESG Indicators are usually not Financial, thus it's hard to translate them into currency terms.*
- *The ESG-related disclosure may be unverified and non-standardized (greenwashing)*
- *Investments in Real Estate Assets are usually developed in the long term, this might not be helpful to investors with short-term horizons.*

As regards the first issue, indicators to be considered affecting the ESG criteria (e.g., Environmental or Social Indicators) are increasing every year, enriching the pool of performance indicators to be screened by managers and administrators. We will see the introduction of international reporting instruments (e.g., LEED, BREEAM GRESB) that allow an in-depth assessment of ESG characteristics for both real estate development projects and companies. But the main topic of the first point remains the translation in currency terms of the above mentioned environmental and social indicators in the evaluation of a Project. We will see in this regard

⁵ CFA Institute, Chartered Financial Analysts: “*Environmental, Social and Governance issues in investing*” (2015)
<https://www.cfainstitute.org/-/media/documents/article/position-paper/esg-issues-in-investing-a-guide-for-investment-professionals.ashx>

which techniques can be used to carry out an in-depth techno-economic analysis of urban development projects.

The second issue deals with the concept of *greenwashing*. This concept is related to the marketing and communication strategies of companies, which can provide misleading information to investor to gain more appeal on the ESG issues. As we will see in this chapter, Sustainable Investing is growing fast and there is the risk that some companies will make an incorrect behavior in stating their products or services as environmentally friendly. Either in the case of Real Estate, greenwashing is to be considered a threat to the environment and to the aggregate level of wellbeing within a regional economy. Greenwashing might be applied on mendacious or false building's performance reporting in a Portfolio and might cause information asymmetries in a transaction. We will address the importance of "external evaluations" and the issuing of certifications by "International Boards".

Finally, the last issue is related to the long timeframe needed for the fund's startup time and development. The real estate market, especially in direct investment, is by nature defined with long-term development operations and management. Even in the indirect investments on RE, for instance the participation in Closed RE Funds in the Italian scenario, the timeframe of the investment might be medium long. We will therefore see that almost all investors in the instruments analyzed will be Institutional. These investors (e.g., Insurance, Pension Funds, Financial Institutions) are characterized by the need to undertake long-term investments (e.g., Bonds) to carry out the main activities of the company (e.g., the payment of pensions or insurance coverage). We will look at the scale and size of such investments and which types of investors may have the power and economic power to invest.

1.1 The ESG factors

The integration of Environmental, Social and Governance factors is extremely versatile and can be applied to all industrial and commercial investment sectors. This can include the creation of ESG portfolios or funds, Corporates ESG actions, calls for tender and public provisions with an ESG focus. Various institutions such as UNPRI⁶ (*United Nations Principles for Responsible Investment*) and EUROSIF (*European Sustainable Investments Forum*) were created in recent years with the aim of ensuring a certain standardization of criteria and tools to assess and invest in ESG. For this reason, in this and the next chapter we will rely on the latest reports of these institutions to try to set up a theoretical and systematic basis of the vast and heterogeneous universe of sustainable investments.

Environmental issues:

Within the Environmental issues the main concerns are related to the climate change and in the emissions of greenhouse gases (GHG). As we will see in the next chapter, within urban environments, buildings are accountable for over one-third of carbon dioxide emissions and energy as well as other resources consumption. Especially in the environmental field, these parameters can easily be applied on the building dynamics, such as its construction materials as well as the building's consumptions and output emissions. Aggregating issues related to companies, investors and governments, the main environmental concerns are related to:

- *Greenhouse gas emissions*
- *Materials and Procurements*
- *Resource usage*
- *Pollution and land contamination*
- *Deforestation*

⁶ UNPRI:” *Policy frameworks for long term responsible investment: the case for investor engagement in public policy*” (2015)

<https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/Policy%20Framework%20for%20Long-term%20Responsible%20Investment%20-%20The%20case%20for%20investor%20engagement%20in%20public%20policy.pdf>

- *Water stress*
- *Resiliency to natural disasters*

The environmental factors, as we can imagine, are applied over the main three phases of the building's life cycle. In the *development phase*, the use of low-impact materials and in general the design of a low-consumption infrastructure might be the most important aspects to be considered. The importance of respecting biodiversity, avoiding the land take and the deforestation are key issues as well. Within the *management phase*, the monitoring of resources consumption as well as the preventive maintenance to provide economic benefits and longer lifecycle is to be considered. As we can see in the last point of the above list, the resilience to natural disasters is also to be considered and it will be better explained in the next chapters, together with best practices in the field of building's development.

Social issues:

Together with the latter one, the social issues are a major factor of interest for governments which are facing increasing phenomena of welfare inequalities, social exclusion, gender gaps, criminality but also healthcare concerns and safety issues in the work environment. The rule-maker is needed to provide the resource allocation among the aggregate population, with the power to issue strict regulations and active provisions for a social inclusive development. Even from the point of view of a Company, there are well known cases of Corporates which don't take into consideration the social issues of their Supply Chains. News on lack in safety or oppressive labor practices, especially in developing countries manufacturing, will damage a company's reputation. The consequences of these actions can directly affect the profitability of these companies. It's the case of the 1990's manufacturing stage in the Nike's Supply Chain⁷. At that time the company was associated with sweatshops in its developing countries' plants. That situation implied the necessity to adopt corrective measures and to provide a labor environment assessment to address the issue. In a continuously updated and connected digital

⁷ Bain, M.: "*Nike is facing a new wave of anti-sweatshop protests.*"

October 29, 2018, from the Quarz Magazine. <https://qz.com/1042298/nike-is-facing-a-new-wave-of-anti-sweatshop-protests/>

society, news on bad social practices can create grave damages to providers. Let's see in general some main social factors taken from the above-mentioned PRI standard:

- *Working conditions, including slavery and child labor*
- *Local communities*
- *Conflicts*
- *Health and Safety*
- *Employee relations and diversity*
- *Welfare and social inequalities*

Governance issues:

According with the UNESCO International Bureau of Education⁸, Governance may be referred to “*structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness*”. Thus, the term can be applied in our research both to Corporate and Public Governance. According with the above-mentioned document, the World Bank define Governance as “*the exercise of authority or power in order to manage a country's economic, political and administrative affairs*”. Let's see in general some Governance criteria according with the PRI standard:

- *Bribery and corruption*
- *Board quality, diversity, and structure*
- *Taxation and accounting transparency*
- *Political lobbying*
- *Fair Public Procurements and provisions*

To better understand the point of view of the Local or Public Authority, it could be useful to mention the Article 1 of the Italian *Administrative Procedure Act (Law n. 241/1990)*⁹ which

⁸ UNESCO IBE. “The concept of Governance” <http://www.ibe.unesco.org/en/geqaf/technical-notes/concept-governance>

⁹ Law 241/1990 “New rules regarding administrative procedures”
https://www.legislationline.org/download/id/5393/file/Italy_Law_Administrative-procedure_1990_am2010_en.pdf

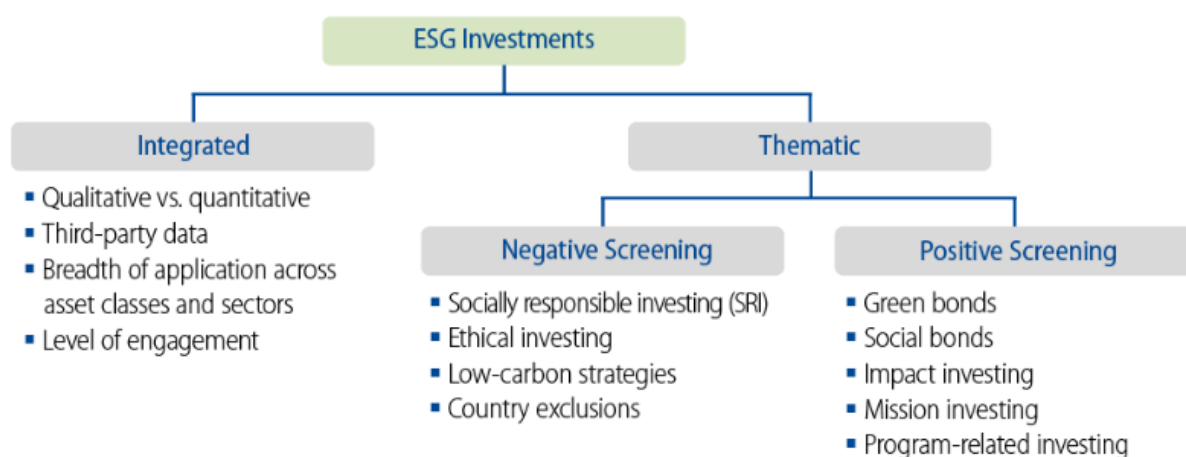
provides us five main principles which must be followed by the public administration in the execution of public provisions and administrative procedures. These principles are:

- *Effectiveness*: which we can consider as the implementation of public projects towards the maximum additionality on the welfare level of population.
- *Impartiality*: the main principle over all the public and jurisdictional entities
- *Transparency*: meaning the importance of fair and equal public procedures, stating the reasons for the public decisions.
- *Publicity*: meaning the necessity to inform the population among the policies and the public decision making in general.

In this research we will add several definitions of possible thematic areas over the Governance factor for the Public Administration. It will be discussed what may be the accountabilities, the responsibilities, and the requirements, for a Local Administrator going towards the ESG development path.

1.2 A general breakdown of ESG Investment strategies

Within the ESG investments framework, the definitions are not yet clearly standardized and still exist several ways to express ESG investments and reporting methods. The Global Sustainable Investing Alliance (GSIA)¹⁰ and the EUROSIF¹¹ are the international institutions from which we have collected definitions and information useful for standardizing terms and for the use of common terms throughout the research. The EUROSIF's report (*Table 1*) gives us the opportunity to compare the four major classifications by considering two other institutions: The United Nations Principles for Responsible Investments (UNPRI) and EFAMA (European Fund and Asset Manager Association). As indicated by M. Wongtrakool (*picture 1*) their most general framework, ESG investments can be classified into two macro-categories: **Integrated and Thematic approach**.



Picture 1 Breakdown of ESG categories of investments. (Source: Bonnie M. Wongtrakool: “ESG Essentials: What You Need to Know About Environmental, Social and Governance Investing” - 2018)

The **ESG integrated approach** is defined as “*the systematic and explicit inclusion by investment managers of environmental, social and governance factors into financial analysis*”¹².

¹⁰ GSIA: “Global Sustainable Investment Review 2018” (Report 2016-2018)

http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf

¹¹ EUROSIF: “Socially Responsible Investments Study 2016”

<http://www.eurosif.org/wp-content/uploads/2016/11/SRI-study-2016-HR.pdf>

¹² Bonnie M. Wongtrakool, Global Head of ESG Investments at Western Asset: “ESG Essentials: What You Need to Know About Environmental, Social and Governance Investing” (2018)

<http://www.westernasset.com/us/en/research/whitepapers/esg-essentials-what-you-need-to-know-2018-04.cfm>

These are methods in which the assessment is based on ESG criteria but without a specific thematic input. These methods can vary depending on the type of analysis and are primarily used for the evaluation of financial portfolios. “Integrated” is generally be defined as *ESG reporting*, i.e., *the integration of ESG valuation parameters into the investment decision making*. It is common that the ratings frameworks used for ESG assessment are often taken from third parties and this can be considered as a possible threat to the effectiveness of such tools, if not carefully evaluated. On the opposite way, the external evaluation might be a solution to the risk of false results and misleading reporting. In this research we will explore and discuss both the latter scenarios applied on the Local Administrator’s perspective.

Table 1 Categorization of ESG strategies. The report helps us by giving us a comparative table that reviews the classifications of ESG strategies according to four institutions at European and World level. (Source: EUROSIF: “Socially Responsible Investments Study 2016”)

Eurosif	GSIA-equivalent	PRI-equivalent	EFAMA-equivalent
Exclusion of holdings from investment universe	Negative/ exclusionary screening	Negative/ exclusionary screening	Negative screening or Exclusion
Norms-based screening	Norms-based screening	Norms-based screening	Norms based approach (type of screening)
Best-in-Class investment selection	Positive/ best-in-class screening	Positive/ best-in-class screening	Best-in-Class policy (type of screening)
Sustainability themed investment	Sustainability-themed investing	Sustainability themed investing	Thematic investment (type of screening)
ESG integration	ESG integration	Integration of ESG issues	-
Engagement and voting on sustainability matters	Corporate engagement and shareholder action	Active ownership and engagement (three types): Active ownership Engagement (Proxy) voting and shareholder resolutions	Engagement (voting)
Impact investing	Impact/community investing	-	-

Thematic approach to ESG, concerns the identification of an environmental or social objective by the investor as triggering factors for a financial investment. More specifically, two types of thematic approach are identified: **Negative vs. Positive screening**.

According with GSIA, the **Negative Screening (or Exclusions)** approach is defined as *“the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria”*. In the Corporate Finance, this is also known as “Socially Responsible Investing” (SRI) meaning a technique referred to the exclusion of certain types of business activities, “sin stocks” and sanctioned countries’ bonds from portfolios. Common SRI filters are related to tobacco, weapons and in the last years there have been several discussions about eliminating even fossil fuel businesses and animal testing. Applying it on the purposes of this research, we will discuss cases in which the Public Administration may decide to undertake a fiscal policy with an exclusion or inclusive approach. It should be said negative screening in the Corporate Finance field, remains the most used strategy by investors and it is one of the first (if not the first) implemented tool. The **Positive Screening (or Best-In-Class selection)** approach is mainly related to the focusing on a particular asset class. According to GSIA, Positive Screening is defined as *“investment in sectors, companies or projects selected for positive ESG performance”*.

Within Positive Screening we find **Impact investing**, defined GSIA as *“targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities”*. As already indicated, this type of investment can also be linked to a specific project on a real asset or on an urban portion, with the aim of generating an environmental and social impact together with a financial return. Performed in both western and emerging markets, the most common types of impact investing are: **Green Bonds, Social Impact Bonds, Public Guarantee funds and Social Business funds**. EUROSIF tells us that the three key requirements are the most used dealing with the implementation of impact investing strategies:

- *Intentionality*: to generate positive and measurable environmental or social effects and externalities.
- *Additionality*: of the private or public capital in an investment that otherwise wouldn’t be undertaken for economic risk issues.
- *Measurement*: the ability to measure financial, environmental, and social performance in a ensuring transparency in the process.

With these three fundamental requirements, we will investigate all the tools and frameworks in this research. In the universe of Impact Investing, we find a tool that will be the object of a more in-depth analysis the next chapters, in which we will analyze in detail what tools the European Union is putting into action to encourage the practice of Impact Investing. Green, Social and Sustainability Bonds are instruments that are regulated by the same markets and financial regulations as the Bond Market, but their fundamental theme is projects with a positive environmental or social impact. We will also discuss the Public Guarantee Funds, where a financial implementing partner (i.e., non-governmental financial Institution) can access additional public capital (from the European Investment Bank) as guarantee, fostering its risk bearing capacity and sustaining ESG screened projects. EUROSIF states that these instruments can represent a very advantageous tool for both investors and issuers, with sustainable development projects and consequently mitigation of environmental and social risks.

The **Sustainability themed investing (STI)** is defined as the “*investment in themes or assets specifically related to sustainability: for example, clean energy, green technology or sustainable agriculture*”. Thematic funds are on the active monitoring in ESG indicators within their assets directly linked to the sustainability development. We will investigate what are the purposes of the EU Commission investing in Private Venture Capital Funds for innovative ESG startups and what the Local Administrators can do to sustain a favorable development for these businesses.

1.3 The global market for ESG

According with the Global Sustainable Investment Alliance (GSIA) Report of 2018¹³, sustainable investments reached \$30.7 trillion among UE, US, Japan, Canada, and Australia/New Zealand, showing a 34% increase in two years.

Region	2016	2018
Europe	\$ 12,040	\$ 14,075
United States	\$ 8,723	\$ 11,995
Japan	\$ 474	\$ 2,180
Canada	\$ 1,086	\$ 1,699
Australia/New Zealand	\$ 516	\$ 734
TOTAL	\$ 22,838	\$ 30,683

Table 2 Snapshot of Global sustainable investing assets, 2016-2018. Asset values are expressed in billions of USD (GSIA: “Global Sustainable Investment Review 2018” - Report 2016-2018)

Looking at the figure above, we notice that the European Union is leading in number of sustainable investing assets, totaling 14,075 billion of US Dollars with a growth rate of 11% between 2016 and 2018, a decrease from the previous two years. On the other hand, the US is signing an important result growing for 33% among the same two years. Japan, while currently representing a minority share, has marked the best growth rate, as its proportion of sustainable assets has quadrupled since the previous two years.

The European continent, while continuing to represent 46% of the global share of sustainable investing assets, is the only region to register a negative trend in terms of the proportion of sustainable assets in relation to total assets. This aspect is not to be looked at negatively; in fact, the GSIA report reminds us that the European "decline" began when the EU Commission began working to apply more rigorous standards for the classification of sustainable investments. This

¹³ GSIA: “Global Sustainable Investment Review 2018” (Report 2016-2018)

http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf

factor may play in favor of the non-financial effectiveness of these assets because it happens to be that a more rigorous control and standardization can curb the phenomena of greenwashing.¹⁴

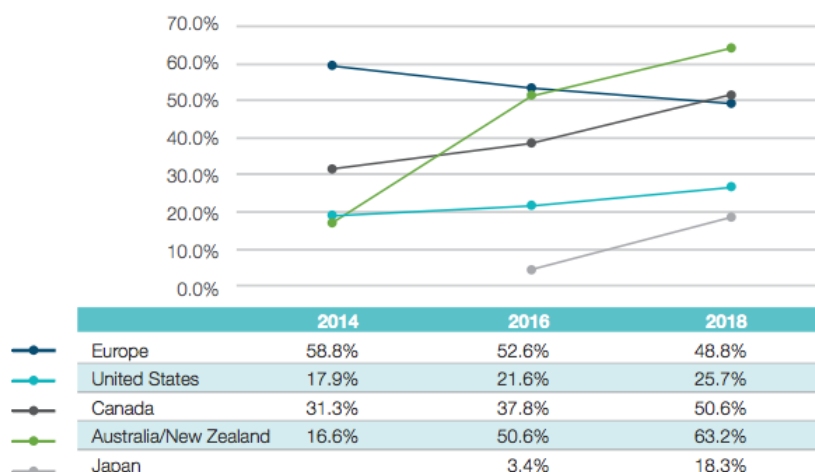


Table 3 Proportion of sustainable investing relative to total managed assets (source: GSIA)

Among most used investment strategies, the Negative Screening represents the largest portion, with a total of \$19.8 trillion in assets under management (Figure 5). Growing by 69% from 2014-2016, investments through ESG integrated screening represent approximately \$17.5 trillion. Of the two strategies, the first is most widely used in the EU, while the second is most widely used in the US and Anglo-Saxon countries. In third place we find corporate engagement and shareholder action, which represents the strategy most used in Japan together with ESG integration. Although the share of assets under management is much lower than the three instruments just mentioned, positive strategy, impact investing and sustainability themed investment are the instruments that have shown the greatest **signs** of growth in the last two years.

¹⁴ **Greenwashing** is defined as "the intersection of two firm behaviours: poor environmental performance and positive communication about environmental performance". In practice, it is the falsified communication of a statement attesting to the ESG performance of a company. The topic will be further explored in the following chapters because we are going to deal with ESG reporting and investing in the field of public administration and urban policies. The factor of greenwashing is therefore a further factor to be considered in addition to the more common and generic corruption.

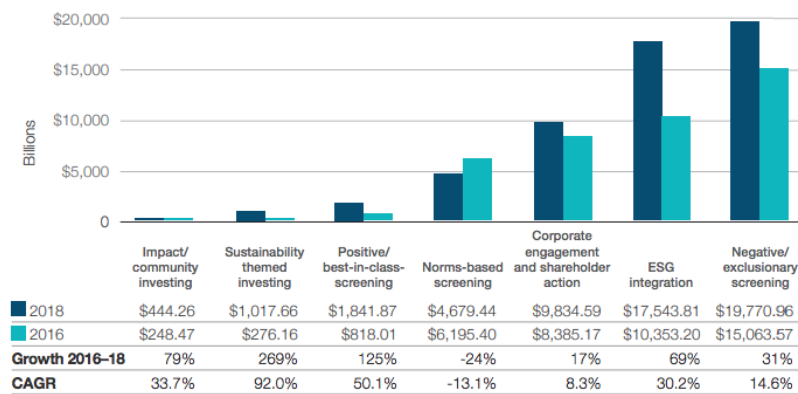


Table 4 Global growth of sustainable investing strategies, 2016-2018. (Source: GSIA)

As we can see from figure 5, Sustainability Themed Investing has recorded a growth rate of 269% in the penultimate two-year period, bringing the total share to around \$1 trillion, while Positive Screening has also recorded a growth rate of 125%, reaching around \$1.8 trillion. The first three methods by size of share, namely Negative, Integrated and Corporate Engagement, have also marked a marked growth in utilization, ESG integration, which has recorded 69% more than the previous two years for a total share of around \$10 trillion, numbers that are not currently comparable with the three instruments mentioned above.

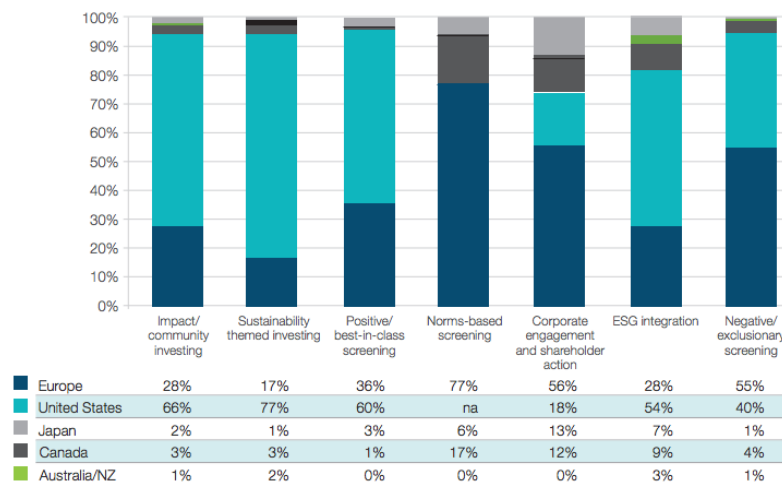


Table 5 Regional shares by asset weight in global use of sustainable investing strategies, 2018. (Source: GSIA)

As briefly mentioned above, it is necessary to investigate regional shares in the use of sustainable investment strategies. Interesting data can be seen from image 6 regarding the difference in regional shares for Norm-based screening. From image 5 we can see that the one just mentioned, represents the only negative trend (-24%), but 77% of its total share, takes place in the European Union, this is not a coincidence. In fact, as mentioned above, the European Commission is working extensively on the issuance of more specific and indicative standards for sustainable investment (e.g., Green Deal, Taxonomy of sustainable investments, Green Bond Standards),

which we will address more specifically in the next chapter. As the GSIA states, most of the market share of ESG investments remains in the hands of Institutional investors, who own 75% of the total, while the retail sector is around a quarter of the total share. It is necessary to underline the growth rate of the retail sector, which has increased from 20 to 25% of the total in the last two years, indicating a positive trend in the awareness of low minimum investment levels in the ESG sector.

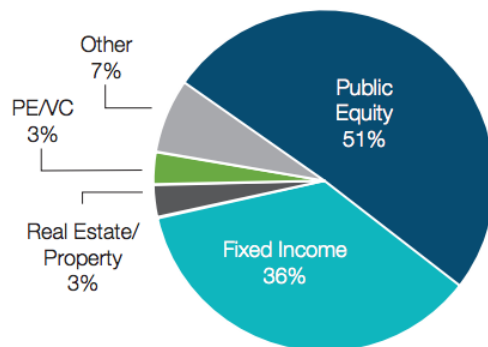
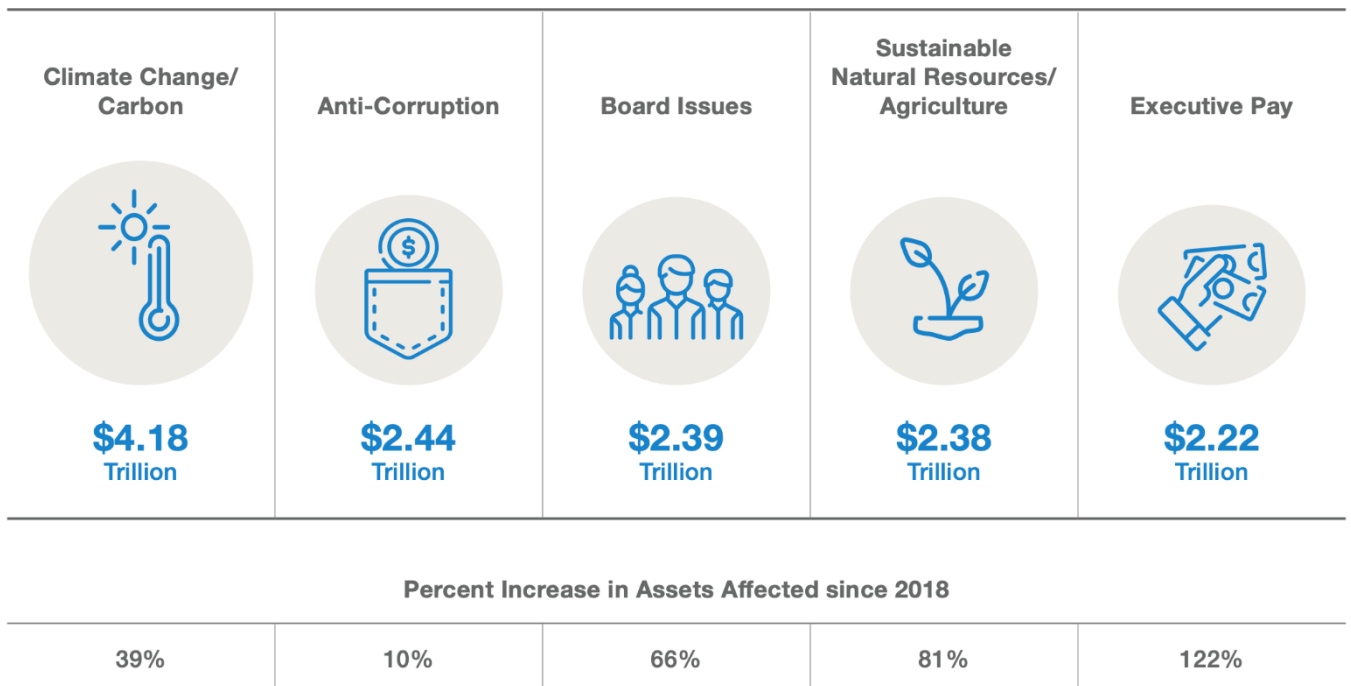


Table 6 Sustainable investing strategies: Asset allocation, 2018. (Source: GSIA)

As can be seen in Figure 7, at the beginning of 2018, 51% of the share in sustainable investment was related to Public Equity, while 36% to investments in fixed incomes such as Government and Corporate bonds. GSIA refers that these latest figures are a reversal from 2016, when in contrast, investments in Public Equity accounted for 33% while 64% were invested in fixed income assets.

Finally, it may be useful to show the main themes on which ESG investors and their managers and advisors are directing most of their purely private investments. The sample is taken from the US economy and data reported by wealth management associations as well as asset management. As can be seen in Image 8, from the 2020 SIF report¹⁵ interventions to mitigate climate change represent the highest share. The highest growth rate compared to 2018 is in the executive pay factor (+122%) which is basically related to the financial income of corporate managers in relation to junior as well as senior positions.

¹⁵ Sustainable Investing Forum (SIF): “Report on US sustainable and impact investing trends 2020”. <https://www.ussif.org/files/US%20SIF%20Trends%20Report%202020%20Executive%20Summary.pdf>



SOURCE: US SIF Foundation.

Table 7 Most used ESG criteria from Investment Managers (Source: Sustainable Investing Forum (SIF): “Report on US sustainable and impact investing trends 2020”)

Shifting our attention instead to institutional investing, but still on US soil, we can see that some issues are similar, such as climate change, development of natural resources but also corporates issues such as board issues (Figure 8).

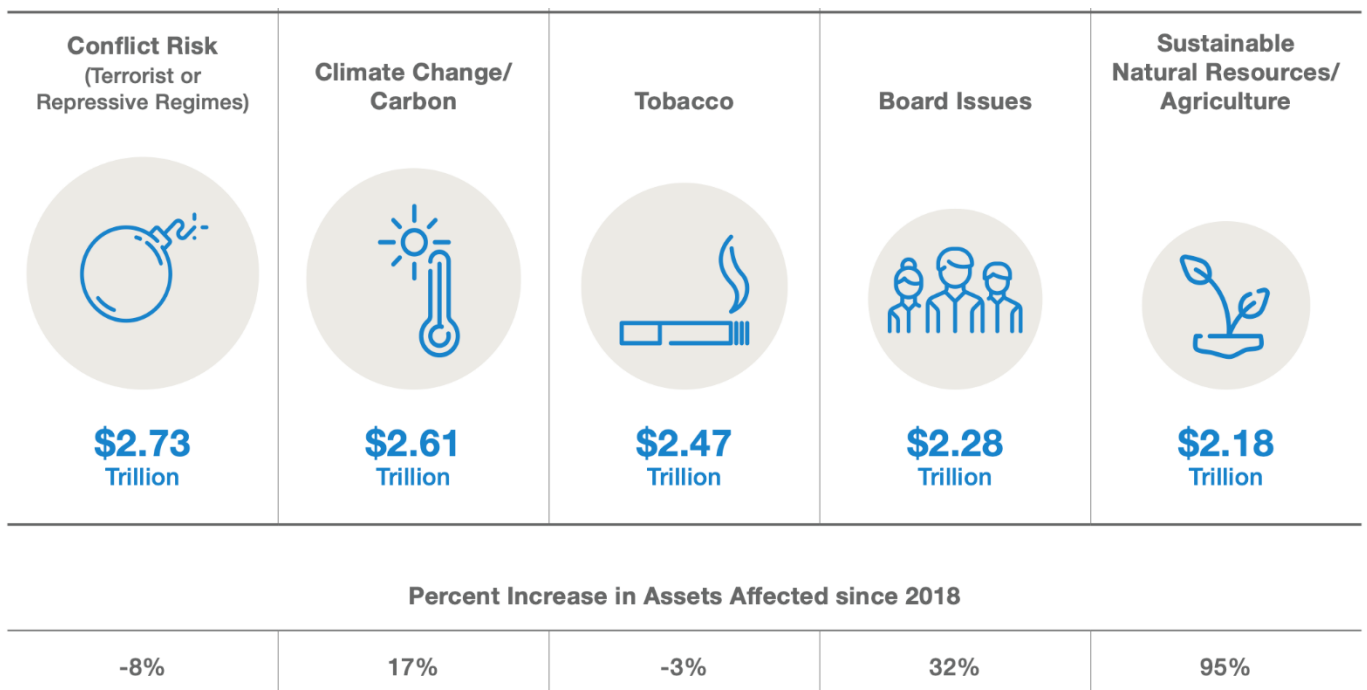


Table 8 Most used ESG criteria for Institutional investors (Source: Sustainable Investing Forum (SIF): “Report on US sustainable and impact investing trends 2020”)

For the purposes of this research, it remains important to investigate ESG issues related not only to the stock market or actively managed funds, but also and especially to the Government Bond market, taking for example the Green Bond Standard and other fixed income instruments. The focus will be on public instruments, on private investment trends and important attention will be given to their combination, therefore to the channeling of private investments towards public instruments. In the next chapter we will focus on the European situation which will be our main area of interest in the third chapter when it will be provided a breakdown of the most used ESG tools issued by the UE Commission as well as analyzing some cases of urban sustainable development within European main cities. From the point of view of the Public Agent, as stated by the CFA Report of 2015¹⁶, there already exist a wide range of laws and regulations all over the World. The CFA states that there are 180 laws distributed across 45 countries which are related to sustainability in the industrial sector. The 72% of these regulations is mandatory and it's mainly related to the ESG reporting within market operations, stricter rule on the CSR (Corporate Social responsibility) as well as disclosure.

¹⁶ CFA Institute, Chartered Financial analysts: “Environmental, Social and Governance issues in investing” (2015)
<https://www.cfainstitute.org/-/media/documents/article/position-paper/esg-issues-in-investing-a-guide-for-investment-professionals.ashx>

1.4 A snapshot of Socially Responsible actions in the Real Estate decision making

Before embarking on our research towards the strategies used by Local Administrations and National Governments to provide ESG rules and incentives for sustainable urban development, it may be useful to look at how the private sector is doing. In this regard, it is fundamental to observe what are the most used practices by private entities, thus which are the main assessment frameworks, tools for screening, breakdown structures, and among those, what can be applied on the Local Administrator's perspective.

This section will analyze a survey conducted by UNEP FI¹⁷ and the Real Property Association of Canada (REALPAC), aimed globally at institutional investors, asset managers and fund managers in Real Estate. The target audience for this survey spills over into three key markets: APAC (Asia-Pacific), North America and Europe. As stated by the authors themselves, this survey was conducted to *"better understand how the attitudes, strategies and practices of real estate investors and fund managers are incorporating ESG criteria and the degree to which they need to strengthen their commitments so that their portfolios are aligned with the objectives of the Paris Agreement"*¹⁸. The analysis of the results, and therefore the preparation of the survey sent to respondents is based on four key actions Asset and Fund Managers and investors take in real estate investment. These four actions can be analyzed in the table below:

¹⁷ UNEP FI: United Nations Environment Programme Finance Initiative

¹⁸ UNEP FI: "Global ESG Real Estate Investment Survey" (2019) <https://www.unepfi.org/wordpress/wp-content/uploads/2019/03/Global-ESG-Real-Estate-Investment-Survey-Results.pdf>

Table 9 Key actions undertaken by Asset and Fund Managers (Source: UNEP FI: “Global ESG Real Estate Investment Survey” 2019)

Actions	Description
Strategy	The analysis of material risks of negative externalities and development of a corporate ESG strategy for real estate investment. Often this can involve the use of international frameworks (such as LEED, which we will look at later).
Execution	The effective integration of ESG factors into investment decisions, selection of contractors aligned with ESG metrics, sustainable supply chain, remuneration linked to ESG factors, corporate bonuses for sustainable performance, closure to companies that have demonstrated poor habits in dealing with environmental or social issues.
Feedback Loop	Performance monitoring with careful analysis of KPIs and investment indicators on tangible sustainable issues, focus on the link between ESG and economic return
Engagement	Exhibit active leadership in the field, fund or collaborate with research, and use of innovative corporate policies with a sustainable theme.

The structure of the Report is configured with 30 questions (open-ended and multiple-choice), the respondents were also allowed to remain anonymous, to avoid declaring sensitive information of the company they belong to. The authors indicate that they asked 97 real estate companies to participate and that 44 participated, for a total of \$1 trillion AUM (Assets Under Management). Of these companies: 41% were from North America, 32% from Europe and 27% from APAC. In addition, of the sample surveyed globally, 58% defined themselves in the "Fund & Asset Managers" category, 22% in the "Investors" category and the remaining 20% in the "Other" category.¹⁹.

¹⁹ The "Other" category, as reported by the authors, indicates either professionals who work in REITs or professionals who have chosen not to disclose their profession or identity.

A first result revealed by the survey is the following: 68% of the respondents consider GHG emissions management of potential acquisitions, which means that in the development phase or in the purchase phase of a property, the environmental factor and energy sources play an important role in decision making. The 80% of respondents use tools for sustainability benchmarking analysis in their investment decision. The 91% systematically use a sustainability disclosure framework in their asset management. The report continues with three sections that can help us understand the appeal of investors and asset managers in integrating ESG criteria into investment decisions. First, there is an analysis of how respondents are integrating ESG criteria into their investment decisions. The second section reports the respondents' answers regarding their possible future decisions regarding ESG integration in decision making.

- Strategy:

In the integration of ESG criteria in the investment decisions, the survey reveals that 93% of the respondents systematically apply and integrate ESG criteria in their decisions. Obviously, as we have already seen, the parameters that can be integrated into an ESG strategy in the real estate sector are numerous and not all companies, nor all frameworks or tools, address all these issues with the same specificity. To give an idea of what the main factors are and how they are addressed according to the geographical region, a table from the survey is given below:

ESG Issue Area	Global	North America	Europe	Asia-Pacific
Energy	100%	100%	100%	100%
GHG Emissions	98%	100%	100%	90%
Water	95%	100%	86%	100%
Waste	90%	100%	71%	100%
Human Health & Well-being	88%	88%	79%	100%
Materials	63%	81%	36%	70%
Biodiversity	45%	50%	29%	60%

Table 10 "Percentage of Respondents Addressing Specific ESG issue Areas (Source: UNEP FI: "Global ESG Real Estate Investment Survey" 2019)

Although 100% of the respondents consider energy and GHG criteria, this does not mean that they have integrated a real and systematic strategy of this kind into their investment management. In fact, when asked if stakeholders use integrated ESG strategies with respect to these fields, only 68% overall indicated that they have a proven management strategy used in their real estate operations. In particular, the survey reports that in North America only 47% of respondents use such strategies, 72% in Europe while in APAC 100% of respondents confirm the use of such frameworks.

- Execution:

As indicated in the table above, execution includes all actions related to ESG integration in investment transactions (see table above). In the survey, great emphasis was placed on the use of benchmark analysis at the investment or acquisition stage. The survey shows that 80% of respondents undertake a benchmark analysis with other similar assets to assess the level of sustainability of the investment before undertaking an acquisition. These analyses are undertaken with international frameworks and tools such as the LEED, BREEAM or GRESB frameworks. In the next chapter we will elaborate on these issues and show what the main points of these frameworks are and for which sections and actions they are used by managers and construction companies. Returning to the previous topic, the survey indicates that in APAC, 100% of respondents claim to use at least one of these frameworks, in North America 76% and in Europe 71%.

- Feedback Loop

As already mentioned in the table above, in the feedback loop we can consider all those actions that monitor the actual state of the asset integrating ESG issues. In addition to monitoring physical issues for Asset Management issues, many companies use SDFs (Sustainability Disclosure Frameworks) such as GRESB or the UN PRI (Principles for Responsible Investment) as a key guide. This last aspect makes us understand that it is not only important to monitor asset issues, but the practice of disclosure information is also used. This last aspect can be linked to issues of engagement and collaboration in research for the development of synergies between actors in the field. In the following chapters we will insist on this aspect, analyzing what can be

the actions implemented by Public Administrations to encourage companies to disclose their actions and results and to have a proactive control on the building production. The table below shows the data on the use of Assessment Frameworks by the interviewed companies:

ESG Issue Area	Global	North America	Europe	Asia-Pacific
Energy consumed	100%	100%	100%	100%
Water consumed	97%	100%	92%	100%
GHGs emitted	95%	100%	92%	90%
Waste generated	87%	100%	69%	90%
Indoor environmental quality	69%	69%	62%	80%
GHG footprint of materials used	28%	25%	31%	30%
Biodiversity impact screening ⁸	23%	19%	15%	40%

Table 11 Percentage of Respondents using specific ESG indicators in the Assets’ monitoring and reporting Areas (Source: UNEP FI: “Global ESG Real Estate Investment Survey” 2019)

- Typical Risks in the Sustainable Asset Management:

Remaining with the perspective of construction companies or real estate funds, the survey points to an argument that effective integration of ESG criteria for real estate asset management can also be an important aid in risk management and risk mitigation by the companies mentioned above. The report outlines three key risks that can be mitigated using a systematic ESG strategy. To facilitate understanding, a summary table is presented with a categorization of typical risks to be considered

Table 12: Typical Risks in the Sustainable Asset Management (Source: UNEP FI: “Global ESG Real Estate Investment Survey” 2019)

Risk	Description
Economic Risk	<p>In this case, considering environmental and energy aspects (energy consumption reduction, GHG reduction, water, and waste management) can help to hinder the obsolescence of a building and thus reduce its operating costs. In addition to this, there are evident studies, such as the one we will see in the next paragraph, in which a green building is associated with a higher economic-financial performance, with a greater appeal to institutional investors as well as to international tenants who are more attentive to the environmental and social issues within the company.</p>
Physical Risk	<p>The physical risk of a crumbling building is the impact on climate. Having a green building can have an important impact on the climate condition. Conversely, considering the impact of climate on building production, worsening climate conditions and catastrophic events such as a possible flood could cause serious damage to the built environment. The reasoning here is therefore to implement green building in order not to impact the climate and to focus on climate change mitigation to avoid the risk of catastrophic events on the built environment.</p>
Regulatory Risk	<p>This risk is not related to the climate itself, but to the risk that obsolete buildings might have in case of stricter regulations. As we will see in the next chapter, public administrations are making regulations more and more stringent and finding oneself with an obsolete building stock could cause serious economic damage to the fund as well as to the asset itself.</p>

At the end of the survey, the authors report on the actions and objectives that assets and fund managers said they would implement and the targets to be achieved by 2030. As reported by the authors, 77% of the respondents intend to set ESG targets by implementing their sustainability strategy. One example is the reduction of GHG by 30% from 2005 to 2030, as indicated by the Paris climate agreements. In this regard, we conclude this paragraph by showing a table indicating the ESG targets that respondent said they have set and intend to undertake:

Type of ESG Target	Percentage of Respondents
GHG reduction	59%
Energy reduction	47%
Waste reduction	35%
Water reduction	35%
Green building certifications	24%

Table 13 Types of specific ESG targets set by interviewed professionals (Source: UNEP FI: “Global ESG Real Estate Investment Survey” 2019)

1.5 The Financial Performance of green buildings: a few assumptions

In this paragraph some hypotheses made by two researchers will be shortly outlined trying to think about relationship between a green building and its financial performance. Professor Piet Eichholtz of Maastricht University gives us a way of thinking about this relationship between physical and economic issues.²⁰ The introductory question of this article is: "*how green certification of properties is related to cash flows and property valuations?*". Eichholtz immediately confirms that there is plenty of evidence that improved sustainable performance is consistent with improved financial performance. For instance, commercial buildings with high environmental performance stand out for higher rents, lower vacancy, and more stable occupancy. All this must be considered in a perspective of cost minimization due to preventive maintenance management as well as the building conditions themselves, which assume a lower level of energy consumption, without considering for the moment the various positive environmental externalities that a high performing building can confer to the urban and built environment. Eichholtz's research addresses the topic primarily from the perspective of equity REITs and the performance of green portfolios from an environmental and financial perspective. As mentioned by Professor Eichholtz, in a portfolio managed by green properties, positive results can be traced through two main sources:

Direct benefits of sustainable building technology: this factor is found in the improved energy efficiency of the asset and consequently the lowering of operational costs during its life cycle (utilities and maintenance costs). As already mentioned, among the direct benefits we find higher and stable levels of occupancy of the building and therefore a benefit on rent incomes. In addition, a building with high energy performance is inextricably linked to technologies adopted in recent years, so these buildings are less susceptible to the risk of obsolescence and consequently have a higher market value.

²⁰ Eichholtz, P., et al., *Portfolio greenness and the financial performance of REITs*, Journal of International Money, and Finance (2012), doi: 10.1016/j.jimonfin.2012.05.014

The second positive effect on a green real estate portfolio is related to the *Corporate Social Responsibility (CSR)* reputation. Given the more than positive trends among retail and institutional investors, and given the great emphasis that governments are placing on issuing clearer and more proactive rules towards ESG criteria, one can expect that a REIT that bases its strategy on green construction will attract more investors. In addition to this, Eichholtz considers the aspect of loyalty of employees and social communities, the latter in the case of Social Housing or Urban Regeneration projects.

To help us break down the ways in which potential benefits are revealed through sustainable investments, we use information from research by Professors A. Devine, E. Steiner and E. Yonder²¹. The paper analyzed below, asks what the benefits of such sustainable investments might be in the Publicly Listed Real Estate firms' sector and tries to "decompose" them analyzing how such benefits impact financial performance. This research investigates the performance of individual assets or related funds together with the firm's data and results at an aggregate level. In the following paragraphs we will analyze the authors' empirical observations on individual assets' cash flow performances, firm's NOI, interest expenses, administrative and general expenses, discount rates, risk assessments and assets' valuations.

To analyze these topics, the authors use the so-called Dividend Discount Model (DDM). This model allows to estimate the value of a publicly listed firm through the value of the discounted future dividends of its shares. Quoting a document of the Federal Reserve Bank of Atlanta, it is stated that according to this method *"The fundamental value of a dividend-paying stock is the present value of the flow of dividends that are expected into the future"*²².

²¹ *"Decomposing the value effects of sustainable investment: International Evidence"*, A. Devine, E. Steiner, E. Yonder. University of Guelph, Cornell University, Ozyegin University (2017)

²² Federal Reserve Bank of Atlanta, "Pricing the firm on the Basis of Fundamentals" (2020) https://www.atlantafed.org/-/media/documents/research/publications/economic-review/2003/vol88no1_kamstra.pdf

$$V_t = \int_t^T D_t e^{-rt} dt$$

Picture 2 Dividend-Discount relation for a firm's valuation - (Source: "Decomposing the value effects of sustainable investment: International Evidence", A. Devine, E. Steiner, E. Yonder. University of Guelph, Cornell University, Ozyegin University 2017)

This formula indicates that the Value of a firm at time t (V_t) is equal to the sum of the present value of the future dividends (D_t) of the firm, discounted by the (r) factor at time t. As indicated by the authors, we can identify this value V_t as the "Standard income statement" of a publicly listed Real Estate firm. Continuing with this reasoning, the authors identify the assumption that the cash flow available for dividends (C_t) is equal to the sum of the values (Y_t) of the properties of such a firm (e.g., a REIT), minus the interest paid on such sums (I_t), minus possible business expenses of the firm (G_t), defined by the authors as "corporate level overheads". The formula expressing this assumption is as follows:

$$C_t = Y_t - I_t - G_t$$

Picture 3 Firm's available cash flow for dividends payment and expenses - (Source: "Decomposing the value effects of sustainable investment: International Evidence", A. Devine, E. Steiner, E. Yonder. University of Guelph, Cornell University, Ozyegin University 2017)

The authors point out that US regulations require such companies to pay at least 90% of taxable income in dividends and indicate that it is common for several companies to exceed this amount by paying more of these equity costs. And it is from this gap that the authors try to assess the health of a firm, i.e., the cash flow available to pay these expenses. The result given by the regression analysis in the mentioned research, give a fundamental answer: some firms that integrate ESG in their AUM, are more likely to pay dividends exceeding the minimum required threshold.

After the results of the regression analysis, the authors try to investigate which are the benefits or sectors of the company that would be affected by an internal sustainable investment policy. In this regard, the authors indicate two macro-areas in which such investment policies may impact the company: the first is an effect on cash flows, the second category indicates the effects on discount rates and valuation of assets/portfolios.

The first positive effect, as already widely discussed in the previous paragraphs and as indicated by the authors of the present paper, can be found in the "property level cash flows". Buildings constructed according to sustainable criteria can achieve higher levels of rents and at the same time can enjoy a rationalization and reduction of energy consumption which spills over into lower operating costs. As the authors indicate, the two themes, "higher rents" and "lower operating expenses", represent the cash flow basis in a single real estate asset. Therefore, we can empirically state that such low-emission and low-consumption construction and management practices can positively impact the "Net Operating Income" (NOI) of the real estate portfolio or fund in question. Another theme highlighted by the authors is that of an impact on the reduction of so-called General and Administrative expenses (G&A). In general, this type of expenses can refer to various categories, such as utilities, employee travel, extra expenses. In the case of a joint stock company Real Estate, such costs can be represented by the external consultancy required (legal, property management, facility management, due diligence, audits) during the operational or development phase of asset. The authors point out that a green building or a green portfolio can generate greater tenant satisfaction, or at least make it less necessary to intervene in extraordinary property management operations.

2. Integrating ESG for the selection of public projects: Defining scopes and Assessing Risks

According with Eurostat, the building sector is among the largest energy-consuming and carbon emitting branch in the Union and fuel-driven transportation is responsible for a quarter of the carbon dioxide emissions. While the yearly land take rate is still above the recommended threshold, one-sixth of the European population is still living in severe housing deprivation, overcrowding or promiscuity. The building sector and the urban development strategies shall therefore play an important role in climate change mitigation and social inclusiveness. In the Real Estate field, there is increasing evidence of how the sustainable construction and management of a property can have a great impact in enhancing asset value, reducing operating costs and decreasing environmental risks. Indeed, as described in the above mentioned UNEPFI document²³, there is growing academic and practical evidence that a green building can reduce its operating expenses, can get higher level of rents, can reduce vacancy, and reduce the risk of mortgage insolvency. On the contrary, in a long-term perspective the lack of intervention on environmental and social risk factors will not only endanger the path towards climate mitigation undertaken since 2015 with the Paris Agreement but will also damage the quality and maintenance status of infrastructure, as well as endanger the long-term financial yields. Also in the real estate sector, the action of asset managers, investors, public administrations, and other stakeholders will have visible effects on the reduction of energy consumption and pollution from fossil fuels.

A first important issue to understand the importance of integrating ESG principles on the construction and management of the real estate asset is that externalities are tangible and are found in the quantities especially the physical ones on the building, e.g., greenhouse gas emission or land consumption. There are now various tools and assessment frameworks through which it is possible to track the operations and design a sustainable building (e.g., LEED).

²³ UNEPFI: “Sustainable Real Estate Investment: Implementing the Paris climate agreement” (2016)
<https://www.unepfi.org/fileadmin/documents/SustainableRealEstateInvestment.pdf>

In parallel to the issues related to the asset and its management, the main theme of the research is to understand at what point are and how effective are the actions introduced by World countries and especially European ones, in the implementation of ESG practices for the construction of real estate assets and for the management of the urban environment. In fact, we know that regulations issued by public administrations or financial institutions such as central banks, can influence the investment market, for this reason a direction towards ESG practices, both from the point of view of statutory compliance and from the point of view of economic incentives, could represent a very important point in the complete transition towards ESG. In fact, quoting UNEP FI "*The investment community will be impacted through more regulation as countries implement their nationally determined action plans, and there will be a stronger focus on the carbon footprints of investments and their exposure to further regulation and, potentially, restrictions on business expansion*"²⁴. The objective of the research will be to understand how public administrations, especially on European soil, are moving to ensure that private companies and public projects are designed and built according to climate change and social inclusiveness issues, what is the state of the art, the tools put in place and the future to create an ever-wider sustainability framework.

The research studies that have come out in recent years trying to demonstrate the issues just mentioned are now numerous, e.g., the UNEP FI paper mentions EU research ²⁵ according to which a green building can provide benefits to its occupants (e.g. improving productivity and reducing absenteeism) and that from a thermophysical point of view, performing a major energy efficiency campaign could create a benefit of €40-80bn each year in the European's available stock of real assets. Another benefit could be the number of jobs created. According to the research just mentioned, if 20% of new and refurbished buildings in Europe were to be upgraded in terms of energy efficiency, this could create around 750,000 extra jobs and an investment of around €40bn each year. Another important aspect, highlighted during the Paris Climate Conference (COP 21) indicates that, even with the need for large investments to implement such strategies, the implementation of energy efficiency work in buildings (with the consequent creation of new jobs) could be cheaper than the "cost of doing nothing". This is because if action is not taken sooner rather than later, the problems that occur later and that would need to be fixed

²⁴ UNEPFI: "*Sustainable Real Estate Investment: Implementing the Paris climate agreement*" (2016)

²⁵ Renovate Europe: "*Multiple benefits of investing in energy efficient renovation of buildings*" (2015)

in the future could be much more serious and therefore costly. An example of how much more convenient it is to act now rather acting when the problems will be objectively evident, is highlighted by research of Prof. Nicholls²⁶. Nicholls' research makes a study indicating how port or coastal cities are exposed to the risk of extreme weather events due to sea level rise. The research indicates that, according to the author's estimates, by 2070 about 150 million people living in coastal areas around the world will be at risk of flooding. To understand the economic damage that climate change could cause, it has been estimated that the value of property affected by potential flooding, i.e., real estate that will be rendered unusable, is around U.S. \$35 trillion, about 9% of global GDP. These figures indicate the need for immediate investment to avoid a serious economic loss in the future when such properties are rendered unusable and therefore lost.

The topic of sustainable investments in real assets is constantly increasing and it is getting extremely wide and heterogeneous. To breakdown the ESG integrations in real assets management and especially in the Urban development topic, the next paragraphs will be structured by giving an initial explanation of what can be the key issues to be considered when analyzing a sustainable Property Investment. At this purpose, it will be analyzed a report issued by the UNGC (UN Global Compact) together with RICS (Royal Institute of Chartered Surveyors). In the initial part the UN Strategic Development Goals (UNSDGs) will be broken down and will be applied to the Land and Real Estate assets. The second phase of this chapter will investigate how UN SDGs and ESG goals can be applied when analyzing and evaluating a Real asset among three phases of its life cycle (i.e., development, occupancy, recovery). The third section of this introductory paragraph will try to breakdown the main tools and assessment frameworks to undertake what can we define an ESG Urban Policy.

²⁶ Nicholls, R. J. *“Ranking port cities with high exposure and vulnerability to climate”* – OECD Environment Working Papers (2015).

2.1 The UN Sustainable Development Goals applied on the Land Use and Urban Development

In the 2015, the United Nations established a pool of 17 interconnected goals²⁷ that are aimed at helping worldwide countries and firms to undertake responsible and sustainable policies to be achieved no later than the 2030. The objective of this document is to provide best practices, business operations and innovative development models both in the public and private sector. As an introduction to this topic, it is useful to show the overall pool of goals (picture 9). It is equally useful thinking about that the Real Estate sector could have a major impact over these goals as it will be shown in the next paragraphs.



Picture 4 The 17 United Nations' Sustainable Development Goals (UN Global Compact and RICS "Advancing responsibilities in Land, Construction and Real Estate Use and Investment" - April 2018)

We shall start our reasoning thinking about the huge impact that the construction sector can have over the wellbeing of populations. As stated in the above-mentioned document, the construction and real estate sector represents more than 50% of the global wealth and it is likely to be one of the largest in the world. Before getting in deeper on the three main phases that will be explained

²⁷ UN Global Compact and RICS "Advancing responsibilities in Land, Construction and Real Estate Use and Investment" (April 2018) <https://www.rics.org/globalassets/rics-website/media/about/advancing-responsible-business-un-sustainable-development-rics.pdf>

in the next paragraphs, it could be useful to provide an overview of the main UN SDGs that can be linked to the Land Use, as it will be shown below in the tab:

Table 14 UN SDGs applied on the Real Estate and Urban Development disciplines. (UN Global Compact and RICS “Advancing responsibilities in Land, Construction and Real Estate Use and Investment” - April 2018)

UN GC Sustainable Development goals	Area of interest	Overview
<ul style="list-style-type: none"> - 7: Affordable and Clean Energy - 11: Sustainable cities and communities - 12: Responsible consumption and production - 13: Climate action 	<p>Climate mitigation, clean energy, and reduction of greenhouse gas emissions.</p>	<p>As already mentioned, the building sector is responsible for almost the 40% of urban carbon dioxide emission, thus, strategic development over land-use and planning, building design and construction techniques as well as use of materials and innovative technologies can be considered major in the impact of a sustainable development in the Real Estate sector.</p>
<ul style="list-style-type: none"> - 3: Good health and well-being - 6: Clean Water and sanitation - 15: Life on land 	<p>Health and Safety conditions of living</p>	<p>The quality of services such as waste disposal, the generation of end-of-life waste generations in the building dismantling and the quality of urban water are main factors that can positively affect these issues.</p>
<ul style="list-style-type: none"> - 16: Strong institutions, peace, and justice 	<p>Fair institutional governance</p>	<p>It represents one of the main determinants for social, political, and economic conditions of a region. Avoiding corruption in urban planning and building permission must be achieved through proactive measures ensuring fair procedures.</p>
<ul style="list-style-type: none"> - 1: No Poverty - 8: Decent work and economic growth - 10: Reduced inequalities 	<p>Fight against poverty and the fostering of economic growth</p>	<p>The development such as council housing, social housing, and other types of affordable or public housing with the aim of providing a safe environment for the lowest economic classes. We also must think about that the real estate sector provide high number of jobs among the construction, the occupancy, and the dismantling phase, thus fostering the SD n. 8.</p>

It can be said that there is not a precise ESG format to be compliant with²⁸, but at the same time, these goals represent a full scheme of what should be the goals and strategies to be undertaken towards an ESG development in the Urban Development Management. Thus, it should be responsibility of the public administrations to properly catch these factors and applying them on the urban development investment they are making or evaluating. At this purpose, the next paragraph will try to provide a schematic breakdown of what can be responsible business practices and investment strategies to be undertaken towards the ESG development among the three phases of the life cycle of the Land use.

2.2 Key issues in the Urban Management: Perspectives for Local Administrators

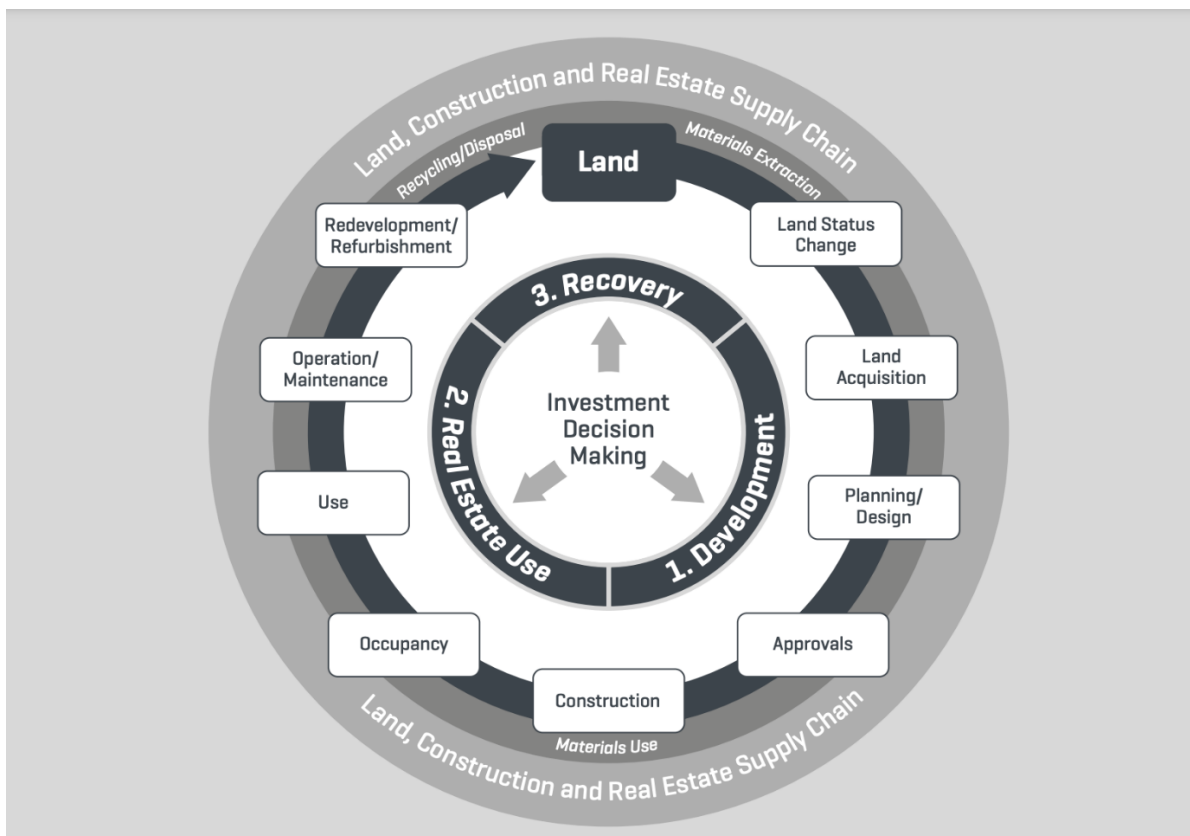
The above-mentioned document, named “Advancing responsible Business in Land, Construction and Real Estate development” has been developed through a cooperation between the UN Global Compact²⁹ and the RICS. The report is born with the mission of providing a practical tool for companies and stakeholders which are involved in the Real Estate sector. The provided strategies and advises are related to firms of all dimensions and related to all the phases of the construction sector, but we can use them as a hint to delineate a breakdown of ESG topics in the Regional Development actions that may be taken from the Local Administrator.

The main message that the document gives us to understand the importance of the Construction sector in the sustainable development, is that “*whether as part of a rural community or in a slum settlement or in a big city, everybody lives, works and plays in buildings*”. Thus, the construction sector is not only to be considered with the provision of homes, but also with the provision of education, healthcare and working facilities. We know that in the last century, the society has passed from most rural communities to an urban society with almost the 50% of the global population living in urban settlements of various dimensions. In the last decades we have seen the development of the concept of Megacities, urban structures with more than 10 million inhabitants. Of course, when dealing with Megacities, we are not only considering NYC or

²⁸ There are several operative tools for undertaking sustainable property investments (e.g., LEED) but there is not a mandatory ESG framework to be compliant with. At this purpose, in the next chapter there will be a breakdown of tools and operative frameworks to understand the current situation.

²⁹ The UN Global compact Is a pact signed by the countries of the United Nations with the mission of developing sustainable and responsible business strategies and provide some practical tools to foster responsible business actions among companies, public administrations, and other stakeholders.

London, which are places with high life standards and GDP per capita, but we are also talking about cities like Dhaka, Mumbai, Mexico City, where poverty is a serious issue, and the development of huge slums settlements is becoming more and more important for public administrations. The construction sector, as well as the urban footprint, has serious impacts over the environmental and landscape conditions, the waste disposal, the economic development the quality of living and the welfare of citizens. Providing a sustainable urban development is not only a matter of green architecture or renewable energy, but also a matter of anti-corruption, human and labor rights. To breakdown the complexity of this topic, in the next paragraphs, for each phase of the life cycle, this research is going to enlist the major key issues, the potential action to be taken and the benefits that the society might gain from an ESG-Themed urban Policy. All the issues and actions are to be considered relating one or more of the UN SDGs which we have seen been versatile in analyzing business and technological sustainable development issues.



Picture 5 The three main phases of the Land, Construction and Real Estate life cycle. (Source: UN Global Compact and RICS “Advancing responsibilities in Land, Construction and Real Estate Use and Investment”- April 2018)

As shown in the previous picture (10) the construction sector and the consequent land use is a complex economic and engineering activity whose life cycle can be divided into three main macro-areas: development, use, recovery.

In the **development phase**, the **land status change** is the first process by which any type of greenfield or already built land (e.g., brownfields) changes its use destination. In this phase the use of land is altered, for instance through a public permission or a zoning plan. Nowadays, the land acquisition process describes the formal acquisition of a land portion through a process of private negotiation between economic agents, whether are they individuals, firms, or public administrations. The **planning/design phase** relates to the preparation of a project for the implementation of the asset in the land portion, and it is related to the urban planning phase (typically made by the public) of a city or a district. By designing the urban development, Public Administrations put the bases, the regulations, and limits of how much land can be converted for urban use and how it shall be used. We will see in the next chapters, what are the actions that Public Administrations might use to integrate ESG in their provisions for urban development and management. The public **approvals** refer to the formal statements which are issued by the public administration or regulator entities, with the aim of assessing the fairness of the process, both in the economic and legal sector (e.g., construction permissions, planning consent, conservation certifications) and in the engineering point of view (e.g., fire safety, sanitary water compliance etc.). Finally, the **construction** is the most common acknowledged step of the urban land development. This concept describes not only the erection of a building but also all the economic phase of acquiring suppliers through a fair procedures or tenders. In general, the construction phase is directly related to what we call construction supply chain, where a multiple network of firms carries out several parts and steps of the complex construction process (e.g., tendering process, materials and services procurements, construction management, safety assessments, materials, structures, plants, maintenance handbooks).

Within the so-called **use phase**, the three main concepts, as you can see on the previous picture (10) are the concepts of **occupancy**, **use and operations/maintenance**. The **occupancy** refers to the intended use of a building or multiple buildings on a land portion. When the building construction has terminated and the commissioning gives a positive result, the occupancy begins when the tenants or the owners start their core activities inside the facility. With the term **use**,

we are describing the utilization of the site, thus for which purpose the real assets are used (retail, industry, office, residency, education, healthcare and so on). Within the **operating phase**, a fundamental aspect is the maintenance strategy. By looking at the data of the latest facilities management companies, we can notice important results on how much the life cycle of a building can be increased by operating a proper maintenance management.

Finally, the **recovery phase** must be considered together with the first parts of the development phase, especially the *land status change*. The concept of redevelopment has become extremely popular in the west after the sixties, after a huge plan of post-WWII building reconstruction indeed the overall available stock of obsolete buildings is dramatically high. The concept of redevelopment takes place if the building or the urban site does not satisfy anymore its functions, or it results obsolete from a physical and technological point of view. As we will see in the next specific paragraphs, the redevelopment of an urban area shall be oriented towards the re-use of the brownfield and the refurbishing of the related assets, and at the same time insisting on the land consumption control with tools and regulations.

- The development phase: Fair Public Provisions and Environmental Stewardship

As already mentioned in the previous section, within the development phase we must consider 3 main steps which are related to a process starting with the investment strategy, passing through the land acquisition, the various design stages, and the construction. It's highly important ensuring a process of fair acquisition, acting on the "**land governance**" whose power belongs to the Public Administrations. In 2013, the FAO³⁰ has estimated that in the last decade, almost 230 millions of hectares have been acquired by international economic agents (firms) and individuals, especially within developing countries, where land prices are lower than the G8 countries and where multinationals are used to settle their plants or their commercial buildings by exploiting a favorable taxation and lower capital expenditures. As stated in the UN report, we must take care on the land development, especially considering that the development of a portion of greenfield or urban land in a specific region, "*must respond to the needs of local*

³⁰ Transparency International, "Global Corruption Barometer" (2013) <https://www.transparency.org/en/gcb>

communities they are located in” (UNGC and RICS). Let’s just think about the presence of multinational firms which exploit mineral reserves in developing countries, giving rise to contentious issues over the mineral rights and exploitation permissions. Moreover, developing countries can also be affected by land use by means of “*unmoral expropriation, forced evictions and impacts to surrounding communities (e.g., relocation, zoning); wildlife habitats and preservation areas and biodiversity; and mining extraction*” (UNGG and RICS). At these purposes, the intervention and the land governance of Public Administrations is a matter of primary importance. National Governments or Regional Councils can provide regulation over the land acquisition and that’s why them shall encourage private companies to follow good practices before requesting for or evaluating a land portion for business purposes. As we already seen, private companies may be willing to purchase and acquire property rights on land for two main purposes. The first can be undertaken by a direct Real Estate investor willing to develop a commercial real asset for economic returns. The second represents businesses that settle or buy facilities (e.g., industrial plants) for their supply chain purposes. All these possible private investments cannot come without a clear assessment of what might be positive or negative externalities of local populations, when settling a facility in a region, especially if in a developing country.

For this reason, in the UNGC and RICS has been carried out a set of best practices for business entities to be compliant with. This set of practices shall be understood as a pool of recommendations for Public Administrations to encourage companies willing to settle in a certain region. First, it should be clear and transparent practice, that the *land acquisition* might be fairly executed, having assessed the request for land purchase in terms of economic and social externalities. This must be done with a clear pool of tools and regulations used by local administrators to assess the potential impact of such investment quickly and deeply over their land. Then, companies should assess the impact of their real estate development through an ESG report tool, at this purpose we will see the GRESB tool in the following paragraphs). A guidelines tool that might be used to assess these topics applied on the industrial entities willing to expand their plants facilities in developing countries, is the FAO’s “*Guidelines of Responsible*

Governance of tenure”³¹. In this checklist, companies shall assess whether they are compliant with the protection of human rights, dealing with the risk of unfair expropriation of land portions and resettlements of communities, the assessment of the risk for the protection of the access to clean water, healthcare, education, and food. Another possibility to be fostered and to be carried out for the avoidance of labor rights risk, is the hiring of local workers, both for the construction than for the operating core activities (e.g., industrial, or touristic facility). In a perspective of Corporate Social Responsibility (CSR) it might be mandatory a clear assessment and constant monitoring on the fairness of work conditions.

The UNGC has indicated as second key issue the so called “**Transparency and anti-corruption**”. As indicated by Transparency international³², lacks transparency in the land acquisition can represent a serious damage for the welfare of population in each region. The 10th principle of the above mentioned UNSDGs (*Reduced Inequalities*) claims the necessity to act and play against corruption with the objective of avoiding negative externalities for communities as well as unfairly advantaging economic agents in their business development. In the Global Compact report are mentioned some data taken by the OECD’s Report “The rationale for fighting corruption” issued in 2014³³. From their studies, the OECD stated that in the real assets’ development, the losses caused by corruptive phenomena might range between the 10% and 30% of the overall construction budget. Moreover, by considering the worldwide economic universe, not only the construction sector, but the cost of corruption is also around 5% of the total GDP. As already mentioned, the most common field of corruption happens within the tendering processes. In the case of public procedures, bribery and corruption represent major concerns in the land acquisition permissions and in general in other public provisions related to the land development. Corruption might happen also in the private sector, especially with the presence of entry barriers preventing local economic agents to compete with a bid because not fulfilling requirements.

³¹ FAO, “Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the context of national food security”, Rome, 2012.

<http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

³² Transparency International, “Global Corruption Barometer” (2013) <https://www.transparency.org/en/gcb>

³³ OECD stands for *Organization for Economic Co-operation and Development*.

Another important issue refers to the so-called “**Environmental Stewardship**”. The UN Global Compact defines it as: “*the comprehensive understanding and effective management of critical environmental risks and opportunities related to climate change, emissions, waste management, resource consumption, water conservation, biodiversity protection and ecosystem services*”³⁴

This topic can be interpreted as the ability of the Public Authority in the effective integration of Environmental aspects in the project approval on a real asset. As we will see further, a first action can be the introduction of incentives, for instance tax relieves when constructing with renewable materials or using clean energy plants. At this purpose we will explore the hypothesis of a Local Administrator providing an ESG fiscal policy, going to increase or reduce taxation with respect to the ESG performances of Assets and firms. Moreover, the UNGC provides us a list of best practices that local administration might issue with the purpose of fostering a full sustainable building development in their regions. For instance, local administrators might incentive the use of brownfields instead of greenfield, ensuring a more efficient use of land. Another solution can be giving extreme importance to the sustainable transport infrastructure when planning the city or when allowing construction companies to build. For instance, making mandatory the design of walkability paths to companies or investors that are going to construct a real asset in a certain area. Another solution that should be mandatory in all over the world is the carrying out of a deep Environmental Impact Assessment (EIA) during the planning or design phase of the area development. At the same time within the planning/design phase, PAs must incentive companies to choose materials, construction, and maintenance techniques by means of a deep LCA (Life Cycle Assessment)³⁵. The decision making over materials and maintenance strategy is primary taken within the development phase, but of course this topic will be better explained in the next chapter (use phase) dealing with the operating phase.

The last key issue considered within the development phase deals with the “**quality of construction and planning**”. The section describes the paramount importance of the safety standards compliance as well as the use of proper materials in terms of environmental and resource sustainability. Thus, creating an assessment and permission framework that allow PAs to select only assets with an ESG integration, may be a determinant factor in our purposes. Issues

³⁴ UN Global Compact, 2010, Environmental Stewardship Strategy – Overview and Resource for Corporate Leaders, United Nations Global Compact and Duke University, New York, p. 9, Available at: http://www.unglobalcompact.org/docs/issues_doc/Environment/Environmental_Stewardship_Strategy.pdf

³⁵ The frameworks of the LCA are described by the standard ISO14040

like the use of proper materials, the undertaking of safety reports, the compliance with building codes are all methods to foster the resilience of a facility. We will further explore tools as LEED and BREEAM as evaluation frameworks, allowing a simpler permission strategy to PAs. Within the context of quality and safety in the construction sector, the report enlists some best practices useful for construction companies as well as local administrators which shall, once again, encourage and incentive private actors in being compliant with the following strategies. Other issues to be considered are the weather conditions or events (e.g., high impact is given on the seismic aspect in the Japanese Real Assets construction due to the high seismic zone they are built in). Other aspects are the fire safety but also the attention over the future impact of the facility on the environmental quality of the land. As we have already mentioned in the previous paragraph, some countries have undertaken this strict safety and environmental regulations since decades, thus construction entities cannot claim any right of construction if these conditions are not fulfilled. At this purpose, the international building standard for the assessment of the construction's quality are considered in the ISO 9001 (Quality management) and ISO 14001 (Environmental Management). Another important aspect relies in the design phase. In fact, when designing a building, PAs must incentive construction entities to consider the level of maintainability and reliability of components to minimize the future maintenance/operating costs and base decisions in terms of recyclability of materials, going to minimize the waste impact in the urban portion.

Table 15: Key issues and potential actions: the development phase (source: UN Global Compact and RICS “Advancing responsibilities in Land, Construction and Real Estate Use and Investment” (April 2018))

Key issues and potential actions: towards the sustainable Real Estate and Urban development.		
Key issues	Relevant UN Strategic development goals	Actions to be undertaken
The development phase		
Land Governance.	1: No poverty 2: Zero Hunger 5: Gender equality 10: Reduced inequalities 16: Strong institutions	Need for dialogue with communities of land status change and planning phase.
Transparency and anti-corruption.	8: Decent work 12: Responsible consumption 16: strong institutions 17: Partnerships for the goals	Need for transparency of local administrations and corporates within the planning/development phase.
Environmental Stewardship.	6: Clean water and sanitation 7: Clean and affordable energy 11: Sustainable cities and communities 13: Climate Action 15: Life on land	Need for actions and responsibilities for the environment of the asset development.
Quality of construction, planning and design.	6: Clean water and sanitation 7: Clean and affordable energy 13: Climate Action	Need for designing high-quality, and energy efficient buildings dealing with climate change mitigation and sustainability of resources.

- The use phases: Preventive Maintenance and Treatment of Communities

When talking about the life cycle of a building or a set of assets within an urban portion, we should consider that the use phase is the longest one in time, comprising the period from the initial occupation throughout the recovery or dismantling phase. We should consider that the construction phase can take around 2-4 years while the use phase can get over 60-80 years. For this reason, we should understand that maintenance and operating costs within the whole life cycle, can be higher than the overall construction costs. Thus, when talking about the use phase, we shall start with the last topic we have discussed in the development phase. A building design which doesn't consider the maintainability and reliability of materials and components, will surely affect the operating conditions and cost of the facility management within its occupancy phase. The maintenance of the facility and the urban area among the use phase is fundamental as much as is paramount the decision making within the development phase.

Thus, also in this case, the UNGC and RICS report mentions the “**Environmental Stewardship**” as a key topic in the use phase towards the objective of environmental sustainability. The main elements to be considered in the use phase are related to the maintenance strategy, the energy consumption, the monitoring of the carbon dioxide emissions, the sanitary water quality management, and the waste disposal.

By moving towards an ESG perspective, the first key issue addressed in the UNGC report is the necessity of “**Health, safety and well-being of building occupants**” (UNGC and RICS). The section related to this topic starts with a grave information, stating that the number of deaths caused by accidents during the working shifts or by work-related diseases every year is around 6300 people in the globe. In the report Is underlined once again the concept that the decision making within the design phase is fundamental to avoid risks of occupants' safety. The health, safety, and wellbeing of the building's occupants, whether are them workers or households, can be summarized with three main areas: the access of disabled people, the quality and access of water and hygiene services, the indoor air quality. A possible solution to these complex issues is given by a short case study dealing with the health and safety monitoring activities undertaken in the harbor region facilities of Sidney (UNGC and RICS). The above-mentioned report underlines the assessment and operating strategy of the facility management through a high

number of reports and monitoring that every year provide results over several aspects such as: water and air quality, humidity, thermal comfort, accidents during working shifts. The facility management structure has also developed a so-called BEA (Building Environmental Audit) which is undertaken every year to assess the air quality, monitoring the level of dust and microbiological components such as formaldehyde and carbon dioxide inside the facility. Assessments and surveys are also made on the building's occupants.

In the UNGC report high relevance is given to the **“treatment of tenants and communities”**. This key issue is more related to the local administrations which shall encourage the adoption of non-discrimination policies and fairness assessments between tenants/communities and landlords, as well as assessing whether the council housing or public estates are compliant with these types of standards. The main concerns written in the report are related to the possibility of low quality or absent maintenance in the poor districts, unfair rental contracts (for instance arbitrary clauses and payment conditions), unfair evictions, communities' discrimination in terms of ethnicity or gender. It usually happens that uptown or periphery communities (e.g., council housing districts) suffer from bad maintenance and quality of the public services. Other issues can be the low control given on the fairness of the rental contracts, causing unfair treatments and harassments. At this purpose local administrators shall undertake policies to control the fairness of the rental contracts, by monitoring or providing a helpdesk or helpline for denouncing harassment problems or unfair contractual conditions. At the same time, especially in council housing districts, local administrators shall assist association in providing recreative activities for children and inhabitants trying to distract them from the risk of crime activities. The UNGC and RICS report gives us some points to understand how undertaking good practices in the social inclusion of communities can give benefits for all the citizens. A first point is that a “well-functioning” community can foster the reduction in crime acts. For instance, helping communities in developing businesses, for instance providing spaces for commerce (e.g., open street markets) or facilities for trade can foster the quality of urban conditions by making communities feel a sense of ownership of commercial facilities becoming less likely to treat urban environment with disrespect.

The report's section "**transparency and disclosure**" deals with the necessity of a transparent and well-regulated real estate market. This implies the necessity of a clear and simple regulatory framework through which the local administrators can ease the bureaucracy of real estate transactions, as well as running digital system to control the fairness of transactions. As already mentioned in the development phase paragraph, one of the main risks is related to corruption, especially between public and private agreements. Thus, a bad regulatory framework may imply unlawful transactions and "*also in countries that, despite having adequate legal systems, do not foster a transparent business culture*". The above-mentioned report brings some strategic topics that local administrators can undertake to encourage companies to identify, addressing and avoiding unlawful practices. Companies shall be encouraged to carry out risk assessments focused on potential or actual corruption practices as well as develop effective whistle-blower policies to denounce corruptive acts. Of course, the regulatory framework shall be transparent and easier to apply to avoid money laundering or corruption practices. Among all these practices, we can address the necessity to integrate Environmental and Social parameters in the public decision making through administrative procedures. We will discuss the Green Public Procurement (GPP) and the development of innovative Public Private Partnerships (PPPs) in the related chapter below.

Table 16 Key issues and potential actions: the use phase (source: UN Global Compact and RICS “Advancing responsibilities in Land, Construction and Real Estate Use and Investment” - April 2018)

Key issues and potential actions: towards the sustainable Real Estate and Urban development.		
Key issues	Relevant UN Strategic development goals	Actions to be undertaken
The use phase		
Environmental Stewardship.	6: Clean water and sanitation 7: Clean and affordable energy 11: Sustainable cities and communities 13: Climate Action 15: Life on land	Need for making the environmental issues as key topics in the facility management during the operating phase.
Health, safety, and well-being of building occupants.	3: Good health and well-being 6: Clean water 8: Decent working conditions 10: reduced inequalities 12: Responsible consumption and production 13: Climate action	Acting with the objective of providing a safe environment to the occupants within the operating phase.
Treatment of tenants and communities.	5: Gender equality 10: Reduce Inequalities 8: Decent working conditions 11: Sustainable cities and communities	Need for a continuous dialogue with occupants and nearby communities.
Transparency and disclosure.	8: Decent work and economic growth 12: Responsible consumption 13: Climate Action	Need for improving Corporate Social Responsibility frameworks to avoid corruptions and fostering transparency.

- The Recovery phase: Fostering the strategic re-use of Brownfields

The recovery phase is the final part of the cycle, it does not always coincide with the demolition of the building or the site, but often coincides with the end of its economic life. This is because we must consider a single asset or an integrated urban area development by looking at the investment that built it or that allows its management, so it is necessary to consider the end of the investment and the decisions that will be made afterwards, whether it be renovation, demolition, or transfer to a new owner. The reasons for these decisions are often linked to the end of an investment, the decision made by those who managed the asset up to its disposal and the needs of the purchaser to reuse or re-develop the asset. Thus, a building may be decommissioned, re-used, or refurbished both for physical reasons, such as deterioration or obsolescence, and for economic reasons related to the investment.

Among the key issues listed in the UN SDGs, the first topic is related to **“strategic site-use reevaluation”**. As already mentioned, the development of a strategy to be adopted the end of the economic or physical life of the buildings, revolves around the possibility of renovating them or demolishing and rebuilding them. Renovating the building (in whole or in part) means bringing the asset back to contemporary quality standards, by carrying out hard works such as the renovation of the envelope or the endowment of mechanical systems. Demolishing a building means: first completely decommissioning the facility, bringing the site to a condition like the initial one (often applying soil bonification works) and then carrying out new construction works. What interests us at this stage concerns the authorization process of such procedures. In fact, whether the building is to be renovated or demolished, the intervention of the public body is necessary to authorize and grant the so-called "construction title". In this research we will see what the actions may be that PAs can undertake to issue a building regulation towards the ESG integration, fostering the re-use instead of decommissioning, the brownfield regeneration instead the greenfield consumption. PAs have the duty to control the building production, thus they can steer companies and investors towards the re-use instead of the decommissioning and trying to avoid the land consumption setting mandatory standards. Certainly, environmental, and social damage in the decommissioning and redevelopment phase can also occur without violating the construction law of a certain country, for instance if in a certain legislative system, there is no precise practice of environmental and economic analysis of the asset development. In this regard,

according to the solutions proposed by the UN Global Compact, it is possible to imagine that a public system in which cost-benefit analysis and sustainability assessment are required on the development of the brownfield can be a proactive tool by the public administration to control the sustainable building production of a certain area. Certainly, the public, especially in Italy, requires numerous documents to authorize a demolition and reconstruction project, but Environmental and Social issues are not clearly standardized in their assessment parameters. The use of international formats, such as LEED (Green Building Council)³⁶, is not currently mandatory in the public building permission procedures. The public can incentivize the use of sustainable practices in building production with tax breaks or volume bonuses, but according to the Globally Compact, such assessment practices (including the social impact of the investment) should be made mandatory at the re-development stage to gain proactive control over sustainable building production issues.

One of the main issues when it comes to the demolition of a building or re-use of a brownfield is certainly the production of a large amount of waste. Demolition operations involve a long process that starts with the removal of rubble at the construction site and ends with the transport and disposal of waste at the landfill. Obviously, it is likely that some of this waste is hazardous and therefore needs a more accurate dismantling and reclamation treatment. Also at this stage, the UNGC includes among its key issues the theme of "**Waste management, resource conservation and recycling during demolition**". According to the document, among the waste generated in the demolition phases, there are also large quantities of materials such as asbestos, lead or even radioactive materials (especially in the industrial sector). Moreover, even if some materials are not polluting in the production phase, such as plasterboard, the dismantlement of such components is highly impactful from the environmental point of view. At present public authorities (e.g., ARPA in Italy) manage, control, and regulate the removal and disposal of waste in the decommissioning phase. Authorities verify precautionary measures, classify the types of materials, can even control in laboratory the quality of the waste (and eventually stop the working phases without issuing the Certificate of Soil Bonification) but have not yet developed a common circular waste management on European soil. The UNGC indicates which are the

³⁶ By mentioning the US Green Building Council: "*LEED is a voluntary, consensus-based system, created by the U.S. Green Building Council, for the design, construction and management of sustainable, high-performance buildings and land areas that is increasingly developing internationally; it can be used on any type of building and promotes an integrated design system that covers the entire building.* - <https://www.gbciitalia.org/web/guest/leed>

least preferable ways of disposal: for example, the use of landfill incineration is highly discouraged because it generates a large amount of methane gas. Although methane gas is a good energy vector and waste incineration can therefore represent a source of electricity, the production of output gas is such that this option is the most unfavorable.

Notwithstanding these considerations, UNGC indicates that the possibility of a circularity framework, recycling and reusing construction materials should be more explored. We will see in the next chapters what the PAs can do to foster and stimulate the circular construction sector, insisting on the recycling, reusing, and refurbishing of buildings and materials. On this need for recycling and reuse, UNGC proposes a scale of actions/principles that must be pursued in waste management. At the first place we find "Retention and waste prevention": this principle assumes the idea that decision making in the design phase is the most effective action to manage and reduce the impact of waste disposal in the dismantling phase. The use of materials with a clear LCA³⁷ and the provision of a low impact demolition system, are actions that should be required by the public to grant planning permission for construction. Second is the "re-use of materials". Reuse is a process that can bring substantial benefits to the client as well as the environment. The production of reused material can be sold to specialized companies, or it can be reused on-site thus reducing the costs of materials transported and sent to landfill. The third principle concerns the "recycling" of demolished material. This process commonly occurs in metallic materials (such as cast and reused steel reinforcements) or plastic materials. Recycling processes, such as melting of materials, are still impactful, but certainly preferable to incineration of waste and subsequent methane gas output.

The third key issue mentioned by the Global Compact concerns the so-called "**Brownfield regeneration**". As described in the previous paragraphs, brownfields are land previously used for industrial or construction purposes. These lands are unused (or abandoned) and could be contaminated by materials used in previous phases of use. Brownfields often occur on former industrial land and may be contaminated with asbestos, heavy metals, pesticides, and harmful chemicals. To ascertain the level of biological contamination of such soils, laboratory analysis is required. The importance and peculiarity of these soils is that they are already in an urban or

³⁷ Life Cycle Assessment

industrial environment. The importance of action on this type of soil is precisely to reuse abandoned soil to ensure urban construction spaces without further land consumption. In the post-war period there was a great operation of urban reconstruction, because of these operations, cities have increasingly begun to expand, using rural areas as new zones of urban expansion. This great speed of expansion on the surface, and the abandonment among the nineteenth century, has led to a great number of abandoned buildings and therefore giving rise to the existence of brownfields. Nowadays, at least in Italy, the annual expansion area has been drastically reduced (as well as the land consumption). It is not by chance that some municipalities use control instruments or building regulations to monitor and avoid exceeding a certain rate of land consumption. For this reason, brownfields are a great opportunity for sustainable urban development and can allow the development of housing quality and urban decency in cities. In fact, the possibility of reclaiming a contaminated soil and at the same time building a new structure, can represent a double act of development, both from the environmental point of view and from the economic development of the territory and urban quality.

The fourth and final key issue mentioned by UNGC in the recovery phase, concerns the topic of **"Land recovery and rehabilitation of site"**. Land recovery refers to the engineering practices necessary to restore previously used or degraded land to its original state. Often the goal of these operations involves the removal of previously used structures, soil remediation, the inclusion of new plant species, and the subsequent natural repopulation of the soil. As quoted in the UNGC document, former secretary of UN Ban Ki-Moon stated in a press conference that: *"Conservation of biodiversity makes a critical contribution to moderating the scale of climate change and reducing its negative impact by making ecosystems more resilient."* As mentioned in the previously mentioned document, with the introduction of new environmental protection laws by public administrations, the demand for permits for soil recovery and remediation operations has increased in recent years. Also, as mentioned in the paper, public authorities should use their power of expropriation to implement soil recovery campaigns, especially in urban or industrial areas. In addition, governments should encourage the development and introduction of mandatory EIAs³⁸ for companies wishing to undertake development or decommissioning projects on developed or developable land. Public administrations should require companies to

³⁸ Environmental Impact Assessment.

identify and involve in the process specialists to undertake consultations and reports on the conditions of fauna, flora, the possibility of developing agricultural activities in the future. According to UNGC, the performance of such operations could bring important benefits deriving from the restoring of natural processes going to re-establish the natural balance of soils at the limits of urban aggregations.

Table 17 Key issues and potential actions: the recovery phase (source: UN Global Compact and RICS “Advancing responsibilities in Land, Construction and Real Estate Use and Investment” - April 2018)

Key issues and potential actions: towards the sustainable Real Estate and Urban development.		
Key issues	Relevant UN Strategic development goals	Actions to be undertaken
The recovery phase		
Strategic site-use reevaluation	11: Sustainable cities and communities 12: Responsible consumption and production 13: Climate Action 16: Strong institutions	Need for planning a site-use reevaluation from the economic, social, and environmental point of view.
Waste management, resource conservation and recycling during demolition	3: Good health and well-being 6: Clean water 8: Decent working conditions 12: Responsible consumption 14: Life below water 15: Life on earth	Need for undertake a strategy for recycling and reusing of construction materials after building decommissioning.
Brownfield regeneration	3: Good health and well-being 6: Clean water 8: Decent working conditions 11: Sustainable cities and communities 14: Life below water 15: Life on earth	Act on the brownfield re-use instead of new land take.
Land recovery and rehabilitation of site	1: No poverty 2: Zero Hunger 6: Clean water 7: Clean and affordable energy 11: Sustainable cities and communities	Undertake EIA (Environmental impact assessment) before the recovery design.

In the paper just analyzed in the previous three paragraphs, following the outline shown in the tables above, the authors have provided the formulation of an operational framework through

which PAs must incentive construction or real estate investment companies acting towards a sustainable logic. We can define this operational framework as a set of guidelines that can fit into the ESG definition as it deals with all three topics of the acronym in an integrated way. The information reported in the current paragraph, may represent a pool of proposed actions and a control chart that public administrations can issue for pro-active control of building production. Whether local or national governments, the use of information, incentives, or compliance requirements such as those just mentioned can contribute to the formation of a construction industry linked to the issues of environmental sustainability, economic sustainability, social inclusiveness, and the advocacy of a fair and transparent administration.

2.3 The Cohesion Policy: Underlining the main EU's Growth Purposes

To start our reasoning and studies on the new actions undertaken by the European Commission for sustainable urban development, it is necessary to start from what have been the practices undertaken in the past years, from 2007 to 2013. In this regard, the first document³⁹ we are going to analyze gives us an idea of the various projects that have been initiated or carried out on European soil and financed through the so-called ERDF (European Regional Development Fund). This document is very significant because it allows us to subdivide various projects according to their characteristics. The categories of projects financed by the ERDF relate to the themes of: *"smart growth, sustainable growth, inclusive growth, integrated area-based approaches, housing for marginalized groups, financial engineering, public participation, cooperation and networking"*. The projects implemented at this stage are "pilot projects" which have favored the formulation of the new European directives and initiatives that will be analyzed in the following paragraphs. The report⁴⁰ analyzed was produced with the assistance of DG REGIO⁴¹ and allows us to analyze the actions undertaken by the European Commission) in the years immediately preceding the development of the new "Fund for strategic development" and "Invest EU" all of which will be addressed in the following paragraphs of this chapter. As indicated by the report's authors, the 2007-2013 period represented the "mainstreaming of the

³⁹ UE Commission, Regional and Urban Policy "Urban Development in the EU: 50 projects supported by the European Regional Development Fund during the 2007-2013 period" (2013)

⁴⁰ Ibid.

⁴¹ Directorate-General for Regional and Urban Policies

urban dimension cohesion policy", a very important moment in which there was an expansion and capillarization of European economic interventions that made any area of the European economic space a potential area of intervention for urban cohesion projects. The experience of these pilot projects throughout Europe with the integration of the ERDF has led to the development of a set of specific actions and common principles, recognized as the "EU URBAN Acquis"⁴². The introduction of the ERDF was made possible by the so-called EU Cohesion Policy"⁴³. For the analysis and classification of projects within the Cohesion Policy framework, in addition to the subdivision into themes that will be described in the following tab, three areas of action have also been identified. The first concerns actions to promote urban cohesion in deprived urban areas, following an area-based approach, with the aim of bridging the gap between different levels of housing and urban quality. The second concerns actions to promote sustainable urban development. These actions are to be considered at urban level and respond to specific challenges such as environmental quality, brownfield regeneration or even the introduction of job-creating investments. The third concerns actions for polycentric development between urban areas. These projects refer to metropolitan areas and to the improvement of connection systems between urban centers in the same region. Thus, infrastructure projects but also inter-municipal governance projects. The 8 themes through which projects have been developed in the urban cohesion plan and financed by ERDF, are described in the following summary table:

⁴² An EU Acquis is an agreement, a set of common rights, principles, or binding acts among member states.

⁴³ "Cohesion policy is the EU's strategy to promote and support the overall harmonious development of its Member States and Regions" (UE Commission) www.ec.europa.eu

Table 18 EU Cohesion Policy - The 8 areas of intervention for projects developed and financed by ERDF (UE Commission, Regional and Urban Policy “Urban Development in the EU: 50 projects supported by the European Regional Development Fund during the 2007-2013 period” – 2013)

Topic	Description
Smart growth	These types of projects involve a technological development specialization. Cities analyzed are trying to reach milestones in the IT development, repositioning themselves into the “knowledge economy”. These types of projects can represent the development of faculties for R&D, cultural or technological workspaces.
Sustainable growth	These types of projects are related to the environmental and resource efficient growth strategies that municipalities have undertaken for their urban development. Topics such as the brownfield regeneration or the carbon-free transitions or the reduction of land take are the most common undertaken projects in this category.
Inclusive growth	These types of projects are expressed (in their urban application) in the Leipzig Charter ⁴⁴ and are focused on the social inclusiveness through the investment on education, work training facilities, or other topics such as the neighborhood management and the implementation of new public services.
Integrated area-based approaches	These types of projects take directly into account the Article 8 ⁴⁵ of the ERDF. These projects are focused on the sustainable and integrated approach among a horizontal perspective (specific municipal policies implementation) together with a vertical perspective of the national government at different level.
Housing for marginalized groups	These projects are related to housing initiatives undertaken with an integrated approach in marginalized communities. The initiatives are related to refurbishment or development projects in public or social housing districts.
Financial Engineering	In this section it broken down the high number (almost 400) structural funds, that have been issued by the UE to finance SMEs or urban development projects. These funds have been issued as a form of loans with the aim of using the same re-paid liquidity, to finance other similar projects. This concept has been defined as “revolving fund”.
Public participation and local empowerment	In this section are indicated projects issued with the aim of fostering the cooperation and communication among local administrators, projects stakeholders and other communities.

⁴⁴ The New Leipzig Charter provides a key policy framework document for sustainable urban development in Europe. (EC)

⁴⁵ ERDF - EU 1301/2013 - Article 8: Innovative actions in sustainable urban development

In the Communication on the Europe 2020 Strategy⁴⁶ The European Commission underlines the importance of investments in the quality of education, in the promotion of innovation, in communication and networking between companies and professionals, in the use of Communication Technology at urban and regional level. Nevertheless, it is necessary to have a solid financial structure, a solid entrepreneurial network, and a focus on market opportunities and on proportioning these investments to the population and the level of local communities. In the cases funded by the ERDF this last aspect is also stressed, i.e., making sure that you are promoting an investment that “fits the context” and this is a main topic that will be analyzed in the research applying it on the Local Administration’s perspective. There have been cases where a project that was very “*supply-oriented*” fell through, e.g., with the construction of major infrastructure (e.g., technology parks), while the introduction of initiatives that went hand in hand with local SMEs did well. This idea where not all regions can have the same peculiarities was defined by DG-REGIO as “*smart specialization*”. In fact, the former director general, as quoted in the document stated that pursuing the same technological growth in regions with different peculiarities was not a smart growing but a “*stupid growing*” approach. These two opposite concepts highlight the need for a planned development in parallel with the exploitation of the territorial and cultural peculiarities of a region, whether natural resources, customs, agri-food excellence. This concept highlights the importance of regional diversity together with technological development and the speeding up of means of communication. The ERDF fund was mainly used for the construction or purchase of the actual facilities for the provision of services or housing. In this regard, attention must be paid to the construction of the building itself and that when facing an investment in a real asset of this type, it is necessary to analyze whether the region in which one invests is able to create a market such that the building can sustain itself economically (occupancy rates, operating expenses sustainability). In fact, a large infrastructure that is not able to finance itself risks having a counterproductive effect on local economic sustainability. Again, this helps us again to emphasize how important it is to design urban development keeping in mind the local peculiarities and demand for a certain market, especially in areas without large urban centers or megacities. The risks and concrete events that occurred mainly concern overcapacity of infrastructure, inability to manage maintenance costs,

⁴⁶EC, Communication on the Europe 2020 Strategy, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:%5B:FIN:EN:PDF>

lack of competitiveness and similar places, lack of companies in the sector willing to rent in a certain region.

Despite the risk analysis and potential failures of some urban development investment ideas, the projects undertaken in the ERDF have certainly marked positive notes and encouraging results. From an architectural point of view, all projects have been of high quality and have consequently improved the urban quality of a given city or regional area, representing a significant improvement of the urban environment, especially about the regeneration of brownfields. In addition, many of the projects carry resonant social objectives, such as *"the fight against cancer in Toulouse, social innovation in Gdynia, cultural activity and services in Pecks and Tallinn, business support for migrants and local markets in Vienna"*⁴⁷. The social and cultural dimension of these projects, say the authors, is gradually emerging as a common factor for regional development.

⁴⁷ UE Commission, Regional and Urban Policy "Urban Development in the EU: 50 projects supported by the European Regional Development Fund during the 2007-2013 period" (2013)

2.4 Tools and Frameworks for the assessment of ESG Urban Projects

After giving an idea of what the main themes in sustainable urban development are and having drawn up a classification of points to consider in its risk management, we will review three of the most widely tools for the ESG screening of building, urban areas and busines entities. The three tools or frameworks we will review are LEED⁴⁸, GRESB⁴⁹ and BREEAM⁵⁰. Currently these are among the most widely used tools and benchmarks by listed companies or real estate funds for the sustainable design, construction, and certification of new or existing assets. Our purpose is to understand how these tools can be used by local authorities to assess, monitor, and plan the urban development of their cities.

- LEED for Cities and Communities: An ESG assessment for Urban Scale Plans and Projects

There are various types of LEED tools, as indicated by its creator, the USGBC (United States Green Building Council), LEED is the *"most widely used green building rating system in the world"* as well as being *"a globally recognized symbol of sustainability achievement and leadership"*⁵¹. As specified by the authors of the article cited above, a generic building's LEED framework is an assessment framework for the construction of a *"healthy, highly efficient, and cost-saving green building"*. On its official page, the USGBC indicates four potential benefits that RE firms and direct real estate investors in general can have by investing in a green building according to LEED standards. The potential benefits are as follows:

⁴⁸ Leadership in Energy and Environmental Design. - *U.S. Green Building Council (USGBC)*

⁴⁹ Building Research Establishment Environmental Assessment Method – *U.K. Building Research Establishment (BRE)*

⁵⁰ Global Real Estate Sustainability Benchmark – *GRESB Foundation (NL)*

⁵¹ USGBC: *"Why LEED?"* <https://www.usgbc.org/leed/why-leed>

- *Gain an Economic Advantage*: the authors indicate that 61% of real estate company leaders agree with the idea that a green building can positively impact the financial performance of a portfolio.

- *Attract Tenants*: As mentioned in the previous section, the LEED authors report that LEED certified buildings have higher rent levels and a 4% lower vacancy rate than non-certified assets.

- *Manage Performance*: LEED is also a "performance management system" as well as an assessment framework used for the construction and design phase.

- *Meet ESG goals*: here we come back to the point just mentioned, the LEED framework is effective in monitoring green parameters that allow companies and municipalities to control and refine their ESG strategy.

. The authors indicate that among LEED-certified buildings between 2015 and 2018, utilities saved about \$1.2 billion in energy expenses, \$149.5 million in water, and about \$715 million in maintenance expenses. Research by Berkeley University⁵² reported by USGBC, found on its dataset that LEED certified buildings produce 50% less GHG and 48% less waste generation than baseline buildings. Talking about this data, however, can be misleading because there are various types of LEED framework, which are applicable to various types of real estate assets and various phases of the asset's life cycle. The various types of LEED framework include:

- *BD+C (Building Design and Construction)*
- *IC+C (Interior Design and Construction)*
- *O+M (Building Operations and Maintenance)*
- *ND (Neighborhood Development)*: for residential or mixed-use areas
- *Cities and Communities*: this framework applies on entire cities and their sub-areas developments. It allows to monitor several aspects of the urban area such as water and energy consumption.

⁵² L. Mozingo, E. Arens: "Quantifying the Comprehensive Greenhouse Gas Co-Benefits of Green Buildings" (2014) – Berkeley University

Given the nature of the research, which attempts to investigate what tools can be used by public administration to manage and foster urban development with ESG parameters, in this section we will deal with the last framework indicated in the table: Cities and Communities.

This is an assessment method and certification tool for entire municipalities, individual neighborhoods, or even private large-scale settlements⁵³. The USGBC authors report that the framework is used by local administrators to: monitor indicators and certify the city in a certain category in the sustainability and quality of life factors (as we will see in the following images). Cities can apply for participation in the LEED system and hire consultants to analyze the city or urban portion according to 14 main indicators, divided into 5 categories: Natural Systems and Ecology, Transportation and Land Use, Water Efficiency, Materials and Resources, and Quality of Life. LEED certification can be requested either for existing cities or settlements or for projects or plans for urban expansion or private investment (such as MIND). The strengths of this method are firstly, that it represents an internationally recognized benchmark and certification; secondly, that it directs public administrations towards a systematic analysis of sustainable issues and finally, it represents an external evaluation tool through which a central Board of Examination can provide the certification. We will discuss in the next paragraphs on how the “external evaluation” can represent an effective action to hinder greenwashing. The USGBC association accompanies local authorities, providing them with assessment frameworks (such as those we will see in the following images) and indicating the steps necessary for carrying out the audit. Among the requirements are the drafting of a "Comprehensive Plan", i.e., an established and shared plan of objectives and strategies for the future of the city. Then, the local administration needs to contract or create a multidisciplinary team to carry out the indicator analysis. The analysis framework consists of a scorecard (such as the one we will see below) through which scores are assigned for each of these categories. Using this scorecard, cities will have to draw up a gap-analysis, developing a detailed report analyzing the city as it stands according to the prerequisites indicated in the table. On the next three pages, we show the official LEED documents including: a list of performance indicators and an assessment framework necessary for LEED certification and evaluation.

⁵³ In Italy there are currently only two LEED CC certifications, the first is a municipality (Savona) and the second is an urban complex in Milan, the MIND (Milan Innovation District).

Table 19 : Official LEEDs for C&C Performance Indicators (Picture taken from the official USGBC's LEED website)

Category	Metric	Unit
Energy	1. Greenhouse Gas Emissions (CO ₂ equivalent)	Tons per Year per Person
Water	2. Domestic Water Consumption	Amount per Year per Person
Waste	3. Municipal Solid Waste Generated	Amount per Year per Person
	4. Municipal Solid Waste Diverted from Landfill	% of Total Amount Collected
Transportation	5. Distance Traveled in Individual Vehicles Daily	Distance per Day per Person
Education	6. Population with (at least) a High School Degree	% of Population 25 Years or Older
	7. Population with (at least) a Bachelor's Degree	% of Population 25 Years or Older
Equitability	8. Median Gross Rent as a % of Household Income	%
	9. Gini Coefficient	Number between zero and one
Prosperity	10. Median Household Income	US Dollars per Year
	11. Unemployment Rate	% of Population 16 Years or Older
Health & Safety	12. Median Air Quality Index (AQI)	Number between zero and 500
	13. Air Quality Days Unhealthy for Sensitive Groups	Days between zero and 365

Table 20 Official LEEDs for C&C Performance Scorecard (Picture taken from the official USGBC's LEED website).



LEED for Cities and Communities

		Cities	Communities
INTEGRATIVE PROCESS		POSSIBLE: 5	POSSIBLE: 5
Credit	Integrative Planning and Leadership	1	1
Credit	Green Building Policy and Incentives	4	4



NATURAL SYSTEMS AND ECOLOGY

		POSSIBLE: 9	POSSIBLE: 9
Prereq	Ecosystem Assessment	REQUIRED	REQUIRED
Credit	Green Spaces	2	2
Credit	Natural Resources Conservation and Restoration	2	2
Credit	Light Pollution Reduction	1	1
Credit	Resilience Planning	4	4



TRANSPORTATION AND LAND USE

		POSSIBLE: 15	POSSIBLE: 15
Prereq	Transportation Performance	6	6
Credit	Compact, Mixed Use and Transit Oriented Development	2	2
Credit	Access to Quality Transit	1	1
Credit	Alternative Fuel Vehicles	2	2
Credit	Smart Mobility and Transportation Policy	2	2
Credit	High-Priority Site	2	2



WATER EFFICIENCY





		POSSIBLE: 11	POSSIBLE: 11
Prereq	Water Access and Quality	REQUIRED	REQUIRED
Prereq	Water Performance	6	6
Credit	Integrated Water Management	1	1
Credit	Stormwater Management	2	2
Credit	Smart Water Systems	2	2



ENERGY AND GREENHOUSE GAS EMISSIONS

		POSSIBLE: 30	POSSIBLE: 30
Prereq	Power Access, Reliability and Resiliency	REQUIRED	REQUIRED
Prereq	Energy and Greenhouse Gas Emissions Performance	14	18
Credit	Energy Efficiency	4	4
Credit	Renewable Energy	6	6
Credit	Low Carbon Economy	4	-
Credit	Grid Harmonization	2	2

Table 21 Official LEEDs for C&C Performance Scorecard (Picture taken from the official USGBC's LEED website.)

 MATERIALS AND RESOURCES		POSSIBLE: 10	POSSIBLE: 10
Prereq	Solid Waste Management	REQUIRED	REQUIRED
Prereq	Waste Performance	4	5
Credit	Special Waste Streams Management	1	1
Credit	Responsible Sourcing for Infrastructure	2	2
Credit	Material Recovery	1	-
Credit	Smart Waste Management Systems	2	2
 QUALITY OF LIFE		POSSIBLE: 20	POSSIBLE: 20
Prereq	Demographic Assessment	REQUIRED	REQUIRED
Prereq	Quality of Life Performance	6	6
Credit	Trend Improvements	4	4
Credit	Distributional Equity	4	4
Credit	Environmental Justice	1	1
Credit	Housing and Transportation Affordability	2	2
Credit	Civic and Community Engagement	2	2
Credit	Civil and Human Rights	1	1
 INNOVATION		POSSIBLE: 6	POSSIBLE: 6
Credit	Innovation	6	6
 REGIONAL PRIORITY		POSSIBLE: 4	POSSIBLE: 4
Credit	Regional Priority	4	4
TOTAL		110	110
40-49 Points	50-59 Points	60-79 Points	80+ Points
CERTIFIED	SILVER	GOLD	PLATINUM

As we can see from the last lines of this framework, the output of LEED is an assessment divided into 5 classes: Certified, Silver, Gold, Platinum, according to the score recorded in the assessment. Given the nature of this thesis, the LEED tool seems to represent a useful framework for assessing and integrating ESG parameters into urban planning for development or management.

- The BREEAM Communities Bespoke model for Local Authorities

The main difference between the BREEAM and LEED systems is the way in which the assessments audits are undertaken. To obtain LEED certification, the design team or client must submit certain documents to the nonprofit organization USGBC for assessment and the issuing of a certification. BREEAM stands for "Building Research Establishment - Environmental Assessment Methodology". This method is managed by the British BRE (Building research Establishment) and requires the research organization to send its own assessors to evaluate the asset or urban area.

As we've seen for the LEED, among different models, the "*BREEAM for Communities*" model, has been implemented for the assessment of large-scale urban projects. As quoted by BRE itself: "*It is a framework for evaluating the issues and opportunities that affect sustainability at the earliest stage of the design process for a large-scale urban development*"⁵⁴. The "earliest stage" shall not be confused with the selection and acquisition of the public area to be regenerated or developed. This type of decision is always the responsibility of the city council and there is a clear difference between political decision-making and advising on the sustainability of a project. The BREEAM system is designed to be considered as an evaluation and management tool for the implementation of a project on the whole scale of intervention. It is necessary to recognize the individuality of the Local Administration in the approval of Building Regulations, Master Plans and all the Urban Planning documents of Public Administration that respect International Standards. The purpose of this chapter is to explore the main tools for the ESG integration in these procedures, analyzing their strengths and shortcomings.

To better understand how the BREEAM system works, we outline the three phases that determine sustainability assessment in large-scale planning:

⁵⁴ "BREEAM Communities Technical Manual 2012", Section 3: What is BREEAM Communities?"
https://www.breem.com/communitiesmanual/#00_introduction

- Step 1: *Establishing the Principles*

The BREEAM system comes into action when the selection process has already been acquired and it is necessary to indicate the basic principles of the sustainable urban development to be given to the area. This is referred to as a 'Bespoke' system because it can be applied to the whole urban scale and will be the Sustainability Surveyor for an urban project. In this phase, opportunities are indicated, and sustainable development solutions are proposed, such as energy consumption of the urban area, services provided and transport accessibility. In general, it can be said that phase 1 analyses all issues that are usually already present in the master plan or building regulations of the municipality, with the implementation of stricter and more specific Environmental and Social criteria.

- Step 2: *Determining the Layout*

As stated by the BRE itself, step 1 is necessary to identify the principles of sustainable development of the urban area as well as identify the specific opportunities and peculiarities of the local market. The second phase enters the design phase of the area and requires the participation of a dedicated design team to work together with municipalities and designers hired by the municipality to discuss the optimal design choices for the area. In the Proposal's chapter we will try to define what may be the professional involved in a cross-departmental team to be addressed for the planning development.

- Step 3: *Designing the Details*

In this step the details of the design or implementation of the plan are entered. The team of auditors will intervene in the evaluation of design choices and a revision of possible shortcomings and risks such as: analysis of the project's architectural competitions, issues of inclusiveness in the implementation of housing and services, pollution, construction materials, GHG for transport.

An in-depth table of the major issues considered in the assessment of a BREEAM for communities is given in the image below. Although there are limits concerning the boundary between political decision-making and sustainability planning, this framework seems to be a starting point that local administrations could use for large scale projects.

Identifier	Issue name	Credits achieved	Credits available	% of credits achieved	Issue score	Category score
Governance						
GO 01	Consultation plan	1	1	100.0	2.3	7.2
GO 02	Consultation and engagement	1	2	50.0	1.7	
GO 03	Design review	2	2	100.0	2.3	
GO 04	Community management of facilities	2	3	66.7	0.8	
Social and economic wellbeing - Local economy						
SE 01	Economic impact	1	2	50.0	4.4	8.4
SE 17	Training and skills	2	3	66.7	3.9	
Social and economic wellbeing - Environmental conditions						
SE 03	Flood risk assessment	2	2	100.0	1.8	7.8
SE 04	Noise pollution	1	3	33.3	0.6	
SE 08	Microclimate	3	3	100.0	1.8	
SE 10	Adapting to climate change	2	3	66.7	1.8	
SE 13	Flood risk management	2	3	66.7	1.2	
SE 16	Light pollution	2	3	66.7	0.6	
Social and economic wellbeing - Social wellbeing						
SE 02	Demographic needs and priorities	1	1	100.0	2.7	12.3
SE 05	Housing provision	1	2	50.0	1.4	
SE 06	Delivery of services, facilities and amenities	4	7	57.1	1.5	
SE 07	Public realm	2	2	100.0	2.7	
SE 09	Utilities	2	3	66.7	0.6	
SE 11	Green infrastructure	2	4	50.0	0.9	
SE 12	Local parking	1	1	100.0	0.9	
SE 14	Local vernacular	1	2	50.0	0.5	
SE 15	Inclusive design	2	3	66.7	1.2	
Resources and energy						
RE 01	Energy strategy	3	11	27.3	1.1	14.8
RE 02	Existing buildings and infrastructure	1	2	50.0	1.4	
RE 03	Water strategy	1	1	100.0	2.7	
RE 04	Sustainable buildings	4	6	66.7	2.7	
RE 05	Low impact materials	5	6	83.3	2.3	
RE 06	Resource efficiency	3	4	75.0	2.0	
RE 07	Transport carbon emissions	1	1	100.0	2.7	
Land use and ecology						
LE 01	Ecology strategy	1	1	100.0	3.1	8.2
LE 02	Land use	2	3	66.7	1.4	
LE 03	Water pollution	1	3	33.3	0.3	
LE 04	Enhancement of ecological value	2	3	66.7	2.1	
LE 05	Landscape	2	5	40.0	0.8	
LE 06	Rainwater harvesting	1	3	33.3	0.3	
Transport and movement						
TM 01	Transport assessment	2	2	100.0	3.2	10.3
TM 02	Safe and appealing streets	3	4	75.0	2.4	
TM 03	Cycling network	1	1	100.0	2.1	
TM 04	Access to public transport	2	4	50.0	1.1	
TM 05	Cycling facilities	1	2	50.0	0.5	
TM 06	Public transport facilities	1	2	50.0	1.1	
Innovation						
Inn	Innovation	1	7	14.3	1.0	1.0
Final BREEAM score					70.1	
BREEAM Rating					Excellent	

Table 22 An example of Scorecard for a BREEAM for Communities Assessment. (Source: BREEAM Communities Technical Manual 2012 – Appendix D – Example of Calculation.)

- The GRESB model for the selection of Contractors in Public Procurements

Unlike LEED and BREEAM, which are related to the assessment of projects, the GRESB framework⁵⁵ is an ESG-themed assessment tool for real estate companies. Although it is currently applied on the corporate levels (e.g., REITs, publicly listed RE Companies), the GRESB framework can give us a hint for the parameters to be evaluated from a Local Authority when choosing a possible contractor for the realization of a public project on an urban scale. As we have already mentioned, and as we are going to deepen in the following paragraphs, the theme of fair acquisitions, i.e., transparency and correct execution of public procurement, is a fundamental element in determining the level of governance of public institutions in urban development and regeneration. In public procurement, many countries already require guarantees and legal and economic documents that illustrate the situation of the company participating in the tender, but the GRESB component integrates the ESG-themed screening on the overall selection process. In this research we will try to answer if the GRESB assessment as a tool required by PAs to evaluate the selection of a contractor might be an effective tool.

The ESG indicators used in the GRESB system are different from those analyzed so far, as they are mostly addressed to listed companies, funds and private companies in the real estate and infrastructure sector. The three macro-categories of indicators are: Management, Performance and Development. Unlike LEED, which is entirely geared towards the asset or municipality rather than the company, and of which there are several categories, in the GRESB universe there are only two assessment frameworks: Real Estate and Infrastructure. Given the nature of this research, it may be more interesting to explore the GRESB theme for companies in the field of infrastructure construction because it may be more adaptable to the theme of urban development, such as the development of mobility and transport systems with low or zero GHG emissions. In fact, it is inaccurate to say that GRESB only deals with corporate issues, since in the overall assessment it also includes the performance of real assets or asset portfolios, just like LEED.

⁵⁵ GRESB stands for Global Real Estate Sustainability Benchmark. The GRESB Foundation is a non-profit entity.
<https://gresb.com/about/#gov>

- **The Management Component:** in this assessment framework, GRESB analyses issues related to ESG strategies undertaken by the company in the past and present, corporate policies for sustainable development or risk management actions.

- **The Performance Component:** this category analyses the performance of the company's assets and portfolios. From the point of view of the documentation required by the PA for a public contract, having an overview of the previous work carried out by a company, with the integration of the ESG evaluation, can be useful for the transition towards the Green Public Procurement, which will discuss in the next chapters.

- **The Development Component:** This category analyses the ongoing strategies or recently completed projects of the company under analysis. The indicator highlights the entity's effort to undertake ESG actions in its business development.

The idea of this paragraph is that if PAs were to require GRESB certification as a mandatory qualification, this could be a proactive tool for ESG monitoring of the contractor and public procurement. Anyway, while this tool can facilitate the selection of a candidate, not all companies would be able to reach such levels in a short time. Such issues take years to be implemented in a less structured company and the risk of many potential contractors being left out is high. For this reason, the public should incentivize investments by business entities to help SMEs get back on track and have the tools necessary for GRESB certification. The advantage would be to speed up the process of selecting companies for tenders and to ensure that those who participate meet a set of criteria that are now indispensable for ESG development. At these purposes, we will see in the next chapters what's the reason for undertaking an "alignment policy" towards local SMEs for the implementation of internal ESG development projects. In the next table, it is represented the scorecard for the GRESB Tool for Real Estate Companies.

Table 23 The GRESB Benchmark output table: These scores represent the overall assessment of a RE Company. The maximum overall score is 100. (Source: GRESB Scoring Model – 2020 <https://documents.gresb.com>)

Component	Aspect	# Points	% Component	% Overall Score
Management	Leadership	7	23%	7%
	Policies	4.5	15%	5%
	Reporting	3.5	12%	4%
	Risk Management	5	17%	5%
	Stakeholder Engagement	10	33%	10%
Total		30	100%	30%
Performance	Risk Assessment	9	13%	9%
	Targets	2	3%	2%
	Tenants & Community	11	16%	11%
	Energy	14	20%	14%
	GHG	7	10%	7%
	Water	7	9.5%	7%
	Waste	4	5.5%	4%
	Data Monitoring & Review	5.5	8%	6%
	Building Certifications	10.5	15%	11%
Total		70	100%	70%
Development	ESG Requirements	12	17%	12%
	Materials	6	9%	6%
	Building Certifications	13	19%	13%
	Energy	14	20%	14%
	Water	5	7%	5%
	Waste	5	7%	5%
	Stakeholder Engagement	15	21%	15%
Total		70	100%	70%

3. Financing Strategies for the Sustainable Urban Development.

After the planning phase, when governments and PAs have identified the thematic areas, the mission, key objectives and purposes for growth, the legislator or administrator must address how to ensure that such projects are funded and can remain economically sustainable throughout their life cycle. The World Bank report⁵⁶ outlines the stages in which an urban project might be implemented. After the diagnosis phase, i.e., identification of the aims and assessment of the state of the art (discussed at length in the previous chapter), the financing phase is of fundamental importance since large-scale public projects have very high development and operating costs. It must be said that the WB identifies the financing phase as parallel to the project planning phase, as each different urban policy has its own peculiarities that can be enhanced by different financing frameworks. According to the WB, three main issues that the legislator faces in managing funds and financing urban sustainability projects are the followings. Firstly, municipalities do not have the necessary funds to invest in large-scale projects; secondly, the revenues of these municipalities may be insufficient to manage these projects; and thirdly, local PAs may have little knowledge and lack of practical experience in managing EU funds or innovative financing instruments. Based on these three issues, the following chapters will then look at methods to implement financing strategies and the recommendations for Public Administrators. It must be said that not all the financing frameworks we are going to explore, are applicable to the local or municipal scale. Some of those are directly managed from National or Sub-national financial institutions (e.g., Cassa Depositi e Prestiti in Italy or the European Investment Bank) and local administrators may have neither the legal ability nor the managerial and economic power to issue some of those instruments. In these cases, we will see the importance of the Aligning Policies of Local Administrators, in fostering the selection and undertaking of eligible-for-funding projects.

⁵⁶ “The USF: Urban Sustainability Framework” – International Bank for Reconstruction and Development / World Bank 2018 - <https://documents1.worldbank.org/curated/en/339851517836894370/pdf/123149-Urban-Sustainability-Framework.pdf>

3.1 Financing Challenges for Local Authorities

Still quoting the USF report, in this paragraph we will try to indicate the challenges that PAs face in structuring and accessing urban financing systems and in understanding their level of fiscal sustainability. In this regard, the WB report indicates three macro-areas of intervention, as follows:

- *"Enhancing and structuring the fiscal sustainability of the municipality"*.

This point indicates the need for municipalities and regional governments to know, plan and manage a policy of internal fiscal sustainability. As already mentioned, local governments can suffer from a lack of funds due to low tax revenue. The first topic we will explore is the possibility leverage on municipal taxes with an ESG exclusionary or inclusive approach. For example, a PA could leverage activities that are not necessary and considered to be external to an ESG sustainability perspective and, on the contrary, could grant fiscal incentives to privates and firms with ongoing projects of ESG transition.

Another strategy concerns the issuing of a Land Value Capturing fiscal policy. It may allow public authorities to exploit increases in land value after public investments. Investments in infrastructure, or improvement of underground services are all public transactions that increase the value of land, even if it remains in private ownership. The idea of this type of capturing is to calculate the increase in land value and act in such a way that the tax burden for a given area or category can be increased based on the previously mentioned investment. More direct examples might be an increase in the property tax levied on the development site (e.g., a new metro line). This topic is already in use but the use of public revenues it is not directed towards an ESG strategy. For instance, the proceeds may be used by public authorities to help disadvantages urban areas by leveraging on high-serviced neighborhoods' increase in taxes.

- *"Conveying private capital and integrating it with public investment"*.

In the related paragraphs we will explore a series of financial instruments useful for conveying private capital into the public expenditure. A first action we will explore is the possibility for local governments to acquire additional capital start-upping or exploiting debt or bond financing instruments (e.g., Green, Sustainable or Municipal Bonds). European Commission says that there is some evidence that the issuance of bonds by national governments can be good instruments to access capital and finance sustainable development. Anyway, we will see that local authorities do not have enough knowledge, economic and managerial power to manage such financial tools. Thus, we will see how can be arranged an agreement with a financial partner (e.g., a Public Financial Institution) through which undertake such initiatives (e.g., the Paris Climate Bond, the case of which we will discuss in the next section). Another potential shortcoming is the necessity of a strict regulatory framework (e.g., a national debt issuance plan) needed to use such financing structures, ensuring clear rules, and fostering proper governance of such operations.

A more traditional way to convey private capital to the public investment is the exploitation of public grants or funds. We will explore the universe of Public Guarantee Funds where the European Investment Bank provides additional capital (as form of guarantee) enhancing the risk bearing ability of an implementing partner (e.g., a non-governmental or public financial institution) in financing public sustainable projects.

A third section will deal with the possibility to convey private capital and expertise into the public concession procedures, thus directly in the project's implementation and management. We will see that instruments like the PPPs makes it possible to integrate private capital and expertise into urban investments of a public nature, thus relieving the public fiscal budget through private intervention. It is common for these operations to be carried out by PAs with the aim of improving public services while avoiding the large financial burdens that this may entail. In addition to this topic, we will explore how can be arranged the ESG integration fostering a more responsible and direct selection of proper contractors.

- Fostering the local SMEs' ESG development and stimulate their competitiveness

Along with the necessity of raising project funding and relieving the municipal economic burden, a final challenge is to foster the formation of a cutting-edge local economic market. There are three reasons to foster these processes: to encourage the development of local SMEs by allowing them to access EU funds, to align companies towards ESG development "leaving no one behind" and finally, to encourage and facilitate the selection of contractors by integrating ESG parameters into the public tenders' selections. The related section will investigate financial tools that allow the financing of local business entities (especially SMEs) fostering their market competitiveness. We will explore related Public Guarantee funds but also Public Fund-of-Funds (FOF) financing towards Venture Capital funds for ESG startups. Also in this case, the local authority may not be able to start-up and manage those instruments. Thus, great emphasis will be given of the actions Local Authorities can undertake to foster the internal development of such companies, allowing them to access to high-level funding from the European Financial Institution.

3.2 Access additional capital through bond instruments: Green, Social and Municipal Bonds

Green Bonds can fall into the category of "Long-Term Debt Financing" Strategy as defined by EUROSIF⁵⁷. This type of financing represents the issuance of a bond, either by a corporate or a government, for the achievement of a Green and sustainable or social development objective. In general, the investors in this type of bonds, which are characterized by a long-term perspective, are institutional entities like Insurance or Pension Funds that need to pay their long-term payments, for instance pension payments and similar. To better analyze this topic, we use data from the Report on EU Green Bond Standard⁵⁸. As the report states, the framework of Green Bonds has grown significantly since 2007, when the first Green Bond was issued by the European Central Bank. After 7 years, the International Capital Market Association (ICMA) has allowed the publication of 4 key principles for the standardization of Green Bonds, the "Green Bond Principles" (GBPs). So, to steer our reasonings, let us list the 4 principles necessary for the issuance of such a bond:

- A clear description of the use of proceeds from the bond issuance: specifying the economic and environmental purposes for use of the proceeds related to the financing of green projects.
- The organization of a transparent project description framework: disclosing the cost allocation of such transformation projects.
- A transparent description of the management structure: what are the involved financial institutions and how their fees are allocated.
- Specific monitoring: continuous reporting that analyses the results of such a project and informs investors.

⁵⁷ EuroSIF "European SRI Study – 2018" – Created with the support of Amundi, Fondazione Cariplo, Fondazione Housing Sociale <http://www.eurosif.org/wp-content/uploads/2018/11/European-SRI-2018-Study.pdf>

⁵⁸ EU Technical Expert Group in Sustainable Finance: "Report on EU Green Bond Standard". (June 2019).

Generally, as already written in the previous section, bonds are often issued by sovereign states or companies to access faster liquidity. On the other hand, those who buy bonds are often institutional investors who decide to invest their capital and keep it safe for long periods of time. The additional component of the Green Bond is to ensure that these investments are directed towards projects of a sustainable nature. All projects financed by Green Bonds, as defined by the European Commission, and as set out in the 4 GBPs listed above, are characterized by a high degree of transparency in the use of proceeds and in the description of expected outcomes. Alongside these characteristics that the green element confers on the bond market, it is also necessary to mention what may be limits and barriers to the development such instruments.

Following the report of the European Commission mentioned in the previous footnote, the first issue of this kind is represented by the "*Lack of eligible green projects and assets*". As already indicated in the 4 GBPs, to determine the sustainability of a project, there is a need for a specific assessment and the involvement of many professionals in determining the scope and operation of such projects. Moreover, Public Administrations willing to issue Green Bonds may be not able to manage such complex economic processes. Large costs are required for external reviews and surveyors in the planning of large-scale sustainable urban projects. To demonstrate physical and economic viability, as well as to verify certain aspects, local governments and corporations often enlist the help of external consultants for sustainability advisory, quantity surveying, due diligence, audits, and other consulting services necessary to determine and frame the green project to be supported. At this purpose we will analyze the case study of the Paris Climate Bond, where Paris Municipality agreed with private financial entities (i.e., Credit Agricole and HSBC) to provide the required financial structure and expertise to undertake this type of initiative. As we shall see, even if the municipality doesn't have all the requirements in-house, this unified and municipalized instrument has allowed the financing and implementation of various projects of a sustainable and inclusive nature on an urban scale. The objective of the following paragraphs will be therefore to investigate the potential of the introduction of these instruments for the development of large-scale urban projects

Exploiting the framework of the Green Bonds, under the aegis of the European Commission and ICMA, other types of bonds were born. The second instrument we will analyze is Social Bonds, in particular a tool implemented by the EC to mitigate unemployment issues in case of a pandemic emergency, named SURE⁵⁹. In the statement indicating the framework for SURE, the European Commission defines it as:

*" (...) an ESG debt instrument allowing the investor community to allocate their funds towards the social needs of EU Member States hit by the pandemic crisis. ”*⁶⁰

As is the case for Green Bonds, the four principles established by ICMA apply to Social Bonds. In addition, the European Commission tells us that this instrument is based on an official document: *"European Pillars of Social Rights"*⁶¹. These Pillars are based on three fundamental areas: *"Equal opportunities and access to the labor market, fair working conditions, social protection and inclusion"*. We can say that these social rights are fundamental and unavoidable in the perspective of ESG urban development. The Social Bonds framework gives us an idea of how varied and explorable the world of bonds (whether corporate or governmental) is and how innovative projects can be tested through this source of financing. Also, these purposes of development are inseparable from the creation of new facilities and buildings to provide these services, and public administration is the closest party to implementing these projects on an urban and regional scale. Notwithstanding these considerations, it remains logical and necessary for a state or local government wishing to issue Green or Social Bonds to refer to the 4 principles of ICMA. In this way, the authority can integrate the Green Bonds financing framework into the framework of its sustainable development strategies. The objective of this integration is therefore to encourage states to create an in-depth urban development plan that is the basis for justifying projects by issuing bonds. An example could be a summary of local legal frameworks and a list of projects or development plans for a given period. The use of tools such as LEED or BREEAM can be fundamental to planning an ESG development strategy and thus selecting projects for implementation on an urban scale.

⁵⁹ SURE: Temporary Support to mitigate Unemployment Risks in an Emergency

⁶⁰ *"EU SURE Social Bond Framework"* - October 2020, European Commission.
https://ec.europa.eu/info/sites/default/files/about_the_european_commission/eu_budget/eu_sure_social_bond_framework.pdf

⁶¹ *"European Pillars of Social Rights"* – European Parliament, European Commission (2020)
https://ec.europa.eu/info/sites/default/files/social-summit-european-pillar-social-rights-booklet_en.pdf

To complete this chapter on bonds that can be used by governments and public administrations, we mention the topic of Municipal Bonds. In addition to the considerations made so far, the municipal bonds can be understood as debt instruments issued by a local government used to finance projects on an urban scale. While the green and social bond can also refer to development programmed and policies at a national level, the municipal bond intervenes exclusively on issues of a local area. On the *Borsa Italiana* website, there is a classification of this instrument into two types:

- **General Obligation Bond (GOB):** with this instrument, not so much a series of specific projects are financed, but more the generic spending capacity of the issuer to finance sustainable development plans on a territorial scale. Therefore, the interest rates of these bonds are calculated based on the reputation and financial situation of the issuing municipality or region.

- **Revenue Bond:** This is a bond instrument used to finance specific urban development projects, be it mobility infrastructure, education, training, or health. In this case, bond values are often assessed according to the revenue potential of the project.

- Case study - An implementation of the Green Bonds standard: The Paris Climate Bond

The Paris Climate & Energy Action Plan⁶² equips the city for future climate change and possible resource constraints. The plan breaks down into four main targets:

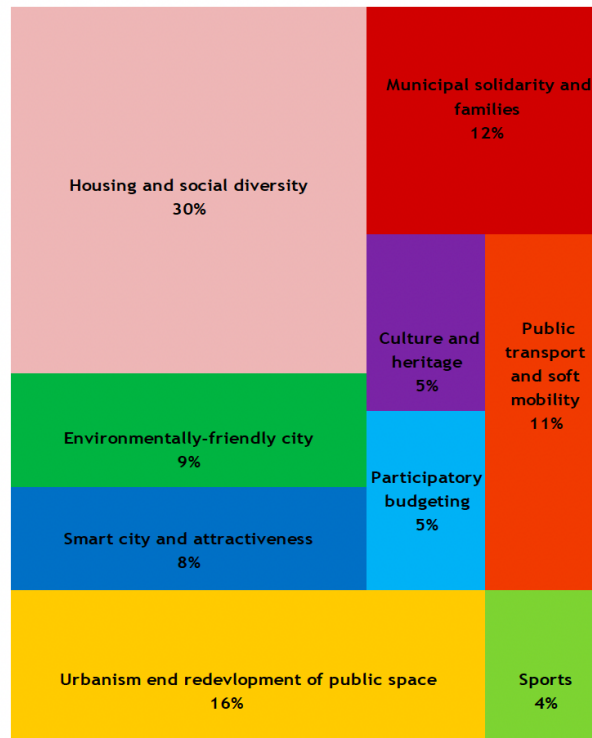
- protecting the city from extreme climate events.
- ensuring the supply of resources.
- Shifting to a more sustainable urban planning.
- Fostering the spread of new and more sustainable lifestyles.
- Encouraging social solidarity.

⁶² City of Paris – “Climate Bond Investor presentation” -November 2015 - <https://api-site.paris.fr/images/75091>

Through the launch of the Paris Climate Bonds, the projects on climate and social issues will be implemented, following the four thematic areas of the Paris Climate & Energy Action Plan: the reduction of greenhouse gas emissions, the improvement of energy efficiency, the adoption of renewable energy sources and the city adaptations to climatic changes. These Climate Bonds, whose total size is 300 million euros extended until May 2031, have a profit rate of 1.75% per year, and 20% of the funds have been undertaken for adaptation projects. *“It is estimated that 120 million will be allocated for gas emission reduction, 115 million for energy efficiency, 60 million for climate adaptation and 5 million for renewable energy”*.

The Bonds were launched by the Municipality, established by the Paris Parks and Environment Department of Finance and Procurement. The latter requested that Vigeo, a non-financial rating agency, assist the Finance Management Support Service in the preparation of the offering. The joint lead managers of the bond issue and project partners are: The Credit Agricole CIB, the HSBC and the Société Generale CIB, these were assessed through a competitive bidding process. The partnership benefits from these banks are several: their expertise regarding investor expectations (e.g., in the validation of the use of proceeds, framework and project selection within this bond) and their marketing development capabilities were of great importance.

These factors made the Paris climate bonds a major success: it was financed by more investors than planned, to the amount of €475 million. Now more than 30 investors are involved in the operation, and it is 83% backed by domestic lenders. Its investor base has been diversified through foreign institutional accounts (a 9% Benelux, a 3% Swiss and a 3% linked to Scandinavian countries). A majority (51%) is from insurance and pension funds, followed by a 49% from asset management companies on behalf of private investors.



Picture 6 The total allocation of the investment budget (10 bn euros) among the different sectors. (Source City of Paris – “Climate Bond Investor presentation” -November 2015)

Among the best practices implemented in this plan we can find: the involvement of stakeholders with expertise in the sector, the presence of a strong commitment to climate policies, a clear reporting scheme attractive to investors that has been provided by the public sector. As indicated, one of the key points for the success of this policy has been the remodeling of economic policies for urban development that have facilitated a high level of investor participation and, therefore, the availability of great liquidity through the public bond instrument.

3.3 A Public Guarantee for Urban Projects' Implementation: The Invest EU Funds

The InvestEU program was established in 2018 with the aim of conveying both public and private investments on the topics of the sustainable development, the climate mitigation, and the social inclusion across European territory. Unlike the topic discussed in the previous chapter, the InvestEU program embodies a regulatory framework that allows the issuance of EU funds in the form of an economic guarantee for the implementation of projects by the public and the private entities, that would otherwise be considered too risk-prone to the lenders. The InvestEU fund is in fact a financial guarantee intended for financial institutions, or *"implementing partners"* that finance projects of a sustainable nature to companies and public administrations. The role of the fund is therefore to alleviate risks in the financing of sustainable projects by the financial institutions. In the document reported in the previous note, it emerges that SMEs represent the 99% of EU companies financed by this program, which may be a crucial node for their development and as a result may allow more inclusiveness in access to financing.

The novelty of this investment tool is furthermore that it has developed a unique system for assessing the investment in various fields (in fact, 13 centrally managed EU Funds are involved) permitting the possibility to access funding to develop sustainable projects with a higher risk than SMEs and Local Administrations could undertake without the InvestEU guarantee. In this regard, we mention the definition of EU Guarantee as reported in Article 2 of EU Regulation 2021/523. In this article an EU Guarantee is defined as: *"an overall irrevocable, unconditional and on demand budgetary guarantee provided by the Union budget under which the budgetary guarantees (...) take effect through the entry into force of individual guaranteed agreements with implementing partners"*.

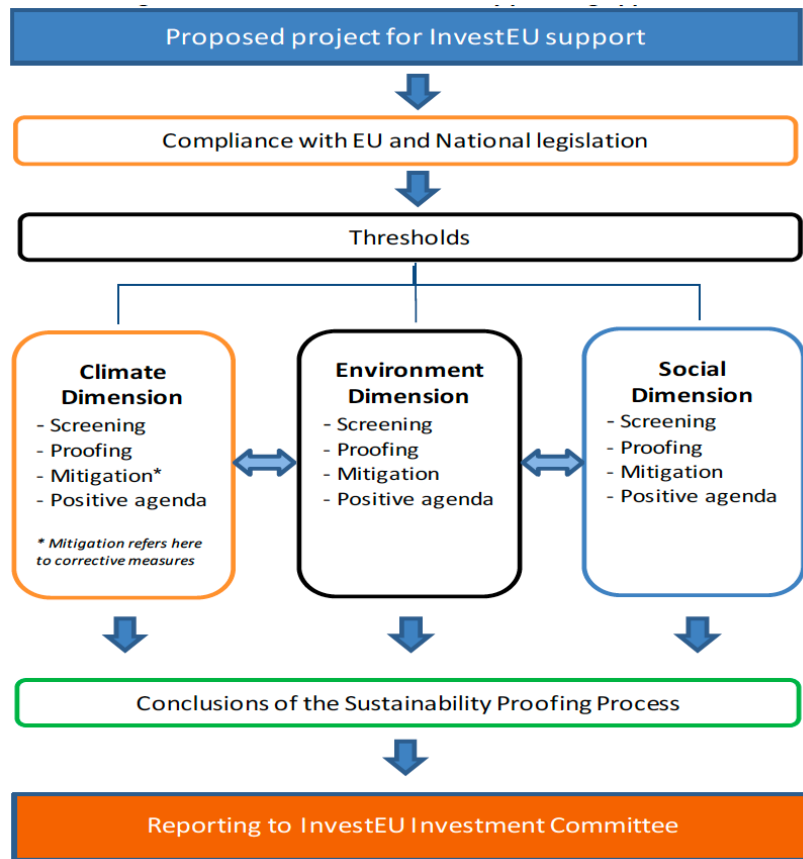
There is not only one single financing framework but several *"Financial Products"* that can be estimated and approved by the official Committee and that give rise to the financing carried out by a Financial Institution and ensured by the community fund. The previously cited article also defines Financial Product as: *"financial mechanism or arrangement under the terms of which the implementing partner provides direct or intermediated financing to final recipients using any of the types of financing referred to in Article 16"*. The definition of the Implementing Partner is also shared as an: *"eligible counterpart such as a financial institution or other financial intermediary with whom the Commission has concluded a guaranteed agreement"*.

In addition to the funding scheme and consequently the regulatory framework through which these funds are issued, the focus of this section is to analyze how the issue of sustainability is interpreted as a pillar for decision-making and how this unique framework for assessing projects is implemented. This section will describe the "Sustainability Proofing" implemented for the ex-ante evaluation of these projects. This framework is necessary for Local Administrators, to start a local alignment policy of sustainable projects to access additional European Capital.

The basic framework of the evaluation of investments in the InvestEU universe is based on Article 8 of the European Regulation 2021/523 and bases the indicators on the three "*environmental, climate and social*" categories. Before submitting a project to the economic evaluation committee (as we will see later) it is necessary to submit the project to a legal and operational general assessment based on the following four points:

- 1) The "Assessment of Compliance": this stage is focused on evaluation of the project's conformity to national and European regulations, and it is also necessary to verify the potential legal status of the investment.
- 2) The "InvestEU Screening": in this phase of the assessment the operation's risks are evaluated from the climatic, environmental, and social points of view.
- 3) The "Proofing of the relevant elements at risk": at this stage the risks of the proposed investment are examined and any options to mitigate these environmental, climate and social risks are determined.
- 4) The "Conclusion of the sustainability assessment": at the end, the project is sent to the Committee which approves it and grants the access to the financing fund.

A framework of the proofing approach is shown in the following diagram:



Picture 7 Overview of the sustainability proofing framework to access the InvestEU Funds (source: European Commission: “Commission notice: Technical guidance on sustainability proofing for the Invest EU Fund” - Brussels, 14 April 2021)

In addition to the scheme through which the sustainability of the project is verified and its compliance with the framework of the EU Taxonomy for the sustainable investment, this chapter provides an overview of the 7 pillars through which the financial structure of these development projects is appraised. These evaluation methods should be interpreted as a useful tool for the local public administrations and for the pre-assessment of and risks and purposes of local SMEs' investments in each regional economy. The seven pillars of assessment will be presented in the next table.

InvestEU Pillars for the Financial Assessment of sustainable projects.

Pillar	Description
<i>“Contribution of the financing operation to EU Policy Objectives”</i>	Under the first pillar, the implementing partner will introduce the project's contribution to the qualified sector under InvestEU in accordance with European directives such as the EU Taxonomy for Sustainable Investments.
<i>“Description of the additionality of the financing or investment operation”</i>	The Implementing Partner should submit the main topic explaining why the financing or the investment transaction is added to existing support from the private or from other public sources, or both. Then it should explain the profit assessments indicated by the implementing private or public partner.
<i>“Market failure addressed by the financing or investment operation”</i>	The Implementing partner submits market failures and suboptimal investment situations that the funding or the investment operation faces. It is required to verify the risks assumed by the Implementing partner and thus for a more comprehensive assessment of the risks assumed by the community fund.
<i>“Financial and technical contribution by the Implementing Partner”</i>	The analysis focuses on the value added by the participation of the implementing partners, to understand which are the financial and technical advantages for the funding or investment companies.
<i>“Impact of the financing or investment operation”</i>	This indicator studies the contribution of investment to the regional activity and to sustainable growth both in terms of socio-economic cost and benefits, like the positive effects of development and the innovation, the long-term climate benefits, the impacts on labor, and/or the positive and negative effects.
<i>“Financial profile of the operation”</i>	This section considers the effectively financial risk nature of the investment. Topics such as the Expected Loss, the Internal Rate of Return IRR, the leverage of the implementing partner, and the ESG Compliance are discussed.

Table 24 InvestEU Pillars for the Financial Assessment of sustainable projects (source: European Commission: “Commission notice: Technical guidance on sustainability proofing for the Invest EU Fund” - Brussels, 14 April 2021).

In the two previous chapters we looked at the extensive financing framework for sustainable urban projects. If Green Bonds are a tool to access debt liquidity for project development, the Invest EU Fund represents a guarantee tool capable of encouraging the financial institutions to support projects of public utility in the ESG field. With this framework we have approached one of the challenges listed in the previous chapter, that is the necessity to channel both public and private capital into the realization of projects of a sustainable nature. The second theme for reaching this goal will be addressed in the 4th chapter, with the explanation of strengths and shortcomings of the PPPs and other types of public concessions.

3.4 Inclusive Access to Finance: European Equity and Debt Instruments for SMEs' growth

In this section we approach a topic that is necessary for the transition to an inclusive and competitive urban economy, that is, the public financing and financial support for the development of SMEs on local territories. We conceive this theme as especially relevant in anticipation of the topic that will be explored in the following chapter, i.e., the implementation of ESG frameworks in the selection of contractors in public procurements and concessions. The topic is very much aligned with the themes such as the development of new companies employing local personnel (and therefore the increase of jobs on the urban and regional economy) and such as also the promotion of business innovation processes that could build a sustainable development network in urban or regional territories.

In this section, the first tool we will examine is the COSME⁶³, a program put in place by the European Commission to develop the competitiveness of SMEs in the period 2014-2020, which has produced interesting results in economic terms. When it was launched, the COSME program had an available budget of 2.3 billion Euros to support local SMEs in the following areas: the facilitation of financing, the financing of internationalization and innovation, the promotion of the local economy's competitiveness and the encouragement of an entrepreneurial culture in areas with poor industrial development. In a broader perspective, the COSME program has favored the financing to selected SMEs based on their innovative or sustainable features in two

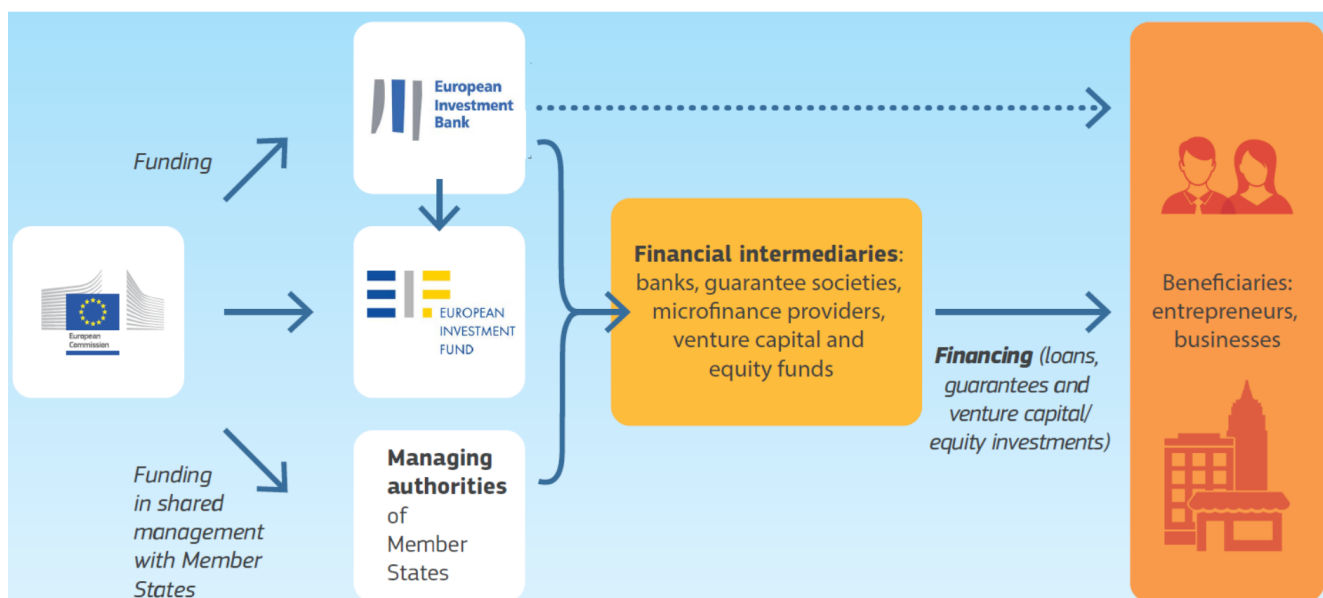
⁶³ The EC Program for the Competitiveness of Small and Medium-sized Enterprises – UE Regulation 1287/2013 – 11/12/2013

keyways: a loan guarantee tool and a risk capital tool to stimulate investments for the growth of those SMEs. The first tool can be lumped in with the themes we have discussed in the previous section, i.e., the public intervention as a project guarantee (focused on SMEs) to access more highly leveraged financing. The second theme is more related to FOF (Fund-of-Funds) financing as a vehicle to facilitate liquidity access to SMEs that are innovative or that have been selected through ESG benchmarking. Through these two essential tools, whose details will be described below, the European Union, via the EIF (European Investment Fund) has financed an overall volume of € 38.5 billion to various SMEs, with an average loan size of € 44,600.⁶⁴ In addition, from the report referred to in the previous footnote, COSME has entered into agreements with 114 Financial Intermediaries that have channeled their capital into the financing of sustainable urban projects. The theme of this section doesn't deal with the possibility of developing a COSME system for municipalities, because we have seen that Local Administrators wouldn't be allowed and wouldn't have economic and managerial ability to manage Venture Capital Funds. It is more related to understand these frameworks and propose to PAs to develop local policies fostering the industrial and innovation environment of SMEs allowing and steering them participating in Sub-national programs such as the COSME.

The first tool put in place is called LGF, which stands for Loan Guarantee Facility. A portion of the COSME budget will finance financial intermediaries in the form of loan guarantees to help them to guarantee riskier financing to local SMEs. By assisting in a more favorable risk allocation, the COSME guarantee has allowed the financial intermediaries to broaden the range of financing to SMEs, favoring their economic growth. This kind of instrument can be applied to less developed areas where the business innovation network does not exist, and it is therefore necessary to bridge the gap with the highest industrialized polarizations in the European continent. The purpose of this instrument is therefore to strengthen the competitiveness of SMEs that would otherwise not be able to access funding instruments from Private Financial Intermediaries. The COSME instrument derives from the experience of the EC framework program for business competitiveness and innovation (CIP). In the document quoted in the previous footnote, it is stated that the CIP program has, from 2007 to 2013 financed more than 340,000 SMEs through loans across Europe.

⁶⁴ European Commission website – Internal Market, Industry, Entrepreneurship and SMES – the COSME Program https://ec.europa.eu/growth/access-to-finance/cosme-financial-instruments_en

The second tool is called EFG, or Equity Facility for Growth. This tool, differently from the one previously mentioned, encourages the development of the equity financing through Fund-of-Funds, of Venture Capital Funds to finance local start-ups with ESG theme. The objective is therefore to facilitate the procedure through which local SMEs can access capital issued by Venture Capital Funds for the access to short-term financing as a solution to boost business development investments. Compared to the first one, which is a Loan Guarantee, this tool focuses on the Equity Finance, i.e., access to capital by selling portions of the company to qualified financial intermediaries approved by the COSME Selection Committee.



Picture 8 European Commission: “EU Support of SMEs through COSME program (Source:” *The EC Program for the Competitiveness of Small and Medium-sized Enterprises – UE Regulation 1287/2013 – 11/12/2013*)

In the above figure, an infographic shows us in brief the funding scheme through which COSME has provided access to capital to SMEs in the period 2014-2020. As we can see, the Funds are conveyed by the Public, i. e. the European Commission through Members States, European Investment Fund and through the European Investment Bank. The funds are directed to the qualified financial intermediaries that would subscribe debt or equity financing with risk capital to local SMEs. In our research, this framework represents a suggested set of actions that the national or local authorities can engage in developing local business competitiveness.

4. Implementing Inclusive and Sustainable Public Provisions

The second chapter dealt with the topics related to the assessment of the sustainability of a project, to the identification of its risks and the most used frameworks and benchmarks for the valuation of a project or SMEs under ESG criteria. The third chapter, meanwhile, discussed the possible financing tools for projects or for local SMEs that want to undertake a transition towards the ESG universe or towards sustainability innovation. In this fourth chapter we will investigate which are the most innovative tools for the implementation of such projects, focusing on the operational and legal frameworks through which public authorities grant private entities with the opportunity of implementing a project, of managing it. Our first topic in this chapter is the GPP (also known as Green Public Procurements) and we will study which are the guidelines that the European Commission is giving to public to accomplish a proper transition from the traditional public procurement model to a more environmentally sustainable one. By observing the documents published on the web page of the European Commission, we could quote how the EC interprets the theme and the importance of this coordination. In fact, the European Commission declares that:

“Europe's public authorities are major consumers. By using their purchasing power to choose environmentally friendly goods, services and works, they can make an important contribution to sustainable consumption and production - what we call Green Public Procurement (GPP) or green purchasing.”⁶⁵

The second topic that this chapter will face is the so-called Public-Private-Partnerships (PPPs) and the ways in which the European Commission is proceeding to develop a regulatory framework that allows PPPs in the ESG construction sector, city infrastructure and public service provision. A third theme that we will study refers to the initial steps towards new construction policies aimed at reaching the goal of circularity (in waste management, or, for example, in the use of sustainable materials, etc.). So, we will see the action being taken by the European Commission to stimulate these development tools.

⁶⁵ European Commission – Green Public Procurement – from the official website and front page of the GPP (Green Public Procurement) - https://ec.europa.eu/environment/gpp/index_en.htm

4.1 Green Public Procurements

As already indicated in the preliminary discussion of this chapter, the area of public procurement on environmental and social issues is of great importance given the large quantity of goods and services that public agencies often purchase for their development projects. Additionally, the public procurement of goods, services and construction is the most direct and widely used method for the effective implementation of urban development projects. Local and Regional authorities tend to purchase services and supplies through a public tender but the risk of corruption and misrepresentation in the awarding of large contracts is still one of the most controversial issues. The GPP (Green Public Procurement) theme adds essential components for guaranteeing that the public sector spends on projects of a sustainable or socially inclusive nature, and for ensuring a coherent and standardized framework for the procurement of contractors in an ESG direction. The European Commission, in its Factsheet on GPP⁶⁶, states that, to be effective: *"GPP requires the inclusion of clear and verifiable environmental criteria for products and services in the public procurement process"*. In this regard, in this paragraph we are going to analyze in more detail the GPP Criteria⁶⁷ implemented by the European Community as a tool for the selection and evaluation of tenderers during a bidding process related to a construction or urban regeneration project. Considering the scope of our research, these questions must be understood within the context of a local government investing in public service buildings or facilities necessary for the preservation of urban quality or for the extension of the transport infrastructure.

The four basic categories that are captured in the Green Public Procurement Criteria are the followings: the assessment of the ability of the tenderer, the energy related criteria, the resource efficiency criteria, and the waste-management criteria. Due to the nature of those four categories, we will address only the specific issue of contractors' selection as the latter three points mostly refer to project evaluation, a topic we have extensively addressed in chapter 2 with the LEED and BREEAM frameworks. In second chapter we have already faced the evaluation of companies under the ESG point of view, but the framework now mentioned (GBB) gives us

⁶⁶ European Commission – Environment Directorate-General: “EU GPP Support Tools” – 28 June 2017

⁶⁷ European Commission: “Green Public Procurement Criteria for Buildings Design, Construction and Management: Technical Background and criteria report” – June 2016
https://ec.europa.eu/environment/gpp/pdf/report_gpp_office_buildings.pdf

further ideas analyzing the evaluation methodologies applied directly to public procurement, ensuring transparency and know-how of the contractor.

The primary driver for contractor selection is the bidder's expertise in handling projects that demand high standards in terms of environmental performance requirements (EPRs). This is to be judged by three key stakeholders that are likely to bid for the implementation of a project. These figures are the project manager (i.e., a professional responsible for monitoring time, budget, and relationships with the contractors involved in the project), the design team and the general contractor (i.e., the company that performs the construction work and activities, from procurement to construction). These figures must be asked to provide a record or qualifications attesting to their competence in environmental performance project design, in the knowledge of technologies for sustainable urban implementation, in the capacity to manage financial analysis of sustainable technologies and in the capability of sourcing materials from renewable sources or supplies with a high recycling or reuse rate. The GRESB framework seen in chapter two can provide a useful baseline for the generation of frameworks for the evaluation of professionals or companies participating in procurement. Therefore, the purpose of national governments should be drafting a comprehensive analysis that can be applied to each specific type of procurement and allows for a standardized evaluation within the European Union.

The document under analysis, namely the *Key Criteria for the Evaluation and Implementation of Green Public Procurement*, indicates some assessing criteria for the parties mentioned above. In the following table, an extract taken directly from the document reviewed is reported, which outlines the requirements to be evaluated in the choice of a contractor:

GPP criterion	Brief Description
Criteria related to the ability of the tenderer	
Competencies of the project manager	<i>Experience and expertise in the management of:</i> <ul style="list-style-type: none"> - Contracts with environmental performance requirements - Implementation of environmental technologies and design innovations - Financial appraisal of environmental technologies and design innovations
Competencies of the design team	<i>Experience and expertise in:</i> <ul style="list-style-type: none"> - Energy efficient building fabric and services design and commissioning - Specification of resource efficient construction materials. - Use of multi-criteria building assessment and certification schemes,
Competencies of the lead construction contractor and specialist contractors	<i>Experience and expertise in:</i> <ul style="list-style-type: none"> - Energy efficient building fabric and services design and commissioning - Procurement of resource efficient construction materials. - Implementation of demolition site waste management plans
Competencies of design, build and operate (DBO) contractors and property developers	<i>Experience and expertise in the selection and management of:</i> <ul style="list-style-type: none"> - Design teams to achieve environmental performance requirements - Main contractors who have delivered buildings with environmentally improved performance - Ongoing facilities management in order to optimise the performance of office buildings

Table 25 GPP Criterion – Category 1: “Ability of the Tenderer” – (Source: European Commission: “Green Public Procurement Criteria for Buildings Design, Construction and Management: Technical Background and criteria report” – June 2016)

In the table above, the topics referring to evaluation methods are summarized for the different tenderers who may submit a bid for the implementation of a sustainable urban development project.

Another fundamental theme to be approached at this stage and that, from a GPP viewpoint, must be required to the contractors when assessing an offer, is that of the project's operating life and therefore of the appraisal of the costs and resources required to preserve the requalified asset or area throughout time. In this regard we may introduce the theme of the so-called Life Cycle Costing (LCC). The LCC method considers the various alternatives for the construction, the

management, and the disposal of an asset. This method can be implemented in the urban sphere by applying the parameters at the scale in question. For the evaluation of a sustainable tender, the public administrations might request the participants to submit a report that indicates a draft version of the LCC, and which therefore would better guide the administrations in their evaluations not only in terms of implementation, but also in terms of urban area management. In this section we will enumerate the several necessary factors for the preparation of an effective Life Cycle Costing Assessment. We can construe these as mandatory requirements that governments may ask to potential contractors in the formulation of their technical offer:

- **Initial Costs:** This category includes the economic offer of the effective construction or refurbishment costs for the area (so reporting and considering the tender metric). This is the most common data, of course already present in a classic public tender.

- **Operation, Maintenance and Repair Costs:** this category should be observed in the perspective of the maintenance plan of the area allowing a preventive analysis of technical issues of wear and obsolescence and a consequential planning of maintenance operations over time. In addition to the maintenance, the issue that needs to be addressed is the operating costs, providing alternative proposals for the asset's operability (from an energy perspective for example) can be essential in choosing one project over another. Projects with optimized operating costs (OPEX) can be crucial to the cost savings and affordability of the local government that will have to manage the area.

- **Residual Value:** Public-private transactions involving the sale of assets or brownfields, i.e., assets at the end of their economic life, are now becoming increasingly common. Evaluating the residual value of an asset or an area after deducting operating costs and operational and maintenance choices can be an additional parameter for evaluating the economic proposal.

In addition, it is necessary to highlight that this type of analysis has temporal criteria and consequently it is important that these examinations should be undertaken according to the timing of the investment. The quantitative output from the investment analysis should then be translated into the Net Present Value of the investment, which is expressed in currency terms, and should also feature discursive explanations of the technical and economic factors involved

in the analysis. Information such as the "Length of the investment period" and estimations of the Discount Rate, as well as of the inflation rate, are the additional steps necessary for the definition of the LCC study. The companies may be requested, using mathematical terms, to formulate their outcome in the following way ⁶⁸:

$$\text{LCC} = \text{I} + \text{E} + \text{W} + \text{OM\&R} - \text{RES}$$

Where:

LCC= Life Cycle Cost

I = Investment Cost.

E + W = Energy and Water Costs (these are data that concern the costs of utilities and are therefore directly related to technical design choices).

OM&R = Operations and Maintenance Costs (these costs are relative to planners' estimates of the type of maintenance applied to the asset or urban area).

RES = Residual Value.

Apart from the arguments discussed in this paragraph, we shall wrap up the discussion by pointing out the importance of including these themes in an initial procurement design and contractor selection phase. The PA's objective should therefore be to adopt a proactive approach in drawing up the project documentation as well as in incorporating the necessary parameters for appointing a contractor able to implement the sustainable issues discussed in the previous paragraphs. This subject has a twofold dimension: the first one is the reduction of deadlines for the selection of a contractor in a tender of this type, the second one is the minimization of the so-called "cost of changes" and consequently the implementation of the economic sustainability of the project and of the PA itself. The inclusion of these issues during the preliminary stages of a project contributes significantly to a sustainable decision-making process and minimizes any possible future costs (e.g., on technical characteristics) that could represent an unsustainable economic burden.

⁶⁸ European Commission: "Green Public Procurement Criteria for Buildings Design, Construction and Management: Technical Background an criteria report" – June 2016 – (Section: LCC Assessment)

4.2 Fostering the Public-Private Partnership

The PPP framework combines different forms of collaboration between the public authorities and private companies to achieve investment in the public interest. Instituted in 2004⁶⁹ the Public Private Partnerships (PPPs) are a very valuable framework for our study since they handle a field that matches up private investment and the provision of services or supplies for the public and they are relevant for the understanding of the allocation of risks and liabilities between the parties. In accordance with the COM 2004/327 PPPs are typified by: a long-term cooperation between the public and private parties, the financing of the investment from the private operator, the management of the investment by the private operator and the risk allocation between the public and private entities. More specifically, the private operator usually can perform: the design, the construction, the funding and the related operations and the supply of public services or goods. The local government has the right to reclaim the asset at the end of the concession agreement for the area. The advantages for the public sector include mainly a saving in capital expenditure in the implementation of the work, a sharing of risks with the private sector, a reduction in the municipal budget and the involvement of private know-how in the implementation of services for the public good. Of course, there are also some risks, such as the risk of project failure, the demand risk, or the natural risk itself. In general, the assets engaged in a public-private partnership will be classified as non-government assets, thus indicated “off balance” sheet by the Public Administration. This happens because it is the private party that finances the work, or the management of the service and it is the private that has the right to exploit this service and therefore to obtain a profit from the execution of the same activity. There are two basic types of PPP:

- A. Contractual Partnership: In this case there is a contractual link between the two parties whereby the private party finances the work and obtains the right to manage the service or infrastructure. This model also embodies the "Concession" framework for asset management.

⁶⁹ COM 2004/327 “*Treatment of public-private partnerships*” – European Commission

B. Institutionalized Partnership: This type of partnership involves the establishment of a new company owned by the two parties. This "Joint entity" has the obligation to guarantee the management of the public service. In this category it is frequently the practice of founding joint ventures to manage services (e.g., the water supply or the waste collection).

For a better explanation of the topic regarding "Concessions", often linked to the model of Contractual PPPs, we are quoting an extract from *Art.5 of the EU Directive 2014/23*⁷⁰:

“Concessions are contracts for pecuniary interest by means of which one or more contracting authorities or contracting entities entrusts the execution of works or the provision and the management of services to one or more private economic operators, the consideration of which consists either solely in the right to exploit the services or the works that are the subject of the contract or in that right together with payment. The award of a works or services concession shall involve the transfer to the concessionaire of an operating risk in exploiting those works or services encompassing demand or supply risk or both”.

Since 2004, the adoption of PPPs has been heavily promoted by the European Commission as a means of leveraging additional resources for infrastructure development. Typical examples of PPPs concern the highway construction sector (as the development of freeways and the consequent concession of toll revenues) or the infrastructure improvement of ports and airports. As cited in the EIB report analyzed: *“the main reason for choosing the PPP route was to launch investment programs which would not have been possible within the available public-sector budget, within a reasonable time”*⁷¹. The EIB report proceeds to suggest a comparative framework for several points regarding projects undertaken through PPP and projects undertaken through classic Public Procurement. The most significant elements of the analysis are outlined below:

⁷⁰ UE Directive 2014/23 - on the award of concession contracts (UE Commission)

⁷¹ EIB (European Investment Bank) – Evaluation of PPP Projects Financed by the EIB” (2005)

- **The Capital Budget:** Government procurement is almost entirely reliant on the public budget made available to implement a project. If the available budget is limited, that project cannot be carried out. In PPPs the public expenditures are less conditional since they are connected to the technical capability and to the economic investment of the private operator in the execution of the project.
- **The Recurring Budget:** Linking back to the previous point, in public contracts the private party must be compensated by the public based on the project costs. In PPPs, the private party is remunerated through the economic exploitation of the public asset or service. The costs that must be covered by this income include either construction costs or operating and maintenance costs.
- **Risk Allocation:** In public tenders, the economic risk is borne by the public party because it is the latter that finances the project, awarding the contract to a partner. The risks associated with the financing, the construction, and the management of the infrastructure in progress are all mainly borne by the Public. As already mentioned, in PPPs the various risks are shared between the two parties and this makes the investment more secure on behalf of the public also because, as mentioned in the report in object, a private company could prove to be better prepared to mitigate the execution (costs, time) and operational (demand, operating, performance, residual value) risks.
- **The Skills Transfer and the Innovation:** According to the report, the public sector in a PPP could benefit from a know-how transfer in two scenarios. The first one concerns the construction of innovative infrastructures, the second one concerns the effectiveness of the management of these infrastructures.

From the cases analyzed in the report, it emerged that projects undertaken through PPPs have demonstrated a higher execution speed compared to works implemented with conventional public procurement, notwithstanding the fact that the legal framework necessary for the creation of a PPP is more complex than a classic procurement contract. In fact, if a Public Procurement Contract deals with timings and project specifications, a PPP contract must also cover the way the concession will be handled by the private operator, the revenue allocation in the utilization of the infrastructure and the risk allocation. The complexity of public infrastructure projects also requires the presence of a highly qualified and referenced private party which may represent a

barrier of entrance for local SMEs that want to bid. Of course, when dealing with projects such as the simple repaving of the pavement of a neighborhood, the PPP would probably not be considered necessary, also because the private party would not benefit from the concession of such a works (as it would be able to do for a highway with its tolls). We can therefore assume that, on a city scale, the PPPs can be used in the construction of hospitals, or tourist infrastructures, such as port and airport nodes, in which the private operator could benefit from the concession and consequently recover the project.

4.3 Frameworks for a Circular Construction Sector

The circular economy in the construction sector is one of the building blocks that will be part of the new European Green Deal⁷². As stated in this operational plan: “A circular economy is an economic system driven by business models that replace the *end-of-life* concept with a sustainable development concept based on reducing, reusing, recycling and recovering materials and components”. Therefore, the main objective of this economic is the promotion and the reconversion of production activities towards a model that maximizes the life cycle of products, materials and resources and minimizes the generation of waste. When we are referring to the circular economy concept, we commonly recall the "closing the loop" goal, aimed to avoid those products and materials old would become waste, and focused to the reuse and the recycle of the materials over the time. It is sharp that this method can and must be implemented also within the construction sector and the actions we will see in the following chapter are those that public administrations should undertake to promote the adaptation of cities from a "Linear Economy" towards a circular one.

To study this theme and apply it to urban administration, we will analyze the GDCC (Green Deal Circular Construction Framework) launched in 2019 in the region of Flanders, Belgium. The GDCC is a partnership between government, companies, citizens, and academics to carry out R&D on the topic of Circular Economy in Construction and to launch initiatives to foster the practices of circular construction. The GDCC has been drafted by Circular Flanders with the

⁷² COM 2020/98 - The European Commission has issued the CEAP (Circular Economy Action Plan) in March 2020 as a topic of the broader UE Green Deal.

partnership of the Belgian waste management company and over the last two years has involved more than 320 public and private organizations and has resulted in the registration of about 150 projects in Belgium. As reported in the corresponding Factsheet⁷³ published by the European Construction Sector Observatory, the GDCC states the following objectives:

- Fostering the research and the development for understanding the economic and environmental values of circular construction.
- Encouraging the partnership and the accountability in undertaking circular transition pathways.
- Reinventing the construction industry by implementing innovative circular construction, restoration, and decommissioning projects.
- Finding new business models that are applicable to the theme of circularity.
- Sustaining a network of knowledge sharing to drive research and innovation.

Among the topics covered by Circular Flanders in the last 3 years of research, in this dissertation we will analyze the thematic of the execution of the circular transition on urban management from the point of view of the Public Governance processes, therefore we will highlight the best policies that should be undertaken to attract the workforce to welcome and practice these specific topics. The urban ecosystem constitutes a very important investigative field because, as cited by the analyzed documents: *“The governance of the city is a key holder of resource management and can apply new business models and many circular solutions through the services they provide”*⁷⁴. The relevance of this document lies in the fact that it is the first one in Europe that enhances the research on the circular economy applied to urban management, giving us important insights about the actions that local governments should take to create a circular ecosystem for its citizens and businesses. In the next lines we will indicate the steps that the GDCC proposes to local governments to facilitate the transition to a circular urban economy of construction.

⁷³ European Construction Sector Observatory: “Green Deal Circular Construction – Belgium” – Policy Factsheet – November 2020

⁷⁴ Circular Flanders’ website – Cities – Circular Governance – 2020 <https://vlaanderen-circulair.be/en/circular-cities/circular-governance>

The first macro-theme concerns the organization of a long-term plan that will define a set of objectives to be undertaken. In this regard, many metropolitan regions and cities in Northern Europe are now issuing their own policies. These documents can be found on the European Community website in the “*European Circular Economy Stakeholder Platform*”⁷⁵. A first and concrete action could be the establishment of a cross-departmental body that would support cooperation between City Council sectors to deliver an integrated circularity strategy for a wide range of urban challenges. The department can combine the efforts of several entities to pursue a circular approach that may include the prevention of poverty or the best environmental practices to be observed in construction regulations and in urban regeneration policies.

A second set of actions imply that the city itself takes a circular effort before its own residents. Examples of such actions include “*Circular Procurement*” and in general, circular construction regulations for the private sector. Actions such as the public procurement of reused or recycled materials and supplies may be a useful platform from which to launch a circular market on an urban scale. If the public administration mainly contracted the purchase of reprocessed goods, there could be established also some incentive in that region to facilitate the emergence of companies that specialize in reuse and re-manufacturing. Regarding this last point, the following image mentions the 9 pillars (The 9 R's) that should be part of a circular policy and economy.



Picture 9 The 9 R's strategy – General and Technical Nutrients for a Circular Economy Strategy (Source: *Circular Flanders' website* –Section: *Circular Governance* – 2020 <https://vlaanderen-circulair.be/en/circular-cities/circular-governance>)

⁷⁵ In this EC Website's section are enlisted all the latest strategies undertaken by national governments, regional and local authorities for the transition towards a circular economy in the Urban Management.

Another key issue is the necessity for monitoring by the Local Administration on quantitative issues of circularity and the consequent updating of the progress of the various sectors. This is useful in order both to quantify the planned developments and identify the weak points that require additional intervention. The document analyzed also mentions the actions that the public should take to promote, incentivize, and inform the population about the opportunities and strategies of a circular economy at the urban level. First, the creation of a physical space for the incubation of projects and initiatives of this kind is proposed. The public administration is invited to identify a pattern of funding and advisory to encourage the creation of Bottom-up initiatives. Through the CCFG “*Circular City Funding Guide*”⁷⁶. The European Commission has identified a framework of 5 types of funding that local governments should undertake to encourage circular initiatives. Actions such as alternative funding (crowdfunding, leasing), equity funding, grants, guarantees, and debt instruments are the main components of the financing strategies that local administrations can undertake to foster the bottom-ups initiatives. In addition to incentives and types of financing, public administrations should adjust the legislative and fiscal framework in favor of a circular business model.

Alongside these development prospects, however, it is necessary to identify the challenges that local governments might face in implementing such development policies. First, political support is a necessary action and a condition without which unified strategies for circular development cannot be achieved. It must also be pointed out that now there is a tendency to confuse the circular economy with a simple matter of waste management. It is the task of the PAs, with their development policies, to inform citizens about the multi-sectoral nature of this framework and the development potential that it brings with it. Another fundamental point, which will be better addressed in the next paragraph, is that to facilitate and create a unitary circular strategy, cooperation and knowledge sharing between public bodies, private know-how, investors, and citizens is necessary. Finally, we must consider the fiscal issue. The theme addressed in this chapter has mostly analyzed what actions administrations should undertake to get citizens and businesses interested in and experimenting with the circular solution.

⁷⁶ The official website of the CCFG (Circular City Funding Guide) – European Commission

5. A Proposal for the Implementation of a Local ESG Development Plan

Based on the documents analyzed so far, in this section we will propose a set of frameworks and tools that Public Administrations can use to undertake an ESG-themed urban development strategy. The proposal will be provided integrating related strength and shortcomings and, of course with some final considerations. The structure that it was decided to give to the proposal aims to identify solutions that local governments could use to foster the practice of sustainable and inclusive urban management. Not all solutions are applicable at the same geographical and administrative level, so it shall be specified how local governments should observe these tools and consequently implement them in their urban policy. Some tools analyzed, such as the evaluation and planning of local urban policies or the provision of public procurement and PPPs that integrate an ESG approach, are to be considered directly applicable by local administrations. Other tools, such as the European Public Guarantees (e.g., InvestEU) or Fund-of-Funds (FOF) financing to Venture Capital funds cannot be implemented by regional or local administrations. These instruments are managed by national governments or the European Central Bank with the participation of private international financial institutions. What governments can do in those cases is to encourage or steer local SMEs to undertake internal development programs to leverage EU funds.

We have seen that the Environmental theme applies to the development of projects in their thermo-physical aspects, such as: material use, resource consumption, GHG emissions, regeneration of brownfields or preservation of Greenfields. The Social theme applies mainly to the needs of communities, social inclusion, public housing, quality of life, education, and healthcare. Governance applies to the proper execution of contracts and concessions, proper communication with communities and experts in the drafting of plans or projects, tax incentives, support to local SMEs and knowledge sharing between the parties. The structure of the proposal is articulated according to the following five points, which will be explored in the following chapters:

- Integrating the ESG factors in the assessment of Urban policies and thematic projects:

In this section the focus is on two main aspects. The first one is about how urban planning acts and policies are enacted through the integration of ESG tools. The second investigates how local governments should integrate ESG in the assessment of thematic projects within the same general plan. While planning involves a more holistic approach in accounting for the multiplicity of urban aspects in their ESG values, the evaluation of individual projects is more focused on the integration of environmental and social aspects in the individual project thematic area. The integration of a double assessment, for the general plan and for thematic project, might be an effective action.

- Financing Frameworks for the provision of projects:

This is the section that explores the challenges a local government faces in: ensuring a sustainable economic budget, accessing EU funding or Green Bond instruments, and fostering the competitiveness and growth of local small businesses through development funds. Also in this section, the theme of subsidiarity, and therefore the applicability of these themes on a territorial scale, is a fundamental factor to be taken into consideration.

- Alignment and Selection of potential contractors:

The main theme of this section falls on the governance of a local administration with the dual objective of aligning local SMEs to undertake internal ESG-themed development plans and, therefore, selecting contractors that meet clear and quantifiable requirements on the acronym. The proposals in this section deal with establishing a development plan for the sharing of industrial knowledge on ESG issues, the enactment of ESG fiscal incentives to companies and finally the use of ESG assessment methods for the selection of contractors. It should be noted that in the research, these tools were investigated as applicable to SMEs that can participate in urban construction or regeneration processes and for the provision of services to the public.

- Implementing Frameworks for the provision of sustainable projects:

This section addresses how local governments engage with private companies to implement public projects or provide goods and services. While the "financing frameworks" section deals

with how to facilitate access to additional capital (public or private) for the implementation of projects or for industrial development, this section investigates the administrative tools through which the public authority authorizes private companies to build or manage infrastructure or redevelop urban areas. The instruments addressed, namely Green Public Procurement and PPPs, have been analyzed in their applicability to ESG issues in the form of evaluation criteria for projects or companies, control of corruption, inclusion of local companies and communication with communities and tenants in the selection of a project and a contractor.

- Feedback Loop: Monitoring and Learning by Doing:

This section emphasizes the importance of monitoring ESG values after project implementation and therefore in the management of the asset or urban area. The chapter is called Feedback Loop because it wants to investigate the effectiveness that monitoring tools can have both on future design (and therefore on the development of a certain know-how of the PA on ESG issues) and on the need to preserve the quality of the asset or area, for example by intervening with maintenance plans and urban service management.

5.1 Integrating ESG In the assessment of Urban Policies and Thematic Projects

The two macro-themes addressed in this section integrate ESG aspects both for the actual evaluation and selection of thematic projects and both on the administrative dynamics that could allow the enactment of urban environmental policies. If the first topic investigates which tools PAs should introduce to evaluate thematic projects or plans, the second one looks for an operational scheme for the systematic analysis of environmental and social parameters in the drafting of a General Urban Plan at municipal level. Municipal administration manages the multiplicity of urban subjects and therefore there is a need for the introduction of a multi-sectoral approach that allows for a comprehensive ESG focus to planning. At the same time, it is necessary to assess the risks and possible economic failures of such policies. Before starting a preliminary planning phase, the local government should be able to recognize both the main environmental and social critical issues on which to intervene further, and the peculiarities of the local economic market. As indicated in the DG-REGIO report⁷⁷, one of the fundamental factors for preliminary analysis is a study and understanding of the peculiarities of regional markets, to develop projects that "fit the context" and enable their economic sustainability. For example, a small or medium-sized city with a strong seaport orientation might need new solutions for freight transport infrastructure or social and public housing plans for classes in economic difficulty. If the decision is made to invest in facilities and incentives for the creative community to attract businesses in the arts or communications, these investments may fail economically, creating real estate assets that cannot finance themselves and do not meet local demand. From the results reported by DG-REGIO, a project that insists on a local distinctiveness is more likely to yield better results than attempting to attract a new market sector that may have well-established roots in other regions.

In addition to these considerations, in developing a preliminary plan that includes goals, vision, mission, and key objectives, the local administrator needs to be knowledgeable about which parties should be involved and engaged in drafting the plan. From the research conducted, 4 key parties were identified that should be approached or consulted when drafting the plan or evaluating projects.

⁷⁷ UE Commission, Regional and Urban Policy "Urban Development in the EU: 50 projects supported by the European Regional Development Fund during the 2007-2013 period" (2013)

European institutions should be explored by the PA for knowledge of sustainable development initiatives. The European community provides a large amount of reporting and best practices that could be consulted and applied on the urban scale in question. In addition to this, the development plans and financial frameworks made available by the EC, such as those investigated in previous chapters (e.g., The Cohesion Policy, The Invest EU Fund, the EU Green Bond Standards, The Green Public Procurement) can be exploited by local governments.

If national and European Union bodies need to be followed for statutory compliance or to adhere to financing and development plans, private financial institutions could be consulted to verify their willingness to take risk in financing or sponsoring urban development projects. As we will see in the chapter on financial frameworks, institutional investors represent an important source of financing for local SMEs and sustainable projects and in some cases are considered "Implementing Partners". The rationale for these instruments is that the European Commission (e.g., dedicated funds of the European Investment Bank) provides capital in the form of a public guarantee to Implementing Partners (i.e., financial institutions or public law bodies), allowing local firms or urban projects to access riskier financing. As we will see, these financing strategies can be applied by integrating project ESG parameters. In addition, institutional investors could be consulted about their willingness to invest in municipal bond instruments issued by local governments for ESG development. Moreover, they could be asked to become joint lead partners, advising Public Administrations providing enough financial expertise to help the public authority to start-up the bond instrument.

If European institutions and institutional investors are useful for the PA to study a preliminary strategy by understanding on which legislative and financial frameworks to base its development plans, the other two parties to be consulted are necessary for the actual implementation of the ESG plan. As mentioned above, in the multiplicity of urban issues, it is necessary for the local administration to create an interdisciplinary team that connects professionals and researchers of the various aspects that need to be addressed. Net of the documents analyzed, some of the figures that could be included in the planning team are professionals in the field of Urban Master planning, Energetic, Hydrological, Transportation and Management Engineering, Experts in regional economic development, landscape architecture, Human Services, representatives of

Education, Research and Healthcare institutions and experts in the Information Technology Sector. These are the members of the team that must draft the ESG-comprehensive plan, having first received the comprehensive plan from the local government, in which it indicates the objectives and key issues to be implemented.

The fourth party to be consulted in the planning process are representatives of communities. Community-Based Organizations (CBOs) can provide important support in verifying the needs of the population as well as in verifying the applicability of projects in the sentiment of the citizens. The participation of Neighborhood Organizations, Community spontaneous groups, Labor Union, and NGOs in the planning process, are therefore an indicator of governance for the public authority. The local administrator should allow participation through dedicated spaces for dialogue or public voting and should allow openness to citizen proposals such as competitions for ideas.

Following preliminary planning considerations, i.e., analysis of the peculiarities of the local market, environmental and social criticalities, dialogue with communities and the strategy of financial and administrative tools that can be used, the administration could issue a comprehensive plan in which the development objectives are indicated. The plan could include goals, vision, mission, risks, and major themes. The plan should be reviewed and used as input by the cross-departmental planning team. At this point, it is necessary to specifically identify the various thematic areas of intervention of which the urban development plan should be composed. In the research carried out, the frameworks and plans drawn up by international bodies (e.g., UN Strategic Development Goals, the European Regional Development Fund, the EU Taxonomy of Sustainable Initiatives) were explored, allowing the identification of a non-exhaustive list of macro-areas of intervention in a comprehensive urban development plan from an ESG perspective. The issues that should be addressed by the interdisciplinary team, together with local administrators and communities are summarized in the table below:

Thematic Areas for an ESG Urban Development Plans		
Environmental	Social	Governance
Transportation systems	Social Inclusiveness and Welfare	Local SMEs economic growth and inclusion
Land Regeneration (Brownfields)	Education	ESG tax incentives
Natural Systems and Ecology	Healthcare	Fair Public Procedures
Waste Management	Quality of life	Green Public Procurement
Water Efficiency	Treatment of Tenants and Communities	Innovative Private Public Partnerships
Resource Consumption	Social and Public Housing	Circularity frameworks
Energy Efficiency and GHG emissions	Promotion of cultural activities	Knowledge sharing for local entities
Construction Materials	Delivery of services, facilities, and amenities	Alignment of local SMEs into the ESG standards

Table 26 Thematic areas for an ESG Urban Development Policy (these topics have been taken exploring the following international bodies: UN Strategic Development Goals, the European Regional Development Fund, the EU Taxonomy of Sustainable Initiatives)

A final element to be addressed in this section is that of leveraging international systems and frameworks for evaluating the plan. In fact, once the planning team produces the plan, prior to official approval by the local administrator, it may be useful to rely on an international and external framework that can enable further evaluation. In the research we have identified two fundamental tools that can be used in this sense: LEED and BREEAM. The use of these tools should be understood as an external evaluation of the drafted plan and could represent a further step before the actual implementation of the plan. These frameworks should therefore not be interpreted as a planning tool but rather as a verification tool on the drafted plan. In the research we have seen that these tools can be applied on a tailor-made basis, both in the planning area and in the single thematic area. From the overall integrated plan, Local Administrators might establish separate thematic subcategories, each representing a thematic plan to be implemented (e.g., Education, Transportation Systems) and analyze it under the ESG development strategy. LEED, for example, is published in various types, can be used for the evaluation of the plan

(LEED for Cities and Communities) or on the plan of a single thematic area (*e.g., LEED Building Design and Construction, for Operations and Management, for Natural Systems*) and then applied to the development plan or to the individual project. The same can be done with BREEAM, which has its own component for the evaluation of plans (*BREEAM Communities Bespoke for local administrators*) but also scorecards for individual themes. Taking advantage of the related LEED and BREEAM instruments, a double ESG verification could be given to the plan and to the single thematic area, but it remains the task of the administration and of the interdisciplinary team to draw up the plan. The local government could also take the LEED scorecard as a starting tool to identify key issues and start the planning phase. One limitation of this tool is that it does not consider planning in the operation and maintenance aspects of urban areas. Although there is a LEED scorecard "for Operations and Management" this type of assessment is applicable to individual assets and there is not yet an assessment scorecard for urban management issues. In LEED for Cities and Communities, there are scorecards for the use of renewable energy sources and waste management, but an assessment system has not yet been developed for the eventual planning of area-wide maintenance plans. The local administrator could decide to implement a set of common building maintenance practices on a municipal scale and orient it on a time scale. In this sense, it could be useful to develop a LEED-like system that would allow for a unification of urban management practices at the ESG level.

5.2 Financing Frameworks for public projects and local SMEs

The topics addressed in this section focus on three main themes, which we have identified as "Financing Challenges" for the local administrator:

- Achieving the municipal fiscal sustainability,
- Exploiting financing tools for public projects' implementation,
- Fostering the local SMEs' ESG development and stimulate their competitiveness.

The first theme deals with the actions that the local administrator could take to manage the municipal budget. The first proposal concerns the management of municipal taxes, which could be raised or lowered according to an ESG assessment approach. In the Italian tax system, there are mainly three municipal level taxes: the property tax (IMU), the tax on indivisible municipal services such as public lighting (TASI) and the waste tax (TARI). The peculiarity of municipal taxes is the autonomy of the municipality on the amounts to be taxed compared to the state tax system that imposes regulations applied to the entire national territory. Now these taxes are assessed with quantitative parameters but without the inclusion of an ESG weight to the taxable amount. One proposal could be to study a plan to integrate ESG parameters to taxation by providing a dual approach: inclusive and exclusionary. Inclusive approach could mean reducing taxes or taxable income to property owners who maintain or renovate their buildings or apartments to environmental sustainability standards⁷⁸. Conversely, buildings that do not meet certain environmental standards or industries that cause large amounts of environmental pollution could be subject to a tax increase based on their environmental performance, thus calibrated on the gap between the required standards and the results obtained. The introduction of this system could lead to a series of false declarations by companies or individuals who, to avoid a tax increase or to access a tax reduction, could falsify their environmental balance sheets. Therefore, it is necessary that before introducing certain tax systems, the local government initiates an alignment phase to help companies and private owners to achieve certain ESG standards. Another apparent limitation is that we don't know if this system can help the

⁷⁸ At present, the Italian government has issued several initiatives that fall into this category. The so-called "Bonus 110%" is a tool provided by the Italian Government that raises to 110% the rate of deduction of expenses incurred for specific interventions in the field of energy efficiency.

municipality to increase tax revenues or at least get closer to a sustainable municipal budget. In this case, a preliminary Cost Benefit Analysis would be necessary to verify the economic sustainability of this proposal, thus a large data set would be necessary to quantify the assets that do or do not meet these standards. This is another reason why the public should encourage the use of international systems to owners (such as LEED) that allow for more direct evaluation to the public for preliminary analysis of this type. We will discuss of the “external assessment” in the next chapter.

The second element that affects the budget of a city is certainly the public expenditure for the provision of services and for the development of public projects. The development of technologies for the management of energy consumption can certainly represent an instrument of economic savings for the operational costs of municipalities such as: lighting, transport, maintenance of roads and public buildings. In addition to this, our proposal includes the need to channel private capital into the provision of services to citizens. The use of instruments such as simple concessions or more complex ones such as PPPs could be useful in allowing for the relieving of public spending at the municipal level. As we have seen in the related chapter, the introduction of PPPs gives the private contractor the duty to finance and construct a property or infrastructure, acquiring the right to manage this activity to obtain revenues from this initiative (e.g., highway tolls). The construction of infrastructure for public use that remains "off-balance sheet" by local government is certainly an asset that could prompt policymakers to act in this direction. In the same way, channeling private know-how into the realization and management of projects of public utility can be compatible with the search for ever higher standards of sustainability. Bringing PPPs together with ESG issues, thus allowing to design infrastructures that respect environmental standards and to select contractors that have distinguished themselves for ESG performance, could be useful for both purposes of such an initiative: reducing public spending and moving towards sustainable urban development. The main risk of initiatives that link private entities and public projects remains that of corruption or greenwashing⁷⁹. The GRESB system allows for an external evaluation (i.e., by the international GRESB commission) on ESG criteria for private companies of any size. While not sufficient to combat corruption, it could be useful in tackling greenwashing. Also in this case, the assessment of an external

⁷⁹ We find the phenomenon of "greenwashing" when a company uses communication and marketing to deceptively declare or show its attention to environmental or social issues. It should not be confused with corruption.

require a large initial investment in agreements with financial institutions, in the drafting of studies and budget monitoring tools, in external rating by agencies and in marketing to institutional investors. Paris is one of the most advanced European capitals and, although it did not have all the required knowledge and in-house resources, it managed to achieve good results with respect to the methodology applied and collaboration with investment banks, investors, and financial offices. In the results analyzed, it is indicated that the strong points of the Parisian strategy were: " (...) a clear financial framework, expert project managers attached to the various investment lines, well-structured use of proceeds, frequent reporting"⁸¹. Wanting to apply the case to Italy, in addition to national green bonds already in the market, some more advanced regional governments could succeed in issuing such a bond on a sub-national scale (e.g., Regional Councils), using the knowledge gained from the Paris case. Alongside this analysis, since it is a bond instrument, it will be necessary to analyze the risk of default, even if it is the case that a company that deals with public services (e.g., water delivering) has greater stability in providing a primary good to the population. It is also necessary to verify what the interest rate of this instrument might be, knowing that being long-term, it might be more susceptible to market variations.

Another tool we have seen is the exploitation of public economic guarantees for the undertaking of riskier large-scale projects. In the research we have analyzed the Invest EU, a pool of public guarantee funds issued by the European Commission and managed by the European Investment Bank. These public guarantees apply to projects that are already funded directly or indirectly by an implementing partner. The implementing partner can be a private financial institution but also a public law body, including Member State organizations. Thus, it is possible for a national financial institution (e.g., as it has already been for *Cassa Depositi e Prestiti* in Italy) to become an implementing partner and, in financing projects of public utility, receive additional guarantees from the Invest EU fund, increasing its ability to absorb economic risk. The Invest EU aims to create a framework to ensure that public or private institutions receive additional non-refundable capital to increase their risk-taking capacity in implementing large-scale public projects. Local authorities cannot directly manage tools like the Invest EU, but they can foster the development towards the required sustainability standards. Cooperation between national and sub-national entities (e.g., Regional Councils in Italy) is necessary and governments themselves could

⁸¹ Climate-ADAPT "Climate bond financing adaptation actions in Paris" (April 2021)

propose a national development plan having first entered the project categories to be proposed to the Invest EU fund. For the themes of the projects, we can refer to the last chapter, in which we outlined the main growth purposes given by the European Union and collected in documents such as the Taxonomy for Sustainable Investments.

The third challenge to which the local government must aspire is the strengthening of the competitiveness of local businesses, especially small-medium-sized ones. As we will see in the next chapter, the alignment of these companies under ESG parameters is fundamental for the formation of a business network in which the authorities can select virtuous industries in sustainability issues in public procurement or concessions. The tools analyzed are part of the COSME program⁸², a tool that might be used to help local SMEs accessing funding more easily. Also in this case, like the Invest EU case, we recognize that a local or regional administration does not have the economic power as well as the legal ability to set up and manage such instruments. Nonetheless, we can imagine that the same administrations could put in place an alignment plan that would allow SMEs to learn about the upgrades or internal growth projects that need to be developed to access certain funds. As seen in the research, the COSME system is based on two main instruments: the Loan Guarantee Facility, like the Invest EU framework, which proposes access to European guarantee financing for companies, and the Equity Facility for Growth, which proposes Fund-of-Funds' public financing towards ESG Venture Capitals or other funds for innovative companies. The first tool could be useful to local administrations for fostering a municipal policy that incentives SMEs to meet ESG standards and helping the other companies aligning with the requirements for accessing financing. At national level, the government could therefore issue a financing plan to companies that decide to undertake paths of ESG development, making itself in effect an implementing partner and accessing additional European guarantees. In the case of the Equity Facility for Growth instead, local authorities are not allowed to start-up and manage Public Venture Capital funds. Public shareholdings in companies that carry out services of municipal utility are very common but remain limited to the framework of "Institutionalized Partnerships" (in the PPP framework) that involve the establishment of a new participated company for the provision of municipal services (e.g., waste management services).

⁸² The EC Program for the Competitiveness of Small and Medium-sized Enterprises – UE Regulation 1287/2013 – 11/12/2013

Net of the tools analyzed, when it is not possible to directly manage these financing frameworks, we see that it is necessary for the municipality to push development first from the point of view of ESG alignment of these companies, encouraging them to initiate internal development processes, to access international evaluations (such as GRESB) and to prepare them to apply for the instruments of COSME. Local administrators might arrange a favorable environment for Research and Development, stimulating knowledge sharing and funding SMEs' development initiatives with local competitions. In the next chapter we will see just what moves the local authority could implement to foster knowledge and alignment of local businesses.

5.3 Aligning and selecting potential contractors

To apply the tools, we will see in the next chapter (i.e., Green Public Procurement and PPPs) as well as the financing frameworks seen in the last chapter, it is necessary to select companies that reflect shared and internationally acknowledged sustainability standards. Municipal owned enterprises, but also those operating in private law, need guidelines to undertake an internal development path towards ESG parameters. In this chapter we highlight ways in which the local government could intervene to promote the alignment of companies towards sustainability parameters, to ensure a more rapid selection of suitable contractors in the implementation of contracts and concessions.

Unlike public projects, where the environmental and social impacts of the implementation of a project are estimated, the ESG assessment of a company can be carried out on its performance in material procurement, internal production processes, treatment of workers, waste disposal, corporate policies, risk analysis systems, stakeholder engagement and capacity to manage projects with EPR (Environmental Performance Requirements). To approach a level where ESG is effectively integrated, the PA needs to broaden the spectrum of parameters through which it assesses and selects a contractor, by adding to the traditional indicators (e.g., historical chamber of commerce records, work history, subcontractors, declarations of compliance) a series of additional parameters that measure the current and future ESG performance of the company in question. This means deepening the analysis of the participating company by checking its performance throughout its supply chain "from tier to tier". It is not enough, for example, to check that the company uses environmentally friendly internal production processes, it should also check the environmental performance of its sub-assembly suppliers.

In public procurement, especially open tenders (where there is no maximum number of companies that can apply), the introduction of additional evaluation parameters would only slow down the administrative machine in the selection phase. For this reason, it may be useful to integrate a univocal system, perhaps extended to a national or regional level. In our research we have analyzed the GRESB framework, which allows us to observe the level of ESG addressing of a company in the field of construction. As formulated, this system applies mainly to real estate companies, whether they are listed companies, funds, or limited liability companies. National governments or local administrations could then take a cue from this system and implement one that is compatible with the various aspects to be considered before awarding a contract or concession. The GRESB, specifically, deals with the issues of management (leadership, policies, risk management etc.), performance (GHG, energy, water, waste, certifications) and development, which analyses the same points as the performance section, but with an eye to what plans and strategies the company has undertaken so far.

As the research progressed, however, we identified several limitations and risks in the introduction of such systems. First, these tools are not designed to curb corruption, which remains one of the hottest issues when it comes to large public tenders but are only designed to simplify (and in some cases introduce) ESG issues in the selection of contractors. Moreover, the introduction of such parameters could lead to evaluated companies making false or misleading statements to gain access to certification anyway. Therefore, it is necessary to insist on "external evaluation". Instruments such as LEED or GRESB are evaluated by a commission, which is also the only one that can issue such a certification. This is a system used mainly in Anglo-Saxon countries where many certifications (e.g., language, school, technical or business certificates) are issued by a single body, an examination board, often extended nationwide. The introduction of such a vertical assessment system could be accomplished by introducing a body that could unify the ESG rating of companies and thus reduce the time needed by the local administration to select the contractor. To introduce such a system might require large economic resources, so we intend it to be applied at national or regional level. An in-depth analysis would be needed to compare the economic burden of setting up a national assessment body with the tangible benefits that could be seen in the construction sector and in urban quality.

It is possible that companies, especially SMEs, do not have the economic and intellectual resources to initiate the development processes necessary to meet the demands of a national GRESB system. Therefore, a different issue from the selection of contractors is to foster the effective knowledge of ESG issues and to encourage their implementation. Public administrations, from municipal ones (which will award contracts and concessions) to national and transnational ones (which might manage certification systems) cannot make a complete transition to ESG procedures without ensuring alignment with most of the national economic market. The risk would be to leave behind smaller companies, which have been the focus of attention in this research. The second proposal is therefore to stimulate and foster knowledge in local SMEs to enable a network that has a dual purpose: to foster the selection of contractors on ESG parameters and to foster the transition towards a sustainable local economy and industry. Undertaking such an urban policy would help local companies understand ESG values and steer them towards the necessary certification. This could be done by providing economic incentives, e.g., by covering the costs of GRESB certification (around €10,000.00) or by organizing trade fairs, conferences and development programs that stimulate cooperation and knowledge sharing among companies.

5.4 Ensuring the Inclusive Public Provision

In the issues addressed in this research, the way to move towards the transition to sustainable provision is to integrate ESG parameters into public procurement and public concessions frameworks. We have extensively discussed how local authorities need to purchase large quantities of goods and services to provide communities with an adequate level of urban services. Subjects like education and professional training, development support for productive sectors, health protection, civil protection, territorial government are, according to article 117 of the Italian Constitution, the so-called "competing services" between Regional Councils and National Government, i.e., those areas in which regions have the legislative power while national governments have the duty to control the respect of these practices. In parallel to the regional power, other services such as public lighting, public transport, management of green areas and underground services (water, electricity, telephony, internet) are managed and implemented by the municipal councils. So, we see that in the Italian administrative system there is a hierarchical scale that allows the provision of services according to the geographical proximity. These services are implemented by the public through two main administrative procedures: public procurement and concessions. The objective in this part of the proposal is to verify what actions should be taken to integrate the ESG component to the provision of these services according to these administrative procedures.

As we have already seen, in the chapter on project financing, one of the actions that administrations can take to relieve the economic budget is that of Public Private Partnerships, which we find in the macro-category of concessions. As well as directly channeling private capital into public utility services, the introduction of private know-how can be a further boost for sustainable local development. Without going back over the key concepts of such a system, which have been extensively addressed in the relevant section (chapter 4.2) and in the financing part (chapter 5.2), we will in this section add further perspectives on implementation and enumerate its possible limitations.

To promote and incentivize PPPs it is necessary to be based on a recognized and unambiguous system of selection. This framework must include the environmental and social criteria to be addressed in the selection of a contractor and a project and the additionality of such an undertaking in the rationalization of the public spending. Local and regional authorities may not be able to implement such frameworks, due to the large number of resources needed for research and development of such assessment strategies. Therefore, it is necessary for the national or sub-national authority to provide effective implementation guidelines. For example, following the realization of the comprehensive plan (i.e., mission, vision, key objectives) and the interdisciplinary general plan, it could be useful to carry out a temporal and economic planning activity to be implemented through PPPs. This means identifying thematic areas on which to intervene (e.g., built heritage, natural areas, urban infrastructures) and preparing an advance timetable of the activities necessary for regeneration or construction and for the respective management. The main risks, besides the more common and peculiar ones of PPPs (i.e., economic, demand and physical risk) remain the risk of corruption and greenwashing. In this research, we do not aim to find solutions to corruption, which remains a subject of administrative law. However, we have proposed the introduction of external assessments (i.e., GRESB) for a twofold purpose: to mitigate the risk of greenwashing or false environmental claims, and to facilitate the selection of potential contractors by the local authority.

The second administrative procedure through which the public implements projects of an urban nature (e.g., the construction of a building, the regeneration of an area or the provision of goods to the citizen) is Public Procurement. We have already discussed in the relevant section (chapter 4.1) what are the conceptual differences between public procurement and concessions. In this concluding chapter we will add what the differences are in ESG integration. In contrast to PPPs, where there is still no official European framework for the integration of sustainable parameters, in public procurement we find a first official document, which is the Green Public Procurement. This framework directs the public authority towards selection through sustainable parameters. The use of the EU GPP framework together with the alignment on GRESB selection are two key parameters for the transition to this practice.

The introduction of the requirement to meet circularity parameters is a key element that can be integrated into both PPPs and GPPs. This issue could be initiated by the public administration

by going for tenders and concessions and adding circularity to the ESG parameters (e.g., purchase of recycled or re-used products). We have seen in the research that such action is part of public governance under the name "Environmental Stewardship". Acting responsibly in the acquisition of public goods and services and in the implementation of urban projects and plans is part of this stewardship, whose objective is twofold: to steer public spending towards sustainability, and to set an example and best practice for other administrations.

From a financing point of view, if the PAs decide to issue a local development plan financed through bond program (e.g., The Paris Climate Bond) and implemented through GPP and PPPs they would need to disclose as much information as possible. There is therefore a need for clear and effective disclosure of the ESG issues of such administrative frameworks. It would be needed to demonstrate the additionality of the bond financing, to assess the risks involved and to hypothesize possible rates of return.

5.5 Feedback Loop: Monitoring and Learning by doing

Monitoring and recording results is useful for two reasons: ensuring that public initiatives are respecting standards, and to develop knowledge that leads to the improvement of policies and future guidelines. Three main proposals for the implementation of such a system have arisen during this research. A first proposal is to Establish a Regional or Municipal ESMO (Environmental and Social Management Office) that establishes a framework for evaluating performance and that helps municipalities analyze these indicators. When drafting the Urban Development Plan, ESMO shall determine and set appropriate, verifiable, and material targets, both quantitative and qualitative, to manage issues among the various thematic areas. This solution requires the establishment of a new public monitoring body, and the costs may not be sustainable. Requiring an external evaluation at municipal level could also be a very costly and even less effective solution than the public management body, as it would be less close to local business realities. Downstream of such an initiative, it might be required to municipalities to submit a mandatory annual report with environmental and social issues to the ESMO, to prepare an annual report at the regional level. Here the risk could be due to the lack of knowledge and economic resources to support such an initiative at municipal level. A final proposal, closer to the topic of citizen safety, is to strengthen community protection services (e.g., toll-free numbers for reporting of abuse, violence, and maltreatment). As already mentioned, monitoring is necessary to gain management and administrative experience and to facilitate the knowledge process to local realities. The risk of undertaking pilot projects remains the economic failure, which could also be due to a peculiarity of the local market, and possibly not happening in another geographical region.

6. Conclusions: Integrating ESG in the Sustainable Urban Development

The research shows that the ESG universe, and more specifically the theme of Impact Investing, can be applied to urban development issues. However, while on some subjects it is quite effective, there are still geographical, administrative, and economic limitations to which insufficient answers were found. Local or national governments have many documents at their fingertips for drafting an urban development plan: evaluation tools, European initiatives, allocation procedures, academic literature, and best practices. Tools for assessing the projects (i.e., LEED and BREEAM) are directly applicable to the local authority, others for selecting contractors (i.e., GRESB) need to be adapted to the public sphere. The first two instruments can be used both for the certification of cities at current state, or as an auxiliary planning tool. A limitation, however, is the need to collect large amounts of information in addition to what local governments have typically at their disposal. This would imply a considerable strain on resources. If it could be demonstrated that the ESG and economic benefits of implementing such tools are larger than the costs incurred in the planning phase, this could be considered a highly effective alternative. Now it is not possible to answer this question, we know that in urban development a time span of at least 10 years is needed to be able to answer it exhaustively. However, these tools are becoming more and more specific and every year, best practices are reported on issues such as application and data collection.

From the point of view of administrative frameworks, two other instruments are directly applicable to the local sphere: Green Public Procurement (GPP) and sustainable Public-Private Partnerships (PPP). Public procurement and concessions are the two classical tools for the implementation of urban projects and services, and the integration of ESG parameters for contractor and project selection has already been developed but also here we find some key issues.

We have seen that the EU GPP framework and GRESB can be effective in the selection of a contractor in terms of its ESG characteristics and to counteract greenwashing or false declarations during tender evaluation. The main risk, apart from corruption (which is of an administrative-legal nature), is the risk of disadvantaging access to contracts for obsolete local

companies. A complete transition to sustainable procurement cannot be achieved without insisting on the alignment of local SMEs in this direction. Tightening the selection indicators may have positive effects on environmental factors but could prove counterproductive in terms of governance and firm's inclusiveness. Tightening the parameters would increase the entry barriers for local companies that do not meet certain standards and cannot afford the developing internal restructuring projects. For this reason, the research has focused on the alignment and on the actions to be taken to help the local economic market. Economic and intellectual resources are needed to address the issue of local business growth, and public administration may have the ability, albeit indirectly, to foster the development of both. It could encourage the development of a policy of tax incentives and competitions for ESG business development projects, as well as supporting a collaborative environment at the regional level.

In some cases, whether for the implementation of large projects or to foster industrial growth plans, the budget of the regional or national authority alone may not be enough. For this reason, the research explored European Guarantee Funds, Green Bonds and Fund-of-Funds schemes to finance Venture Capital investing in ESG business development. The main limitations of these instruments lie in their local applicability. Guarantee Funds and FOFs are not applicable at regional level, as they are managed by transnational financial institutions (European Investment Bank). Moreover, limited economic and management capacities, as well as legal limitations, make it not possible to develop such systems at local level. In this case, there are two proposals for public administration. The first is to acquire knowledge of the required parameters and initiate local development policies, helping firms' development projects that can access additional EU funds. The second proposal, in the case of Guarantee Funds, is to develop and present projects to Public Financial Institutions (e.g., Cassa Depositi e Prestiti) making them Implementing Partners, allowing them to access the guarantee fund. Green or Municipal Bonds also require large economic and managerial resources, but the Paris case makes us realize that, with the collaboration of private financial institutions, the necessary managerial and financial requirements can be met to achieve good results. Admittedly, Paris is one of Europe's most advanced capitals and the case is certainly not applicable in lower-ranking cities.

A further issue for addressing the economic structure of a city aspiring to undertake ESG policies are actions of a fiscal nature. We have seen that the introduction of exclusionary or inclusive systems in the municipal tax system (TASI, TARI, IMU) can be a tool applicable by the local authority. However, we do not know, and we have no objective examples, that such a tax policy can generate economic benefits for the municipal budget. Another action that can be measured in economic terms, is the relieving of public expenditure through the implementation of Public-Private Partnerships. Entrusting the operational management of infrastructures, as well as their implementation, certainly has a positive impact on the municipal budget, except for the risks of economic and technical failure.

To conclude, we can say that there are many documents, frameworks developed and pilot projects that have given positive results to undertaking urban ESG policies. We have also noted that there are various limitations in the applicability of financing schemes. If ESG development is to be associated with a positive municipal balance sheet, we still have little information to answer. In addition, many of the standards required for ESG rating of companies, projects or entire cities require a large amount of data and most local authorities may not be able to take such action. However, the assessment parameters are clear and well defined, and each year the assessment frameworks are updated. National governments should foster proactive processes to facilitate data acquisition by local authorities. International organisations are increasingly active in publishing strategy proposals for public administrations, annual monitoring reports and best practices. It is essential to be aware of and inspired by such initiatives, and above all, having the courage to undertake concrete development actions.

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