ESG Impact Rating for Real Estate

METHODOLOGY

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Table of Contents

1. Sustainability Issues in the Real Estate Sector
2. Method
3. ESG Impact Rating for Real Estate: Indicators and Weights
4. Use Cases



Lead

For multi-asset class managers, real estate is one of the most important asset classes. Pension funds in Switzerland hold around a quarter of their investments in direct and indirect property investments.

Real estate significantly impacts our lives through energy use, emissions and resource use. Major global trends are of critical relevance for the housing sector, as urban population is expected almost to double by 2050.

There are numerous initiatives and guidelines to improve the ESG performance of the real estate sector by some visible impact. For instance, energy efficiency and climate gas emissions are witnessed to be on a downward path.

The ESG Impact Rating of Inrate assesses direct and indirect real estate portfolios regarding their overall impact on society and environment. The rating is based on the same approach as the impact assessment of public companies, allowing a direct comparison across asset classes. The current paper presents our methodological approach.

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1

Sustainability Issues in the Real Estate Sector

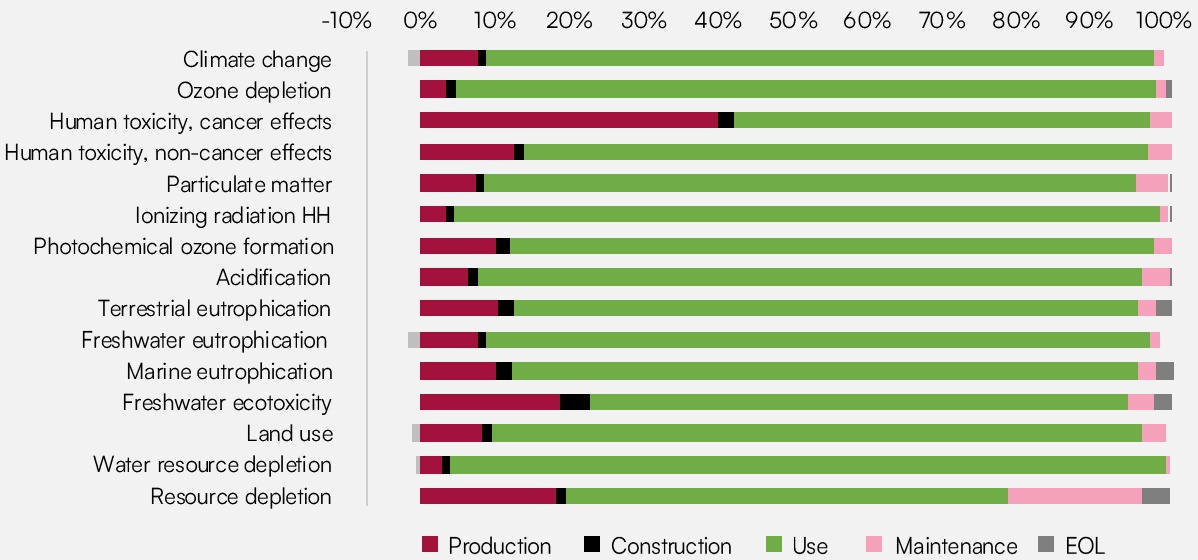


Construction materials make up around half of the world's overall material use. The use phase of buildings is the most energy- and CO2-intensive phase of a building's life cycle, mainly due to heating and cooling energy demand. In total, the construction industry and the buildings sector account for roughly 35% of global final energy consumption and 40% of global energy-related CO2 emissions. Considering that more than 100 million people worldwide work in the construction industry, labor conditions can have large impacts on health and welfare. This is not limited to only construction but is also true for resource deployment and demolition of buildings.

Environmental Impacts and Challenges

Figure 1 shows the different environmental impact categories of housing along a building's life cycle. The use phase and production phase (extraction of raw materials, manufacturing of building materials and transport and logistics) constitute the largest environmental impacts of a building's life cycle.

Fig 1: Contribution of different life-cycle phases of housing to different impact categories



Source: Lavagna et al. 2018

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Climate Change

The largest climate impacts occur during a building's use phase. Energy consumption and corresponding CO2 emissions are increasing on a global scale. Global use of energy in buildings has grown by 1% per year, electricity use by 2.5% and related CO2 emissions by nearly 1% (IEA 2017). Heating and cooling account for over one third of a building's energy consumption (IEA 2013). The climate impact is directly dependent on the share of fossil energy carriers used. A building's carbon and energy footprints are not only determined by its use phase. The selection of materials (e.g., concrete) and the building's location (induced mobility) are equally important factors.

Resource Depletion and Environmental Impacts

The real estate sector and its related activities in the value chain have a large impact on resource consumption. 50% of the worlds overall material use can be allocated to the construction sector.

Extraction of primary materials and processing them into construction materials, such as concrete or steel, are linked with a wide range of environmental consequences. It ranges from local to global scale. Most significantly, this includes human toxicity (particularly cement, concrete, bricks and gravel), fossil fuel depletion, climate change and metal depletion (particularly steel). Furthermore, building material production is associated with terrestrial acidification, photochemical oxidation, ecotoxicity, eutrophication and particulate matter formation. Moreover, in case of crucial resources (iron, steel, concrete), it is linked to high emissions of Greenhouse Gases and air pollutants.

Land Use, Pollution and Waste

Construction decisions have far-reaching and long-lasting consequences. It includes aspects such as land use, noise generation and exposure, soil compaction and sealing and water pollution during the construction and the use phases. Particulate matter and noise have a direct impact on the well-being and health of employees and residents. Soil compaction leads to decreased soil fertility and other soil functions such as water permeability and affects biodiversity. Chemicals or alkaline wastewater (as a by-product of concrete) can pollute natural water bodies (freshwater ecotoxicity). Construction work and demolition of buildings generate vast amounts of waste. Improper disposal creates more negative environmental impacts compared to professional disposal, waste separation and recycling.

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Social Impacts and Challenges

The built environment affects the entire population of the planet. Where and how buildings and infrastructure are built determines people's quality of life. For instance, in the US, most people spend almost 90% of their time indoors. Therefore, buildings and particularly the used building materials can have major impacts on occupant's health and well-being (WEF 2016a).

Occupants' Well-being

People living and working in buildings are affected by the building and its location. Besides the negative health effects of toxic materials, the indoor environmental quality affects the occupant's health and well-being. Furthermore, the location of a building and its connectivity with transportation means and proximity to social infrastructures (schools, hospitals, shops, etc.) influences the quality of life as well.

Workforce Impact

More than 100 million people worldwide work in the construction industry (WEF 2018). Labor conditions can have large impacts on health and welfare, particularly in construction, resource deployment and demolition of buildings. Social insurance, working hours, fair salaries and safety regulations play an important role.

For instance, there can be negative impacts on workers' health as result of using particulate matter, containing toxic or cancerogenic materials such as asbestos.

Urbanisation and Affordability

Affordability of housing, social mix in urban areas, poverty ghettos and informal settlements are major challenges related to social impacts of the service sector housing (UNECE 2018). Today, the population living in slums is estimated to be around 900 million to 1.3 billion. This population will reach over two billion by 2050 if current trends are continued (The Guardian 2015).

The housing service sector in cities faces significant challenges concerning affordability by developments such as gentrification of city centre, with expensive flats and workspaces, and a resulting shift of middle- and lower-income classes to suburbs. The gentrification of city centre is therefore controversial.

Corruption

The construction industry accounts for about 6% of global GDP and 8% in developing countries, and the industry continues to grow. The construction industry and real estate sector are more afflicted by bribery, corruption and anti-competitive practices compared to other sectors. This is a major barrier to economic and social development (WEF 2016a). Furthermore, it can also have severe consequences for the sustainability of building projects. For instance, by disregarding standards about materials, workers' and residents' health and safety can be jeopardised. Cash outflow due to corruption can further lead to reduced quality of a building. This can consequently lead to reduced energetic performance, bad indoor environmental quality and reduced structural strength of a building, which result in reduced resilience to external stresses such as earthquakes, floods or storms.

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Conclusion

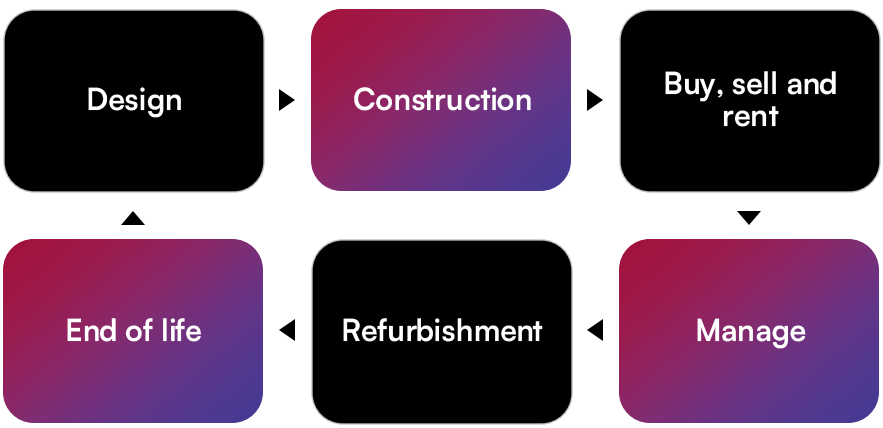
Based on the major trends and major sustainability impacts of the service sector housing, the main conclusions for action towards a sustainable service sector housing are as follows:

- **Circular economy** leads to the reduction of material consumption, embodied energy and climate impact. This promotes the use of healthy and sustainable building materials and designs, thereby leading to healthy and comfortable living and working spaces.
- **Decarbonisation** of the whole value chain (material deployment, manufacturing, transport and construction) and particularly of the building's use phase (increased energy efficiency and use of renewable energy).
- **Compliance** of contractors with labor standards is important. Fair and safe working conditions must be provided.
- **Avoiding anti-competitive practices, bribery and corruption** by increasing transparency.
- **Building resilient and climate change-adapted** cities and communities. This is particularly important to reduce risks related to natural hazards and disasters in urban areas and major cities.

Sustainable Solutions along the Entire Value Chain

Solutions to mitigate impacts associated with the real estate and bring about positive change are to be found along the entire value chain. A building's life can be considered through a process-lens, which highlights six separate steps that interconnect in several aspects:

Fig 2: Value chain of the housing sector



Source: Inrate 2019

Considering each of the successive phases, one can identify good practices that are relevant in terms of sustainable solutions. The concept of circular economy provides the framework as it covers the whole value chain. Circular economy is based on the following pillars:

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Design and Planning

In the project's stage, the plan from the construction to the dismantle of all involved parties can include a life-cycle analysis (LCA) of the materials and equipment, taking into consideration in a long-term perspective. In general, the consideration should envisage the materials selection and examine the next life of the building (disassembling, re-use etc.). Approaches that favour modular design and flexible use without demolition can induce savings in materials and electricity costs, thereby improving resilience. Tools such as the Building Information Modelling (BIM) aid sustainable design and construction planning. Technologies such as additive manufacturing (3D printing and offsite construction) enable the use of new materials and more efficient processes. Location is also important in regard of sustainability. Social mix, well-being and comfort are just as closely linked to the location as the energy consumption induced by mobility requirements. The adoption of a green building standard recommendations supports the design of the building and later the management in regard of improved sustainability. Following are a few standards of particular interest in the Swiss context:

Minergie

is the Swiss building standard for comfort, efficiency and climate protection — for new buildings and renovations. Certified Minergie buildings are characterised by very low energy requirements, a self-produced share of energy and the highest possible use of renewable energies.

LEED

(Leadership in Energy and Environmental Design) is an internationally recognised green building certification system. LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

GRESB

(Global Real Estate Sustainability Benchmark) is an industry-driven organisation that assesses the sustainability performance of buildings and infrastructure portfolios worldwide. GRESB has become a widely recognised standard used for benchmarking for the industry. In Switzerland, the Swiss Sustainable Real Estate Index (SSREI) also carries out certifications in accordance with GRESP.

BREEAM

(Building Research Establishment Environmental Assessment Method) is a sustainability assessment tool that helps manage projects, infrastructure and buildings. Launched in 1990, it sets standards for the environmental performance of buildings.

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Construction

By adopting green procurement policies that set standards for purchasing practices, developers enable the use of environment-friendly and non-toxic materials during the construction phase. In other terms, contractors and equipment suppliers are selected upon the eco-efficiency of the products they provide to property developers, real estate owners and managers. Suppliers, such as building materials companies, need to offer green products in terms of water, energy or waste efficiency.

The eco-efficiency of products has become a major competition factor for building materials companies. For example, to maximise the performance of the building envelope, as a good practice and as an alternative to synthetic insulation, building contractors may be required to opt for natural materials (cellulose, wood fiber, sheep's wool, etc.) that will serve as insulation layer. All companies in the sector face risks that can arise upstream in their supply chain, whether related to corruption, health & safety, working conditions, child labor or human rights.

By using recycled or re-used products and avoiding construction waste as much as possible, the footprint (e.g., iron) of the buildings can be reduced by a substantial part. It adds to the management of the whole value chain (cradle-to-cradle) — a relevant field outside the typical system borders of the life cycle.

Buy, Sell and Rent

Along with the tracking of the financial performance, real estate asset managers introduced the monitoring of the sustainability performance. The integration of portfolios into digital platforms and optimization of benchmarking requires key measures such as overview and comparison of energy use, water usage, waste disposal and CO2 emissions. Higher flexibility to allow fast adaption for other commercial uses, share of working spaces enable higher capacity utilisation, thereby lowering space requirements per use. It increases the material efficiency of the existing building stock.

Manage

Smart building solutions enable savings of resources by maintaining comfort in a broad range of applications, from windows or elevators to door and sanitary systems. Smart lighting system automatically adjusts to current use and heating, considering weather forecast and occupancy. In general, various interesting technologies for decarbonisation are mature and available. Estimations are going up to savings of energy in the use period of around 30%. The introduction of smart building solutions is lagging due to barriers, including long turnover rates and long time-horizons for investments. The renovation and development plan for existing buildings specifies the time frame in which improvements can be achieved and the measures to be taken.

Refurbishment

Refurbishment can be a more sustainable option, whilst in other cases, new buildings show better results. The method of Life Cycle Carbon Footprint provides one of the important pieces of information to take the decision between refurbishment and new construction. Embodied carbon accounts for approximately 25% of total CO2 emissions of a life cycle.

End of Life

A site waste management plan indicates which material can be eliminated or what can be reduced or reused and recycled.

In terms of operational emissions, historical improvements in building efficiency have been approximately matched by growth in floor area per capita. Technological solutions were not effective enough to reduce overall emissions from the building park yet. Increasing longevity of buildings is the most promising approach regarding embodied emissions.

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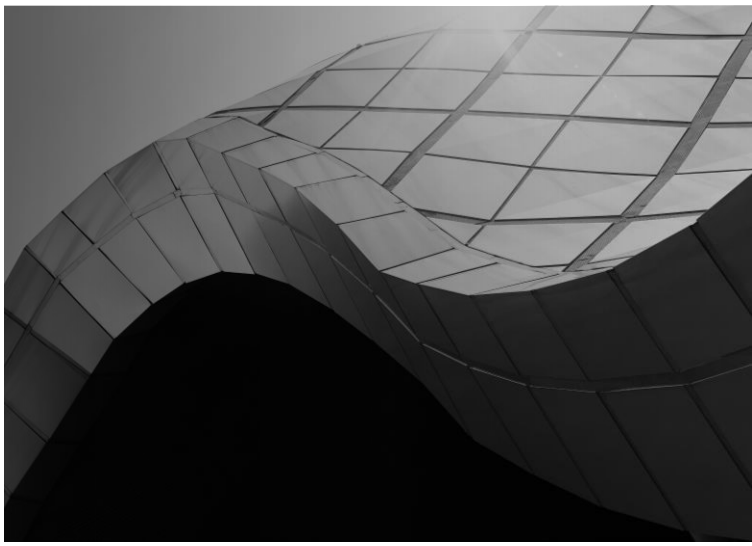
Fig 3: Sustainability levers along the lifecycle of a building

	Examples of levers to improve companies' products and services			Examples of CSR Management
	Sufficiency-based levers	**Efficiency-based levers**	**Substitution-based levers**	
Products	▪ Focus on re-cycling material from end of life (see below) rather than producing more ▪ Engage in local markets for procurement (avoid long transport)	▪ Enhance production processes, e.g., in cement production ▪ Enhance efficiency of resource extraction by using state-of-the-art technology	▪ Replace materials such as cement or steel with products such as timber, wood ▪ Use locally sourced materials rather than imported goods	▪ Source materials ethically and pro-actively manage supply chain issues ▪ Develop clear rules on procurement and product quality
Construction	▪ Reduce the use of environmentally harmful materials ▪ Construct less or construct smaller appartment sizes for more tenants	▪ Apply state-of-the-art insulation material and three-glaced windows ▪ Enhance efficiency of construction process through planning and use of pre-fabricated building elements	▪ Replace environmentally harmful materials with alternatives (see above) ▪ Electrifying formerly fossil fuel-based machinery and equipment (e.g., trucks)	▪ Use public tenders for building projects to tackle corruption ▪ Provide minimum standards for employee safety and labor conditions
Use stage	▪ Lower the temperature settings for space heating, or reduce excessive hot water temp ▪ Provide other procedures and requirements for building management, such as for common spaces or waste management	▪ Enhance energy use through implementing measures such as smart ventilation ▪ Use possibilities for collective use of housing services and devices	▪ Install renewable energy generation (rooftop solar PV, heat pumps) rather than oil/gas boilers etc. ▪ Use of renewable energy from off site, e.g., district heating or cooling	▪ Provide guidelines on building management and relations with tenants ▪ Provide minimum share of social housing options within the portfolio
End of life	▪ Engage in demolition as late as possible, i.e., prolonge lifetime of existing building stock ▪ Create less waste from demolition process	▪ Improve energy efficiency in demolition and transport of waste ▪ Avoid loss of potentially useable material through enhanced disposal processes	▪ Replace processes for demolition with deconstruction-based approaches ▪ Substitute fossil fuel-based machinery for demolition (deconstruction) through electrified alternatives	▪ Follow regulatory guidelines on waste disposal and landfill management ▪ Engage in ethically sound use of materials for second-life use
Beyond	▪ Directly reuse building materials and resources for new construction projects ▪ Reduce landfill waste by recycling building materials	▪ Enhance efficiency in re-cycling processes through, e.g., automation or improved separation of materials ▪ Make sure re-cycled material is efficiently used in new construction projects	▪ Substitute incumbent recycling technologies with novel processes such as new catalysts to separate plastic waste	▪ Pro-actively engage in policies for supporting circular economy approaches ▪ Monitor material and waste flows from individual projects

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Method



Conceptual Frame

The rating aims to determine the environmental and social impact of the economic activity that is financed and not reflected in market transactions. In the concept of double materiality, these effects are referred to as ESG impact. The ESG Impact Rating for Real Estate follows the same approach as the ESG rating for issuers such as companies. Applying the same methodology enables transparency and consistency across different asset classes.

Fig 4: The concept of double materiality



The concept of the double materiality distinguishes the topic sustainability/ESG into two dimensions: On one side, the sustainability issues influencing the financials of a company and its valuation (financial materiality) and on the other side, the impact of business activities on society and the environment.

A high negative impact can also represent a financial risk and vice versa. However, the influence of impact on financial development is rather complex and non-systematic and depends on the respective constellation and circumstances. It may be due to market dynamics, when demand shifts temporarily or permanently. Businesses may also get impacted due to possible new regulations, liability cases that have been announced or ground-breaking technical innovations. The ESG Impact Rating records and evaluates the inside-out effects.

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General rating model requirements

The following requirements must be met:

- Appropriate recording of the impact through relative ranking according to different types of buildings and property portfolios,
- The impact assessment has to include the whole value chain,
- Consistency between the rated entities and over time,
- Consistency of the rating scores/grades with other investment categories,
- Recording of important sustainability issues and appropriate weighting according to the relevance of externalities,
- There should be a meaningful degree of differentiation in the scores/grades of the entities under review,
- Set of indicators that enables comparability and is therefore available in sufficient scope,
- The relevant set of indicators should always be as up-to-date as needed.

There is no requirement to base ratings on the largest possible or available number of indicators. It is crucial to pay attention to the most important discriminatory indicators. In the case of listed investments, publicly available data should be the main source of property ratings. For private real estate portfolios, Inrate's rating score/grade is neither published nor made available to anyone other than the client.

Design of the real-estate rating model

Inside-Out

To record the impact of the investments, the assessment scope, boundaries and components must be defined. For example, the amount of land required and, indirectly, the sealing of the soil is an important factor in relation to biodiversity. However, other aspects are categorised as financial materiality or ESG risks, such as physical risks. The latter are not relevant for the impact rating.

Fig 5 Relevant factors of the ESG Impact Rating

Inside-Out: Relevant	Outside-In: Not relevant
Direct climate gas emissions	Transition risks
Upstream climate gas emission	Physical risks
Downstream climate gas emission	Insurance costs
Ground sealing	Potential liability
Resources and circular economy	Regulation shifts
Social-cultural mix and inclusion	Removal and waste costs
Emissions of noise and polluted air	Infrastructure developments
Natural hazardous risk	Reputational risks
Flexibility and well-beeing	

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Focused on Buildings

The assessment focusses on buildings and their properties. Current and past measures should change or have changed the sustainability characteristics of the buildings. Buildings change little over time. Some of the indicators that capture the life cycle are linked to the type of building and the year of construction. The following building types are considered, as the impact differs on its type:

Residential Buildings

These are structures primarily designed for living purposes. They include houses, apartments, condominiums and other dwellings where people reside. Residential buildings can be single-family (one household) or multi-family (multiple households sharing the same building).

Non-residential Buildings

They have various functions and are often used for commercial, industrial or institutional purposes.

Developments

The term “developments” refers to planned areas or projects that involve the construction of multiple buildings or infrastructure. Developments can encompass residential, commercial or mixed-use spaces.

Rating older existing buildings is generally less favourable in terms of some sustainability aspects. In such cases, the rating takes the development plans into account. The valuation of a portfolio represents the weighted sum of the valuations of the individual buildings.

Rating Modules

The rating is composed out of the two modules Building Impact and CSR. This module concerns the object of the portfolio management by the owner or manager and policy topics such as ESG objectives and programs, green procurement requirements, labor conditions, tenant satisfaction and reporting levels. The module building impact is related to the building type and the key performance indicators (estimated or reported). The rating assumes that appropriate policies have a relevant influence on the impact. A distinction is made between E and S within the modules. In contrast to the evaluation of companies, media information about buildings is not sourced or considered. Media information on properties is very sporadic, so it is not included into the ratings for reasons of consistency.

Rating Scale

The result of the real estate assessment is a rating expressed on a 12-point scale, either as grade from A+ to D- or alternatively as score from 0 to 1 (by steps of 0.0909). The properties are classified on an absolute scale and thus compared with all other business activities outside the real estate sector. A transformation into a best of class approach is possible and straight forward.

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ESG Impact Rating for Real Estate: Result and Scale

The final result of the real estate assessment is a rating expressed on a 12-point scale, to be interpreted as the degree of impact on environment and society, as mentioned below:

A	A- A A+	High Positive Impact on Environment and Society
B	B- B B+	Positive Impact on Environment and Society
C	C- C C+	Negative Impact on Environment and Society
D	D- D D+	High Negative Impact on Environment and Society

The company has a high positive net sustainability impact. Its business practices, products or services help to reduce social- and environmental-related issues. Thus, the company is facilitating the global move to a sustainable economy.

The company has a low positive net sustainability impact, i.e., its activities are compatible with a sustainable economy. However, its products, services or business practices do not yet fulfil all the sustainability requirements. The company displays the willingness and capacity to improve its sustainability performance.

The company has a low negative net sustainability impact, i.e., its products, services or business practices place a heavy burden on the environment and society. However, the company displays the willingness and a certain capacity to make its products or business practices more environment-friendly or socially responsible.

The company has a high negative net sustainability impact, i.e., its products, services or business practices place a heavy burden on the environment and society. The company displays no willingness or capacity to make its products or business practices more environment-friendly or socially responsible.

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ESG Impact Rating for Real Estate: Indicators and Weights



The real estate portfolios are rated based on 46 indicators that address environmental, social, or governance performance at the building or portfolio level.

- 17 of these 46 indicators account for two-thirds of the total indicator weight due to their higher weight of externalities.
- Approximately 25% of the total weight is related to direct and indirect energy use of buildings and corresponding greenhouse gas emissions, considered the main environmental impact of buildings.
- Another 20% of the total weight is related to environmental impacts from spatial factors such as land use (densified construction), biodiversity, induced traffic, residential building usage density, and the use of eco-efficient building certification.
- Approximately 10% is related to social impacts, including accessibility and quality of public transport, as well as mixed building use and available flat mixes.
- Another 10% is related to occupant well-being, potentially affected by ambient noise, air pollutants, radon emissions, or natural hazards.

The remaining 29 indicators, accounting for one-third of the total indicator weight, aid in providing a comprehensive analysis and rating.

Fig 6: Aspects and Indicators

1

Environmental Impact

13 indicators covering topics from energy to materials and mobility

2

Social Impact

17 indicators covering topics from accessibility to safety and health

3

Governance

16 indicators covering topics from ESG objectives of the investment policy to emission reduction programs and reporting.

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Indicator weights are expressed in percentage alignment per indicator. The weights per indicators are influenced by the following:

Impact:

This refers to the impact or the given importance of the indicator in the environment and society.

CSR:

This refers to the attribution of the nature of management & operations related to the respective indicators.

Each indicator is assigned a suitable weightage based on their share of conformance to the impact and CSR aspects mentioned above. The applicability of the indicators also depends on the real estate type (residential, non-residential and developments). For instance, energy efficiency (consumption per area), share of renewable energy and availability and quality of public transport are a few of the high-weightage indicators for real estate assets in environment and society.

For the portfolio-level assessment, the respective portfolio composition is further taken into weighted consideration for arriving at the final rating as some indicators would be suitable to certain property types than others. For instance, for under-development buildings, resource and material use is of grave importance.

Fig 7: Indicator list

Environmental Impact & CSR (weight: 51%)	**E1 Energy efficiency and use (7%)** • E1.1: Energy efficiency, quality of the building envelope: Total energy consumption (Scope 1+2) • E1.2: Cooling, energy demand for active cooling (air conditioning): Share of cooled area per heated floor area (applicable for non-residential buildings) • E1.3: Appliances, lighting: Level of energy efficient installations (according to energy labels) and improvement requirements for replacements.
	E2 Energy supply / use of renewable energies (14%) • E2.1 Share of renewable energy in total energy demand for heating and hot water. • E2.2 On-site energy/electricity production: PV and solar--thermal installations • E2.3 GHG emissions (Scope 1+2) per heated floor area
	E3 Building materials, ecology, circularity (13%) • E3.1 Use of eco-efficient building certification (more than energy label only): Share of buildings in the portfolio with certificate • E3.2 Resource use and embodied carbon emissions: Reduction of resource use and embodied carbon emissions through conservation of the existing building stock, including consideration of construction year and policies, strategies and requirements in this respect.
	E4 Space and usage efficiency, biodiversity (11%) • E4.1 Densified construction: Number of storeys • E4.2 Usage density: Heated floor area / tenant or statement about requirements regarding tenant occupancy (applicable for residential buildings) • E4.3 Biodiversity: Position statement or share of objects with ecological engagements
	E5 Mobility (6%) • E5.1 Induced traffic: Depending on location/region and parking availability • E5.2 Availability of parking spaces and charging stations for electric vehicles

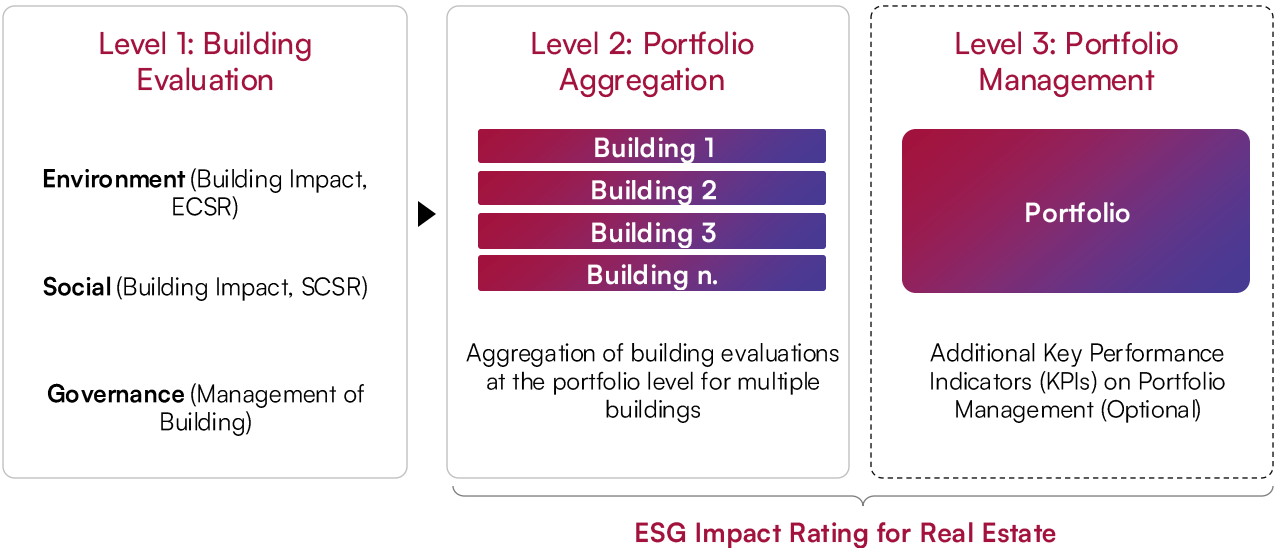
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Social Impact & CSR (weight: 41%)	**S1 Accessibility of infrastructure, macro/micro location (7%)** • S1.1: Accessibility by public transport: according to "public transport quality categories" • S1.2: Quality of public transport: travel time to agglomerations/centres
	S2 Diversity in the neighborhood (8%) • S2.1 Mixed use: mix of residential and commercial use of the property • S2.2 Flat mix: different flat sizes in residential buildings
	S3 Emissions external influence (exposure and measures on the building) (8%) • S3.1 Ambient noise: road traffic noise during the day • S3.2 Air pollutants: average emissions of NO_2, PM10, PM2.5, O_3 • S3.3 Radon: assessment of radon risk or measurement results
	S4 Safety/hazard potentials (6%) • S4.1 Natural hazards: requirements or policies in place considering natural hazard risks of the portfolio objects • S4.2 Earthquake safety: considering age of buildings and risk zones
	S5 Well-being (6%) • S5.1 Daylight inlet (applicable for residential buildings) • S5.2 Availability of private outdoor area (appl. for residential buildings) • S5.3 Thermal comfort: in winter and summer (e.g. external shading) • S5.4 Sound transmission in buildings
	S6 Indoor climate (3%) • S6.1 Emissions from materials/coatings • S6.2 Comfort ventilation
	S7 Flexibility of living space (3%) • S7.1 Barrier-free access / wheelchair accessibility • S7.2 Space for walking aids, prams, bicycles
Governance & CSR (weight: 8%)	**G1 Portfolio ESG policy and targets (4%)** • G1.1 Objectives on ESG principles • G1.2 Responsibilities on ESG principles • G1.3 Policy on affordable housing • G1.4 Policy on green procurement (ESG requirements for contractors) • G1.5 Policy on property management (labor conditions) • G1.6 Quantitative target for CO_2 / GHG emissions reduction • G1.7 Policy on life cycle costs
	G2 Programs, measures, activities (3%) • G2.1 Green procurement verification • G2.2 Tenant satisfaction monitoring • G2.3 Programs for CO_2 / GHG emissions reduction • G2.4 Programs to reduce the use of natural resources and end of life impact of buildings • G2.5 Programs to reduce waste • G2.6 Programs to reduce water consumption
	G3 Reporting (1%) • G3.1 Public communication on CSR issues • G3.2 External verification of CSR reporting • G3.3 Published data on CO_2 / GHG emissions

To assess a whole portfolio, the ratings of each building are aggregated by their share of the portfolio. The resulting score/grade indicates the relative impact, compared to all other relevant economic activities. The rating result indicates the relative contribution of the real estate portfolio to sustainable development.

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Fig 8: Three assessment levels: single building/object, portfolio of buildings and Portfolio management



The real estate rating can be used to assess listed funds and indirect real estate portfolios. The current rating model is designed for Switzerland, with the calibration adjusted to local building standards and to relevant indicators. The ratings cover the relevant sustainability topics as much as possible and fulfil the general data requirements that enable the highest possible level of comparability.

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Use Cases



#1 Direct real estate portfolio of an institutional asset owner

- Name: XYZ Real Estate Fund
- Number of objects: 30
- Energy reference area: 110'000 m²
- Portfolio composition: 50% residential, 14% residential, 35% mixed and 1% developments
- Age structure: 96% older than 20 years, 68% older than 40 years
- Energy and GHG key figures (scope 1 and 2):

126 kWh/m2/a energy consumption, with 19% renewables of consumption,

0.35 kWh/m2/a on-site photovoltaic production,

23 kg CO2-eq/m2/a

The data collection process involves public data, if available, and a questionnaire. Real estate manager using labels (e.g., GRESB, SSREI) generally have a well-structured database on which the impact rating can be largely based.

Figure 9: Data sourcing

Information from building/portfolio owner/manager/reports:	Information from automated spatial query based on building address:
Building address/address list	Floor area/Energy reference area
Energy consumption per floor area	Building type/category
GHG emissions per floor area	Age of building
Energy mix/share of renewables	Number of storeys/floor levels
On-site energy production	Number of flats per building and number of rooms per flat
Availability of building certificates	Accessibility by public transport
Number of parking spaces	Travel time by public transport to agglomerations and central municipalities
Information on ESG-Topics (objectives, responsibilities, policies, strategies, actions, programs, etc.)	Traffic noise emmissions
	Air pollution
	Radon risk of location
	Located in earthquake risk zones 3a and 3b

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Each building in the portfolio is recorded and classified according to the indicators. The model calculates based on the obtained values.

Figure 10: Overview portfolio (section)

Building address	Building category	Construction year [-]	Floor area (Energy reference area) [m^2]		Number of floor levels [-]		Average travel time by public transport to centres [min]
Building 1	residential	1976	3'822		7		13
Building 2	residential	1953	2'086		7		17
Building 3	non-residential	1976	655		1		16
Building 4	residential	1988	1'902		6		20
...	...	...	...		...		...
Total			110'000				
Aggregation example			Floor area share of total portfolio area (used for area weighted aggregation)				
Building 1			3.5%		(3.5% x 7 +		(3.5% x 13 min +
Building 2			1.9%		1.9% x 7 +		1.9% x 17 min +
Building 3			0.6%		0.6% x 1 +		0.6% x 16 min +
Building 4			1.8%		1.8% x 6 +		1.8% x 20 min +
...			...		...)		...)
					=		=
Portfolio average (used for rating)					5.6		17.1 min

Final result is the score in absolute terms.

Figure 11: Overall rating score



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#2 Indirect real estate portfolio

This section illustrates the working example of the result of the assessment of 42 Swiss Real Estate funds based on Inrate's ESG Impact Rating for Real Estate. The buildings of the listed property funds are, as a whole, fairly representative for institutional portfolios. The overall score for all funds is a B-, which is above the average for all business activities. Following are the results of the real estate funds:

Highest score is	Lowest score is	The median is	The average is
B-	C-	C+	C+

These grades compare to the highest rating of an A, a company offering water technologies and the lowest score of coal mine with a D+.

Figure 12: ESG report Swiss real estate

Swiss Real Estate indirect	Type	Weight (in%)	ESG Impact Rating
UBS Swiss Sima	Fund	12.4	B-
Swiss Prime Site N	Equity	8.2	A-
PSP N	Equity	6.5	B-
CS REF SIAT	Fund	4.5	C+
CS REF Living Plus	Fund	3.9	C+
Total		35.5	**B-**
Delta to Benchmark			**1 step** (C+)
for illustrative purposes			

The report on the level of total assets shows the positive ESG properties of the real estate portfolios compared to benchmark and illustrates that the contribution by itself is too small to result in an overall positive ESG profile of the asset owner.

Figure 13: ESG report total assets

Assets Classes	Weight (in%)	ESG Impact Rating	Delta to BM
Swiss Real Estate indirect	20	B-	1
Bonds CHF	50	C+	0
Equity Global	30	C+	0
Total	100	**C+**	**0**
for illustrative purposes			

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