CUSHMAN & WAKEFIELD

GOING GREEN

Sustainability in Georgia

Tbilisi, Georgia

July, 2021

In line with ongoing sustainability activism and the leading role that real estate can play contributing to environmental conservation, we are offering a series of articles, in which we will be reviewing the importance of greener orientation and sustainability in Real Estate, green buildings, sustainable materials and practices, financial benefits of eco-friendly buildings, and lastly, we will be touching upon how proactive Real Estate in Georgia is to sustainability issues and trends.

In our previous articles we explained the importance of sustainability and green buildings, and introduced LEED system. We explained how to get LEED certificate, and reviewed its assessment areas and sustainable building materials. We then showed LEED from investors' perspective - financial gains associated with it and other monetary impetus for going green. We also introduced energy efficient, ecological, affordable, and comfortable construction concept - Passive House, its guiding principles and advantages, as well as widely-accepted BREEAM, Energy Star and Energy Performance Certification systems validating green features of sustainable buildings.

In this article we will briefly demonstrate greenness trends in Georgia to assess where real estate stands in the country on the road to sustainability. We will underline expanding eco-friendly projects across Georgia, followed by a brief highlight of firms involved in energy-efficient constructions, as well as introducing GEFF program supporting various sectors with going green. Lastly, we will showcase two independent examples of energy-efficient structures in the country.

Publication can be found at: ***www.cushwake.ge***

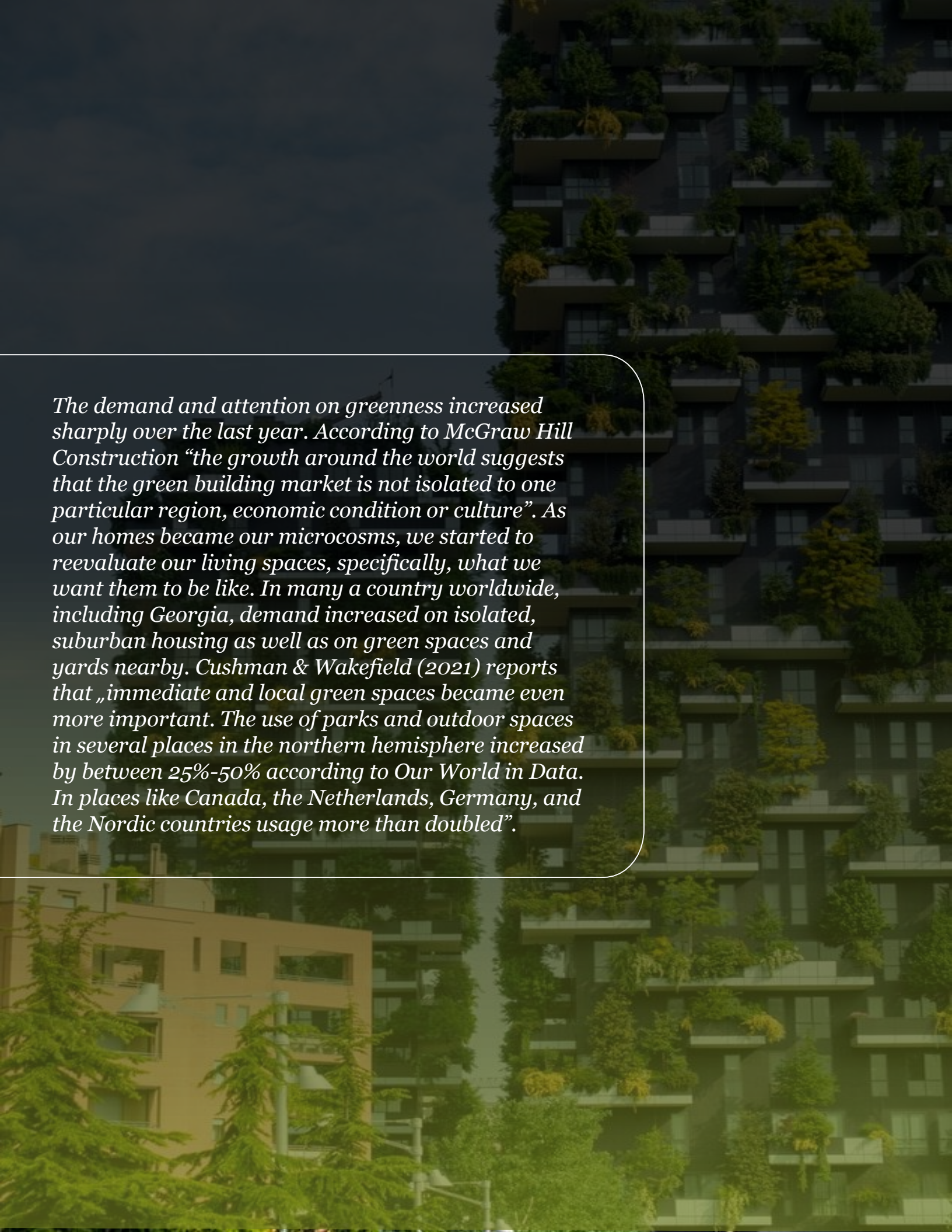
GOING GREEN

Green building as a concept started gaining traction in the 1990s, however it would be some years before it received a widespread attention. At the early stages of green building, sustainable, green approaches to development were considered perks, rather than the norm. We have come a long way since then, with more and more people expecting sustainable practices to be incorporated in their daily lives. Sustainability is defined as a holistic approach to designing and building. Sustainable design aims to reduce depletion of energy, water, and raw materials, while also focusing on minimizing environmental damage caused by buildings. Sustainability as an approach and a lifestyle stands for even more - in housebuilding, besides minimal demands on the environment, sustainability also means comfort, safety and longevity of living.

For increasing number of companies worldwide, the top driver of going green is "doing the right thing". Various researches show that "greenness" has become a business imperative, and increasing number of firms are responding to it. Sustainable business practices bring energy-use reduction and environmental benefits, allowing us to rebalance the built environment with our natural environment. Even though some might see high upfront cost efforts as a hitch between current green building popularity and its future growth, if operated and maintained efficiently, such buildings reap benefits in time.

The trajectory of greater sustainability has been influenced significantly by demographic movements, globalization and interconnectedness, generational shift in priorities as well as activism of the recent decades. Rapid urbanization, among other things, is having a glaring detrimental impact on the environment. However, activism has raised global awareness around the issue and as more countries and corporation pledge to various goals of sustainability, a growing part of the global population is also partaking in what has been called environmental stewardship – "responsible use and protection of the natural environment through conservation and sustainable practices". In line with increased environmental issues, the citizens demand green buildings that have a net zero impact on the environment while also promoting health, energy efficiency and conservation of the limited resources.

We are seeing these behavioral trends emerging in Georgia as well, especially amongst the younger generation of Millennial buyers who are coming to their own and making eco-conscious choices. The year of the pandemic has further sharpened attention on healthier living, boosting green efforts with greater popular support than before. With this in mind, we expect to see developers offer more eco-conscious options to the end-users and we expect the latter to be more demanding in striving for sustainability. The shift has started away from mere "green signaling" and towards impactful greenness and it is in the hands of the real estate consumer to keep the momentum going.



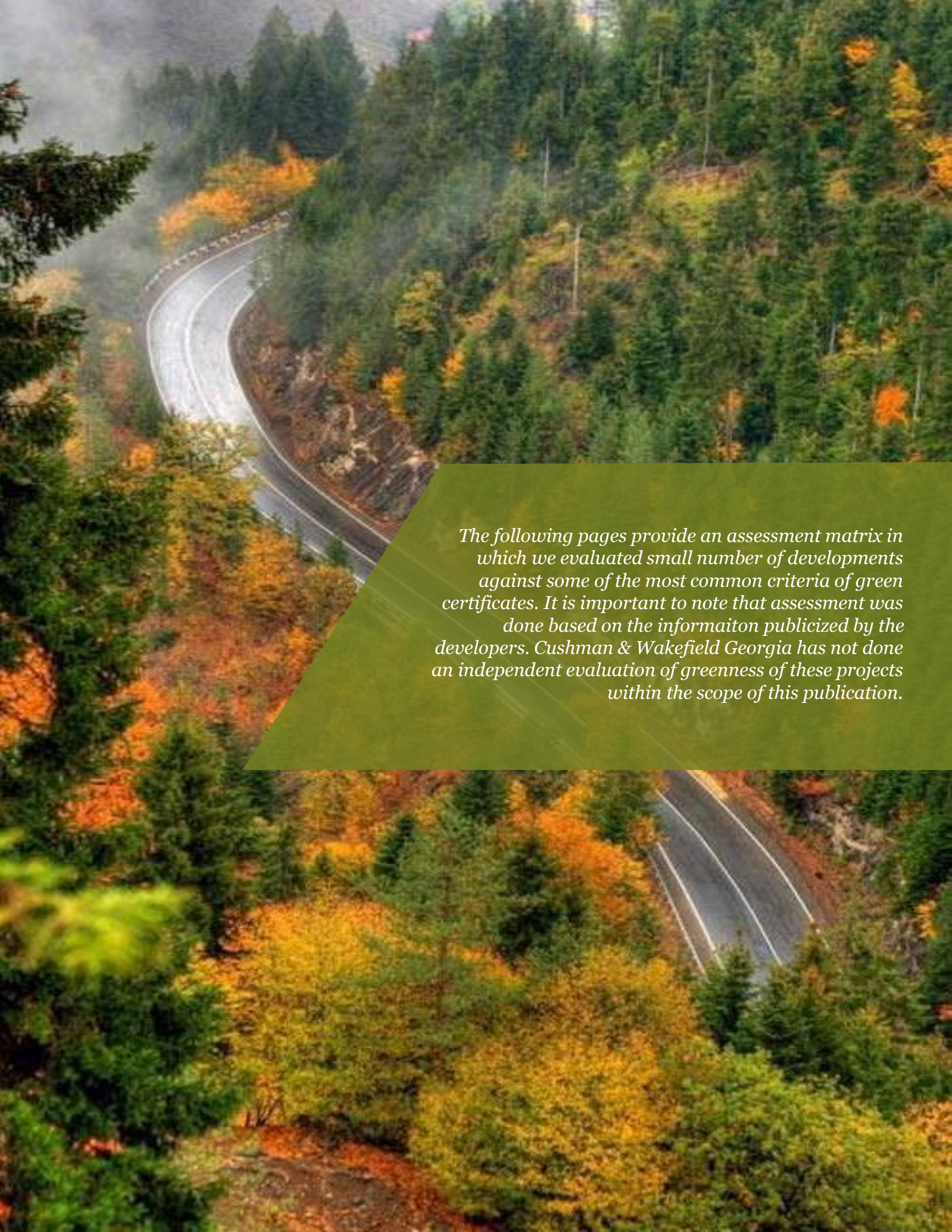
The demand and attention on greenness increased sharply over the last year. According to McGraw Hill Construction "the growth around the world suggests that the green building market is not isolated to one particular region, economic condition or culture". As our homes became our microcosms, we started to reevaluate our living spaces, specifically, what we want them to be like. In many a country worldwide, including Georgia, demand increased on isolated, suburban housing as well as on green spaces and yards nearby. Cushman & Wakefield (2021) reports that „immediate and local green spaces became even more important. The use of parks and outdoor spaces in several places in the northern hemisphere increased by between 25%-50% according to Our World in Data. In places like Canada, the Netherlands, Germany, and the Nordic countries usage more than doubled".

GREENNESS IN GEORGIA

In Georgia greenness is still in its burgeoning stages but the progress on the road to sustainability and the trajectory of greater accountability has been apparent over the last decade. More and more companies have begun to incorporate green technologies in their short and long-term plans. Firms are responding to the emerging demand - companies are finding business value and opportunities from green buildings, including the opportunity for new environmentally responsible products. In turn, supply trends are shaping user behavior and as developers raise the bar of sustainability, the demand for greener option grows on the market.

The tendency to use phrases such as "green" or "ecologically clean" as common marketing devices is still pervasive but fortunately, over time and to some degree, greenness has spilled over to the developer practices as well. However, they are still shying away from green certifications due to the upfront cost premium and many have yet to recognize both the business value and the soft merits that green projects can offer.

As demand on green and ecologically conscious options grows, so does the market. We are seeing increasing number of settlements pop up in Krtsanisi, Tabakhmela, Shindisi, Tsavkisi as well as in villages near Mtskheta and the Kakheti region. Marketed as primary homes, these projects offer a greener option to the residents of Tbilisi and at varying price points. Here we discuss a few such projects and display the green and eco-friendly building criteria that each is satisfying.



The following pages provide an assessment matrix in which we evaluated small number of developments against some of the most common criteria of green certificates. It is important to note that assessment was done based on the informaiton publicized by the developers. Cushman & Wakefield Georgia has not done an independent evaluation of greenness of these projects within the scope of this publication.

Project	Health & Well-being	Transport & Site Location	Reduced Material, Water & Energy Consumption	Reduced Pollution & Waste	Land Use & Ecology
	✓	✓		✓	✓
York Towers real estate development company *is presently constructing York Town in Tabakhmela - a premium mixed use residential complex including villas, townhouses and premium apartments. Its privilege is its closeness to nature, green forest and fresh air, as well as utilizing highest quality materials. Company cooperates with suppliers who have international certificate for quality control and assurance of their products. Their choices of building materials and construction technologies are focused on preserving and maintaining the environment and the healthy life of the inhabitants.*					
	✓	✓		✓	✓
Residential complex Tsavkisi Valley *which encompasses 168 individual homes, is built on 33ha plot of land. The development company utilizes modern technologies imported from abroad, while the house designs are created by local architects incorporating native features* of the landscape. *Tsavkisi Valley neighborhood is also appealing due to its proximity to Tbilisi and all necessary infrastructure, as well as ecologically clean area, natural parks, and environmentally friendly conditions.*					

Project	Health & Well-being	Transport & Site Location	Reduced Material, Water & Energy Consumption	Reduced Pollution & Waste	Land Use & Ecology
					
Krtsanisi Villa Residence *is made up of premium class houses on 12 ha land. Its proximity to the capital and beautiful panoramic views over the city are the benefits of the location. People can find multi-functional infrastructure, as well as educational, sport and entertainment areas. Its main perks are recreation areas and green yards offering peace and well-being. Its townhouses are covered with green cover and wide terraces. The company uses energy efficient materials to protect nature and reduce operating costs, and they regularly check international standards for construction. The main emphasis is on ecology – reflected both in their location and energy-efficient construction.*	✓	✓		✓	✓
					
New entrant in the market Baltic Investment Group is building ***Namai Vake*** *- a premium-class residence zone. The projects emphasizes the importance of quality construction and insulating materials. They offer waterproof and insulated roofs meeting the EU energy efficiency requirements for class B buildings. Moreover, balconies and terraces are waterproof and covered with thermal materials. Energy-efficient Aluminum and double-glazed windows will also control sunlight. Heated floors, multi-layered doors with sound-proof filling, and separate ventilation systems for each apartment make living pleasant and comfortable. Importantly the properties will have solar power panels installed on the roofs to supply electricity for the common areas, while LED lightings will be used inside. The area will feature green spaces and yards with an automatic watering system. The complex is one of the most energy efficient residences in the city.*	✓	✓	✓	✓	✓

ECO-FRIENDLY VILLAS IN GEORGIA

In line with suburban living trends we can also find increased number of villas across Georgia, especially in Kakheti region.

Kindzmarauli Wine Village

Kvareli, the Kindzmarauli micro-zone, will soon see the construction of an unprecedented large-scale project ***Kindzmarauli Wine Village*** *on an area of 35.5ha. The project includes 78 residential villas, whose architecture blends harmoniously with nature. 9ha will be devoted to arranging a recreation zone with natural forest, streams and artificial lake. A vineyard of unique Georgian grape varieties will be planted on 8ha of land. The infrastructure of the village also includes hiking/cycling trails, a business hub with a business lounge, and various types of co-working and conference spaces, making remote work even more comfortable. Besides its proximity to Tbilisi, the complex offers the unique views of Eastern Georgia, and panorama of the Caucasus mountain system.*

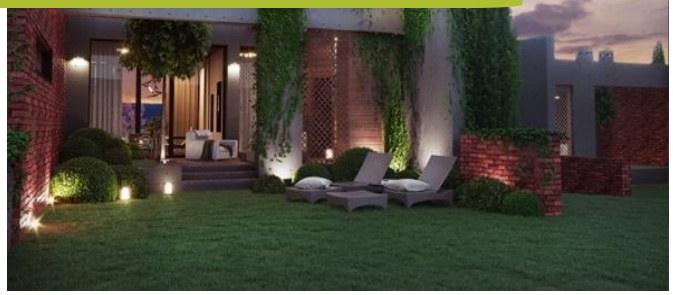
Schuchmann Wines

Schuchmann Wines *in Kisiskhevi, in the very heart of Georgian wine growing region of Kakheti, is developing an exclusive wine village comprised of 25 villas. The architecture and interior design characteristics are typical for Kakheti region. The villas are constructed with authentic building materials from 19 century, such as river stone, Georgian brick, wood, etc. Main material in the interior are Georgian wood and ancient brick, while the plain furniture design is specifically developed for this project so that the houses are fitted with specially created furniture. This exclusive wine village of luxury villas has views on the Caucasus mountains and Alazani valley, making the location more appealing.*

Villa Godoli

*Village of Ruispiri in Telavi district will soon host **Villa Godoli** project - 30 elite houses with large verandas and vineyards. The buildings will feature a modern interpretation of ethnic style, presenting the architecture typical for the Kakheti region with its monolithic facades and strict lines. The materials are selected taking into account the historical nature of the Kakheti region. The eco-friendly area always has a breeze and special coolness, while featuring dozens of 100-year-old oaks and offering clean air. From the region there are views of the whole Alazani Valley and Alaverdi Monastery, as well as the Caucasus Range, creating peaceful atmosphere.*

Kachreti Villa Ambassador



***Kachreti** is another destination in Kakheti for people to enjoy green spaces and clean air in **Villa Ambassador** offering 45 exclusive villas and 50 hectares of green area. The concept of Villa Ambassador is a combination of elegant architecture and modern interior. The complex consists of Mukuzani, Rkatsiteli and Saperavi districts, and one and two storey exclusive design villas vary by area. The facades of the buildings are covered with brick tiles and wood details, the terraces are covered with pergolas, and fireplaces are paved with stone.*

Kvareli Wine Village

In Kvareli municipality a new Wine Village will feature 50 houses located on 5ha land, each with its own vineyard. It is a necessary requirement that the houses should not be large in size and must be white colour - the white houses decorated with red bricks and covered with Georgian tiles. The idea is to create infrastructurally organized modern village saturated with ethnic elements.

GREEN PRACTICES FROM GEORGIAN DEVELOPERS

Besides green villas and eco-friendly gated communities across the country, residential complexes in the cities of Georgia should also be promoting well-being of their residents and preserving environment. We offer spotlight of several developers that champion sustainable practices in the country:

One is White Square company developing White Square Apartments with the Ytong heated blocks, ecologically and environmentally friendly materials, enabling energy efficiency and hence, reducing utility bills for the residents. Also such apartments have grey low-emission, metal-plastic double-glazed doors, and windows, allowing sound insulation. Moreover, the blocks are located away from the central street avoiding noise and dust. Additionally in the inner yard White Square buildings provide green zones, recreation area, playgrounds and sport facilities.

Archi, one of the leading Georgian development companies, invested in energy-efficient technologies. They are using Yutong building blocks, energy-efficient windows and doors, high quality ventilation systems and insulation. As a result, Archi is able to develop green buildings compatible with EU standards. Archi buildings reduce energy consumption by 43%, thus the inhabitants are able to maximize their energy savings and cut costs.

Domus Development company uses premium quality building materials, such as Rockwool stone wool, or Mitsubishi split system improving energy performance of a building and bringing comfort. They also offer ceramic-granite frost-resistant tiles and glass hand-rails for the balconies, offering a pleasant interior environment.

Anagi Construction Company and Axis Development are the firms in Georgia which also employ high quality construction materials and innovative technologies in their projects.

It is to be observed that there are other green projects and companies utilizing eco-friendly materials but it would be unachievable within the scope of this paper to mention each and every of them.

GEFF PROGRAM IN GEORGIA

As we see from above, it is clear that over time more companies are utilizing best products and eco-friendly materials in construction in Georgia in line with enduring green building and sustainability trends. Yet, to have more substantial effects on environmental conservation and health and safety of residents on larger scale, more individuals, builders and real estate investors will need to incorporate green practices into their business plans. With this regard, Green Economy Financing Facility (GEFF) was developed by the European Bank for Reconstruction and Development (EBRD) to support businesses and homeowners wishing to invest in green technologies. While operating across 27 countries including Georgia, the program managed to reduce annual CO2 emissions by almost 7 million tones. Green loans for energy efficiency and renewable energy investments in residential and industrial sectors are provided via partner financial institutions: Bank of Georgia, BassisBank, Credo, TBC Bank and VTB.

Top three sectors for energy efficiency investments in Georgia are: Construction (23%), Manufacturing (21%) and Financial Services (14%). Meanwhile, 58% of loans are given to corporate sector, and residential sector accounts for 42%.

Notably, the most significant examples of green buildings in Georgia focusing on sustainability are related to GEFF program. We will briefly introduce some remarkable ones below.

GEFF: *Residential Sector*

Lisi Green Town *in Tbilisi is a residential development offering clean and peaceful living conditions for their potential residents. They provide apartments, townhouses and detached houses with parks, pools and a gym. The total residential area is 25000m². It is one of the pioneer complexes that incorporated green measures inside and outside of the area. This residential development installed electric car chargers and rainwater collector to reduce water consumption, as well as implementing energy-efficient standards to cut 30% of utility costs and planting 40,000 trees.*

Through the GEFF financing program the company received US$ 1,236,000 investment. They plan to install thermal insulation on walls and roofs, thick layered windows and doors, energy efficient heating and cooling systems, efficient elevators, and LED lighting, altogether saving 846.56 MWh in natural gas and 80 MWh in electricity. In monetary terms, the company will save US$ 20,000 yearly. Moreover, CO_2 emissions will decrease by 200 tons per annum. The project's aim is to build ecologically sustainable space in Tbilisi.

GEFF: *Hospitality Industry*

Greenness trends are seen in several Georgian hotels too, in different cities. For instance, a **Museum Hotel** *in the heart of Tbilisi got reconstructed few years ago. The reconstruction plan encompassed the objectives of energy-efficiency. With the help of GEFF experts, potential energy-savings have been calculated, and US$ 237,000 investment allowed the hotel to cut energy use by 90%. Meanwhile, natural gas and electricity usage saw savings of 242,975 kWh and 4,206 kWh respectively. As a result, annual cost savings add up to US$ 6,286. Therefore, the hotel is able to reduce its environmental impact and be more cost-efficient.*

Another example is a hotel in Zugdidi which aims to become energy-efficient, attract more tourists and contribute to hospitality industry in the region. The goal of a development company **Angelteri** *is to focus on sustainable measures and reduce their impact on environment as much as possible. Hence, the project managers decided to power their 31-key hotel with renewable energy. Will the help of US$ 166,968 investment from GEFF the hotel will save around 300 MWh yearly, translating into US$ 8,474 in monetary terms. Efficient heating, cooling, and lighting systems allow cutting CO_2 emissions by 58.28 tones per year. Such kind of projects are vital for making building industry carbon free over time.*

GEFF: *Mixed Use Buildings*

Besides hotels, other types of buildings feature green elements in Georgia. For example, **Vake Hill** *plans to construct a multifunctional building of about 9,000 m² with offices, restaurants and a spacious car parking. As high-class offices are highly demanded in Tbilisi, the company decided to offer comfortable and healthy environment for work. The company got US$ 2,255,660 investment through GEFF, after receiving technical and financial recommendations about the project from GEFF experts, and advising electricity over natural gas as a power source. The project will be energy-efficient due to thermal insulation and heat recovery system, good heating and cooling appliances and high-performance windows and doors reducing energy losses during any season. Moreover, LED lighting and high-performance elevators additionally save almost 2,000 MWh/y. As a result, energy bills will be cut by US$ 54,000 yearly.*

GEFF: *Retail*

Green elements can be implemented in shopping malls too. For instance, **Gldani City Mall** *in Tbilisi decided to use energy-efficient technology to reduce energy costs, and they applied for GEFF financing. With the help of experts, the construction materials used were complying with EU standards. With investment of US$ 1.8 million the mall structure incorporates energy-efficient sandwich panels, effective heating and cooling, and quality ventilation systems, as well as energy-saving elevators and escalators, and LED lights. Consequently they save US$ 240,000 in energy costs per annum. Hence, high-performance technologies can be beneficial in this business sector too.*

OTHER GREEN PROJECTS

Besides GEFF program, we can also highlight some other independent projects focusing on sustainable measures and employing green practices in Georgia.

CASE 1: WALDORF SCHOOL

Waldorf School in Tbilisi aimed to limit energy consumption and focus on renewable energy systems (RES). Installation of solar PVs became necessary to partially cover the electricity needs, as high electricity bills for the school were seen as a burden.
Ministry of Environment of the Republic of Lithuania devoted EUR 30,047.50 from the Climate Change Special Program to the school for installing a 20-kW grid connected solar panels. The project was implemented in 2020, and between January – March 2021 the solar plant generated 3,197 kWh of electricity. The expectations about the solar PVs are high to reduce the electricity bills and diminish CO2 emissions by 17,400 tons annually. Interestingly, the solar panels have an online monitoring system, making it easier to track and control its operation.

CASE 2: PROCREDIT BANK

And lastly, the most recent and notable example of green building in Georgia - The Head Office of ProCredit Bank in Tbilisi, which is the first building in the country to receive an **EDGE** *(Excellence in Design for Greater Efficiencies) certificate as a resource efficient structure. The building is significant with its glazed façade and atrium providing natural light, low-E coated windows and highly efficient building envelope. Moreover it uses LED lighting for saving energy, as well as ventilation system for heating and cooling that guarantees quality air and energy saving. Furthermore the bank installed one of the first rainwater harvesting systems in the country to reduce its water resource consumption.*

ProCredit is the only bank in Georgia which uses two grid connected solar power plants for different purposes. One system is installed on the roof of the building for electricity generation for internal use, which also provides partial shading from the direct sunlight coming through glass. Meanwhile the bank uses another solar collector for charging its electric vehicles, installed on the roof of a small parking construction next to the main building.

The total area of both solar panels is 500m^2, and annually they can generate 135,000 kWh electricity. It is estimated that payback period will be around 6 years. During June 2020-February 2021 the solar plants generated 68030 kWh of electricity and contributed to the reduction of CO_2 emissions by 5.58 tons. It should be noted too that the bank provides financing offers to SMEs for investments in energy efficient, renewable electric power and environmentally friendly technologies under the GEFF program.

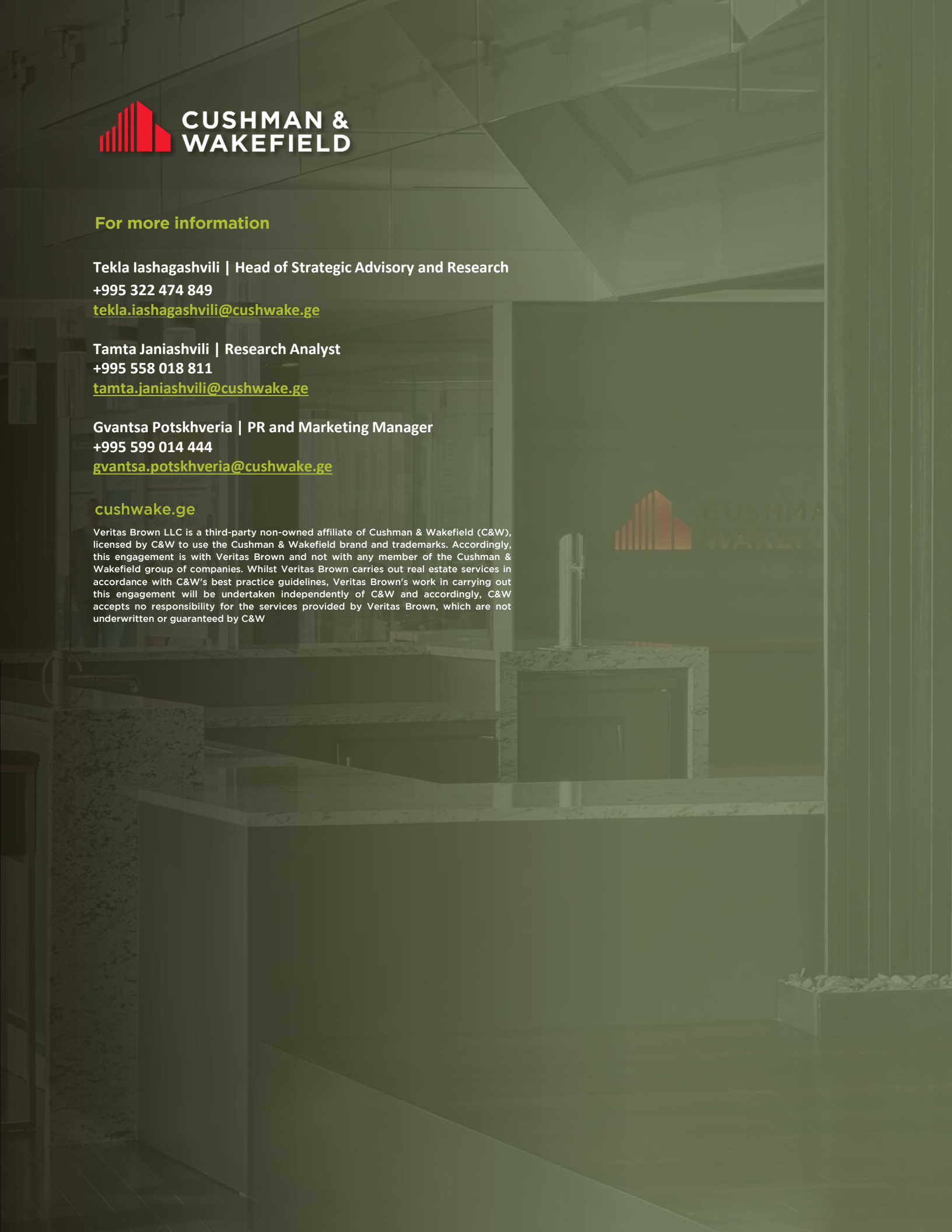
In the end, as sustainability practices gain more importance globally we can observe overall societal, economic and cultural changes in Georgia too. It is clear that the understanding of and demand for green buildings have increased in the country in the recent past. Development companies in the country involved in eco-friendly residences underscore the preference for choosing sustainable building materials, but it should be highlighted that utilized materials are relatively costly translating into higher house prices afterwards. For example, in many European countries or the US green buildings and needed construction resources have become the norm, leading to lower upfront green premia for sustainable housing. Whereas, in developing countries, which are relatively less established markets, green houses incur high costs presumably reflecting the relative scarcity of needed materials and shortages in supply. This is the case in Georgia too; Lower supply of green buildings combined with expensive building materials make green homes relatively unaffordable for some groups of people excluding them from buying. As a result, only limited number of residents are able to purchase premium class apartments and villas in eco-friendly complexes.

What's more, even though the real estate space in the country continues to incorporate more green and eco-friendly elements, the knowledge of some professionals in the financial or real estate sectors may not have been keeping pace with greenness trends, as they may not have an adequate understanding of sustainable building practices. It would be beneficial for the country and its residents to have more certified buildings, as along with bringing environmental benefits, green certificates help buildings to operate efficiently while promoting healthy environment for life and work. Meanwhile with green features companies realize lower operating costs, higher productivity and profitability, and at the same time enhance the corporate image.

To conclude, green settlements are relatively new trend in Georgia but over time their importance rises. We need eco-friendly structures to tackle environmental issues as well as improving occupant health and comfort through the use of better construction materials and design systems. But simply building houses that are affordable for high-income individuals to purchase or rent is not sufficient. Green building practices will bring widespread benefits if low and moderate-income families are also able to afford them.

In line with heightened environmental concerns and increased public awareness of the importance of our lifestyles and behaviors, the demand for and supply of green buildings are projected to increase in the country over the coming years, followed by a wider availability of needed energy-efficient materials and less burdening prices. Only when green real estate becomes affordable for diverse groups of people realizing its benefits on a broader-scale, then urban sustainability in Georgia will seem more of an achievable goal than an unattainable dream.

This publication completes the Going Green series.



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