For cited: *Kaya, M. G. & Hughes, P. (2020). Tax Incentives and Policy Recommendations Towards Green Building Practices in Turkey. Journal of Current Researches on Social Sciences, 10 (4), 793-808.*

Journal of Current Researches on Social Sciences (JoCReSS)
www.stracademy.org/jocress
ISSN: 2547-9644

Year: 2020
Volume: 10
Issue: 4

Research Article/Araştırma Makalesi

Crossref doi: 10.26579/jocress.407

Tax Incentives and Policy Recommendations Towards Green Building Practices in Turkey

Mustafa Göktuğ KAYA[1] & Patricia HUGHES[2]

Keywords
Green Buildings, Tax Incentives, Turkey, Policy Recommendations, US.

Article History
Received
21 Nov, 2020
Accepted
24 Dec, 2020

Abstract
Green buildings are real estates that reduce the effects of buildings on the environment and human health. In recent years, practices related to green buildings, which are defined as environmentally friendly and sustainable buildings aiming to save energy, have increased. The aim of this study to draw attention to the importance of environmentally friendly green buildings rapidly increasing in the world and Turkey, to introduce green building certification systems, to evaluate the tax incentives applied to green buildings in the world, especially in USA and to review about tax incentives and policy recommendations for green buildings that can be implemented in Turkey.
In this direction, firstly, sustainable, energy-saving and environmentally friendly green buildings were discussed in the conceptual framework and their development in the world was evaluated specifically in USA. Later on policy recommendations and tax incentives for green buildings in Turkey were evaluated.

1. Introduction

The most important data in determining energy and development strategies across the globe consist of climatic change and global warming statistics. Concerns of global warming relate to the increasing energy demand associated with economic growth. This increasing energy demand is satisfied with nonrenewable fossil fuels, which are less costly compared to renewable energy resources. Using fossil fuels like coal as energy resource leads to a high rate of carbon dioxide emission. Using natural gas as an energy resource is more efficient and cleaner, is easier to transport, but also harms the environment. Rapid increases of energy demand and the effects of energy consumption that are harmful to nature will have a significant effect on the global economy causing a decrease in biodiversity, deforestation, air pollution and health problems. To mitigate the negative impact of increased energy demand countries may turn to renewable energy sources and adapt widespread green buildings that incorporate clean energy production.

[1] Corresponding Author. ORCID: 0000-0003-4124-4733. Dr.,Visiting Scholar, University of Saint Cloud State, Department of Economics, Minnesota, USA, mustafa.kaya@stcloudstate.edu
[2] 0000-0002-9029-7113. Professor, University of Saint Cloud State, Department of Economics, Department Chair, Minnesota, USA, pahughes@stcloudstate.edu

Since buildings are responsible for approximately 40% of global energy use and 33% of global greenhouse gas emissions, managing sustainable development requires the adoption of green buildings. Green buildings are the ones treating natural ecology and providing all energy from natural resources. With green buildings, the structure is evaluated starting with land selection in the framework of life cycle and designed with the approach of social and environmental responsibility; natural and non-waste materials are used that are suitable to climatic data and conditions specific to that location, oriented to renewable energy resources and which encourage participation and sensitivity to ecosystems (CEDBIK, 2019). The widespread adoption of green buildings by countries dependent on foreign oil will have the added benefit of decreasing the dependence on fossil fuel and improving current account deficits, as well as providing a more sustainable environment that can be handed down to the next generation.

There are many incentives provided by governments to encourage the widespread adoption of green building. In order to provide energy saving in buildings by more efficient usage and access to renewable energy resources, tax incentives are often provided to encourage green building. The aim of this study to draw attention to the importance of environmentally friendly green buildings rapidly increasing in the world and Turkey, to introduce green building certification systems, to evaluate the tax incentives applied to green buildings in the world, especially in USA and to review about tax incentives and policy recommendations for green buildings that can be implemented in Turkey.

In this direction, firstly, sustainable, energy-saving and environmentally friendly green buildings were discussed in the conceptual framework and their development in the world was evaluated specifically in USA. Later on policy recommendations and tax incentives for green buildings in Turkey were evaluated.

2. Green Building And Its Development In Conceptual Framework

Renewable energy sources using domestic resources have the potential to provide almost zero emission energy services for both air pollutants and greenhouse gases. Renewable energy is a promising alternative solution as it is clean and environmentally safe. Approximately half of the global energy supply will be supplied from renewable sources in 2040 (Demirbas, 2009).

In both developed and developing countries, more than 40% of global energy use and one-third of global greenhouse gas emissions occur in buildings. The main source of greenhouse gas emissions resulting from buildings is energy consumption. The construction sector has the most potential for providing long term, important, and cost-effective greenhouse emission reductions. In the proven and commercially obtainable technologies, energy consumption can be reduced by the rate of approximately 30 to 80 percent with potential net profit throughout the life of the building. Buildings have a relatively long life, therefore the processes carried out at the beginning will continue to affect greenhouse emissions throughout the middle and long-term (UNEP SBCI, 2009).

The coalition of the World Green Building Council and green building councils from 94 countries have a common goal, to create an environment built for humans with structures that provide better, brighter, and healthier spaces for people to

live, work and play. For realizing this common goal, it is necessary for green building to extend to buildings, communities, and cities (World Green Building Council, 2013). Green buildings are the environmental, economic, and healthy structures evaluated and designed by starting with the land selection process in the framework of the life cycle suitable for the nature–specific conditions, oriented to saving energy using materials suitable to environmental conditions, and providing heat efficiency (www.epa.gov). Green buildings provide energy saving, water saving, saving from the other valuable resources and, most importantly, saving of money. Among the other benefits of green buildings are:

- Decrease of energy consumption.
- Management of waste output.
- Improving internal air quality and quantity.
- Decrease of water consumption in building and landscape areas.
- Increasing green areas.
- Recirculating rainwater, grey water, and condensates according to feasibility study.
- Utilizing daylight and landscape at maximum rate.

Water consumption of green buildings is quite low, providing approximately 50% saving thanks to waterless urinals, sinks and shower faucets, and effective reservoirs. Saving from energy costs can be qualified as the biggest benefit of green buildings, leading to an important economic benefit. Green buildings consume less energy resource by 25 to 50% compared to ordinary buildings. In green buildings, rainwaters are recovered and can be reused. In addition, grey waters obtained from sinks and shower drains are treated and can be recovered as clean water. Using plants and trees consuming less water, landscape arrangements can be made. By utilizing daylight, a high level of psychological benefit is provided through a sense of airiness. There are renewable energy systems in green buildings. Over the life of a green building, by providing emission reduction, reduction of energy usage, and reduction of water usage, it is estimated that saving at least ten times the amount of the initial investment are achievable with green buildings. Although the most remarkable economic benefit of green buildings is the energy savings they provide, there are also the other economic benefits. Among these benefits are higher rental prices, larger rentable area, income obtained from recycling, lower renewing costs for structural components of buildings, lower sewage and wastewater fees, lower waste disposal fees, and lower insurance premiums (Dator, 2010).

Figure 1: The Advantage of Green Building vs Traditional Building

Source: Hayes, 2012:14

Figure 1 illustrates the various benefits associated with green buildings: increased financial performance, strong market demand, lower risk to energy price fluctuations, and greater legislative compliance. With respect to total risk, green buildings had higher investment returns, skill to adapt to climatic change, and increased flexibility to energy price fluctuations.

Figure 2: The Value and Impact of the Green Building

Value of Occupying Sustainable Buildings	
Energy Saving (EPC D to B)	€ 24 /m²/year
Water Saving (Part L to BREEAM VG)	€1 /m²/year
Sickness Reduction (39% reduction)	€180 /m²/year
Productivity Improvement (5% increase)	€690 /m²/year
TOTAL	€895 /m²/year
Other Benefits to Occupier	Brand, CSR, Recruitment and Retention
Other Benefits to Investor	Marketability, longer life, stable cashflows

Source: Hayes, 2012:4

Figure 2 quantifies the value of green buildings to the economy. Green buildings are estimated to yield a total advantage of 895 EUR per square meter on an annual basis over traditional buildings. This includes 24 EUR in energy saving, 80 EUR in sickness reduction, and 690 EUR in productivity improvement. On the right, the impact of green buildings relative to standard buildings are shown across various metrics. There are two indicators revealing significant increases: goodwill/brand equality (69%) and employee comfort (62%). Areas such as occupancy levels, property values, renovation time, permit processing time, and insurance rates did not show significant increases.

Currently, most buildings in the world are using fossil fuels for energy production. As such, it is possible to save energy and preserve the environment by using the

renewable energy resources. One example of a clean renewable energy resources for use in green buildings is solar energy. Installing solar panels onto the roof of buildings, solar energy can be utilized. Another renewable energy resource enabling the production of clean energy is wind energy. In the scope of production of renewable energy, it is possible to generate enough clean energy for meeting its own electricity production for green buildings (Salkın, 2012).

The studies on green buildings, in terms of designing and operating buildings relative to traditional mediums, show that a decrease of between 24% and 50% in energy use can be provided; between 33% and 39% in CO_2 emission; between 30% and 50% in water consumption, in the rate of 70% in the amount of solid waste, and in the rate of 13% in maintenance costs. United States Green Building Council, USGBC, reported that a green building prevented 350 metric ton of CO_2 emission, using an average of 32% less energy. When the shares of these in the use of energy and resource and waster emission production are considered, it can be understood how important these saving are. Furthermore, the need for new buildings is continuously increasing, resulting in an expansion of the construction sector. USGBC predicts higher rates of CO_2 emissions from the construction sector relative to other sectors of the economy, by a factor of 1.8 per year over the next 25 years (Erten, 2017).

3. Applications Of Green Building In United States Of America

While the world is rapidly becoming a global village due to the increasing daily energy need of the entire population of the world, the world cannot change in its form (Owusu and Sarkodie, 2016).

The United States is the largest economic power and the biggest environmental polluter, energy consumer, and waste producer in the World (Sale, 1993).

The EPA (2019) states that in the United States, buildings account for:

- 39% of total energy use.
- 12% of the total water consumption.
- 72% of total electricity consumption.
- 38% of the carbon dioxide emissions.

According to US Department of Energy, an average American Building consumes 1253-gallon equivalent energy of petrol. While half of this amount originates from heating via medium heating, the remaining part results from refrigerators, air conditioners, lighting, and kitchen ovens (Naar, 1990).

The built environment has a major impact on the natural environment, the economy and human health. By adopting green building strategies, we can maximize both environmental and economic performance (Cesaretti and Misso, 2015).

In planning for a green building, determining how an assessment system will be used is a vital decision. Certification systems aim to define green buildings, developing a holistic design system having general and feasible measurement standards and environmental leadership in construction sector; promoting green

competition; and informing consumers about the advantages of green buildings (Erdede et. al., 2014).

Many countries have developed their own standards for green buildings according to their terms and requirements. According to Kincay (2019) the major green building certification systems in the world are:

- BREEAM (Building Research Establishment Environmental Assessment Method) in the UK in 1990
- LEED (Leadership in Energy and Environmental Design) in USA in 1998
- IISBE (International Initiative for Sustainable Built Environment) was established in 1998 with the development of developed countries
- Greenstar, created in Australia based on BREEAM in 2003
- CASBEE (Comprehensive Assessment for Building Environmental Efficiency) in Japan in 2004 and
- DGNB (Deutsche Gesellschaft fur Nachhaltiges Bauen) in Germany in 2009.

Internationally the most popular among these are LEED, BREEAM and DGNB. LEED was developed by the American Green Building Council (USGBC) in 1998 and is the most preferred certification system. LEED is the most highly used rating system of green building in the world. LEED, which exists for all sorts of all buildings, community projects, and housing projects, presents a framework to form healthy and high efficiency green buildings that provide cost saving (Kohler et.al.,2010). According to USGBC (2018) LEED certification system features include:

- Globally recognized symbol of sustainability achievement.
- Administered by the U. S. Green Building Council.
- Voluntary, consensus-based system.
- Four stages in LEED certification: Certificate, Silver, Gold, and Platinum.
- Includes all types of buildings.
- Present in 165 countries and regions.
- Produce a saving from energy, produce less waste, and support human health.

According to OSRAM (2019) benefits of LEED certification systems include:

- Faster lease up rates.
- Instant recognition for your building.
- Healthier indoor space.
- Higher resale value.
- Less use of energy and other resources.
- Establishes you as a leader in green building and enhances your brand.
- Better for building occupants and the environment.

4. Tax Incentives For Green Buildings In United States Of America

While tax incentives, one of the instruments of fiscal policy, increase income of consumers via lower tax rates applied to demand side of the economy, on supply side, providing production- cost advantage will lead to expansion (Sevinç et. al, 2016).

Various tax proposals have been made within the scope of environmental taxes, expressed in terms of pollution tax and green tax, having a positive impact on the environment. This practice serves as a deterrent to people and companies that harm the environment, rather than generating income.

Focused on buildings, being the largest users of energy and natural resources in the world, environmental protection is of vital importance in terms of energy saving and the use of renewable energy sources.

Incentives for green buildings are considered in two categories, tangible and intangible. Tangible incentives provide a direct economic benefit to the taxpayer. Intangible incentives are realized in the form of consultancy services. While intangible incentives are important for buildings and their owners, more important for green building incentives are tangible incentives. Tangible incentives for green building in the USA are two categories: Federal incentives implemented at the national level and state incentives implemented at the local level. Federal Tax Incentives are tax incentives provided to the private sector that require federal agencies to adopt green building principles. In the USA, green building incentives are applied at federal level in two categories: tax credit (Energy Investment Tax Credit and Energy Generation Tax Credit) and accelerated depreciation (Şentürk, 2014):

- **Energy Investment Tax Credit:** When a taxpayer makes an energy investment in accordance with the green building concept, taxpayer can benefit from a tax credit or grant between 10% and 30% of the cost incurred in relation to this investment.
- **Energy Generation Tax Credit:** 2.2% energy generation tax credit can be used for each kilowatt hour (Kwh) of energy production in case of the sale of the elements considered as green energy (use of renewable energy) to third parties. The taxpayers can benefit from the loan using renewable energy sources, which generate electricity and sell their electricity to third parties.
- **Accelerated Depreciation:** Taxpayers can also benefit from varying degrees of accelerated depreciation for green technologies. While the general period of accelerated depreciation is 5 years, additional depreciation is provided at 100 or 50% rate.
- **Federal Enterprise Income Tax Credit for Investment in Energy Development in Buildings**: With this application the development of the energy production capacity of a property is encouraged. In this context, it is possible to obtain a tax credit at the level of 30% of the investment project costs to increase energy production in the building (Garciano, 2013).

- **Federal Operating Income Tax Credit for the Use of Alternative Fuel Vehicles in Buildings:** In this application, in case of using alternative fuel vehicles in the building, 30% of the cost incurred is left to the building owner (operating income tax credit) as tax credit. The said cost includes the purchase of fuel vehicles as well as the construction (assembly) costs. In addition, the costs of converting conventional fuel technologies into new technology are considered in the calculation of tax credit (Garciano, 2013).

The most important subsidies for renewable energy are federal investment tax credits as well as production tax credits and state renewable portfolio standards. In the USA, investment tax credits were applied to solar energy in 2005 to encourage the use of solar energy. In the scale of both on-roof solar energy panels and network, encouragement for effective use of solar energy became successful. Federal tax credit reduces the cost of solar energy by 30%. The houses of 5 million Americans are now powered by solar energy. It is expected that this number will double with the projects in the scope of contract. Most of them are in the planning stage for solar energy. In addition, wind energy utilizes federal tax credits. USA produces sufficient wind energy to provide power/energy for 17.5 million homeowners. Americans allocated less than 4% of their expenses for energy in 2017, a near record low. Between 2009 and 2016, the cost of solar energy decreased by 85% in USA and that of wind energy, by 66%. In USA, tax credits for renewable energy resources enable service developer and homeowners to substitute 30% of solar energy, wind energy, and fuel battery project cost from the taxes they pay. For the other technologies such as heat and energy systems combined in geothermal energy, 10% tax credits are applied. It is scheduled to phase out in 2022. Many states have targets to provide a certain percentage of electricity they use from renewable resources by a certain date. These renewable portfolio standards differ between states. For example, while New York and California target 50% by 2030, Vermont targets 75% by 2032 (Funkhouser, 2018).

5. In Turkey, Incentives For Green Buildings Applications

Energy production and use is strongly linked to all aspects of sustainable development, such as economic, social and environmental (Kaygusuz, 2007).

In the last decade, Turkey showed vast economic growth with 5% annual average. Inevitably, economic growth creates increasing energy consumption. If the planned growth in the government's 2023 agenda will occur, energy consumption of Turkey will increase fivefold between 2000 and 2025 (Ministry of Treasury and Finance, 2019).

There are estimated to be approximately 10 million buildings (2.5 million new, 7.5 million old) in Turkey. In Turkey as well as around the world, more than 30% of energy use is for buildings. Most of this energy is provided by fossil fuels, which have highly negative effects on the environment, and therefore on human health and welfare. Moreover, sources of fossil fuels are decreasing as a result of increased demand for energy. Mainly for these two reasons, the importance of saving energy and making use of renewable energies in buildings has increased. Increasing the number of green buildings is vital for both reducing the harmful gas emissions of buildings and energy consumption (Özyurt and Karabalık, 2009).

In Turkey, Association of Environmental Friendly Green Buildings, founded in 2007 under World Green Building Council (WGBC) is a non-governmental organization. It is the single agency representing Turkey under the roof of WGBC. Association of Environmental Friendly Green Buildings achieved "emerging status" in 2009 with its mission to spread the concept of green building to the base and increase the number of green buildings as a result of integrated design (Erten, 2017).

The most frequently used green building certification systems in Turkey are BREEAM, applied in United Kingdom, and LEED, the most commonly used all over the words and applied in USA. There are currently 281 certificated projects in Turkey, 264 LEED - certificated projects, and 40 BREEM-certificated projects (CEDBİK, 2019).

Table 1: Ranking of the Countries Received LEED Certificate in 2017

Ranking	Country/region	The Number of Project	Gross Construction Area Milyon m2*
1	China Public republic	1211	47,16
2	Canada	2970	40,77
3	India	752	20,28
4	Brazil	461	14,83
5	Germany	276	7,00
6	South Korea	106	6,66
7	Taiwan	124	6,15
8	Turkey	245	6,06
9	Mexico	305	5,16
10	United Arabic Emirates	207	4,41

Source: USGBC, 2018

Table 1 ranks the countries using LEED Program, excluding the USA. Turkey ranks 8th with 245 projects and construction area of 6.06 million m^2 in 2017 (CEDBİK, 2019). Across the world, considering the number of certificated construction projects is more than 250,000, Turkey needs to do more. Certificated buildings in Turkey are mostly buildings such as housing, workplace, and shopping centers, which belong to private sector. Although new buildings are being built in public sector, the number of those built as green building is small amount.

The most important factors which encourage green building are: government regulations and policies, energy saving (or increasing energy costs), environmental protection, incentive programs, green building rating systems, increased value of real estate, waste reduction (material and construction wastes), resource conservation, decreased amortization in rent and price, development of reusable and recyclable construction elements, superior performance of green materials, decreased repayment time, public perception, increase of building life, creating better opportunities for future, water saving, helping to change market, familiarity to green products and processes, etc. As a result of research studies, it can be concluded that government regulations and polices are the main driving force for green buildings (Darko et. al., 2016). Certain legal arrangements to compensate for the energy loss from buildings in Turkey include:

1) Energy Identity Certificate in Buildings: According to the Energy Efficiency Law No. 5627 and the Energy Performance Regulation in Buildings, the goal is to use energy and energy resources in buildings effectively and efficiently, to prevent energy waste and to protect the environment. Energy Identification Document includes the information about energy need and energy consumption classification, insulation specifications of building and efficiency of heating and cooling systems (Energy Efficiency Law, 2007).

2) Energy Performance Regulation in Buildings: Regulation on Energy Performance in Buildings (Bep-TR), passed in 2008, is a regulation sent to all cities (including municipalities) through internet-based central software and confirmed and executed by local government. Regulation does not carry a fine, demolition, or prison sentence and only brings rejection of construction license. Buildings making industrial production in industrial area, buildings that will be used less than two years (temporary buildings), buildings whose use area is less than 50 m^2, greenhouses, workshops, all new buildings (excluding those without air conditioning) are in the scope of this regulation (Energy Performance Regulation in Buildings, 2008).

Under the BREEAM certification system, reduction of CO_2 emissions is considered by taking energy points. For this, national energy method can be used. According to ASHRAE 90.1-2007, energy modelling or points can be taken from control list criteria, specified in BREEAM. BEP-TR, comparing buildings under standard conditions, calculates energy consumption by a simple method. For BREEAM certification, since it is necessary to demonstrate the rates of energy consumption and greenhouse gas reduction in the way that will be as accurate as possible, it will be appropriate to make a detailed and dynamic energy modelling for both certifications. BEP-TR can be used for simple residential buildings that are not complex in terms of thermal zones but using it for the other buildings is not suitable for green building certification (Erten, 2017).

3)Energy Efficiency Law: In assessments regarding countries of Sustainable Buildings Center (SBC), energy performance in building is considered as the only legal regulation for Turkey and is only mentioned in the context of granting or denying a building license. No incentive plan was defined regarding Turkey that applied to all buildings according to the functions of buildings (Energy Efficiency Law, 2007). Other than these, there is no legal regulation regarding green building specifically accepted.

In Turkey, an innovation that will promote the dissemination of green building was built in the Income Tax Act. With the new amendment made within the scope of Income Tax Law No. 193, persons who sell the electricity produced by the renewable energy sources based on roof-based renewable energy sources to the supply companies will be exempt from income tax (Income Tax Law No. 193).

In the scope of BREEAM, ENE 5, in addition to energy scores, are the scores related to using low or zero carbon technologies (LZC). While the first one is assigned to determine feasibility, the other two scores are directed to producing 10% or 15% of total energy from renewable resources. Considering the cost and prevalence of renewable technologies, an investor must receive some incentives (Erten, 2017).

Tax incentives encourage the construction of green building, a long-term investment, which can produce an important part of its own energy consumption, is in harmony with the ecosystem and has high energy efficiency (Şentürk, 2014). In view of this, energy production in buildings should be supported and these incentives should be made by means of tax incentives, which are one of the most efficient incentive methods available. The better and/or larger the incentive mechanism, the more the potential for buildings to produce their own energy source. An increase in the number and efficiency of green building will protect the environment and standard of living.

Tax incentives such as reductions, exemptions, exceptions, deductions, and accelerated amortization methods reduce the amount of tax paid by both consumers and green building suppliers. Tax enterprises encouraging the applications and uses of green building provide two known benefits. Its first and direct benefit is to protect environment, while the second is to economically contribute to employment. In view of this, it should be recognized that comprehensive fiscal reform encouraging green buildings create multiple benefits.

Based on the USA experience, the following recommendations to encourage green building in Turkey include:

- For enabling environmentally friendly applications to proceed and reduce harm to the environment, it is possible to obtain much more than the power of tax policies in completely modifying harmful ecological applications or new budgetary priorities. For example, pollution taxes supported by Worldwatch Institute or application of taxes similar to real estate taxes depending on institutional environmental performance as in State Louisiana in USA can be encouraged (Sale, 1993).
- Production incentives as well as tax exemptions and fiscal incentive mechanisms should be utilized.
- Provide legal and regulatory entities, including government regulations and incentives (USGBC, 2008).
- Evaluate and compare the efficiency of regulatory legislative approaches (for example: carbon trade, carbon taxes, construction of building regulations, construction law) and incentives (for example: tax, rights and aids provided by government), including undesirable results of traditional as well as innovative approaches.

Government may be a key ally or unintentionally form an impediment. For the country-specific strategies such as tax incentives or accelerated permissions/licenses directed to green buildings, it is important to understand when and how government action will be the most effective. As a result of comprehensive studies, for the appropriate policy enterprises directed by the local or national institutes, suggestions should be developed (USGBC, 2008).

For renewable energy resources, other than very limited tax incentives adopted in the last period, the fact that Turkey does not currently have an incentive policy to encourage becoming widespread green building is an important deficiency.

6. Conclusion

Fossil fuels are nonrenewable energy resources that cause considerable harm to both the economy and environment. With more than 40% of global energy use and 33% of global greenhouse emissions occurring in buildings, the transition to and subsidies to encourage more efficient use of clean, renewable energy through green building is imperative.

When we consider environmental problems such as climatic change, reduced water quality, water scarcity, diminished ecosystems, toxic wastes and chemicals, air pollution, weakening of the ozone layer, and deforestation, it is not difficult to understand the importance of the construction sector in transitioning to green building. Green building must be placed at the top of the institutional environmental strategy. By means of green buildings, homes producing their own energy will provide welfare from both an economic standpoint and an environmental standpoint. The government's understanding of the importance of the issue is demonstrated through tax credits and incentives supporting a solution to the problem. Every country, applying the most appropriate tax incentive for its own socioeconomic structure, should encourage the construction and use of green buildings.

In the USA, which is one of the leading countries in the world in green building applications, various programs are implemented for the purpose of promoting energy efficiency in buildings used both in residential and business premises. Regulatory provisions on green building in the USA are based on both obligation and volunteerism. In addition to legal regulations such as regulations and laws created by public institutions, there are standards that show technical requirements in areas such as quality and capacity created by organizations operating in private or public interest. In addition, incentives are applied at the federal level in terms of green buildings in the USA.

Energy consumption in Turkey's current account deficit is approximately 70%. To close the current account deficit arising from energy imports, Turkey must pass a domestic and clean energy policy. Turkey is still in the early stages of green building. To encourage greater development of green building, Turkey should follow the strategies of the USA and provide tax incentives to encourage the construction of green building and use of clean, renewable energy sources. Such a policy will lead to less dependence on foreign energy imports, an improvement in current account balances, and a cleaner environment.

References

CEDBİK (2019), Çevre Dostu Yeşil Binalar Derneği, Yeşil Bina, https://cedbik.org/tr/yesil-bina-7-pg, D.A.12.10.2019.

Cesaretti G. & R. Misso (2015), GoinGreen, A collaborative platform for the Excellences of Campania Region, Cesvitec, Italy.

Darko, A., Zhang, C., Chan & Albert P.C. (2017), Drivers for Green Building: A Review of Empirical Studies, Science Direct, Habitat International 60

Dator S. M.(2010), Green Building Regulations: Extending Mandates to the Residential Sector, Boston College Environmental Affairs Law Review, Volume 37, Issue 2.

Demiras A. (2009), Global Renewable Energy Projections, Energy Sources, Part B: Econonomics, Planning and Policy, V.4, I.2.

Energy Efficiency Law No.5627, 18/4/2007.

Energy Performance Regulation in Buildings No. 27075, 05/12/2008.

Erdede. S., B.Erdede & S. Bektaş (2014), Sürdürülebilir Yeşil Binalar ve Sertifika Sistemlerinin Değerlendirilmesi, 5. Uzaktan Algılama- CBS Sempozyumu, İstanbul.

EPA, United States Environmental Protection Agency, 'Green Building', https://www.epa.gov/, D.A.:10.01.2019.

Erten D.(2017), Yeşil Binalar, Sürdürülebilir Üretim ve Tüketim Yayınları V, Bölgesel Çevre Merkezi, REC Türkiye.

Funkhouser D.(2018), How Much Do Renewables Actually Depend on Tax Breaks? , Earth Institute, Columbia University, https://blogs.ei.columbia.edu/2018/03/16/how-much-do-renewables-actually-depend-on-tax-breaks/, D.A.: 10.09.2019.

Garciano J. L.(2013), Energy Efficiency and Renewable Energy Tax Incentıves Federal and State Energy Tax Programs, http://www.wbdg.org/pdfs/tax_incentive_outline.pdf. D.A: 12.09 .2019.

Hayes N.(2012), The Business Case for Sustainable Buildings – Green Premium … … in the Market Place and Operational Cost Savings which can Result ", EC Harris Built Asset Consultancy, November 2012, pp.9-14.

Kaygusuz K. (2007), Energy for Sustainable Development:Key Issues and Challenges, Energy Sources, Part B: Econonomics, Planning and Policy, V.2, I.1.

Kıncay O. (2019), Sürdürülebilir 'Yeşil' Binalar: 1. Bölüm, http://yildiz.edu.tr/~okincay/dersnotu/Yesil_IBol_BINA.pdf, D.A. 22.11.2019.

Kohler N., H. Konig, J. Kreibig & T. Lützkendorf (2010), A Life Cycle Approach the Buildings, Detail Green Books, Germany.

Income Tax Law No. 193, 31/12/1960.

Ministry of Treasury and Finance (2019), Ekonomi Sunumu, https://www.hmb.gov.tr/sunumlar/ekonomi-sunumu/sayfa/1, D.A. 10.12.2019.

Naar, J.(1990), Design For A Livable Planet: How You Can Help Clean Up The Environment, First Edition, Foreword By Frederic D. Krupp, Executive Director Environmental Defense Fund, Harper & Row Publishers New York.

OSRAM (2019), LEED Gold Certification- A Commitment to Sustainability, https://info.osram.us/blog/leed-gold-certification-a-commitment-to-sustainability, D.A.:10.12.2019.

Owusu P.A. & S.A.Sarkodie (2016), A Review of Renewable Energy Sources, Sustainability Issues and Climate Change Mitigation, Energy Sources, Part B: Econonomics, Planning and Policy, V.3, I.1.

Özyurt G. & K. Karabalık (2009), Enerji Verimliliği, Binaların Enerji Performansı ve Türkiye'deki Durum, TMMOB, İnşaat Mühendisleri Odası, Türkiye Mühendislik Haberleri, 457(54).

Sale K. (1993), The Green Revolution: The American Environmental Movement 1962-1992, First Edition, Farrar & Straus & Giroux \New York.

Salkın P. E. (2012), The Key to Unlocking the Power of Small Scale Renewable Energy: Local Land Use Regulation, Journal of Land Use & Environmental Law, Vol. 27:2, Spring.

Sevinç H., Ö. S. Emsen & E. Bozkurt (2016), Yatırım Teşvik Politikalarının Bölgesel Belirleyicilerine Yönelik Bir Analiz: Türkiye Örneği, Çankırı Karatekin Üniversitesi İktsadi ve İdari Bilimler Fakültesi Dergisi, 6/1.

Şentürk S. H. (2014), Yeşil Bina Vergi Teşvikleri: Amerika Örneği ve Türkiye İçin Çıkarılabilecek Sonuçlar, Ekonomik ve Sosyal Araştırmalar Dergisi, 10(2).

United Nations Environment Programme (UNEP), Sustainable Buildings and Climate Initiative (SBCI) (2009), Buildings and Climate Change: Summary for Decision Makers, UNEP DTIE Sustainable Consumption and Production Branch, Paris-France.

U.S. Green Building Council (USGBC) (2008), A National Green Building Research Agenda, November 2007, Revised February 2008, pp. 1, 20, 21, https://s3.amazonaws.com/legacy.usgbc.org/usgbc/docs/Archive/General/Docs3402.pdf , D.A.: 24.10.2019.

U.S. Green Building Council (USGBC) (2018), annual Top 10 States for LEED Green Building, www. u-s-green-building-council-releases-annual-top-10-states-for-leed-green-building/, D.A.09.09.2019.

World Green Building Council (2013), The Business Case for Green Building: A Review of the Costs and Benefits for Developers, Investors and Occupants, https://www.ukgbc.org/wp-content/uploads/2017/09/World-GBC-Business-Case-for-Green-Buildings.pdf, D.A.: 09.09.2019