DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

International Journal of Chemistry and Technology

http://dergipark.org.tr/ijct

Research Article

An overlook on the relationship between green finance and the environment

Yunus Emre KAHRAMAN

Osmaniye Korkut Ata University, Vocational School of Health Services, Osmaniye, Türkiye

Received: 5 November 2022; Revised: 16 December 2022; Accepted: 20 December 2022

*Corresponding author e-mail: yunusemrekahraman@osmaniye.edu.tr

Citation: Kahraman, Y. E. *Int. J. Chem. Technol.* **2022**, 6 (2), 122-128.

ABSTRACT

This study aims to explain the relationship between green economy, green finance and the environment. Environmental sensitivities have become related to production with the increase in global warming, greenhouse gas emissions and carbon emission rates. As the relationship between production and the economy has increased, some financial instruments have emerged in order to be environmentally sensitive. The purpose of these products is primarily to protect the environment and to include environmentally conscious people in this financial system. In the personal or individual green finance dimension, green mortgages, green home loans, green commercial building loans, green car loans and green credit cards are the most prominent green financing. When environmental green financing products related to firms are analyzed, we come across some products such as green project finance, green securities, green technology leasing, carbon finance. Eco fund and carbon fund in the asset management section, car insurance, carbon insurance and green insurance in the insurance section. Considering that our environment is essential for all humanity, supporting and increasing green financing products that are environmentally sensitive will make more positive contributions both our country and the world.

Keywords: Environment, green projects, finance, financing, green financing.

Yeşil finansman ve çevre ilişkisine bir bakiş

ÖZ

Bu çalışmada; Yeşil ekonomi, yeşil finansman ve çevre ilişkisi anlatılmaya çalışılmıştır. Çevre ile ilgili hassasiyetler küresel ısınma, sera gazı salınımı ve karbon emisyon oranlarının artışı ile birlikte, üretim ile ilişkili hale gelmiştir. Üretim ve ekonomiyle ilgili hale gelmesinden sonra çevreye duyarlı olabilmek açısından bazı finansal enstrümanların ortaya çıkmıştır. Bu enstrümanların amacı ilk olarak çevreyi korumak ve çevre bilincine duyarlı kişileri bu finansal sistemin içerisine dahil etmektir. Kişisel veya kişilere yönelik yeşil finans boyutunda yeşil ipotek, yeşil ev kredisi, yeşil ticari bina kredisi, yeşil araba kredisi ve yeşil kredi kartları en öne çıkan yeşil finansman. Firmalar ile ilgili çevreci yeşil finansman ürünler incelendiğinde karşımıza yeşil proje finansmanı, yeşil menkul kıymetler, yeşil teknoloji kiralama, karbon finansı gibi bazı ürünler çıkmaktadır. Varlık yönetimi bölümünde ise Eco fonu ve karbon fonu, sigorta alanında bölümünde araba sigortası, karbon sigortası ve yeşil sigorta karşımıza çıkmaktadır. Çevremizin bütün insanlık açısından gerekli olduğu düşünüldüğünde, çevre hassasiyeti olun yeşil finansman ürünlerinin desteklenmesi ve arttırılması hem ülkemiz hem de dünya için daha olumlu katkılar sunacağı görülmektedir.

Anahtar Kelimeler: Çevre, çevreci projeler, finans, finansman, yeşil finansman.

1. INTRODUCTION

The term green economy was first used in 1989 in the book 'Blueprint for a Green Economy' by Pearce et al. Green economy was emphasized within the framework of sustainable development. Especially after the 2007-2008 crisis, the green economy started to gain an important place and agenda. The price increases and increased resource utilization, food shortages and climate changes that occurred with the crisis brought the green economy to the forefront.[1]

With the development and spread of the green economy, it has begun to be seen as a potential solution to global crises. The United Nations Environment Program (UNEP) put forward the idea of a 'green stimulus package' involving large-scale public investment in green technologies. In 2008, UNEP published an agreement for the development of the green economy called the 'Green Economy Initiative'.[2] This agreement demonstrated the potential of the green economy to support economic recovery by addressing the challenges of global crises, such as reducing carbon dependence, protecting water

DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

resources and ecosystems, and reducing poverty. It has been defined as the only fundamental way for the sustainability of the global economy.[3]

Nevertheless, many researchers see it as an opportunity for a fundamental change in the global economy.[4,5] In addition, many authors have argued that there are numerous job opportunities that will arise with the green economy.[6-10] In recent years, the green economy has been growing rapidly with products and services that improve the environment, including renewable energy, more efficient and cleaner technology, construction of environmentally friendly buildings, ecosystem-based products and services.[11]

A green economy is an economic system driven by public and private investment that aims to reduce carbon emissions and pollution, increase energy and resource efficiency, and prevent losses in ecosystems and biodiversity.[12] Green economy is also defined as an economic model that contributes to ecological order and improves people's welfare and social equity while eliminating environmental risks.

1.1. Neoclassical economics

Economics is a social science that seeks to explain the basis on which societies decide what, how and for whom to produce.[13] For this reason, the choices that individuals, societies, businesses and governments make in dealing with resource management and the effects of these choices constitute economics.[14]

In this case, economics is divided into two classes: micro and macro. Microeconomics can be defined as the study of the effects of choices made by individuals and businesses on government and the market, while macroeconomics can be defined as the study of global and national economies.[15]

1.2. Ecological economy

Ecological economics is a branch that examines the interaction of ecological and economic systems.[16] It is an economic system developed in response to the fact that neoclassical economics largely ignores the environment and nature. Environmental economics and natural resource economics, which are sub-disciplines of neoclassical economics, mostly consider the relationship between the economy and the environment. It considers nature and environmental economics as a subsystem of economics. In ecological economics, the economy is considered as a subsystem of nature.[16,17]

Some defining features of ecological economics aim to preserve natural capital, the stocks of natural ecosystems that provide goods and capital, since natural capital cannot be substituted by man-made capital. Because natural resources are finite, economic growth cannot be achieved indefinitely, and ecological economists envision that zero growth will ensure a stable economy. Consideration of ecosystem-dependent economies is defined as the involvement of social values in decision-making during the fair distribution of goods and services and focusing on sustainable economic development economics to improve human welfare.[15]

1.3. Green economy

Green economy has emerged not as an academic branch like other economic systems but in a grassroots-oriented way and is defined as different and more diverse than other economic approaches. Green economy was born out of the work of environmental and green politicians and is based on the process of building a sustainable economy in practice. Issues such as social justice and equality are prioritized over economic efficiency. It aims to meet the needs of the planet within an economic structure that includes women and the poor. It aims for a static, stable economy rather than economic growth. It focuses on human interaction rather than the market economy.[18]

1.4. Environment and economy

Changes in the environment and economy and their possible effects also have an impact on each other. Specifically, there are four main services that the environment provides to the economy,[16]

- Resource Supply: Natural resources are transferred from the environment to the economy and used in production. Examples are non-renewable resources such as minerals and fossils, and renewable resources that are grown and harvested.
- Waste Pool: Waste materials are generated as a result of production and consumption. As a result, it is provided from natural resources.
- Convenience: The environment provides people with sources of recreation and pleasure, such as walking, swimming and similar activities.
- Life Support: The maintenance of activities necessary for human life is a prerequisite for economic functioning.

1.5. Green growth

It is a strategy that supports economic growth by minimizing the impacts on the environment in line with ecological principles and sustaining the progress of economic processes by creating employment and additional opportunities.

1.6. Green finance

It is an approach to direct the financial sector towards low-carbon and efficient resource use and to pursue a policy compatible with climate change.

DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

1.7. Benefits of green finance

On the financial industry; Mr. Noh (2018) explained the benefits of green finance in the industrial field as the development of new financial products and risk management, the mobilization and efficient operation of emission trading markets, and the development of risk management techniques, Effects on economic growth; With the development of new technologies, the design of efficient trade schemes and the promotion of environmentally friendly industries, On Environmental Remediation; Actively trading in the carbon market, regulating legislation for a better environment and utilizing green technologies and industries for a better environment.[19]

2. GREEN FINANCIAL PRODUCTS

Green finance products that need to be researched and developed within the green economy are analyzed under four main headings. These are Retail finance, asset management, corporate finance and Insurance.

Generally, governments advance green finance strategies by providing and strengthening financing for green industries and green growth, developing new financial products, providing private investments in green infrastructure and sustainability, strengthening and financing green management corporate practices, and creating new markets for environmental goods and services. In addition, when green bonds are analyzed in terms of issuer types, green bond issuance financial and non-financial institutions are the leading ones.[20]

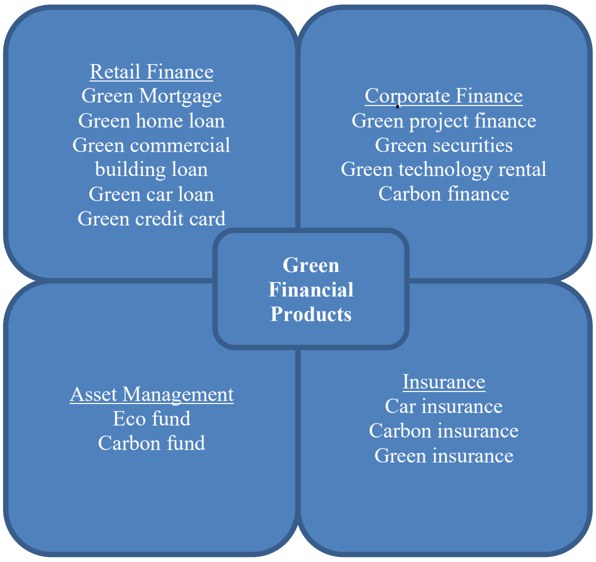

Figure 1: Green financial products. [21]

2.1. Retail finance

Retail finance is a financing system that includes commercial and personal products for SMEs and individuals. Services such as loans, credit cards, mortgages, cash management, insurance and bank transfers constitute retail services.[22] Loans provided for special purposes for projects carried out to prevent environmental problems are called 'Green Loans'. The most important feature of green loans is the provision of resource transfer for projects that meet the specified standards.

2.1.1. Green mortgage

The reconstruction or renovation of buildings by preserving and basing on environmental values includes the green mortgage application. It is referred to as "mortgage" in the US and "mortgage" in Turkey.[23] The Energy Efficiency Mortgage (EEM) is a government mortgage that provides financing at below-normal interest rates to develop and maintain green construction and save energy in all types of individual or institutional construction. Buildings in North America that have received low-interest financing to regulate green buildings have lower energy consumption and less pollution and waste than conventional buildings. Green mortgages are granted in return for at least 20% energy savings in new buildings and at least 30% energy savings in renovated buildings.[24]

Advantages of a green mortgage
-Lower interest rate
-Saving money
-Valuation of properties in case of certification
-Reimbursement of report costs

2.1.2. Green car loans

Green auto loans are incentive loans that encourage individuals to consume alternative fuels or to consume less fuel. Green auto loans cover all vehicles that emit less waste into the environment.

With the SmartWay "Smart Road" application organized by the United States Environmental Protection Agency (EPA), SmartWay has carried out studies to increase the transportation efficiency of vehicles by comparing them and aims to improve them by making measurements based on these values. With the SmartWay app;
- US trucking companies saved $33.4 billion in 2017.
- The SmartWay partnership contributed 248.8 million oil to save energy and reduced reliance on external fuels.
- 119 million tons of Nox, Co2 and Pm gases that cause air pollution were prevented from being emitted and clean areas were protected.[24]

2.1.3. Green credit cards

It is a product launched to make credit cards, which are widely used today, environmentally friendly. Green credit cards encourage the market for low-carbon services and products. A rewarding system is also applied for the purpose of incentivizing.

DOI: http://dx.doi.org/10.32571/ijct.1199748 **E-ISSN: 2602-277X**

Green credit card purchases of environmentally friendly products, paperless transactions, use of public transportation and reduced electricity and gas expenditures earn points that can be cashed in or traded. Discounts are offered for recycled vehicles and electric charging. The use of green credit cards, which enable them to reduce their carbon footprint, prevents the use of substances that harm the environment in many areas. Using e-mail instead of receipts in invoice collections, sending credit card statements via e-mail, and using credit cards more instead of paper money reduce paper production and protect trees.[26]

2.2. Corporate finance

Investments that provide financing support to projects that support and care about the protection of natural resources, taking into account environmental and social impacts, have supported the development of green banking services and products.[26]

Corporate Finance is a concept that provides high levels of resources to governments, corporations and public institutions. These activities are seen as financial instruments that trade in equities, foreign exchange and commodities.

2.2.1. Green project finance

The financing of a project is managed by the project sponsor and the company owned by the sponsor, together with project customers, suppliers and the company owning the project, signing many different and complex contracts. Usually, the borrowing banks undertake most of the debt financing.[27]

Project finance is a mix of debt and equity, as well as non-financeable finance. Loans for projects in areas such as petrochemicals, telecommunications and natural resources are referred to as project finance.

2.2.2. Green securities

Securities are the securitization of illiquid assets such as credit card receivables, mortgages, car loans and lease payments, and their transformation into a structure that can be bought and sold in the market.[29]

Green securities, on the other hand, provide the opportunity to transfer these securitized assets to banks by reducing the risks of environmental projects and how the risks of the projects will be regulated, maintaining the relationship between the financiers providing guarantees for the products and the institutions and banks.[30] In addition, when bonds, which are securities, are used for certain projects, they are called green bonds and are used only for these projects.[31] Green bonds, which were first introduced by the World Bank and the European Investment Bank in 2007, were created to be used in projects that will provide positive support for environmental and climatic events.[32]

2.2.3. Green technology

Green technology leasing is defined as equity and similar investment instruments provided by venture capitalists to projects in return for a certain share for new and renewable ideas and technological products.[33] The investment, which is realized with the motto of high risk, high return, continues with the transfer of experience and knowledge, feasibility and managerial support in addition to the capital provided.

2.2.4. Carbon finance

Carbon finance, which started with the initiative of the World Bank, is based on the calculation of the economic value of the damage caused by carbon emissions to the atmosphere. Carbon trading, which emerged with the emission limitations of the Kyoto Protocol, is a barter system in the market area. In this trade, there is an emission amount determined for each country, and countries that exceed this amount either go to restrictions or pay for their rights to countries below the amount.[32]

Carbon finance is a specialized form of environmental finance that calculates the cost of living by examining climate changes where carbon emissions are high. Since carbon dioxide makes up the majority of the gases released in these emissions, the market is called the carbon market. This market, which represents gases such as carbon dioxide, greenhouse gases and methane, operates by trading carbon stocks of high-emitting gases. Payments in the carbon market can be made through payments such as stocks, cash, borrowing, as well as emission reductions. It is also accepted as a payment method in technological investments that will realize emission reduction.[34]

Mandatory carbon markets are not yet at the desired levels and are limited in number. Developing them for each country will be a factor for enforcement and sanctions and will strengthen carbon emission limitations.

2.3. Asset management

Wealth management refers to the business unit of core banks that have realized rapid growth in the financial sector. It provides financial advice to clients in the areas of mutual funds, price discounting, planning, tax, managed asset programs and global banking.[35]

Asset management companies were established with the aim of restructuring, collecting and selling the receivables and asset purchases of insurance funds, financial institutions and banks in the financial sector.[36] In addition, it includes products such as green public

DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

funds, green investment and carbon funds provided by projects that support environmental and climatic development and protection.[37]

2.3.1. Green public fund

Green public funds provide loans with lower interest rates to green projects to be invested in by deducting interest and dividend income determined by banks from taxes. Savings from green public funds can only be used for green projects.[37] Launched in 1995 in Dutch banks with government support, the green fund initiative is a first in this field. Individuals who purchase green fund shares or invest in a green bank are exempt from capital allowances or income tax or can benefit from discounts. This paves the way for loans with lower interest rates.[22]

2.3.2. Green investment funds

Green investment funds are a type of investment that enables businesses to fund investments that will benefit green areas such as renewable energy, waste management and organic agriculture. Green investment funds avoid the complexity that can arise in the investment planning process. The first priority of funding is based on social and environmental criteria, followed by environmental and social policies. Finally, the funds are used for potential investments.[22] Funds used in previous projects are transferred to other stages with knowledge, experience and experience, and in this process, savings are achieved by being effective in reducing transaction costs and environmental impacts.[37]

2.3.3. Carbon fund

Carbon funds have been established in cooperation with development banks and private organizations to support projects developed to reduce gas emissions. While carbon funds established with government incentives aim to maintain Kyoto criteria, companies reduce costs and achieve savings in funds realized with private financing support. Carbon funds offer investors corporate social responsibility, cash return and marketing opportunities.[22] The World Bank established the first global carbon fund in 2000, and by 2014, a total of 187 million tons of carbon dioxide emissions were achieved. The Protoip Carbon Fund (PCF) was created by the World Bank for emission reduction purposes and the fund has a value of 180 million dollars.[38]

2.4. Insurance

Insurance consists of two main categories. General and Life Insurance. Green insurance is included in the general insurance category. Green insurance is divided into two categories. Insurance for products that vary according to their environmental characteristics and insurance products used for green technologies and carbon emission reduction activities.

Sustainable insurance is seen as a system that engages stakeholder interactions by identifying, managing and assessing social, governance and environmental issues and risks. It also aims to achieve environmental, economic and social sustainability through risk management and mitigation, innovative solutions and improved business performance.[39]

The Sustainable Insurance Fund (SIF) was launched in 2016 as an organization that keeps climate change on its agenda and collaborates with insurance regulators while promoting sustainability (SIF, 2018). Taking into account environmental and social activities, insurance companies work on identifying environmental factors and directing capital to green assets.[39]

2.4.1. Green car insurance

Green vehicle insurance is a type of insurance that supports the use of fuel-saving, hybrid and electric vehicles for environmental benefits.[37] Usage-based vehicle insurance (UBI) is an insurance concept referred to as pay-per-mile, pay-as-you-go. This type of insurance is usage-based and insurance costs vary depending on how and how much the vehicles are used. [40] This type of usage-based insurance protects the consumer and becomes more socially attractive, which depends on premium payments and driver behavior.[41]

2.4.2. Green building insurance

Traditional insurance products are insufficient to cover specialized systems and materials, complex structures and resources required for green building projects. Providing quality products that help prevent and improve climate and environmental losses are green building insurance products. Prevention of energy loss, use of environmentally friendly materials in building construction and repair, coverage of losses and various discount opportunities are green insurance products.[37]

Increasing costs for energy and carbon emissions have led to a growing emphasis on buildings from an environmental point of view. Comparing green building investments with conventional buildings raises a number of insurance issues. Products that address green building features are provided through green insurance in a scheme that aims to protect the environment.[42]

2.4.3. Carbon insurance

Climate and environmental changes are highly affected by human use of fuels for heating. Gas emissions resulting from human activities have become an important issue that cannot be ignored. In the face of this situation, measures are taken with carbon insurance. Carbon insurance is a form of insurance that supports activities such as reducing the emission of greenhouse

DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

gases and keeping emissions under control, including carbon sequestration strategies.[42]

Carbon insurance is a type of insurance that emerged to protect low-carbon projects and projects aimed at reducing gas emissions. It is a type of insurance that offers investors flexible and appropriate regulations such as emission reductions and carbon credits.

3. RESULT AND DISCUSSION

With the emergence of the green finance economy, environmentally sensitive green finance products have also emerged. The purpose of these products is primarily to protect the environment and to include environmentally conscious people in this financial system. Green mortgages, green home loans, green commercial building loans, green car loans and green credit cards are the most prominent green financing instruments in the retail market. In addition to these, on the corporate finance side, instruments such as green project finance, green securities, green technology leasing and carbon finance provide institutional support. Eco fund and carbon fund in the asset management segment, and car insurance, carbon insurance and green insurance in the insurance segment. As can be seen, when we consider the increasing global warming, environmentally conscious development and our debts to the environment, the financial system's efforts to find a place in this field by finding solutions to global warming are increasing day by day, and these demands are being met in the international arena. While the spread of green financing instruments not only to environmentalist individuals and companies but also to all segments of the public is a debt we owe to the environment, the fact that we will make the world we live in together a more liveable and healthier place is foreseen.

Conflict of interests

I declares that there is no a conflict of interest with any person, institute, company, etc.

REFERENCES

1. UNEP 2009. A G lobal Green New Deal: Policy Brief, United Nations Environment Programme, Economics and Trade Branch, Geneva

2. Barbier, E. B. *A Global Green New Deal: Rethinking the Economic Recovery*, Cambridge University Press, Cambridge, USA, 2010

3. Barbier, E. B.. *Rethinking the Economic Recovery: A Global Green New Deal*, UNEP, USA, 2009

4. Homer-Dixon, T . *The Upside of Down: Catastrophe*, Thomas Homer-Dixon Publisher: Vintage Canada, 2007

5. Jones, V. *The Green Collar Economy: How One Solution Can Fix Our Two Biggest Problems*, Harper Collins, New York, 2009

6. Esty, D. C. and Winston, A. S. *Green to Gold: How Smart Companies Use Environmental Strategy to Innovate* Hoboken, USA, 2006

7. Croston, G. 75 *Green Businesses: You Can Start to Make Money and Make a Difference*, Entrepreneur Press, Irvine, CA, 2008

8. Makower, J. *Strategies for the Green Economy: Opportunities and Challenges in the New World of Business*, McGraw-Hill, New York, USA, 2009

9. Kane, G. *The Three Secrets of Green Business: Unlocking Competitive Advantage in a Low Carbon Economy*, Earthscan, London, UK, 2010

10. Weybrecht, G.. *The Sustainable MBA: The Manager's Guide to Green Business, John Wiley & Sons*, Chichester, UK, 2010

11. UNEP. *Tow ards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, UNEP, Geneva, Switzerland, 2011

12. Soundarrajan, P., ; Vivek, N.; Muchall, H.M.; Agricultural Economics. 2016, 62(1), 35-44.

13. Begg, D., Vernasca, G., Fischer, S. and Dornbusch, R.. *Economics*, 10th ed; McGraw-Hill, Maidenhead, UK, 2011

14. Parkin, M., Po well, M. and Matthews, K.. *Economics*, 8th ed, Pearson Education, Harlow, UK, 2012

15. Newton, A.C. and Cantarello, E. *An Introduction To The Green Economy, Science, systems and sustainability*, NY, USA, 2014

16. Common, M. and Stagl, S. *Ecological Economics: An Introduction*, Cambridge University Press, Cambridge, UK, 2005

17. Faber, M. Ecological Economics, 2008, 66, 1–7.

18. Cato, M. S. *Environment and Economy*, Routledge, London, UK, 2011

19. Noh H.J. *Financial Strategy to Accelerate Innovation for Green Growth*. Asian Development Bank Institute, Tokyo, Japan, 2018

20. Poyraz E. *Finansta Güncel Konular*; Tepeli Y. and Mingen C.,.; Nobel: Ankara, 2007; pp 87-117.

DOI: http://dx.doi.org/10.32571/ijct.1199748 E-ISSN: 2602-277X

21. Carroll A.B. *The Academy of Management Review*, 1979, 4, 497-505

22. UNEP. *Green Financial Products and Services Report*. Canada, 2007

23. Coşkun, Y. *Bankalarda Öz Disiplin Süreçlerinin Etkinliğinin Değerlendirilmesi*. SPK Yayınları. Ankara, Türkiye, 2008

24. Wentworth, A. European Banks Launch Green Mortgage Pilot Scheme (Online), http://www.climateaction.org/news/european-banks-launch-green-mortgage-pilotscheme/ (accessed September 14, 2022).

25. https://www.epa.gov/smartway/learn-about-smartway (accessed September 14, 2022)

26. Konsko, L. (2014). How Your Credit Card Can Help You Go Green? NerdWallet. (Online), https://www.businessinsider.com/make-everyday-purchases-greener-2014-4, (accessed September 10, 2022)

27. Güler, O. ve Tufan, E. Anatolia: Turizm Araştırmaları Dergisi, 2015, 26(1): 80-96.

28. Richard A., Brealey,Ian A., Cooper,Michel A. H., *Using Project Finance To Fund Infrastructure Invesments*. Journal of Applied Corporate Finance, Columbia, USA, 1996

29. Erdönmez, P. Bankacılık Dergisi. 2006, 57, 75-85.

30. Kuloğlu, E., Öncel, M. Gazi Üniversitesi Sosyal Bilimler Dergisi. 2015, 2(2), 2-19.

31. Kandır, S. Y., Yakar, S. Sosyal Bilimler Enstitüsü Dergisi. 2017, 26(2): 159-175.

32. Escarus, Önlenemeyen Gerçek: İklim Değişikliği, İklim Finansmanı 2016 Raporu. 2016

33. Rodoplu, G. *Para ve Sermaye Piyasaları*. 2002, Isparta, Türkiye.

34. Demireli, E. ve Hepkorucu, A., Ekonomi Bilimleri Dergisi. 2010, 2(2), 37-48

35. UNEP. *Pacific Island Mangroves in a Changing Climate and Rising Sea*, Nairobi, Kenya, 2006

36. Lök, H. Mukaddime, 2018, 9(2), 195-21

37. Sevim, U., Serçemeli, M. *Yeşil Finans ve Muhasebe Teori ve Uygulama*. Gazi Kitabevi, Ankara, Türkiye, 2018

38. Lecocq, F. American Journal and Agricultural Economics. 2003, 85(3): 703–707.

39. UNEP, Annual Report, Nairobi, Kenya, 2012

40. Grzadkowska, A. What İs Usage-Based İnsurance? (Online) 2018 https://www.insurancebusinessmag.com/asia/guides/what-is-usagebased-insurance116606.aspx (accessed September 5, 2022).

41. Ochenkowski, J., and Schinter, J. Insurance for Green Buildings., (Online) 2008, http://www.buildings.com/tabid/3334/ArticleID/6354/Default.aspx (accessed September 10, 2022).

42. Adler, J.H. Greenhouse policy without regrets. A free market approach to the uncertain risks of climate change. Competitive Enterprise Institute CEI, Washington, USA, 2000.