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92,34 \$/BL

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20.76 ₺/LT

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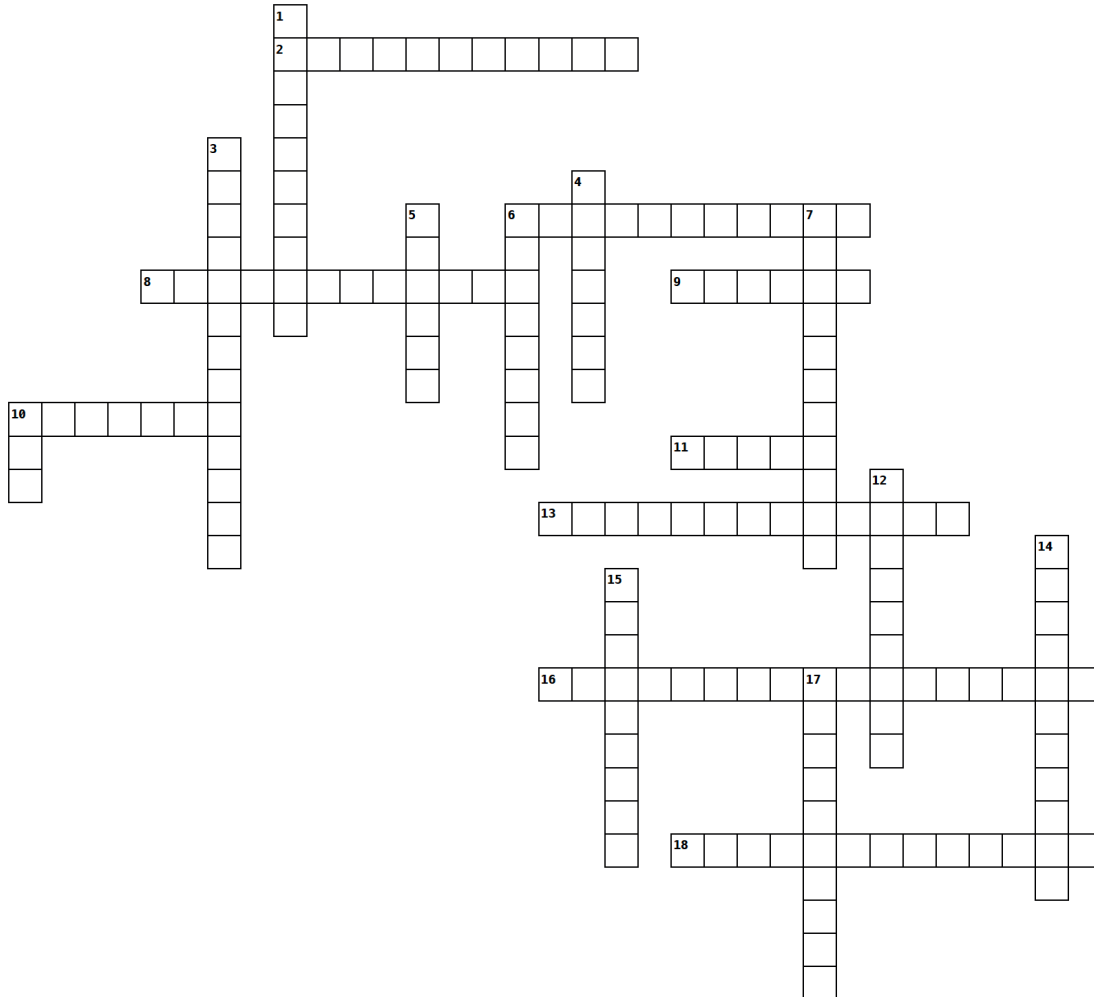
18.33

FUEL OIL

16.21

Weekly Puzzle

Prepared by Büşra Öztürk



Across

- 2. The largest region in the oil & gas upstream activities market in 2021
- 6. An adamant renewable energy advocate popular with his character as 'The Hulk' in Avengers Movie
- 8. A marketing strategy adopted by companies to appear more environmentally friendly or more ecological
- 9. The country which plans to import gas from Norway through Baltic Pipe
- 10. A black viscous substance obtained as a residue from petroleum distillation and used for road surfacing or roofing
- 11. One of the largest international oil giant companies
- 13. Converting a forested area into the non-forest one
- 16. An international non-governmental organization that aims to stop the damage to nature and repair the damage
- 18. One of the raw materials used in biogas production

Down

- 1. The general term for places or products that absorb more carbon from the atmosphere than it releases such as plants, the ocean and soil
- 3. The country which has the largest offshore wind farm in the world
- 4. An environmental event that climate change is likely exacerbating the frequency and intensity of the extreme
- 5. One of the gases contained in natural gas
- 6. A unit of power equal to one million watts
- 7. A gas obtained from solid waste landfills that releases energy during burning
- 10. An abbreviation of pipeline that carries oil from the Caspian Sea to the Mediterranean
- 12. An oil's resistance to flow or shear
- 14. One of the biggest environmental man-made disasters that occurred when Exxon's oil tanker spilt millions of gallons of crude oil into Alaska's shores
- 15. One of the conventional energy sources
- 17. The process of the refining, distribution and marketing of crude oil and natural gas

Why is Energy Efficiency Not Realized?

Bariş Sanlı 

Energy efficiency is the first fuel for some. The low-hanging fruit of the energy tree, efficiency is the solution to all evils. The consumer will pay less and have better leverage with energy efficiency. Yet, energy efficiency is not accelerating. Why?

I used to suggest a conference titled “Why Energy Efficiency is not happening?”. Sometimes it is better to analyze the mistakes and obstacles than triumphing a rosy future. The power of negative thinking is useful in scientific cases to make a positive start. Therefore, we have to understand why it is not happening.

In the energy efficiency reports, we are seeing spending over 250 billion € per year at the global level for efficiency, but the progress is uneven. Most of this spending is in the developed economies, but still, the demand dynamics are not suppressed, excluding the deindustrialization of Europe. Although not a healthy indicator, energy intensity

fluctuations do not match spending. Something is wrong, or the efficient allocation of capital in energy efficiency projects is not happening.

This month, we see a rise in auxiliary or extra heater sales in some European countries. The fear caused by energy crisis discussions has pushed consumers to buy extra heaters. This is one of the classic problems with public policy making. Information campaigns may not lead to the intended results. Also, automotive fuel shortages lead to even more queues outside pumping stations. So where is the energy-efficient consumer?

Energy efficiency is not happening because the consumer thinks he is already efficient to the limit. She has a point. Energy consumption has a recurring pattern. We wash and iron clothes on the same days and dine and wake up at similar hours. We entertain ourselves at the prime times. We are optimizing our energy consumption according to our



lifestyle. Having a washing machine starting after 1 o'clock midnight and finishing at 3 o'clock will not work.

A general pitfall of experts is their relation to their expertise field. Most of the time, they think their expertise field should have precedence over others. If the problem or expertise is energy efficiency, everyone should do it because it is the right and economical thing to do. But creating an energy-efficiency behaviour may create a suboptimal lifestyle. Since we have a recurring energy consumption pattern, changing these patterns or styles needs optimization in other areas.

Therefore, behavioural methods may be used. But the underlying problem with energy efficiency changes (other than technological upgrades) is our lifestyle is optimized for our needs and desires. Changing this for water usage, internet usage, or fuel consumption will change our optimizations in other parts of our lives. These lots of other optimization changes will create more costs than efficiency

gains. That is why we delay all the energy efficiency measures until a crisis finds us.

Therefore, we must push appliance and car manufacturers to design the most energy-efficient devices as the default option. A consumer should have only the most energy-efficient choices in her buying decisions. We cannot optimize the lifestyle of every single consumer for energy efficiency, as experts suggest. We have to optimize the tools, not the people.

Fierce Controversies over the Great Ethiopian Renaissance Dam

Alperen Ahmet Koçsoy 

Ethiopia's Great Ethiopian Renaissance Dam (GERD) project, started in April 2011, has been seen as a symbol of national pride among Ethiopians. Ethiopia has high hopes with its mega-project to achieve several goals, such as providing more people with electric grid access, driving its vulnerable citizens out of poverty, and even selling surplus electricity to neighboring countries. As of 2020, according to World Bank data, only 51.1% of the Ethiopian population has access to electricity. In this context, the Great Ethiopian Renaissance Dam (GERD) poses an excellent opportunity for the country to develop.

The project is a 'mega-project' because of its enormous potential for electricity production. Its reservoir can hold 74bn cubic meters of water, making it the largest African dam. The physical capacity is not the only story; the fully operating dam will be able to produce 5150 megawatts of electricity. It would translate into Ethiopia doubling its energy supply. GERD is located in the Benishangul-Gumuz Region of Ethiopia. The dam will use the Blue Nile waters, which is the main tribute of the River Nile. Ethiopia started to fill the dam in July 2020. When the third scheduled filling

happened this August, the water level reached 600 meters. GERD started to generate electricity on the 20th of February 2022, after the first turbine was launched. The second turbine was launched in August. When the hydroelectricity project is completed, it is expected to have 13 turbines.

Although Ethiopia is hyped for the project, there is strong opposition to it in Egypt and Sudan. Since GERD will use the waters of the Blue Nile, two countries fear there will be a reduction in the amount of water coming into the lower parts of the Nile. Sudan was closer to acknowledging Ethiopia's arguments when Omar al-Bashir was in power, but the new government changed the country's direction toward the problem. Sudan expresses concern about how the dam will affect the water volume in its dams. For Egypt, the changes in the water supply are way more crucial. It is so crucial that there had been calls in the parliament to 'bomb the dam.' 85.8 million of the Egyptian population lives within the Nile Basin, corresponding to nearly 94% of its total population. President Sisi said in 2021 that there would be 'severe regional consequences' if Egypt's water supply gets affected.



Egypt expressed some demands to Ethiopia, albeit it did not want this project to get completed in the very first place. One of them was to have the right to inspect the project to assess whether it would harm Egypt's and Sudan's water supply. Ethiopia has blocked the inspections. With the project complete and GERD starting production, this demand became out of context. The other primary demand from Ethiopia is to ensure that they would release certain amounts of water should a drought happens or the Nile's water level gets uneconomically low. Ethiopia has been reluctant to meet these demands since the start of the negotiations, while Egypt and Sudan did not compromise either. Although Sudan's de facto leader Abdel Fattah Al-Burhan stated that it would be "possible to reach an agreement on the technical issues of the dam," the big picture is not full of optimism. As a result, Ethiopia unilaterally continues the project. However, Abiy Ahmed Ali promises not to harm Egypt and Sudan. In addition, he asserts that the GERD project will benefit Ethiopia's two neighbors: the project will prevent floods that create damage, generate electricity that will be shared with other countries, and create tourism that would favor the region.

Egypt and Sudan are building their arguments on the treaties of 1929 and 1959, which regulated the Nile's water supply usage. According to the 1929 Nile Waters Agreement, signed between Egypt and Great Britain, Egypt has the right to veto the projects that may affect its water share. In the 1959 Agreement between Egypt and Sudan, Egypt was given the right to 55.5 billion cubic meters a year, whereas Sudan had the right to 18.5 billion cubic meters per year. These treaties create the legal basis for the dispute but are intensely criticized by Ethiopians. The treaties excluded other Nile Basin countries, one of them being Ethiopia. Hailemariam Desalegn, former prime minister of Ethiopia, said in an interview, "There cannot be any resolution on the dam issue in five words. Many people don't understand that Ethiopia contributes 86% of the Nile waters and was told that they were not allowed to use a single drop." Egypt and Sudan are often accused of having a colonial attitude since they are excluding other countries in Africa and justifying it with treaties that have their roots in the colonial era.

China has extensive investments in the three aforementioned countries and has been a potential mediator. China had seven billion dollars of investment in Egypt in 2019,



whereas China Harbour Engineering was behind the \$141 million Haidob port in Sudan. On the other hand, Chinese companies have been involved in constructing GERD. Exim Bank, for example, pledged to finance the purchase of the turbines and electrical equipment for the hydroelectric plants, which equals approximately 1 billion US dollars. Because of the economic relations, China has strong negotiation power. However, China portrays itself as a power that does not prefer to meddle with the affairs of other countries. Because of that and because having investments in these three countries, China is reluctant to intervene as a mediator. With its growing prestige in the continent as a non-colonial benign power, Turkey can also be considered a potential mediator. Still, its feud with Egypt prevents it from performing the role. Turkey declared support for GERD and has been strengthening its relationship with Ethiopia. An Ethiopian official stated, "We want African solutions for African problems," adding that Turkey, unlike other powers, "understands" that. Nevertheless, it would be unrealistic to expect Turkey to play a significant role in these stalemate negotiations.

Ethiopia gave no concessions, had already completed the dam's construction, and started producing electricity with two turbines. Although Egypt and Sudan fiercely oppose

Ethiopia's fait accompli, Ethiopia will continue to produce more and more energy via GERD. A decade-long project's consequences are yet to be seen. Egypt, involved in the civil war in Libya; Sudan, experiencing tumultuous past few years; Ethiopia, going through a civil war, are not willing to fuel a conflict with each other. Nonetheless, if Egypt's and Sudan's concerns become real, the region should be observed in the coming years. The region should be observed regardless of what happens next. The water politics between the three countries might pose a prelude to potential water disputes in other parts of the world in the following decades.

German Steel Industry and Energy Crisis

Erkin Sancarbaba 

Suppose the historical development of Germany is scrutinized. In that case, it will be concluded that the success of the globally competitive and import-based economic model depends on the stability of the industrial infrastructure. The preservation of the current economic model has been possible with Germany's ability to provide energy supply with stable prices and long-term guarantees, and it is undoubtedly possible to adapt this interpretation for the future of the German industry. The energy crisis, which is deeply felt and directly related to geopolitical developments, poses a threat to the global market share of the German industry and, thus, to Germany's competitiveness.

It is an epicenter for German policymakers to consider the roadmaps followed by the sectors strategically important for the German economy and the pillars of the country's industrial infrastructure. The reaction of the steel industry, which has strategic importance for the German industry and is characterized as energy-intensive, to the increasing energy prices and the measures it takes will be mentioned within the scope of the article. Before assessing the current situation of German companies, the sector-wide atmosphere in Europe should be considered.

Across Europe, the manufacturing contraction in the steel industry confirms that the energy crisis is evolving into a production crisis. According to the data based on the officials of the Belgian-French company Aperam, which operates on a global scale, the company continues to manufacture with only 50% production capacity since June. The production contraction seen in the overall steel industry across Europe adds to the inflation pressure on prices that have already increased in the wake of the Covid-19 pandemic.

In other parts of Europe, the industry is going through a period of disruption in production. Steel producers operating in Spain, primarily ArcelorMittal and Acerinox, either preferred to reduce their production capacity or stopped production temporarily. The main reason for the decisions taken by the companies was the inevitable rise in power prices.

The main obstacle faced by the German steel industry is the reduction in natural gas flow forwarded through the Nord Stream 1 pipeline since September. Interrupting production in the sector can create a domino effect that will negatively affect many areas. Similar problems are encountered in Germany as well. As for companies, Thyssenkrupp's steel division, the second largest in Europe, feels the impact of



rising energy costs on production. As the company officials stated, it is very difficult to convert the production processes from natural gas to crude oil or coal in their factories. If there is a problem in accessing natural gas, production disruptions and technical damages may be encountered.

Germany's second-largest steel producer, Salzgitter, has also announced that the company's melting operations at the Peine plant have been reduced. Data for the January-June period reveal that Germany's steel production decreased by 5.5% compared to the same period of 2021—to 19.56 million tons. Based on the aforementioned situation, comments are made that Germany is losing its market dominance in the steel industry, of which it is one of the carriers on a global scale. In line with the figures for the end of 2021, the country increased its steel production by 12.3% to 40.1 million tons compared to 2020 and became the eighth largest producer in the world.

The inability to maintain the global position in critical sectors due to rising energy prices jeopardizes the production-based competitiveness of the German economy. In order to slow down the deterioration, the German government has taken action and foresees the acceleration of the incentive mechanism. Under the program gas price "defense shield," the German government envisages spending 200 billion euros to protect the households and private sector from the rise in energy prices. The plan envisages that the value-

added tax rate for gas and district heating will remain at 7% until spring 2024 to limit the effects of high gas prices, as well as subsidize electricity for consumers and companies. Although it is not clear how much the policies to be implemented will contribute to the steel industry in concrete terms, it is clear that the German government will not ignore the sector that is deeply connected to the industrial infrastructure of the country.

The energy crisis, the impact of which is already felt, has disrupted the development goals and growth targets in many countries, and sectors that are considered strategic in terms of economies are under threat. For Germany, the steel industry is shown as endangered, and the importance of the industry for the German industrial infrastructure and the country's economic model is indisputable. Therefore, the steps of companies and the German government to reduce the effects of the production crisis in the near future should be carefully monitored to predict the course of the German economy.

Greenwashing Strategy of Big Oil Companies

Yaren Öztürk 

It has been revealed that Big Oil companies such as BP, Chevron, ExxonMobil, Shell, and TotalEnergies spent approximately 750 million dollars in 2021 on a marketing strategy that emphasizes sustainability goals and aims to draw a climate-friendly and green profile. Big oil and gas companies continue to sell oil and gas while building their marketing and advertising strategies on green claims such as clean energy and emission reductions. They allocate only 12% of their capital to low-carbon development. In late 2015, InfluenceMap, a London-based independent think tank that provides data analysis on how the business and financial sectors have influenced the climate crisis following the Paris Climate Agreement, published its latest report on how big business misleads the public. The comprehensive study of five oil and gas companies' use of public relations and communications tools found that 60% of company promotions included at least one statement emphasizing climate goals. In contrast, only one in ten of the five companies' investments, including some natural gas projects, have climate-related activities. Less than a quarter of promotional and advertising materials highlight companies' fossil fuel activities.

InfluenceMap researchers analyzed 3,421 public communication materials published by BP, Chevron, ExxonMobil, Shell, and TotalEnergies in 2021, including articles and blog posts on corporate websites, press

releases, reports, speeches, and company and CEO social media accounts, to understand how companies are sending a message to the public. The researchers did not analyze advertisements, as it was impossible to obtain complete data on any company's global advertising. While only 23 percent of the companies' posts promoted oil and gas, the most common theme was about embracing the transition to clean energy and reducing carbon emissions. Many oil companies have plans to reduce carbon emissions by 2050, but they do not include carbon emissions from the fossil fuels they sell. This makes the questionable to the credibility of the plan. On the other hand, the report shows that five major companies have adopted a path that aims to increase oil production in the next four years. On the contrary, the study shows that companies are making a great effort to distance themselves from their core product, oil, in their marketing strategies. The 'Who We Are' section of the official page of BP, one of the long-established oil companies, talks about redesigning energy for our world and people and the world's goals to reach a new zero. The word "oil" appears only twice at the bottom of the page. In a section called 'Our History,' it is mentioned at the bottom of the page that they have always been an energy company transitioning from coal to oil, from gas to a low-carbon future. Shell's official website, on the other hand, does not mention oil and gas on its 'About Us' web page. Chevron's official website is designed in the same way. This clearly shows that these



companies want to create a profile that is as interested in the climate agenda and its goals as they are independent of oil and gas.

In this context, Shell is one of the companies with the biggest contradiction between its public image and actions. According to InfluenceMap, Shell has the highest green rhetoric, emphasizing pro-environmental activities in 70% of its marketing strategies and advertising campaigns, while its actions do not follow suit. ExxonMobil makes environmental and green claims in 70% of its marketing strategies and advertising campaigns, while only 8% of its capital expenditure is dedicated to low-carbon targets. TotalEnergies, on the other hand, made green claims in 62% of its marketing strategies and advertising campaigns but allocated 25% of its investments to low-carbon targets. Research also covers that companies that try to send the message that they are not oil companies, but part of the solution to climate change, have recently been lobbying governments to weaken renewable energy policies and increase fossil fuel production. The research found that since 2021, major companies, except TotalEnergies, have directly lobbied for policies favoring more oil and gas purchases. For example, Shell's CEO Gretchen Watkins argued in Congress on April 6, 2022, that new oil and gas

projects should be allowed to be built in the Gulf of Mexico. It was also announced that all companies except Chevron have recently been working to undermine renewable energy policies by promoting the long-term use of natural gas. In December 2021, Exxon opposed a proposed law banning the use of natural gas in new buildings in New York City, misleading the public with advertisements that electric appliances would cost homeowners thousands of dollars. On the other hand, BP, Chevron, Exxon, and Shell are among the 600 members of the American Petroleum Institute. It is a foundation that was founded in 1919 and today takes a certain stance against climate policies.

Although this article focuses on recent research, this is not a new development. Oil and gas companies have been using different ways to hide their ecosystem-damaging actions for decades. In recent years, with increment discourse on clean energy and climate change, they are trying to create a perception of green identity by shifting in this direction. It is known as a marketing strategy called "greenwashing." With this strategy, big companies mislead people into buying their products. So, examining companies' expenditure reports and expense items will be useful to understand whether they are following a greenwashing strategy.

A Rapid Transition to Electric Vehicles

Nur Durmaz 

Electric cars have started to be used in many parts of the world. These technological developments, which started with hybrid cars, affect not only the budgets but also the steps taken by the countries for their future planning and to protect the environment. So, is this really the case? It is possible to see how the energy crisis, which started especially after the Russia-Ukraine war, increased gas, oil, and electricity prices, especially in the European continent. Whether or not electric vehicles are preferred to avoid increasing prices and not harm the environment greatly varies from country to country and according to the preferred vehicles.

According to statistics in Eurostat, at least 48.6% of European people prefer to travel by car. This means that car owners in this ratio will not ignore the usage areas of their cars and will pay attention to some criteria in their new car preferences. Today, the most traveling electric vehicle Mercedes Vision EQXX can travel about 850 km. It is uncertain whether this will be sufficient for vehicles that make long journeys, but it is seen that it can provide sufficient and noiseless use for the environment in urban uses.

The benefits of electric vehicles are innumerable, but it is still useful, to mention a few. First, its contribution to nature is one of the most important factors in the acceleration of the production of these vehicles. However, this is true for countries like Germany that generate their energy mostly from green sources. It should be noted that for a country like Turkey that still produces the majority of its energy from carbon-based sources, it will not make much difference in terms of nature. Second, electric vehicles will not require constant maintenance like internal combustion vehicles, and they will also play a role in reducing the emissions produced by the industry. Still, with current technology, the replacement cost of vehicles whose batteries have failed is too much for most people. Although this problem can be solved over time, the agreements made by the states put a lot of strain on the brands in this regard.

Considering the benefits of electric vehicles compared to vehicles with internal combustion engines, first of all, while the efficiency against the energy consumed in internal combustion engines cannot exceed 35% theoretically, the new generation turbocharger to be purchased in the world is currently the first thing to be considered. It can convert only 20% of the power produced by the engine of a charged



car into mechanical power by chemical reaction. If we add factors such as transmission, friction, and weight to this equation, an internal combustion vehicle transfers only 15% of the energy it produces to the movement. With a simple equation, the amount of energy the vehicle burns at a distance of 1 kilometer is around 20-30 cents in electric vehicles. At the same time, this figure easily exceeds 1 lira in a modern gasoline vehicle. This shows that electric vehicles are at least 4 to 5 times more efficient. Even if this figure varies from vehicle to vehicle, this calculation can be simply proven with Volkswagen Golf 7 model vehicle, which is both fully electric and equipped with an internal combustion engine.

Although sports cars are known as internal combustion vehicles that make loud noises, it should be noted that the new generation of electric vehicles is very fast. Although there is a group of people who love the sounds and sensations of normal cars, it is obvious that electric vehicles will conquer this category in the future. The same is true for the motorcycle industry, although some models are already making their way into the world's fastest lists. It is possible to give an example from Tesla for the logistics business, which is another category. The technical data of

the model of the Tesla brand called Semi Truck looks very good. It is as fast as a sports car when empty but has a range of 800 km when loaded, and it is said that it can travel 600 km in just 40 minutes. It is also guaranteed for an unprecedented distance of 1 million km. Although it seems to be a commercial move, it will be seen together with the transition to electricity with the developing technology and what more surprises this technology has.

In all this situation, it seems logical that all vehicles will be converted to electric vehicles by 2035, one of the carbon emission reduction policies of the European Union. In this regard, famous car brands such as BMW say they are ready for electric vehicle production. However, whether this policy will be strictly implemented or not, of course, depends on the final decisions of the Council of Europe. In such a situation, it is not certain what long-range car and internal combustion engine lovers will do. The fact that other countries continue to use internal combustion engine vehicles while the EU countries are in such a policy may cause problems even for trade.

The Impact of Global Warming on Agriculture

Zeynep Eğin 

The impact of global warming on our earth has become undeniable. The increase in greenhouse gases and carbon dioxide in the atmosphere due to climate change is altering the ecosystem and many sectors of the economy, such as agriculture, trade, and industry. According to The Fourth National Climate Assessment, published in 2018, the proper steps to mitigate the effects of climate change would protect the economy from serious harm. Over the past few years, agriculture has been most affected by climate change's ongoing effects; farmers will face new challenges as the consequences intensify. Although there are myriad consequences, a decrease in food availability is the most prominent among them since it would have long-term health problems such as anemia and malnutrition. For instance, a child's first 1000 days of life are crucial for healthy growth. As a result, taking the essential steps to address the climate crisis is unavoidably critical for the agricultural industry.

According to a recent study, wheat yield in Australia has shown a significant decrease compared to previous years. Australian and Chinese scientists alerted that it will become increasingly difficult to cultivate wheat as global warming continues. The heating of the Indian Ocean, which causes drier conditions, is the leading cause of the decline in yields.

It is predicted to continue in the upcoming years due to continuous global warming. The study is being conducted when Australia is severely negatively impacted by heavy downpours across the south and east of the nation. Dr. Bin Wang, a climate research scientist at the New South Wales government's Department of Primary Industries, stated: "The Australian wheat crop depends on rainfall. A positive IOD typically sees below-average winter and spring rainfall. That means the wheat yield is decreased. Climate warming is a major driver in bringing more occurrences of these positive IOD events."

The World Bank, which has implemented significant projects on climate warming and expanded its research, has also conducted studies on how global warming could affect agriculture. The World Bank claims that agriculture faces greater problems due to its intense vulnerability to climate change. Climate change is already harming agricultural activities in various ways, including diminishing animal productivity, agricultural yields, and the nutritional value of essential seeds. Moreover, according to research, the effects on agricultural activities are predicted to be particularly destructive in certain regions, which are home to many of the poorest countries. The main reason behind this is that



agriculture is one of the most significant economic sectors in many emerging nations; therefore, the dependence on climate and weather conditions restricts the activities that come with global warming.

Therefore, significant steps will be required to sustain current yields and enhance production. There are primary actions that farmers in Australia engage in agricultural activities for a better future and the preservation of resources. Firstly, they aim to conserve soil resources through better cattle management, more efficient water use, and preservation of water in a field. Moreover, one of the farmers adds, "None of this is particularly easy, and it's quite expensive, but what it offers in capacity makes it worthwhile. It will require a complete overhaul of their emissions, currently dominated by 75% methane, re-evaluating transport, stationary energy, electricity, water, feed, soil and planning a \$100,000 solar investment."

When the relationship between agriculture and glasshouse gas emissions is examined, it is possible to conclude that agricultural activities also have a detrimental effect on the climate. According to World Bank statistics, even if other sectors lower their emissions, a positive effect

on greenhouse gases will be observed. Carbon dioxide, carbon monoxide, methane, nitrogen dioxide, and other gases are the primary components of greenhouse gases. Although methane has the biggest impact on global warming, carbon dioxide plays a vital part in developing the greenhouse gas effect due to its much larger concentration in the atmosphere. The primary distinction between the agricultural sector, which ranks second in terms of glasshouse gas emissions alongside the forestry and fishing sectors, and other industries is that the air, than carbon dioxide, more commonly absorbs methane gas and diazo monoxide. This gas mixture accounts for almost 80% of the agricultural sector's greenhouse gases.

Climate change, one of today's most urgent problems, has a domino effect on other issues. The impact of this problem, which has reached the point of threatening human life, on significant industries such as agriculture demonstrates the severity of the situation. Hunger is a problem that is anticipated to worsen in the next years due to production and a decrease in the quantity and quality of food.



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