

ECOSYSTEM REVIEW

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Economic Research

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Regenerative Agriculture from an Ecosystem Perspective

Climate Justice:

International Court of
Justice Reaffirms
Governments' Climate
Responsibility

Water Efficiency in Agriculture

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Upcoming Events

The 2025 United Nations Climate Change Conference (COP30) will be held in Belém, Brazil, from November 10-21.

The 6th World Agroforestry Congress, themed "Agroforestry for People, Planet, and Profit," will be held from October 20-24.

Lessons from Regenerative Agriculture

Greetings from our 19th issue!

My colleagues at the TSKB Economic Research Department came up with the challenge of writing about regenerative agriculture in this issue. The challenge starts with explaining the importance of "regeneration", which is in harmony with our "nature +" stance.

Part of this stance involves tackling the mindset of "grow now, clean up later". As sustainability is not enough to save our pale blue dot, we need to invest in "regeneration" if we are to reverse the effects of what we have done. The good news is that we can!

Another part of the challenge is to find the right point to start speaking about regenerative agriculture. There are many good picks for this, but for me the focal point is the soil. A growing population, unplanned urbanization, soil erosion, desertification... So many reasons why we should not only protect our soil but also regenerate. Responsible and regenerative agriculture supports biodiversity and carbon sequestration, utilizes both the subsoil and the topsoil, with its contribution not only in the here and now but also in the future.

Inflation is such a popular topic around the world, we very frequently speak about food inflation but ignore the quality of the food or the economic conditions of those who produce and deliver the food to us – and yet, all of these topics are related; when we speak about food inflation or agriculture, we are in fact striving to contribute to one goal – to leave no one behind. That is indeed how we will handle the topic of regenerative agriculture in this issue.

Let's imagine Istanbul as one, big, public fruit garden. If we rehandle Istanbul from the perspective of relocation, reverse immigration and disaster preparedness, it would be a place for everyone with less traffic, more trees and breathing soil. I find it inspiring to think about the smiling faces of children, eating healthy fruit picked directly from the trees. Surely this should motivate us to keep working for the right reason?

Have you ever visited the region hit by the severe earthquake of 2023? The road from Adiyaman from Kahramanmaraş is marked by spectacular scenery, with green and fertile soil, small creeks and a railway. What else do I need? As an economist, if I were asked to paint a scene to explain development through trade, I would have drawn this view.

Thinking about all the challenges facing the global economy, I find myself seeking resilience and recalling one particular quote. Yaşar Kemal, a prominent Turkish author, once wrote in his timeless piece, "Memed, My Hawk" that **"If I was iron, I would have rotted; I have endured by becoming soil."** Indeed, soil is resilience.

Every word I committed to paper brought me to the same conclusion: Soil is our wealth, soil is our future. Regenerative agriculture protects our future, facilitates production, employment, productivity, self sufficiency... all while delivering strength and resilience to the economy. How elementary!

Here we are, enduring all these global challenges but also striving for a better future by calling on you to think about regenerative agriculture... for better days, for happier children running among fruit trees, for carriages carrying the healthy harvests from the earthquake region... There is a long way to go, and more to do... Together!

A deep-rooted problem and an important question

Soil, which forms the basis of about 95% of [food production](#), is of course critical for resilient food systems. However, it would do soil an injustice if we overlooked the multitude of benefits that soil offers humanity other than food production, since soil is at the basis not only of food production, but also ecosystems and life, with the ecosystem services it provides.

One of the services which soil provides to the ecosystem is the carbon sequestration capacity of the soil. As the world's second-largest carbon store after the oceans, soil stores more carbon than the atmosphere and vegetation combined. Reducing levels of carbon dioxide, which account [for approximately 75%](#) of total annual greenhouse gas emissions, in the atmosphere and continuing its safe storage in the soil is critical in limiting the rise in global temperature. The ecosystem services of the soil are not limited to this. The capacity of soil to hold water and filter water both support access to clean water and resistance to drought and floods. In addition, soil plays an important role in protecting biodiversity with the hundreds of organisms it hosts. A 2017 [study](#) estimated the value of all services provided by the land at USD 11.4 trillion. In the same period, the world's GDP was USD 82.0 trillion, with Türkiye's GDP standing at USD 859.0 billion.

These valuable services provided by the land are now at serious risk due to the destruction they have suffered. One of the driving factors of this destruction is the

world's population, which has grown steadily to triple since the mid-1900s. The rising population has led to a surge in food production. Moreover, data not only shows an increase in the population but also in agricultural production per capita. Despite this rise in per capita agricultural production, [between 7.8% and 8.8%](#) of the world's population is facing hunger, drawing attention to the fact that food security problems are not only a production problem, but also a distribution problem. With about [one-fifth](#) of the food produced globally either lost or wasted, we need to address our food systems much more broadly than just production.

In addition, the land faces risks posed by deforestation, a process closely related with urbanization and the expansion of agricultural land. The loss of trees and vegetation may leave the soil more vulnerable to erosion while reducing the quality of the soil. Although agricultural areas continue to expand at the expense of woodland, the total share of agricultural land is decreasing in parallel with urbanization. When all these factors are combined with a growing population, there is an overriding concern of producing higher amounts of food, meaning the protection of soil health is often relegated to the back burner.

The widespread use of practices such as intensive tillage, chemical fertilizers and pesticides to increase agricultural production puts the health of the soil at risk. Growing a



single crop on the same land for many years in order to increase production is another factor disrupting the balance of the soil, causing a decrease in nutrients and biodiversity in the soil and potentially damaging the structure of the soil. Human activities may accelerate the destruction of the soil by triggering natural processes that damage the soil, along with industrial activities and mining which increase pollution. The structure of the soil can also deteriorate due to extreme weather events, whose frequency and severity increase with the ecosystem crisis.

Soil should be of great interest to us all because of the ecosystem services it provides for us and the risks it faces. So perhaps the time has come to ask the question: Isn't it time [to take a step forward for this precious resource, which takes more than](#) a thousand years to form a layer just a centimetre thick?



Climate Finance

Directorate of Climate Change publishes Draft Texts on Turkish Emissions Trading System and Turkey Carbon Crediting and Offsetting Regulations.

[The Turkish Emission Trading System \(ETS\) Regulation](#) will regulate the procedures and principles related to the ETS. Thereby, greenhouse gas emissions from certain activities will be monitored, reported, verified and reduced through a market-based system. ETS will cover facilities with annual emissions of 50,000 tonnes of CO₂ equivalent or more. Education and defence industry institutions will be excluded from this scope, while businesses within the scope will be obliged to obtain a greenhouse gas emission permit in order to continue their activities that cause greenhouse gas emissions. Companies which fail to submit their emissions report or operate without permission may face penalties. [The Turkish Carbon Offset System \(TR DSS\)](#), on the other hand, will enable the production, registration, verification and trade of carbon credits for the reduction and elimination of greenhouse gas emissions that are not covered by the

ETS. The carbon credit produced within the scope of the system, representing 1 tonne of carbon dioxide equivalent, will be designated as a Turquoise Credit. Applications for the issuance of these loans will be received by the Turkish Standards Institute (TSE); the TSE will also be responsible for processes such as verification and registration of projects. Each Turquoise Credit will require a contribution to a total of three SDGs one of them being Sustainable Development Goal (SDG) 13, *Taking urgent action to tackle climate change and its impacts*. Turquoise Credits may also be used to offset the emissions of companies within the scope of ETS. However, the extent of the emissions which can be offset by these credits will be limited to a certain section, to be announced by the Directorate of Climate Change in each ETS implementation period.

Slovenia links bond interest payments to environmental targets

[Slovenia](#) has become the first European country to link its interest payments to environmental targets with its newly issued bond. In June, the country issued a EUR 1 billion, 10-year bond, with the coupon being contingent on meeting its greenhouse gas emission targets. If Slovenia fails to reduce its emissions by 35% by 2030 compared to 2005 levels, it will face a 50 basis point increase in interest costs in the final year before the bond matures. Slovenia's sustainability-linked bond has attracted more than EUR 6.5 billion in demand. The bond could set a precedent for integrating national climate commitments into public finances in the coming period.

Forest financing lags far behind what is needed

Financing for forests can contribute to climate, environment and sustainable development goals. On the other hand, the latest [report](#) published by the Forest Declaration Platform emphasizes that the amount of financing aimed at protecting and restoring forests has continued to average USD 6 billion annually in the 2021-2025 period. The report states that the spread of new financial instruments, such as forest bonds, forest funds, debt reduction instruments and market-based mechanisms could play an important role in achieving the goal of halting and reversing deforestation by 2030.

Global banks increase fossil fuel financing by more than 25% in 2024

According to the latest [report](#) prepared by the Rainforest Action Network, the financing provided by the world's 65 largest banks in terms of assets for coal, oil and natural gas investments increased by USD 162 billion in 2024 to reach USD 869 billion. As a result, fossil fuel financing, which has fallen since 2021, has increased for the first time. Many banks had earlier announced that they would support net-zero targets at the United Nations COP26 climate summit held in Glasgow in 2021.



Cambridge University and Bloomberg to launch a new bond index that excludes companies which finance growth in fossil fuels

The new [index](#) is inspired by research conducted by Cambridge University researcher Ellen Quigley. In her research, Quigley argues that fossil fuel exclusion policies could become more effective by focusing on debt financing rather than the stock market. Cambridge University and the United Nations pension fund have already committed to investing USD 750 million in line with the index. While the amount pledged is still limited, the index could significantly constrain access to capital for fossil fuel companies, which largely rely on bonds and bank loans as debt instruments. Cambridge University has also encouraged more than 70 higher education institutions to invest in a short-term debt fund that will not support growth in fossil fuels. Universities plan to invest £500 million in the fund.

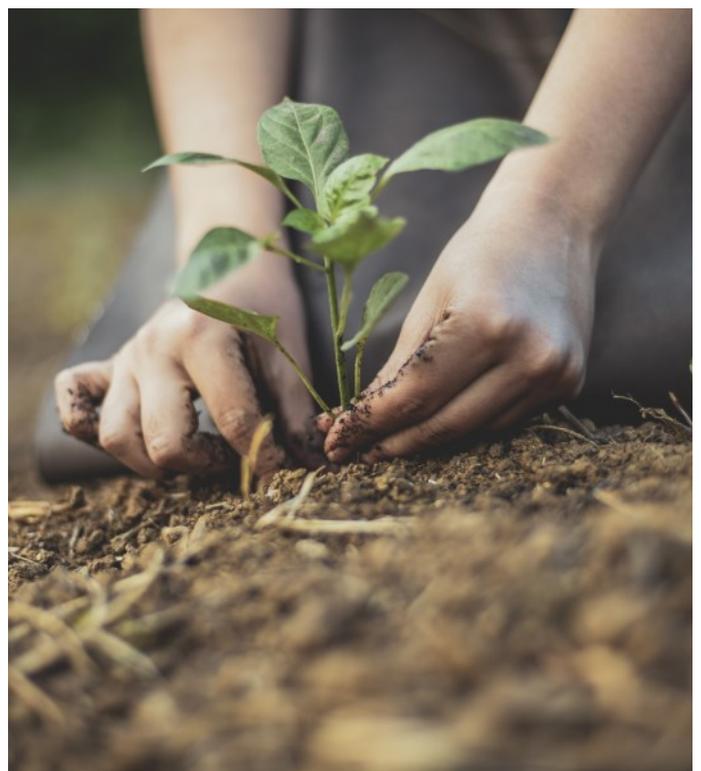
One Step Forward from Sustainability: Regeneration

Soil is an indispensable resource for both ecosystems and the continuity of human life with the ecosystem services it provides. However, the risks to the soil and the extent of soil destruction reveal that we cannot adequately protect this valuable resource. According to the European Commission's [Joint Research Centre \(JRC\)](#) 75% of soils are currently degraded due to factors such as erosion, loss of organic matter and salinization of the soil. The JRC's findings suggest that this number could reach 90% by 2050. Soil-related risks are also relatively common in our country with 39% of agricultural land and 54% of pasture land struggling with erosion. [Desertification](#), which is defined as the decrease in the biodiversity of the soil due to natural and human reasons in arid and semi-arid areas, is another important problem seen in our country; 22.5% of Turkey's territory suffers from a high level of desertification with 50.9% of the land at moderate sensitivity to desertification.

One of the factors accelerating the degradation of the soil is traditional farming methods. Excessive use of chemical fertilizers negatively affects soil and water quality. While monocultural practices reduce soil biodiversity, intensive tillage weakens the soil structure and leaves it vulnerable to erosion. Soil and many other natural systems, in their current state, have been destroyed far beyond the level we can sustain. In addressing the risks faced by the ecosystems "sustainability" has been the priority approach for many years. However, as humanity's destruction of nature continues unabated, sustainability alone is far short of being the solution. As TSKB Economic Research often emphasizes, we have reached a point where the sustainability perspective is no longer sufficient. We need to not only protect our land, but also actively regenerate it. At this point, regenerative agriculture offers a critical alternative in tackling the risks faced by

the soil and reversing the destruction caused by traditional agricultural methods.

Based on the common elements in different definitions, [TSKB Economic Research defines](#) regenerative agriculture as "agricultural practices that regenerate soil organic matter, increase soil biodiversity and the amount of carbon sequestered in the soil, and restore the health of the ecosystem". This understanding, which focuses on improving and regenerating, not just protecting and maintaining, also includes various practices such as reduced tillage, crop rotation and mulching. In addition to improving soil quality, these practices also increase food security by supporting the resilience of the food system. The pressures facing our planet mean we now need a regenerative perspective more than ever. Accelerating the transition to this understanding, especially in the agricultural sector, is crucial in protecting both nature and the ecosystem services that the soil provides to humanity.



Regenerative Agriculture and Carbon Credits



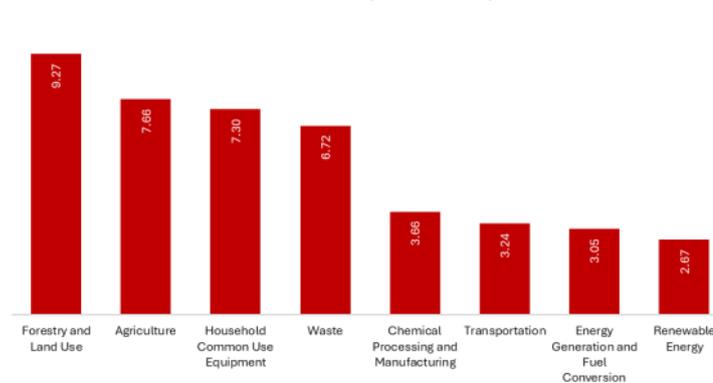
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Carbon credits are an important tool in closing the financing gap in tackling the ecosystem crisis. However, it is vital that the carbon credits produced have a reliable, verifiable, traceable and standardized structure. It has been nearly three years since we [first](#) discussed the issue, and as we said then, the road has indeed proved a bumpy one. Indeed, there have been [a number of events](#) that have shaken confidence in the carbon credit markets.

Such volatility in the carbon market have also stimulated a search for "quality" credits. For example, while Google had declared that it was carbon neutral through its use of the "Avoidance Credit" from 2007, it stopped making this claim in 2023 and instead [committed](#) to becoming "net zero" by 2030 through the use of the "Reduction Credit".¹ An example of companies' tendency towards quality carbon credits is seen in the sale of Indigo, the world's largest regenerative agriculture-based carbon credit producer. Carbon credits produced by [regenerative agriculture](#) practices also fall within the high-quality group as they provide reductions. [Microsoft](#) announced its support for the development of regenerative agricultural practices by increasing the carbon credits it received from Indigo from 40,000 tonnes to 60,000 tonnes.

Carbon Credit Price (USD/tonne, 2024)



Source: Ecosystem Market Place, TSKB Economic Research

Carbon by Indigo produced a total of 300,000 tonnes of carbon equivalent credits in the first three carbon harvests between 2002 and 2024, and 630,000 tonnes in 2025. The

remarkable point here is the price of the carbon credit based on regenerative agriculture issued by the company. The [price](#), which was USD 20 in the first harvest, increased even further in subsequent issuances to reach a USD 60-80 band. Given the loan price of USD 2.67 for renewable energy-based projects and USD 7.66 for agricultural projects, according to Ecosystem Market Place data, the high export price for Indigo is more striking.

Despite the often-justified criticism directed to carbon credits, they are still a tool that could close the financing gap in tackling the ecosystem crisis. The progress achieved in Article 6, which regulates the international carbon credits market, at the Climate Change Conference of the Parties could mark an important turning point that could accelerate the development of this market. The World Bank's significant [step](#) towards supporting the forest-based carbon credits market in 2023 and its inclusion of a risk-facing guarantee program in the carbon credits market through the [Multilateral Investment Guarantee Agency](#) (MIGA), part of the World Bank Group, during 2024 stand as important examples of the strong institutional support for the formation of a credible carbon credits market. Turkey is also in the regulatory phase for both the establishment of the Emissions Trading System and the production of Turquoise Credits through voluntary carbon credit markets.

¹ It is clear from both global and domestic trends that carbon credits markets will continue to navigate a bumpy road. The search for quality in carbon credits places the well-planned, monitoring, reporting and evaluation processes in the limelight. Carbon credits to be produced by regenerative agriculture offer significant potential, both through carbon storage and other associated benefits.

Regenerative Agriculture for the Ecosystem

As we have discussed before, the destruction of soil is a major obstacle to achieving a liveable planet. Regenerative agriculture is a solution method that stands out with its effect on increasing soil quality in the fight against this destruction. However, the ecosystem crisis, which is a multifaceted crisis, reveals that the risks to the soil not only affect agriculture but that they have many other repercussions. It is therefore important to consider the benefits that regenerative agriculture can provide from a broader perspective.

Regenerative agriculture practices bring various solutions to a number of ecosystem problems. For example, implementing practices such as planting cover crops to prevent the soil from being left bare between cultivation periods, [reduces the risk of soil erosion](#). Reducing this erosion helps preserve the fertile upper layer of the soil. The benefits of these practices are not limited to preserving the soil quality. A study published by the British Ecological Society (BES) in 2025 found that these practices, which protect living roots in the soil, support both microbial diversity in the soil and aboveground biodiversity. According to the BES study, the benefits of regenerative agriculture are further strengthened by the implementation of different practices at once. In addition, some [studies](#) have found that practices such as agroforestry - bringing trees to land used for crops and pasture - and reducing the use of pesticides have a positive impact on biodiversity.

Regenerative agriculture practices help protect another natural resource - water, which is as indispensable as soil. Improving soil quality increases the capacity of the soil to hold water. Each 1% increase in the amount of soil organic matter, which is important for the quality of the soil and the ecosystem services provided by the soil¹, can

increase the volume of water retained per acre by approximately [20,000](#) gallons.² This helps replenish groundwater and strengthen drought resistance. [Additionally](#), practices such as crop rotation ensure that nitrogen is better retained in the soil and does not leach into the water. Reducing the need for fertilizer and the risk of erosion through regenerative agricultural practices also prevents phosphorus from mixing into the water. This also helps prevent eutrophication, which threatens the biodiversity of aquatic ecosystems.³

Perhaps the most exciting benefit of regenerative agriculture in tackling the ecosystem crisis is that the carbon sequestered in the soil can be increased in the land where these practices are implemented. Studies on the subject highlight different regenerative agriculture practices as being effective in increasing soil organic carbon. A 2018 [study points](#) out that carbon sequestration in soil has the potential to have absorb between 2 and 5 gigatons of carbon dioxide (GtCO₂) per year. According to the *2024 State of Carbon Dioxide Removal* [study led by the](#) University of Oxford, annual carbon removal needs to reach between 7 and 9 GtCO₂ by 2050 in order to keep to the 1.5°C target set out in the Paris Agreement. This indicates that the benefits that can be achieved with regenerative agriculture should not be underestimated, and that the time has come to implement these practices, which promise an array of improvements for both the soil and the ecosystem.

¹ Soil organic matter is substances produced by living organisms, such as plants and animals, that return to the soil through decomposition.

² About 76 thousand liters.

³ As levels of nutrients in the water increase, so does the presence of algae and plankton. This threatens biodiversity by reducing the amount of oxygen in the water.

Water Efficiency in Agriculture: The Importance of Modern Irrigation Technologies



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Water, the fundamental requirement of life, is not only a vital necessity but also a fundamental element of economic development, livelihoods and societal well-being. In this context, agriculture is one of most intensive users of water, with the agricultural sector being the largest user of fresh water resources both in the world and in Turkey.

According to the 2024 "World Water Development Report" [published by the United Nations Educational, Scientific and Cultural Organization \(UNESCO\)](#), the agricultural sector accounts for 70% of freshwater withdrawals globally, followed by industry, with a share of approximately 19%, with domestic use accounting for 11% of water withdrawals. In Türkiye, agricultural irrigation accounts for 70% of total water use, at 44 billion cubic meters in 2022. At a time when water stress is coming to the forefront of attention and the ecosystem crisis is being felt increasingly acutely with extreme heat, drought and changing precipitation regimes, the importance of increasing water efficiency in agricultural irrigation becomes even more paramount.

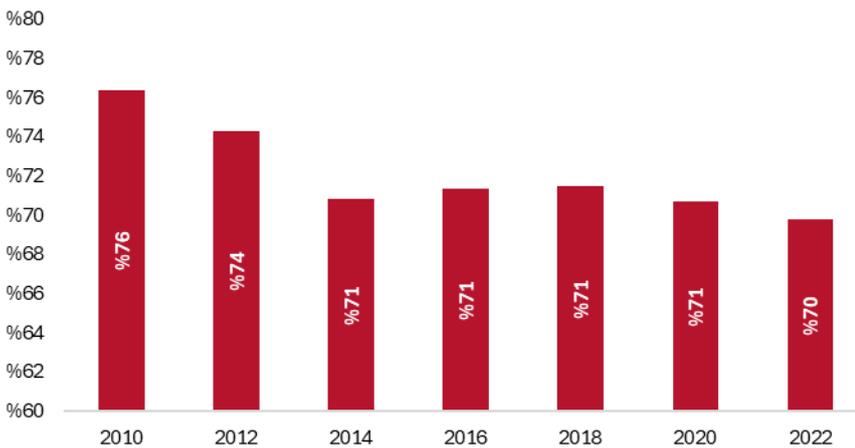
However, the irrigation methods commonly used in Türkiye fail to provide the necessary increase in yields.

According to the data on methods used in irrigation, published in the official statistics prepared by the State Water Works (DSI) for the year 2020, surface irrigation is the most widely used irrigation method in our country, with a 61% share. Surface irrigation, defined as allowing water to percolate through fields through channels at the head of the field, is considered the least efficient irrigation method. The inefficiency caused by high evaporation rates and runoff in surface irrigation methods indicates that Türkiye, as a country facing water stress, should move away from these methods and transition to more efficient modern irrigation techniques.

Modern irrigation technologies have been introduced for this very purpose. These technologies are crucial for agricultural practices as they consume less water and utilize water more efficiently than traditional irrigation methods. Sprinkler and drip irrigation technologies,

which are considered modern irrigation methods, minimize transmission losses by distributing water with a closed pressure system, providing the advantage of being both more efficient and economical. In its Annual Report for 2024, the DSI stressed that surface irrigation systems provided an average of 3.75 litres of water per hectare per hour, with sprinkler and drip irrigation systems in DSI projects providing 1.25 litres per hectare per hour. The report

Share of Agricultural Irrigation in Total Water Use

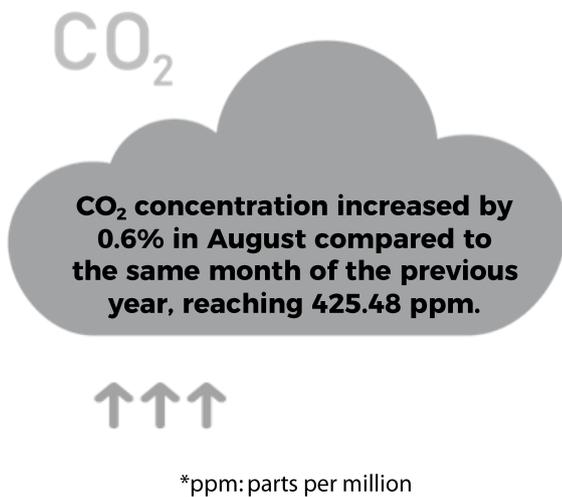


Source: Ministry of Environment, Urbanization and Climate Change, TSKB Economic Research

also highlights that water savings of up to 35% can be achieved with sprinkler irrigation technology, rising to 65% with drip irrigation technology.

With an annual volume of 1,322 cubic meters in usable water per capita in 2022, Türkiye is considered to be under "water stress". Therefore, the efficient use of water is vitally important both economically and in curbing natural resource wastage. Against this backdrop, the transition to modern irrigation technologies stands to bring significant savings in the levels of water consumed in agriculture, with ramifications not only in terms of the

volume of water to be used but also on the quality of the soil. Providing excess amounts of water to the soil can disrupt the structure of the soil, as well as negatively affecting the quality of the soil by increasing salinity. Puddles which may occur as a result of excessive irrigation may clog the soil surface and prevent the soil from aerating. Therefore, the transition to modern irrigation technologies is of strategic importance for both the conservation of water resources and the sustainability of soil health.



Road to COP30...

The 2025 United Nations Climate Change Conference, COP30, will be held in Belém, Brazil, between November 10-21 this year. Ahead of the conference, countries are required to complete the updates of their Nationally Determined Contributions in September. According to an assessment conducted by the United Nations Environment Program (UNEP), global warming is projected to reach between 2.6°C and 3.1°C by 2100 Based on current emission reduction efforts. The "1.3T Roadmap from Baku to Belem", which was put forward in Azerbaijan at the COP29, will be an important topic that will be followed from last year and will be on the agenda this year. The roadmap was initiated under the New Collective Quantified Goal (NCQG) and aimed to close the gap between the USD 300 billion pledged under the NCQG and the USD 1.3 trillion demanded by developing countries. No progress was made on the roadmap at the Bonn Climate Conference, which was held between 16-26 June this year. Speaking on the subject, Simon Stiell, the Executive Secretary of the United Nations Framework Convention on Climate Change, underlined that the roadmap "should not just be a report, but a user manual with clear steps to dramatically increase climate finance and investments".

Extreme Weather Events and Food Inflation



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[Studies](#) have found that extreme weather events add to the upside risks to food inflation by causing both short-term negative supply shocks and increasing transportation costs. Rising food prices resulting from the ecosystem crisis are also squarely on the agenda of central banks that have taken steps to tame global inflation, which spiked in the wake of the pandemic. For example, in her article written in November 2022, the President of the European Central Bank (ECB), Christine Lagarde, underlined that extreme weather events drive food prices higher, emphasizing that climate change should be included in all central bank analysis, including models, data sets and projections.

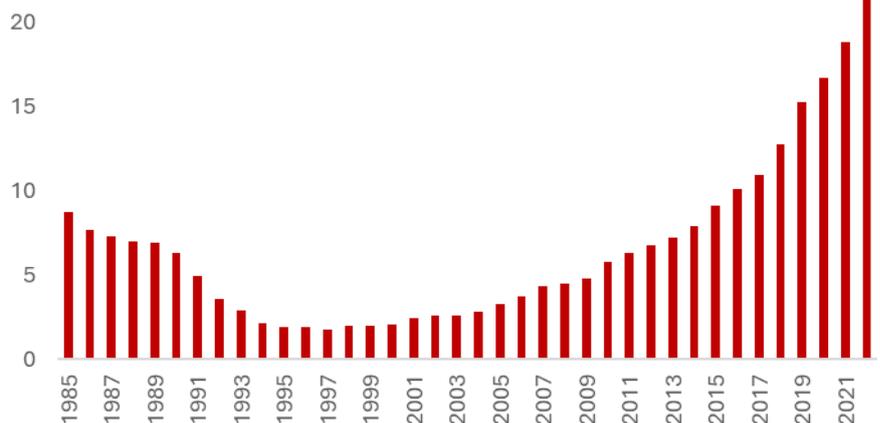
Another [study](#) recently published by ECB researchers reveals the impact of extreme weather events on food prices with examples from various parts of the world. Some examples include the rise in vegetable prices in the USA in 2022 due to drought and in China between June and September 2024 due to extreme heat. In addition, the decrease in production caused by floods in Australia in 2022 led to an increase of up to 300% in lettuce prices. In addition, reduced cocoa production in Côte d'Ivoire and Ghana due to extreme temperatures [precipitated a rapid increase](#) in both global cocoa prices and [the cost of](#) chocolate products.

In addition to supply shocks, the ecosystem crisis has also been reflected to food prices through its impact on maritime transportation. For example, the Panama Canal, which hosts a part of the global maritime transport volume, [has experienced serious disruption](#) due to the fall in water levels in recent years. While the

number of ships passing through the canal has decreased on days when water levels have decreased, this has increased waiting times around the canal and increased transportation costs. This was reflected on the prices of commodities, including food. United Nations [reports](#) reveal that small island developing countries may be more affected by such movements in prices and that price increases may be felt more acutely in these countries, which are relatively dependent on maritime transportation.

A study [conducted by the Central Bank of the Republic of Türkiye](#) found that the seasonal structure of fresh fruit and vegetable prices had changed, highlighting the role played by extreme weather events. The study draws attention to the decreased production during periods of severe drought in five provinces providing a high share of the country's fruit and vegetable harvest,

Frequency of Extreme Weather Events in Türkiye
(10 years moving average of monthly sums)



Source: Turkish State Meteorological Service, TSKB Economic Research

and the additional electricity consumption resulting from irrigation needs. The data bears out the positive relationship between above-average temperatures and fresh fruit and vegetable prices, due to decreasing supply and rising costs. A [study](#) prepared by the TSKB Chief Economist, Dr. Burcu Ünüvar, and Dr. Buket Alkan from the Economic Research department found an inflationary impact of temperature anomalies, especially on unprocessed food prices, although they were reflected more widely in many price indicators. The study found that extremely hot summers and extremely cold winters had a greater upward impact on prices

In March and April 2025, a series of frosts throughout Turkey had a knock-on effect on fruit prices, with the cumulative increase in fruit prices since March being far in excess of the average for 2003-2024. [In its 2025-III Inflation Report](#), the CBRT also examined the impact of this agricultural frost damage throughout the country on prices of fruit and vegetables. Studies show that the frequency of extreme weather events has increased in recent years, raising the prospect that upside risks to inflation through food prices may worsen in the coming period.



Climate Law enters force on July 9, 2025

The law regulates the planning and implementation tools for reducing greenhouse gas emissions and adapting to climate change in line with Türkiye's green growth vision and net zero emission target. With the Law, the Climate Change Directorate is authorized to carry out the necessary measures, regulations and follow-ups, and is also responsible for the establishment of the Emissions Trading System (ETS). With the system, businesses are required to obtain permission from the Presidency for activities that cause greenhouse gas emissions, while administrative fines are to be imposed on businesses that violate the limits and restrictions and do not submit emission reports within the deadline. Under the law, local climate change action plans are required to be submitted by the end of 2027.

Climate Justice

ICJ Reaffirms Governments' Climate Responsibility

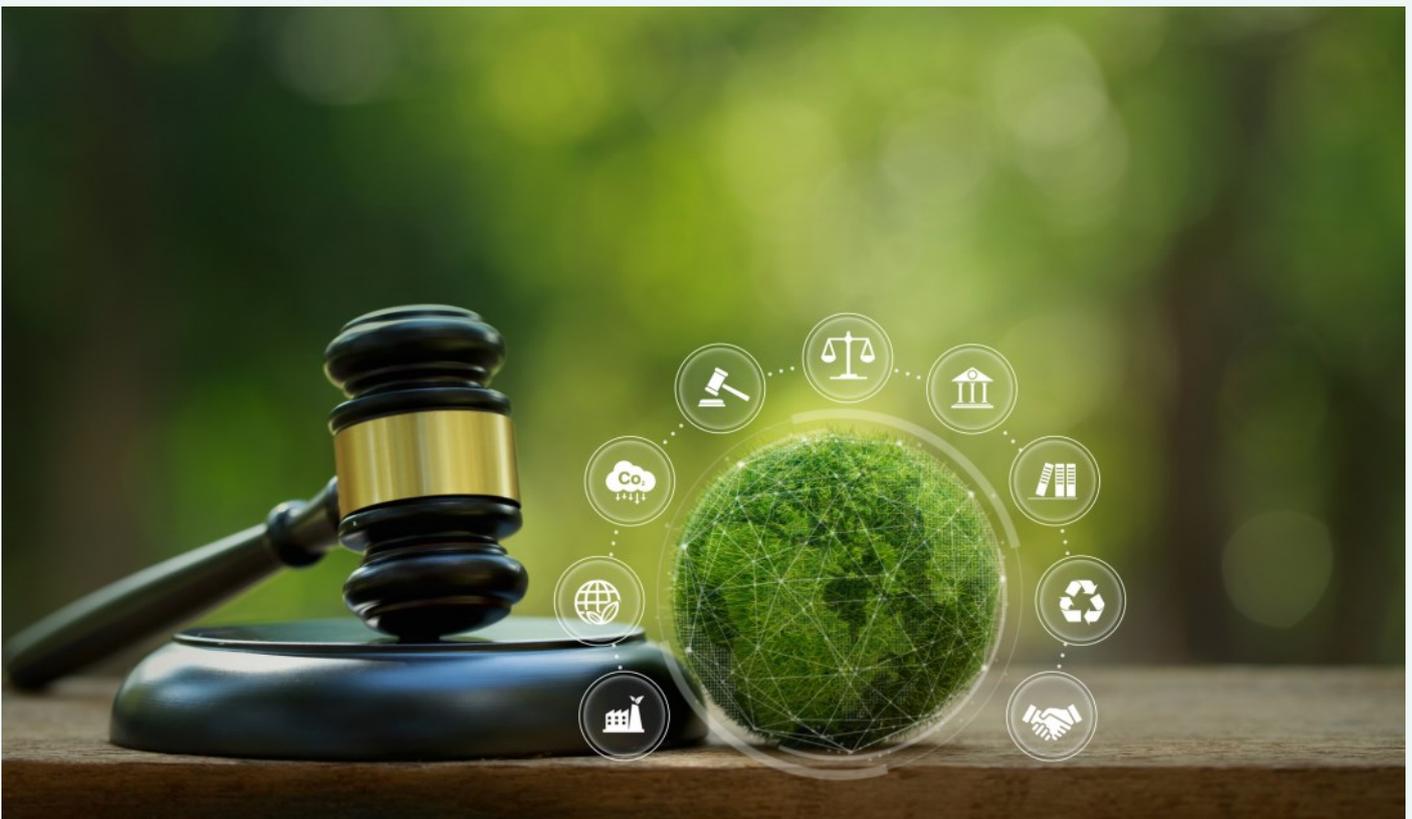
A historic process that calls into question the international responsibilities of states regarding the climate crisis reached a critical stage in July 2025 with the advisory opinion of the International Court of Justice (ICJ). The foundations of this process, which was closely followed by the international community, were laid in 2019 [by the Pacific Islands Students Fighting Climate Change \(PISFCC\)](#) group. We covered the case, which was one of the biggest cases ever heard by the ICJ, [in our previous issues](#).

Lobbying by the PISFCC has been embraced by the government of the Pacific island nation of Vanuatu, one of the most vulnerable countries to the climate crisis. After the case was brought to the [United Nations](#) (UN) General Assembly, a decision was reached to consult the ICJ on two issues: (1) What are the obligations of states to ensure the protection of the environment under international law? And (2) What should be the legal consequences when states harm the environment under

these obligations? In response to these questions, the ICJ issued an [Advisory opinion](#). In the opinion document, the ICJ underlined that the climate crisis is an "urgent and existential threat" and decided that governments should limit the environmental damage they cause.

What else does the advisory opinion say? The ICJ emphasizes its view that the climate crisis is a social and legal issue and states that governments must uphold human rights within this framework. The opinion highlights countries' responsibilities stemming from historical emissions and emphasizes the need for countries to act in line with global solidarity. This opinion, issued by the ICJ, the UN's judicial body, has no legal binding force. However, the opinion of the ICJ, also known as the World Court, sends an important signal.

What will be the fallout of this non-legally binding decision? [In his statement on the subject, ICJ President Judge Yuji Iwasawa](#) underlined that failure to take



measures to tackle the climate crisis would constitute a violation of international law and would have legal consequences. According to the ICJ's ruling, any violating countries would be required to halt harmful behaviour, provide full compensation to the harmed states by guaranteeing that such actions would not be repeated. In other words, although the advisory opinion is not legally binding, it [can be used as a legal basis](#) for the interpretation of constitutions or international agreement texts such as the Paris Agreement in future climate cases.

Another striking point concerns fossil fuels, which are not included in the questions posed to the ICJ by the UN General Assembly, but are included in the opinion text. According to the ICJ's [ruling](#), "Failure of a State to take appropriate action to protect the climate system from GHG emissions — including through fossil fuel production, fossil fuel consumption, the granting of fossil fuel exploration licences or the provision of fossil fuel subsidies — may constitute an internationally wrongful act

which is attributable to that State." This emphasis will, according to [Dr. Joana Setzer](#) of the London School of Economics, put more pressure on states to halt new fossil fuel projects and impose stricter regulations on the sector.

According to Sebastien Duyck [of the Centre for International Environmental Law](#), the ICJ's advisory opinion has both paved the way for more legal recourse on the climate crisis and changed the framework for what actions are considered possible and acceptable in international law. The fact that this movement, started by students from a small Pacific country, has quickly sparked a global legal debate shows how effective civil initiatives for climate justice can be. This example points out that not only states but also societies and individuals can play a decisive role in tackling the climate crisis and that the struggle for climate justice can be strengthened in the coming period.

Ecosystem 101

Regenerative Agriculture: Agricultural practices that increase soil biodiversity and the amount of carbon retained in the soil by regenerating soil organic matter and restoring the health of the ecosystem.

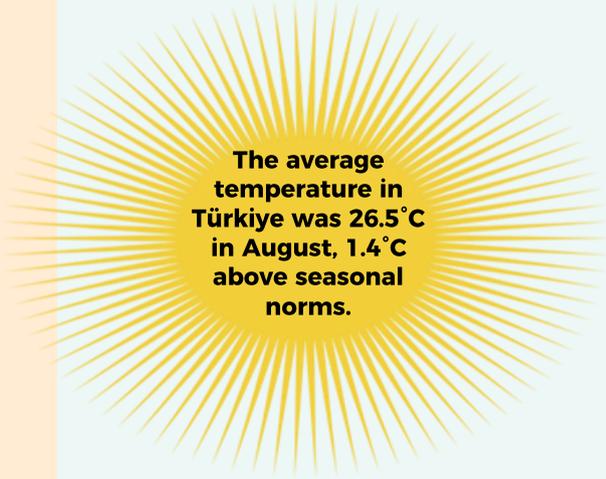
Ecosystem Services: The direct or indirect [contribution](#) of ecosystems on social and economic well-being, life and nature.

Carbon Sequestration: Capturing and storing [carbon dioxide](#) from the atmosphere naturally or with the support of technology.

Carbon Credit: A convertible and transferable [instrument](#) that allows an organization to financially benefit from reductions in or avoidance of emissions.

Modern Irrigation Technologies: Technologies such as sprinkler and drip irrigation, which consume less water and use water more efficiently than traditional irrigation methods.

Water Stress: [Insufficient](#) water resources to meet the current water demand or unavailability of water resources due to poor quality.



The average temperature in Türkiye was 26.5°C in August, 1.4°C above seasonal norms.

Company Highlights



SOLINFTEC

The global agricultural sector is striving to meet the food needs of a growing world population despite a dwindling rural workforce. In today's world, where efforts to tackle the ecosystem crisis are gaining momentum, agriculture also needs new solutions to change its practices that harm nature. Based in Sao Paulo, Brazil, Solinftec is helping agriculture produce more food with less environmental damage, thanks to the use of AI and automation.

Solix, Solinftec's product defined as "technology living in the field", supports decision-making while fulfilling various operational processes in agricultural fields with the support of artificial intelligence. Solix, a mobile platform with cameras and sensors, is able to perform a comprehensive scan of the needs of farmland. The scan is able to detect harmful organisms and weeds, and a development analysis of the plants can then be performed. Based on its analysis, Solix uses chemicals extremely efficiently when intervening in agricultural land. For example, the use of the company's robots in sugarcane fields in Brazil has led to a 93% reduction in the consumption of herbicides. The company's services also provide significant reductions in the use of pesticides and fertilizers by agricultural producers. Solinftec's AI platform Alice coordinates the tasks to

be performed by the Solix robot, while helping to construct every stage of agricultural production by interpreting the data collected in the field.

Powered by solar energy, Solix also contributes to cost reduction as well as environmental impact mitigation. However, a more important contribution of the product is that it opens up space for innovative competencies to flourish in agriculture. In fact, Solix reduces exposure of people working in cultivation areas to the sun and chemicals, while allowing the workforce to be shifted to areas that demand more qualifications.

Operating in 11 countries, mainly Brazil and the USA, Solinftec has received 1.3 billion reais (approximately USD 230 million) of investment since 2016. In 2024, the company increased its annual recurring revenues (revenues generated regularly and periodically) by more than 20% to 370 million reais. The company's projections for 2025 indicate continued revenue growth of 450 million reais. Currently, 150 Solix robots are in use in different regions. The company plans to increase production volume and launch 500 new units in the 2025/2026 harvest period.



In Short...

More than three years of negotiations by the United Nations for the first legally binding agreement on plastic pollution end without an agreement in the last round.

Delegates told the Financial Times that a majority of about 170 countries are ready to compromise, but the United States refuses to accept any clauses beyond voluntary measures. Saudi Arabia, Kuwait and some other oil-producing states also want the agreement to be limited to waste management and rejected restrictions on plastic production. Another point where no consensus could be reached in the negotiations revolved around the financing for plastic cleaning.

United Nations Ocean Conference completed.

At the conference held in June, development banks announced that they would invest EUR 3 billion by 2030 to tackle the plastics in the oceans. Progress was also achieved at the conference to bring the High Seas Treaty into force, which requires the approval of 60 countries. By the end of the conference, 50 countries had ratified the agreement, and this number is expected to increase by the end of the year. Another important result of the conference was the Nice Ocean Action Plan, with the European Commission announcing a EUR 1 billion investment package to support ocean protection, ocean science and sustainable fisheries.

The European Union (EU) is updating its climate target.

The European Commission has proposed a legally binding interim target of a 90% reduction in greenhouse gas emissions by 2040 when compared to 1990 levels. EU member states will reportedly be able to use carbon credits from developing countries to meet some of their emission targets for the first time. According to the update, up to 3% of the 2040 emission reduction target may be met by carbon credits received from other countries through the Paris Agreement Crediting Mechanism. Carbon credits will be rolled out in phases from 2036.

Global insured losses due to disasters reaches USD 80 billion as of first half of 2025.

According to preliminary estimates published by Swiss Re, losses from natural disasters have reached almost twice the average of the last 10 years due to severe storms in the USA and forest fires in California. Swiss Re announced that annual total insured losses could exceed USD 150 billion in 2025 due to the impact of forest fires in the second half of the year and the hurricane season in the North Atlantic.

International Renewable Energy Agency (IRENA) publishes its "Renewable Power Generation Costs for 2024" report.

According to the report, 91% of renewable energy projects provided electricity at a lower cost than fossil fuel alternatives in 2024. Among renewable energy sources, onshore wind projects were the cheapest source with a levelized cost of electricity of USD 0.034 per kilowatt-hour (USD/kWh). Additionally, battery storage costs decreased to USD 192 /kWh in 2024, 93% lower than in 2010. Renewables helped avoid USD 467 billion of fossil fuel costs in 2024.

Increased incidence of forest fires in Turkey amid high temperatures, low humidity and strong winds.

According to a statement from Bekir Karacabey, the General Director of the Forestry department, a total of 5,231 fires occurred between January 1 and August 17, 2,239 of which were in forest areas and 2,992 in non-forest areas. It was stated that 57% of the fires started in non-forest areas such as agricultural land, scrubland and roadsides and spread to woodland, with 64,500 hectares of land damaged as a result of the fires.



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