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Dear Readers,

We are excited to meet you again in this issue of our magazine, which we started publishing at the beginning of the year. At the end of our meticulous work, we aim to convey sectoral information, to present you the cultural and natural beauties of the beautiful geography we live in and to convey current developments to you. In this issue, we hope that we have touched upon topics that we will read with pleasure and curiosity. We would like to thank all our teammates who contributed to the preparation of the articles.

In the period leading up to this issue of our magazine; We were happy to celebrate the International Women's Day on March 8 for all our women who beautify our world with their efforts, loving hearts and sacrifices, who make humanity's hope flourish, whom we honor with their presence in every moment of our lives, who educate, raise, give the love and compassion in their hearts unconditionally, and fill the world with love.

We have also experienced the happiness of living in the month of Ramadan, a month of solidarity, unity and brotherhood, and the pleasure of spiritual peace. We hope that Ramadan will bring health, peace and well-being to all humanity.

On the 110th anniversary of our Çanakkale Victory, we commemorated with gratitude and appreciation all the heroes of Çanakkale and the independence struggle, especially Gazi Mustafa Kemal Atatürk, the founder of our Republic.

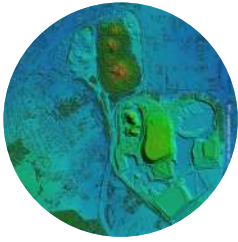
In these days when spring is knocking on our door, we hope to meet you in our next issue with the hope that you and your loved ones will experience bright days with the enthusiasm of spring.

Regards,

Bülent Yalçındağ

Operations Manager

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Environmental Disaster Response



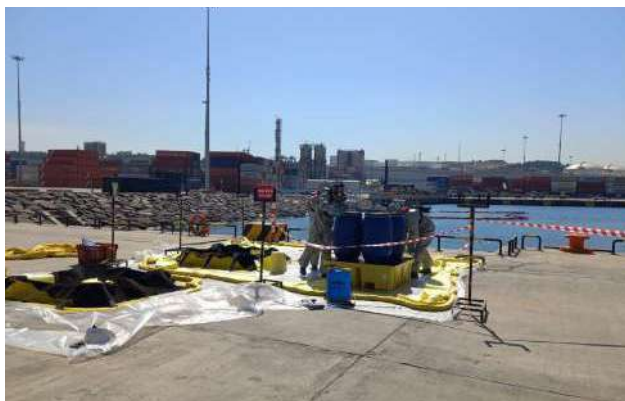
It refers to actions and strategies undertaken to reduce or eliminate the effects of environmentally damaging events. Such disasters can be natural disasters (such as earthquakes, floods, forest fires, etc.) or man-made events (such as chemical spills, nuclear accidents, industrial waste, etc.). Responding to environmental disasters requires a multidisciplinary approach and usually involves the following phases:

1. Early Warning and Preparedness

- **Early Warning Systems:** Systems that monitor meteorological, seismological and other natural phenomena are established to detect the effects of environmental disasters in advance.
- **Emergency Plans:** Trainings and exercises are organized to ensure that the community, state and local governments are prepared for possible disasters.

2. Emergency Response

- **First Aid and Rescue:** In terms of human and environmental health, emergency response begins immediately after a disaster. Urgent actions are taken, such as treating the injured, extinguishing fires or preventing flooding.
- **Environmental Cleanup:** In cases such as chemical spills, oil spills or nuclear accidents, clean-up operations are initiated to minimize damage to the environment.



3. Long-term Response and Recovery

- **Ecosystem Rehabilitation:** Ecosystem rehabilitation projects are carried out to make natural areas affected by forest fires, floods and other disasters healthy again.
- **Infrastructure Renewal and Construction:** Post-disaster work is initiated to repair and rebuild damaged infrastructure (roads, buildings, water supply).

4. Public Education and Awareness Raising

- **Education and Information:** Public education programs are organized on preventing environmental disasters, mitigating their potential impacts and how people should behave in such situations.

5. International Cooperation and Aid

- **International Assistance and Coordination:** Environmental disasters can often have a global impact. Therefore, international organizations (such as the United Nations, Red Cross) and other states can send aid to the disaster area and cooperate in the response.

Responding to environmental disasters not only mitigates the impacts of the disaster, but also develops strategies to ensure that similar disasters are less impactful in the future. Raising environmental awareness and promoting sustainable practices is an important part of this process.

Latest Technologies and Innovative Approaches

Environmental disaster response is a rapidly changing and complex field, and the technologies and innovative approaches that have developed in recent years play an important role in mitigating and preventing the impacts of these disasters. Here are some of the latest technologies and innovative approaches in this field:

1. Artificial Intelligence (AI) and Machine Learning (ML)

Artificial intelligence and machine learning have made significant progress in responding to disasters. These technologies are of great benefit in predicting, monitoring and analyzing the impact of disasters. For example:

- **Early Warning Systems:** AI can help predict potential natural disasters (earthquakes, floods, forest fires, etc.) by analyzing meteorological data.
- **Data Analysis:** After a disaster, AI and ML tools can quickly analyze data sets to determine the most effective response methods.

2. Drone Technology

Drones are used for rapid response in environmental disasters. In particular:

- **Damage Assessment and Monitoring:** In major disasters such as forest fires or floods, drones provide quick aerial views of the disaster area and help assess the damage as quickly as possible.
- **Supply and Aid Delivery:** Drones can deliver vital aid such as medical supplies or water to inaccessible areas.



3. Unmanned Ground Vehicles (UGVs)

Unmanned ground vehicles can be used especially in disaster areas where transportation is difficult. These vehicles play an important role in postdisaster search and rescue operations, damage assessment and aid distribution in devastated areas.

4. Biotechnology and Genetic Engineering

Biotechnology has made significant progress in responding to environmental disasters, particularly in the field of environmental restoration:

- **Plant Genetic Engineering:** Making trees and plants more resilient can quickly restore wildlife after forest fires.
- **Bioremediation:** The use of microorganisms to clean up contaminated sites can help to quickly reverse the negative effects of environmental disasters.

5. Renewable Energy Technologies

Renewable energy sources are of great importance to meet post-disaster energy needs:

- **Solar Panels and Wind Turbines:** Mobile solar panels and wind turbines can be used to provide temporary power to disaster areas. This helps to meet basic life needs in the aftermath

of a disaster.

- **Energy Storage Systems:** High-capacity energy storage technologies can store energy from solar or wind power and make it available at night or on windless days.

6. Blockchain Technology

It is an advanced database mechanism that allows transparent information sharing within a business network. Blockchain can be useful for responding to environmental disasters in several ways:

- **Supply Chain Monitoring:** After a disaster blockchain can be used to ensure that aid and supplies are delivered to the right people and areas. This technology enables transparent tracking of aid.
- **Financial Aid Transparency:** Blockchain based systems can be used to track the correct spending of aid funds.

7. Mobile Apps and Sensors

Mobile applications and sensor technologies play a major role in disaster response:

- **Early Warning Systems:** Mobile applications can be used to alert users of natural disasters and provide quick information.
- **Smart Sensors:** Sensors placed in residential or agricultural areas can be used to monitor parameters such as weather and water levels, and predict disasters in advance.

8. Climate Engineering and Geographic Information Systems (GIS)

Geographic Information Systems (GIS) are widely used to analyze and manage environmental disasters:

- **Risk Assessment and Planning:** GIS can be used to identify areas with high disaster risk. This helps local governments to develop the right strategies for disasters.
- **Climate Engineering:** Projects developed to reduce carbon emissions or take measures against climatic impacts play an important role in the fight against environmental disasters.



9. Social Media and Data Sharing

Social media is an important tool for those in the disaster zone to call for help and share the current situation. In addition, data collection and analysis through social media platforms allow response teams to act faster.

10. Advanced Simulation and Modeling

Simulation of disaster scenarios is used to develop a more effective response plan. For example, in the event of a flood, simulations and models can be used to predict how water spreads and which areas are most likely to be affected.

These technologies and innovative approaches enable faster and more effective responses to environmental disasters, protecting human lives and helping to conserve natural resources.

New Technologies in Oil Spill Response

Oil spills are a serious problem that can lead to environmental disasters, and new technologies are becoming increasingly important alongside traditional methods of responding to such incidents (mechanical containment, absorbent barriers, chemical dispersants). Innovative approaches such as biosolvents, nanotechnology, drones and robotics aim to increase efficiency, reduce cost and minimize environmental damage in the cleanup of oil spills.



1. Biological Solvents (Bioremediation)

Biological solvents include bio-remediation, a method using microorganisms (such as bacteria, fungi or algae) to clean up oil spills. This approach allows oil to biodegrade using natural processes. Specific bacteria (e.g. *Pseudomonas*, *Alcanivorax* or *Bacillus* species) are introduced into the environment that use the oil as a carbon source. These microorganisms metabolize hydrocarbons into carbon dioxide, water and harmless byproducts.

In the biostimulation method, nutrients such as nitrogen and phosphorus are added to increase the efficiency of existing microorganisms. In the bioaugmentation method, genetically enhanced or specially selected microorganisms that break down oil faster are used.

In the 2010 Deepwater Horizon oil spill, bio-remediation was used to a limited extent and more effective microorganisms were developed after this incident.

For example, oleophilic (oil-loving) bacteria are being optimized through genetic engineering. In the 2020s, biosurfactant-producing bacteria

were tested to remove residues from the event, with 60% success. In 2021, trials in Canada and Norway with bacteria adapted to cold climates showed that Arctic oil spills can be cleaned up. In 2023, a pilot project in the Gulf of Mexico with a biofilm-based system reduced oil pollution on the shoreline by 75% within a month.

Advantages

Environmentally friendly; reduces the use of chemicals. Provides permanent cleaning in the long term. Can be applied in hard-to-reach areas (e.g. coastal marshes).

Disadvantages

It is a slow process; it does not produce results as fast as mechanical methods in emergency situations. Efficiency depends on environmental factors such as temperature, oxygen levels and the chemical composition of the oil. The use of genetically modified organisms can have unpredictable effects on the ecosystem.





2. Use of Nanotechnology

Nanotechnology offers an innovative solution for cleaning up oil spills. Using materials at the nanoscale (1-100 nanometers), the goal is to separate, absorb or neutralize oil.

Nano-sized surfactants are used to break down oil into small droplets, facilitating its biodegradation. Materials such as carbon nanotubes, graphene oxide or magnetic nanoparticles are designed to absorb oil or separate it from water. For example, sponge-like nanostructures can selectively absorb oil. Nanoparticles such as Titanium dioxide (TiO_2), so-called Photocatalytic Nanomaterials, chemically break down oil by being activated by sunlight.

MIT and other research institutions have developed "nano-sponge" technologies that absorb oil and separate it from water. These sponges can be re-squeezed and reused. A nanogel developed in India can selectively separate oil from water, transforming it into a solid form that can be easily collected. Also in the 2020s, pilot projects have begun to spray photocatalytic nanomaterials with drones to clean up oil spills with solar energy.

Advantages

Thanks to their large surface area, nano-materials high efficiency with the ability to quickly absorb and break down oil. Magnetic nanoparticles can be magnetized and reused. Unlike chemical dispersants, some nanomaterials are non-toxic.

Disadvantages

Nanotechnology production is still expensive and uneconomical for large-scale applications. The release of nanoparticles into the environment can have long-term impacts on marine life. Methods that are successful in laboratory conditions need to be tested for applicability offshore.



3. Drone and Robotic Systems

Drones and robotic systems are increasingly being used to detect, monitor and clean up oil spills. These technologies reduce the need for manpower and facilitate access to hazardous areas.

Equipped with thermal cameras, hyperspectral imaging and sensors, drones map the location, size and spread of the oil spill in real time. They can also spray chemical dispersants, biological agents or nanomaterials to directly intervene in the spill.

Remotely Operated Underwater Vehicle (ROVs) are used to repair leaks or collect oil in deep water. For example, Remotely Operated Vehicles (ROVs) can repair pipelines. Surface robots, such as autonomous surface vehicles (e.g. "OilSkimmer" robots), can collect oil with absorbent materials or place barriers.

In 2022, NOAA (US National Oceanic and Atmospheric Administration) developed a system for monitoring oil spills with drones. These drones can predict the spread of the spill with artificial intelligence.

In Europe, the "SeaSwarm" project tested a fleet of autonomous surface robots to collect oil. These robots are solar-powered and use nano-fabric tapes that absorb the oil.

For deep-sea spills, the new generation of ROVs developed in the 2020s are equipped with artificial intelligence, making them more autonomous and sensitive.

Advantages

Drones can detect a leak within minutes. They can operate in deep sea or hazardous areas where humans cannot reach. Robots work 24/7, requiring less time and labor than manual methods.

Disadvantages

Drones can have short battery life; charging stations are required for long-term operations. Advanced robotic systems are expensive to manufacture and maintain. Synchronized operation of multiple drones and robots in large-scale spills can be difficult.



Comparative Analysis and Future Perspective

Biological Solvents: Offer a long-term and environmentally friendly solution, but are slow for immediate response. In the future, it could become faster with genetic engineering and biofilms.

Nanotechnology: Provides a rapid and innovative approach, but has not yet become widespread due to cost and ecological risks. Could be revolutionary once scaling up and toxicity testing is complete.

Drone and Robotic Systems: Offers the advantage of instant response and access. With AI integration and increased energy efficiency, they can become the standard in leak management.

Integrated Approach

These technologies are often more effective when used in combination rather than alone. For example: Drone's detect leakage and spray nanoemulsions. Robots precisely disperse biological agents. After the nanomaterials collect the oil, bioremediation removes the residue.

Artificial intelligence-optimized systems will improve the coordination of these technologies. Devices powered by renewable energy (solar, wave energy) will increase the sustainability of operations.

Oil Pollution, Shoreline Cleanup and Processes

Introduction

Oil pollution is a serious environmental problem caused by crude oil or petroleum derivatives spilled into the sea or on coasts. It is often caused by shipwrecks, pipeline leaks, accidents on oil platforms or illegal discharges. Oil pollution causes economic losses as well as damage to the ecosystem. Cleaning up pollution is a complex and lengthy process.

Sources of Oil Pollution

Ship Accidents: The grounding or sinking of oil tankers can release large quantities of oil into the sea.

Oil Platforms: Leaks can occur during exploration and extraction activities on offshore oil platforms.

Land-based Pollution: Petroleum products carried by industrial waste, sewage and rainwater can reach the sea.

Effects of Oil Pollution

Damage to the Marine Ecosystem: Oil adversely affects the ability of marine organisms to respire, reproduce and move. It is toxic to seabirds, mammals, fish and other marine life. It can cause their death by sticking to their feathers or gills.

Pollution of Coastal Areas: Oil reaching the coast can damage sensitive coastal ecosystems such as beaches, wetlands, coral reefs and mangrove forests.

Economic Loss: Sectors such as fisheries, tourism and coastal trade greatly.

Public Health Risk: Oil fumes and residues pose a threat to human health. It can also lead to contamination of seafood and respiratory problems.

Shoreline Cleanup Processes

Various methods are used to clean up oil spills. These vary depending on the type of oil, the spill site and weather conditions.

1. Mechanical Cleaning Methods

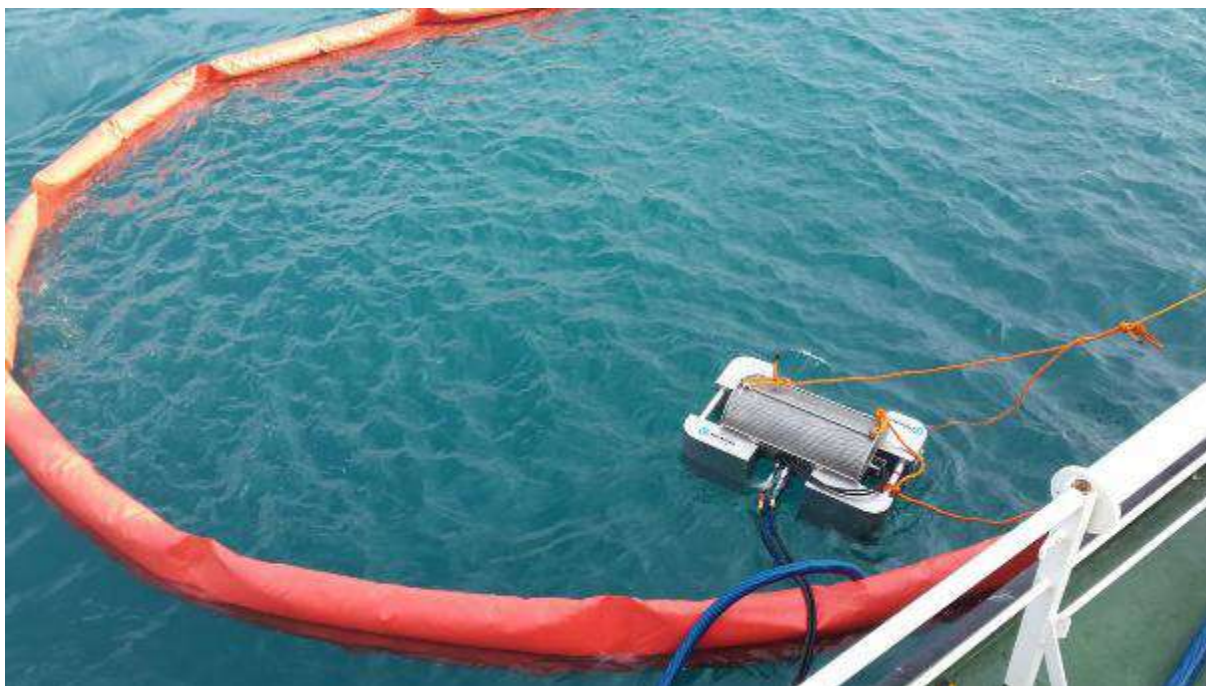
These methods involve collecting oil by physical means. Oil on the surface is collected using skimmers and absorbent materials.



- **Barriers and Sorbent Booms:** Barriers are important tools used specifically to contain and limit oil spills. They help protect coastal areas and aquatic ecosystems. Provides a fast and effective response in case of spills. Choosing the appropriate barrier types for the response plan increases effectiveness. Sorbent booms are important equipment used to contain and clean up oil and chemical spills on the water surface. Thanks to their absorbent properties, they quickly absorb liquids and prevent them from spreading. Sorbent booms can absorb up to 16 times their own weight in oil and petroleum. These booms, which absorb especially oily substances, remain on the water surface thanks to their water-repellent properties and absorb only oils. They can be used in areas such as ports, docks and marinas, as the first response to spills that may occur on land and at sea. They are an important part of emergency response kits and provide fast and effective cleaning.



- **Skimmers (Surface Skimmers):** Equipment that separates oil from water. Thanks to its hydrophobic and lipophilic structure, it separates the oil from the water and collects the oil on the surface by means of a pump connected to it.



- **Vacuum and Pump Systems:** Equipment used to pull oil residues directly from the water surface. In the cleanup of oil spills, vacuum and pump systems are critical for the collection and transportation of oil. These systems combine various technologies to effectively clean up oil in different environments (marine, coastal, onshore). Vacuum systems suck up oil by creating a pressure lower than atmospheric pressure. This allows oil to be collected from the surface or other environment. They are used to clean up oil spills at sea, especially to collect thin layers of oil on the surface. It is effective in cleaning up oil residues on shorelines and soil. It is also widely used for cleaning oil spills in industrial facilities. Portable vacuum systems are ideal for small and medium-sized spills, while large vacuum trucks are used to collect large quantities of oil. Pump systems are used to move oil from one place to another. This allows the collected oil to be transferred to storage tanks or processing plants. For oil spills at sea, they are used to transport collected oil to ships or storage areas. It is effective for transporting oil on shorelines and in soil. It is used in the transfer of oil in industrial areas. Centrifugal pumps are used for high flow rate oil transfer. Positive displacement pumps are ideal for the transfer of viscous (dense) oil. Submersible pumps are used for collecting oil under water. Vacuum and pump systems are often used together to clean up oil spills. Vacuum systems collect the oil while pump systems transport the collected oil. This integrated approach increases the efficiency of the cleanup process. The choice of oil vacuum and pump systems depends on factors such as the size of the spill, the viscosity of the oil and environmental conditions. Maintaining and regularly checking the systems ensures that they operate safely and effectively. It is important that

2. Chemical Cleaning Methods

Chemical methods for cleaning up oil pollution aim to facilitate the cleanup process by changing the structure of the oil or breaking it down. These methods can be used to the spread of oil, clean up oil on the surface or remove residues from shorelines. Here are some common oil chemical cleanup methods:

- **Dispersants (Oil Solvents):** Dispersants are chemicals used during oil spills and their purpose is to disperse the spilled oil into small droplets so that it mixes with the water column. This process prevents the oil from accumulating on the surface and reduces its environmental impact.

Dispersants can be used to break up the oil, but this method can cause additional damage to the environment. Their use is subject to authorization by local authorities. Dispersants are usually applied by spraying from ships or airplanes. However, the use of airborne dispersants is not always

common and is preferred in certain circumstances. The effectiveness of dispersants depends on the type of oil, seawater temperature and wave activity. Under favorable conditions, dispersants can accelerate natural biodegradation processes by dispersing the oil more rapidly into the water column. Reduce negative impacts on seabirds and mammals by preventing oil from remaining on the water surface. By preventing oil from reaching the shore, it prevents damage to coastal ecosystems. However, dispersants and dispersed oil droplets can be toxic to aquatic organisms. Therefore, their use can negatively affect the ecological balance. Dispersing oil into the water column can lead to pollution of deep-water ecosystems and have negative impacts on the organisms that inhabit these areas. In some cases, dispersants cannot completely break down the oil, which can lead to long-term environmental problems. In conclusion, dispersants are an important tool in the management of oil spills, but their environmental impacts need to be carefully assessed and considered in conjunction with alternative cleanup methods.



- **Emulsion Breakers:** Chemicals that facilitate cleanup by preventing oil from combining with water. Emulsion breakers are polymeric and surfactant-containing chemicals used to remove pollution from water-oil emulsions by reducing the stability of emulsions formed by two normally immiscible liquid phases such as water and oil or by separating these emulsions.

Emulsion breakers break emulsion stability by reducing or destroying the surface tension between the droplets that make up the emulsion. This process is usually accomplished using chemical breakers. Chemical emulsion breakers contain additives and surface active agents. These substances cause the droplets to coalesce and form larger droplets. Thus, larger droplets are more easily separated.

3. Biological Cleaning Methods

- **Biological Decomposers (Use of Bacteria):**

Microorganisms that break down oil naturally are used. With this method, the natural cleanup process can be accelerated. Some species of bacteria naturally found in oil-contaminated environments and have an ability to break down hydrocarbons. These bacteria contribute to the cleanup process by metabolizing pollutants. In cases where microorganisms capable of degrading pollutants are not naturally occurring or are not present in sufficient numbers, similar results can be achieved by adding these microorganisms to the environment. This method is mostly used in the cleanup of soil and water sources contaminated by oil spills.



- **Bioremediation:** Bioremediation is the process of using living organisms, especially microorganisms (bacteria and fungi) and plants, to remove or reduce the effects of pollutants in environmental media such as soil, water and air. Nutrients are added to encourage the growth of bacteria that eat natural oil. The microorganisms help clean up oil pollution by breaking down the hydrocarbons in the oil. By utilizing natural processes, it causes minimal damage to the environment.

Generally more economical than conventional treatment methods. Applicable to a wide range of pollutants and media. Bioremediation processes can be slower than chemical treatment methods. Some pollutants may not be completely degraded, leading the accumulation of intermediate products. Overall, Bioremediation is an environmentally friendly and convenient method for cleaning up contaminated sites by utilizing the natural abilities of living organisms.



4. Manual Cleaning Methods

Manual oil cleanup methods to manpower-based techniques for removing pollution caused by oil spills. These methods are particularly preferred in situations where mechanical equipment cannot be used or may harm the environment. Manual cleanup offers an effective and environmentally friendly solution when applied correctly. They are especially used in coastal areas. Considering the advantages and limitations of each method, the most appropriate techniques should be selected.

- **Pressurized Water and Vacuum Systems:** Used to remove oil residues from hard surfaces. This method provides detailed cleaning of surfaces. It is especially used to remove oil from rocky areas. In vacuum systems, the oil in liquid form is collected by suction from the water surface or land. This method helps to remove oil quickly and effectively.



- **Manual Collection by Gloved Workers:** It is the manual cleaning of oil-contaminated sand, stones and other contaminated materials by humans. It is a preferred method for removing oil from areas that are not suitable for the use of mechanical equipment or sensitive areas, and is a labor-intensive and time-consuming collection technique.



Measures to Prevent Oil Pollution

Oil pollution is an important environmental problem that causes serious damage to marine and terrestrial ecosystems, threatens human health and causes economic losses. The main measures that can be taken to prevent such pollution are as follows:

1- Enhancing Oil Transportation Safety

Implementation of national and international regulations and increased controls on oil transportation and storage a critical role in pollution prevention. For example, the Oil Pollution Prevention Convention of 1954 (OILPOL 1954) was the first major agreement to reduce the impacts of oil pollution. These legal regulations include the use of double-hulled tankers and stricter inspections within the industry.

2- Safety Measures on Oil Platforms

Safety on oil platforms is critical to protect the health of workers, minimize environmental impacts and ensure continuity of operations. In oil and gas extraction processes, workers can be exposed to hazardous substances such as crude oil, natural gas, hydrogen sulfide, heavy metals and benzene. Therefore, workplace hygiene monitoring and health surveillance systems should be established and worker exposure levels should be regularly assessed. As oil platforms operate in different geographical and climatic conditions, workers may be exposed to physical hazards such as noise, vibration, storms and mechanical breakdowns. These situations require caution and the use of appropriate protective equipment. The risk of fire is high in oil and gas installations. Therefore, it is vital that fire suppression systems are installed and regularly maintained, and that employees receive fire safety training. In addition, fire-resistant structures and emergency response plans should be established. Effective evacuation plans and regular drills should be prepared for emergencies that may occur on platforms. This ensures that workers can act quickly and safely in emergencies. In areas where there is a risk of explosion, ATEX and IECEx approved equipment must be used and explosion protection safety must be ensured. Provide employees with regular safety training and raise their awareness of potential hazards. This contributes to the development of

a safety culture and the prevention of accidents. The implementation of these measures is essential to create a safe working environment on oil platforms.

3- Development of Emergency Response Teams and Technologies

Equipping oil cleanup teams with state-of-the-art equipment and training them regularly increases the effectiveness of response processes. Companies and organizations develop specific contingency plans to respond to oil spills, ensuring that teams act quickly and in a coordinated manner. For example, BOTAS International maintains experienced teams and equipment to respond to potential spills along the BTC crude oil pipeline. The use of equipment specifically designed for oil spill response speeds up the response process and increases its effectiveness. Monitoring oil spills and modeling their spread play a critical role in determining response strategies. These technologies allow for rapid assessment of the size, location and environmental impact of the spill. When responding to oil spills, it is important to consider environmental sustainability. Using environmentally friendly treatment methods helps protect ecosystems. In addition, fast and effective response prevents the spread of pollution and reduces the cost of cleanup operations.

4- Training and Awareness Activities

Oil spills can have serious negative impacts on the environment and ecosystem. Education and awareness-raising are crucial to ensure effective response and protection against such incidents. Therefore, all relevant stakeholders should be provided with continuous training and access to up-to-date information. In particular, trainings on the decomposition process of oil in the marine environment and different response techniques increase the competence of the teams. Active participation of the public is essential in combating oil spills. The public should be made aware of environmental issues and trained on how they can help in times of crisis. Organizations such as TÜDAV (Turkish Marine Research Foundation) research the effects of oil pollution on ecosystems and publish reports on this issue. Such studies contribute to raising awareness by informing both the academic community and the public.

Conclusion:

Early intervention is crucial in the fight against oil pollution. Effective methods should be used to minimize the effects of oil spills and preventive measures should be increased. An effective coastal cleanup against oil pollution has positive environmental, economic and social consequences. Therefore, it is critical that all stakeholders work in collaboration and adopt sustainable practices.





CLIMATE CHANGE AND EXTREME WEATHER EVENTS

Climate change is a global problem affecting weather patterns worldwide and increasing the frequency and severity of extreme weather events. Climate change, triggered by greenhouse gases released into the atmosphere as a result of human activities, leads to an increase in the average temperature of the earth and changes in climate systems.

Climate change is causing extreme weather events to become more frequent and severe. Rising global temperatures cause heat waves to last longer and increase in intensity. Acceleration of the water cycle brings extreme rainfall and floods in some regions, and drought and water scarcity in others. Melting glaciers and rising sea levels also increase the risk of storms and floods in coastal areas. Climate change can also affect wind patterns and pressure systems in the atmosphere, increasing the severity of extreme weather events such as hurricanes, typhoons and tornadoes.

Climate change is increasing the frequency and severity of extreme weather events. These include heat waves, heavy rainfall and floods, droughts, hurricanes, forest fires, sea level rise and coastal flooding. Extreme weather events have serious impacts on human health, agriculture, water resources, infrastructure and ecosystems. Individuals with weak immune systems and chronic diseases are particularly vulnerable to these impacts.



Reducing greenhouse gas emissions, developing climate adaptation strategies, promoting sustainable agriculture and water management practices and cooperation are needed to combat climate change. Reducing fossil fuels, promoting the use of renewable energy, strengthening infrastructure and raising public awareness are important steps in this struggle. Urgent measures should be taken not only at the individual but also at the societal level.

Climate change and extreme weather events pose a major threat to our planet and future generations. Therefore, everyone needs to take responsibility for tackling climate change and cooperate to solve this important problem.

How the global climate has changed in the last 25 years?

Over the last 25 years, climate change has accelerated in a way that is evidenced by scientific data and observations. A number of important developments and trends have emerged during this period. First, average temperatures have increased significantly over the last 25 years. Since 1998, most of the hottest years on record have been experienced during this period. Especially between 2015 and 2023, the hottest years in history were recorded. With this increase, extreme heat waves have become more frequent, longer and more severe. Heat waves in Europe in 2003, 2019 and 2022 caused thousands of deaths

Second, the melting of glaciers is an important transformation. Sea ice cover in the Arctic is declining rapidly and ice sheets in Greenland and Antarctica are also melting. This melting is causing sea levels to rise and putting millions of people living in coastal areas at risk of flooding and inundation.



Third, sea levels have risen by about 7-8 cm in the last 25 years. Melting glaciers and warming oceans have triggered sea level rise. This puts millions of people living in coastal areas at risk of flooding and inundation.

Fourth, extreme weather events have increased. Tropical storms have increased in intensity and frequency, severe storms and floods have become more frequent, and some regions have experienced prolonged droughts. This has led to food crises, with major events such as Hurricane Katrina in 2005 and Hurricane Maria in 2017, as well as droughts in the Horn of Africa.



Climate change is also closely linked to human activities and policies. The use of fossil fuels leads to an increase in greenhouse gas emissions. Although international agreements have taken steps to combat climate change, there has not been sufficient progress in reducing emissions.

As a result, climate change has accelerated in the last 25 years, as evidenced by scientific data. This situation to a deterioration of natural balances and a series of negative impacts. There is an urgent need to take steps to reduce carbon emissions, transition to renewable energy and climate adaptation. Otherwise, irreversible consequences for future generations will be inevitable.



Impacts of Ocean Waste on Oil Spill

Ocean wastes, especially plastic pollution and oil spills, can have serious impacts on marine ecosystems. The interaction of oil spills and ocean wastes worsens the impacts of oil spills in several ways and makes cleanup efforts more complex. For example, plastic debris can become entangled in cleanup equipment and complicate the cleanup process. In addition, when oil mixes with plastic and other debris, a more complex mixture of contaminants is formed, reducing the effectiveness of traditional cleanup methods..



It is difficult to give an exact figure for how much solid waste is collected annually from the oceans and seas because it cannot be measured precisely, as much of it sinks to the ocean floor, washes up on shores or breaks down into microplastics. However, there are various studies and estimates of the amount of plastic waste and pollution in the oceans.

The results of a recent study show that more than 4.8 million tons of garbage are dumped into the oceans every year and this amount could reach 12.7 million tons. There is concern that the amount of plastic dumped in the oceans could reach 250 million tons by 2025, with plastic waste accumulating rapidly.

The presence of ocean waste also increases environmental damage. Plastics and other debris can absorb oil, creating toxic releases. Marine animals can ingest or become entangled in this contaminated debris, leading to physical harm, poisoning and death. Both petroleum and plastics are persistent pollutants that can remain in the environment for years and can cause long-term ecological damage. Toxic substances from oil can accumulate in microplastics ingested by marine organisms, potentially affecting human health as they travel through the food chain.

The presence of ocean waste also brings economic and social impacts. The costs of cleanup efforts increase and can have negative impacts on sectors such as fisheries and tourism. Furthermore, the presence of oil and debris can reduce the aesthetic and recreational value of coastal areas, affecting local cultures and economies.



Various measures can be taken to tackle ocean waste. Improving waste management practices can help reduce the amount of ocean waste. The development of new cleanup technologies can ensure effective treatment of oil spills. The impacts of ocean waste can be reduced by raising public awareness and implementing stronger policies and regulations.

As a result, ocean wastes negatively impact marine ecosystems by worsening the impacts of oil spills, increasing environmental damage and causing long-term ecological and economic consequences. Therefore, the elimination of oil spills and ocean wastes is of paramount importance for the protection of marine ecosystems and the societies that depend on them.



Company Policies to Reduce Carbon Footprint

Practices to reduce carbon footprint are an important step towards minimizing the environmental impact of companies. This process not only increases environmental awareness, but also helps businesses gain a stronger role in sustainability. Below you can find examples of company policies and good practices to reduce carbon footprint::

1. Energy Efficiency and Renewable Energy Use

- **Policy:** Companies can develop policies to improve energy efficiency and transition to renewable energy sources. This includes reducing electricity consumption and using clean energy sources such as solar and wind instead of fossil fuels.
- **Investing in Renewable Energy Sources:** Companies may choose to meet their energy needs from renewable energy sources such as solar, wind and hydroelectricity.
- **Energy Saving:** LED lighting, efficient heating and cooling systems and energysaving appliances are used to optimize indoor energy consumption.

2. Review of Travel Policies

- **Policy:** Minimizing employee travel to work or encouraging more sustainable transportation alternatives can be an effective way to reduce carbon footprint.
- **Electric Vehicles and Transportation:** Companies can replace fleet vehicles with electric vehicles or encourage employees to use public transportation. Infrastructure such as electric vehicle charging stations can also be established.
- **Cycling and Walking Incentives:** Practices that encourage employees to bike or walk to work are also one of the steps to reduce carbon footprint.

3. Zero Waste and Waste Management

- **Policy:** Companies can adopt zero waste policies that aim to reduce, recycle and reuse waste. This includes creating less waste in production processes and disposing of waste in environmentally friendly ways.

- **Waste Minimization and Recycling:** Companies can develop practices to minimize and recycle waste from production processes. In addition, digitalization can be encouraged to reduce the use of paper.
- **Packaging Reduction:** Companies can reduce waste generation by minimizing product packaging or using recyclable materials.



4. Sustainable Supply Chain Management

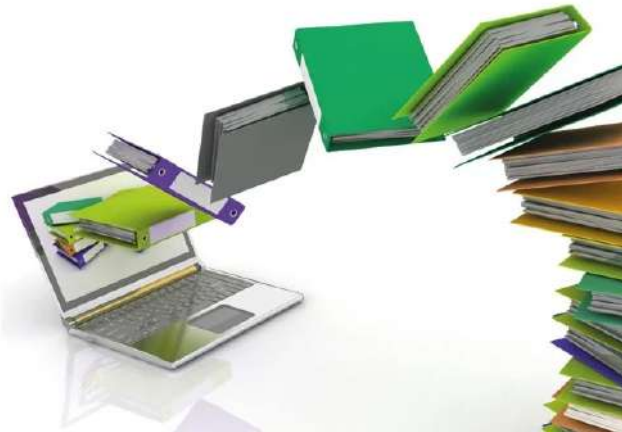
- **Policy:** Companies should act in accordance with sustainability principles in their supply chains and work with suppliers that reduce their carbon footprint. This can range from selecting environmentally friendly materials to reducing the carbon emissions of production processes.



- **Green Supplier Selection:** Companies can audit the companies in their supply chain for environmentally friendly practices and sustainable production methods. Collaborating with environmentally conscious suppliers is an important step in reducing carbon footprint.
- **Local and Sustainable Products:** Buying products from local suppliers can reduce carbon emissions by reducing transportation distances.

5. Digital Transformation and Paperless Working Model

- **Policy:** paper use, shifting to digital processes and increasing efficiency can help reduce carbon footprint..



6. Carbon Offsetting and Carbon Credit Buying

- **Policy:** Companies can purchase carbon credits or invest in environmentally friendly projects to offset their carbon footprint. Such practices companies offset their carbon emissions.



- **Purchasing Carbon Credits:** Companies purchase carbon credits to offset their carbon emissions. These credits allow carbon emissions to be offset by investments in environmental projects.

Conclusion

Companies' carbon footprint reduction policies and practices can not only improve environmental impact, but can also lead to long-term cost savings and strengthen a brand's reputation for sustainability. By systematically adopting these businesses can contribute to a greener world. Such policies not only reduce environmental impacts, but can also have a positive impact on the company's long-term sustainability and brand equity..

7. Employee Trainings and Awareness Raising

- **Policy:** Educating employees on environmentally friendly practices and ways to reduce their individual carbon footprint has a positive impact on the environmental impact of companies.
- **Employee Carbon Footprint Awareness:** Employees can be trained on how to reduce their carbon footprint. These trainings can encourage them to develop more environmentally friendly office habits.
- **Telecommuting and Flexible Working Hours:** Reducing the frequency of office visits through telecommuting or flexible working hours can indirectly reduce carbon emissions.

8. Green Buildings and Office Design

- **Policy:** Companies can build their office and production facilities with sustainable design principles. These buildings can include energy efficient lighting, natural ventilation and low energy consuming systems.
- **LEED or BREEAM Certification:** Companies can design their offices or factories to be certified as green buildings. These certifications reward energy efficiency and sustainable building practices.

Port Safety

In Turkish, the term "Port Security" generally refers to the activities carried out to ensure the security of ports. Since ports are one of the important points of maritime transportation, security is of great importance in these areas. Port security includes various measures both prevent maritime accidents and to prevent illegal activities. These measures can be briefly summarized as follows;

Port Security: It includes the regular and safe management of traffic within the port and regulating the entry and exit of these ships to and from the port, making loading and unloading operations safe.



Maritime Safety: It is the whole of the works carried out for the safe management of maritime traffic in the port area and the prevention of maritime accidents. It also includes ship safety, combating marine pollution and providing life-saving equipment.



Security Inside the Port: It covers the security of the personnel and facilities working in the port. It includes preventing damage to cargo and preventing incidents such as theft or sabotage.



Prevention of Illegal Activities: Security measures are taken at ports against threats such as smuggling, illegal migrant crossings and terrorist activities.



Emergency Plans: These are the situations of being prepared for possible accidents, natural disasters or other emergencies in ports. These are the plans made for rapid response to these situations.

Port security is usually provided in a coordinated manner by port operators, homeland security, customs authorities, local security forces and maritime authorities.

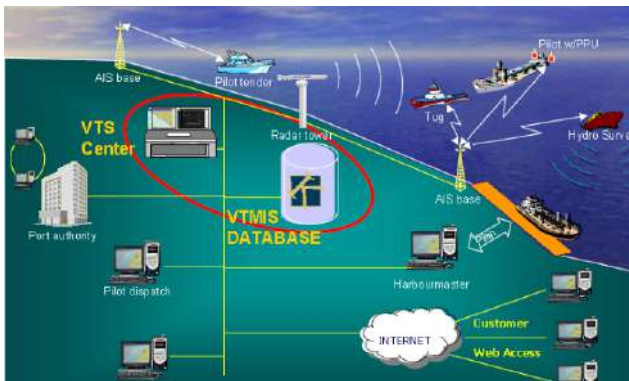
Safe Management of Tanker Traffic in Ports and Technologies Used

The management of tanker traffic in ports is crucial for both maritime safety and environmental protection. Since tankers are involved in high-risk activities such as oil and natural gas transportation, the entry, exit and berthing of such vessels in ports should be strictly controlled. Here are some of the methods and technologies used to safely manage tanker traffic in ports:

1. Maritime Traffic Management Systems (VTMIS)

Description: VTMIS (Vessel Traffic Management Information Service) is a software system used to monitor, coordinate and supervise maritime traffic around the port. This system allows port authorities to monitor ships' positions, speeds, routes and other important data in real time.

Technology: VTMIS integrates with radars, GPS, AIS (Automatic Identification System) and other sensors to collect and provide instant information about ships to port authorities.



2. Automatic Identification System (AIS)

Description: AIS is a system that automatically broadcasts a ship's position, speed and course. Tankers broadcast this data before and during their approach to the port. Port authorities use this information to the safe berthing of ships.

Technology: AIS works through a transponder installed on each ship and the system enables communication between the ship and other ships or port authorities.



3. Coastal Radar Systems

Description: Coastal radar is an important technology that collects data on ships and tankers around the port. These radars monitor the position, speed and movement of vessels and help port managers to safely direct maritime traffic.

Technology: Radars detect ships, helping to identify threats at close range and at long distances. In addition, these systems provide reliable data even in bad weather conditions.



4. Automation in Berthing and Departure Processes of Ships

Description: In ports, automated systems are used for the berthing and unberthing of tankers to avoid human error. For example, special software optimizes the speed and position of tankers, minimizing the risk of collisions

Technology: GPS and sonar-based systems enable accurate positioning and berthing of vessels. In addition, these systems automate the stopping and departure of tankers in the desired position.



5. Environmental Monitoring Technologies

Technology: Managing the environmental impacts when tankers dock in port is also very important. In particular, the technologies used to prevent marine pollution play a critical role in ensuring safe management.

Technology: Environmental monitoring systems monitor seawater quality, air pollution and other environmental factors. This data sends immediate alerts to port authorities, helping to prevent environmental risks.

6. Simulation and Education Technologies

Description: When managing tanker traffic in ports, training simulations are provided for staff and captains. These simulations provide training on how to act in times of crisis by creating realistic sea traffic scenarios.

Technology: 3D simulation software and virtual reality (VR) technologies are used to train port officers and ship personnel.

7. Two-Way Communication Systems

Description: Communication between the ship and the port is of paramount importance during the berthing and disembarkation of tankers. Two-way communication systems allow both parties to assess the immediate situation.

Technology: These systems provide continuous voice communication between the ship and the port. Digital data can also be exchanged so that both parties have up-to-date information on the status of the vessel.

8. Artificial Intelligence (AI) and Machine Learning

Description: Artificial intelligence enables the early detection of potential hazards by analyzing and predicting risk when managing tanker traffic. By analyzing previous data on port traffic, machine learning algorithms can predict future hazard scenarios.

Technology: AI-based software analyzes maritime traffic data to determine the safest and most efficient routes and minimize potential risks.

Conclusion

Managing tanker traffic in ports requires proper and effective integration with technology. These technologies not only ensure the safety of vessels, but also protect the environment and increase the efficiency of port operations.

Sorbents

Varieties

Usage Areas, Advantages and Disadvantages, Place in the Sector

1. What is Sorbent?

Sorbents are materials that absorb (absorbent) or adsorb (adsorbent) substances in the liquid or gas phase by physical or chemical means and are used to prevent or control environmental pollution.



Absorbent-type products can be used in many large and small spill response operations. Such absorbents include a wide range of organic, inorganic and synthetic products designed to collect oil, preferably in water.

While widely used in oil spill response, sorbents need to be used with caution to minimize inappropriate and excessive use, which can present major supply challenges for secondary contamination, recovery, storage and disposal.

In general, sorbents are most effective during the final stages of shoreline cleanup and for collecting oil that cannot be easily collected using other cleanup techniques

2. Sorbent Types

Absorbers can be classified according to their origin and operating principle.

Sorbents by Material Source

Natural Absorbents: Produced from natural materials such as clay, sawdust, straw, peat moss, corn cobs, perlite.

Synthetic Absorbents: Manufactured from polyurethane foam, polypropylene fibers and other petrochemical derivatives.

Organic Absorbents: Carbon-based materials (such as activated carbon).



Synthetic Absorbent



Inorganic Absorbent



Organic Absorbent

Sorbents by Sorption Mechanism

Absorbents: Materials that completely absorb the pollutant. When squeezed, it does not release the oil back. It is used in oil with higher flowability.

Adsorbents: Materials that hold the pollutant on their surface. It may give back when squeezed. Preferred in oils with less flowability

Oleophilic-Hydrophobic Sorbents: Absorbs only oil and repels water. Used in oil spills.

3. Areas of Use and Purposes

Sorbents are widely used in various industrial and environmental fields:



1. Oil and Chemical Spill Control:

- Hydrophobic sorbents are used in marine oil spills.
- It is used in laboratories and industry for cleaning chemical spills.

2. Industrial Use:

- Absorption of spilled oils and chemicals in factories, refineries and workshops.

3. Environmental Protection and Waste Management:

- Used to remove pollutants in waste water treatment plants.
- Used as a gas absorber in air filtration systems (such as activated carbon).

4. Medical and Health Field:

- Used in respirators for the absorption of toxic gases.
- It is found in hygiene products for the absorption of body fluids.

Sorbent Types

Sorbent Boom



A sorbent boom (sorbent barrier) is an absorbent material used to contain and clean up oil and chemical spills on the water surface. It usually consists of filler material (polypropylene, hydrophobic fibers, etc.) in a porous outer sheath. Thanks to its waterproof structure, it only absorbs petroleum and similar hydrocarbons while leaving water out.

Technical Specifications

Material: Hydrophobic polypropylene, polyurethane foam, natural fibers (e.g. algae-based materials)

Dimensions: Produced in various diameters and lengths (e.g. Ø 12-20 cm, length 3-6 meters)

Absorption Capacity: Generally able to absorb up to 10-25 times its weight in liquid

Connection Mechanism: Can be combined with carabiners, hooks or buckles to form longer barriers

Lifetime: Varies depending on the amount of liquid absorbed, some can be reused or recycled

Areas of Use

Marine and River Pollution Control: Used in seas, lakes and rivers to prevent the spread of oil spills.

Industrial Areas: Used as a precaution against spills in factories, ports and refineries.

Emergency Response and Environmental Protection: Widely used in oil tanker accidents, pipeline leaks and ship accidents.

Ports and Marinas: Used to prevent spills during refueling operations.

Advantages

Provides rapid response and prevents leakage from spreading.

Thanks to its hydrophobic structure, it absorbs only petroleum-based substances and does not absorb water.

Large areas can be covered by connecting them together.

There are disposable and reusable options.

Sorbent booms are equipment that plays a critical role in preventing environmental contamination

Sorbent Pad



A sorbent pad is an absorbent pad used to clean up and contain liquid spills. They are usually specially designed to absorb oil, water, chemicals and other industrial liquids and are produced in different materials and capacities.

Technical Specifications

Material: Polypropylene, cellulose fiber, natural fibers

Structure: Single layer or multilayer (for higher absorption)

Dimensions: 40x50 cm or 30x40 cm as standard; also available in rolls

Absorption Capacity: Can absorb 10-20 times its weight liquid

Texture: Perforated or smooth surface (non-slip designs also available)

Durability: Chemical and tear resistant structures are available

Areas of Use

Industrial Plants: To treat chemical spills

Workshop and Maintenance Areas: Suction of oil and coolant fluids

Maritime and Environmental Protection: Clean-up of oil spills on the sea surface

Health and Hygiene: Cleaning biological fluids

Storage Areas: To prevent liquid leakage under drums and tanks



Absorbent Pad Type

Oil-Only Absorbent Pads: Water repellent and absorb petroleum-based liquids only.

Universal (Multipurpose) Absorbent Pads: Absorbs oil, water, solvents and other chemicals.

Chemical (Hazmat) Absorbent Pads: Absorbs hazardous chemicals including strong acids and bases

Advantages

Provides fast and effective absorption.

Special designs are available for different surfaces.

Lightweight and portable and easy to store.

Single-use or reusable options are available..

Sorbent sweep is a long, ribbon-shaped absorbent material used to remove oil and hydro-carbon based fluids from the water surface. It is usually towed over the water to clean a large area and is used in ports, offshore and rivers..

Technical Specifications

Material: Hydrophobic polypropylene or other oil-absorbent fibers

Dimensions: Produced in various lengths (usually 10-30 meters) and different widths

Absorption Capacity: Can absorb large amounts of petroleum-based liquids

Surface Structure: Highly , generally braided structure

Connection Mechanism: Can be pulled by rope, hook or land-building

Duration of Use: Can be used repeatedly until the oil is saturated

Areas of Use

Marine and Lake Pollution Control: To clean up oil and fuel spills

Ports and Marinas: Prevention of fuel leaks boats and ships

Industrial Areas: Liquid waste removal in factories and refineries

Oil Platforms: To prevent spills in offshore operations

Emergency Response: Provides fast cleanup solution in environmental pollution incidents

Advantages

Suitable for large area cleaning.

With its high absorption capacity, it quickly absorbs petroleum and oils.

Thanks to its hydrophobic structure, it does not absorb water, only oil-based liquids. Reusable and environmentally friendly options are available.

Sorbent Roll



Sorbent roll is a large surface absorbent material used to absorb and clean liquid spills in large areas. It is produced in rolls and can be cut according to the need and used in different areas. Generally, there are versions with the ability to absorb oil, chemical and water-based liquids.

Technical Specifications

Material: Polypropylene, cellulose or natural fibers

Dimensions: 40 cm × 40 m, 80 cm × 40 m in various widths and lengths

Absorption Capacity: Can absorb up to 10-25 times its weight in liquid

Surface Structure:

Flat surface: General purpose absorption

Perforated surface: Divisible structure for more controlled and economical use

Non-slip surface: Safe use on sites

Durability: High absorption capacity and tear-resistant designs

Color Coding:

White Oil-Only

Gray General industrial use (Universal)

Yellow Absorbing hazardous chemicals (Hazmat)

Areas of Use

Industrial Areas: Absorption of oil and liquids during machine maintenance

Workshops and Maintenance Services: Keeping work areas clean

Production Facilities: Fast and efficient cleanup of liquid spills

Chemical and Petroleum Industry: Absorption of petroleum, solvents and chemicals

Logistics and Storage Areas: Preventing liquid leakage under drums and tanks

Advantages

Ideal for use in large areas.

It provides economic use by cutting according to need.

Different types are available for various liquids.

Advantages and Disadvantages of Absorbers

Advantages of Organic Absorbents:

- ✓ Easy availability
- ✓ High capacity absorption feature
- ✓ Low Cost
- ✓ Easy to Use

Disadvantages of Organic Absorbents:

- ❖ Some products absorb water and sink
- ❖ Generation of large amounts of waste as it swells when it absorbs water or oil

Advantages of Synthetic Absorbents:

- ✓ Highly oleophilic and hydro-phobic
- ✓ Ability to absorb 25 times its own weight and more
- ✓ Reusability
- ✓ Recovery of viscous pet-rol thanks to its porous structure

Disadvantages of Synthetic Absorbents:

- ❖ Sorbents that cannot be reused can generate high costs.
- ❖ May not always be available in large quantities
- ❖ Reduced effectiveness of oil-soaked sorbents
- ❖ Expensive

Position in the Sector

Sorbents are critical for the environment and industry. They are widely used in many fields such as the oil and gas industry, chemical industry, waste management and healthcare. The advancement of technology, more efficient and sustainable sorbents are being developed and research, especially on biodegradable and reusable materials.

Today, advanced solutions such as **activated carbon-based sorbents**, **nanotechnological sorbents**, and **biological sorbents** are gaining ground in terms of both and environmental sustainability.



TECHNOLOGY AND SOCIAL MEDIA

**Emerging Platforms,
Social Media Laws,
Deepfake and Digital Security**



Recently, new social media platforms integrating artificial intelligence and augmented reality (AR) technologies have attracted attention. These platforms aim to enrich the user experience and offer more interactive content. In particular, the rise of virtual influencers is reshaping brands' digital marketing strategies. Thanks to artificial intelligence and computer graphics (CGI), the creation of digital characters has become more accessible and these characters have gained a prominent place on social media sites. For example, Coca-Cola's AI-generated Christmas advertisement is an example of innovative approaches in this area.

Emerging Social Media Platforms

The world of social media is constantly evolving and the new generation of platforms is changing user behavior and digital marketing strategies. Below are examples of emerging social media platforms.



Bluesky: A decentralized social media platform backed by Jack Dorsey, former CEO of Twitter. Users have more control over their content streams..



Lemon8: Developed by ByteDance, the owner of TikTok, Lemon8 is a hybrid of Instagram and Pinterest.



Threads: Developed by Meta as a competitor to Twitter. It integrates with Instagram and is designed for text-oriented posts.



Nostr: A decentralized social network adopted by Bitcoin supporters. It offers a censorship-resistant and open-source system.

BeReal: Designed for those who are tired of the "Instagram Reality", BeReal is a platform that allows users to share unfiltered and instant photos.

Social Media Laws and Regulations



Legal regulations on social media platforms in Turkey aim to make the internet environment more secure and organized. In this context, important amendments have been made to the Law No. 5651 on "Regulation of Publications on the Internet and Combating Crimes Committed through These Publications".

Obligations of Social Network Providers:

Obligation to Appoint Representatives: Social network providers with more than a certain number of daily accesses must have at least one representative in Turkey. This representative is a natural person, he/she must be a Turkish citizen and reside in Turkey.

Data Storage Obligation: Social network providers are obliged to host user data in Turkey. This is done in order to protect user data and facilitate its transmission to the competent authorities when necessary.

Responds to Requests: Social network providers must respond to users' requests to remove content or block access within 48 hours. Otherwise, certain sanctions may be imposed.

Social Media Regulations

Countering Disinformation:

The 2022 "Disinformation Law" defined the crime of publicly disseminating misleading information and aimed to prevent the spread of fake news.

With the entry into force of the Social Media Law the article added to the Turkish Penal Code criminalizes the public dissemination of misleading information. According to this article;

- If the news disseminated is untrue,
- If it is a threat to national security and public health,

- If it causes fear, panic and anxiety among the public,
- If it is aimed at disrupting public peace and order,
- If the broadcast is public,

Content that fulfills the conditions will be considered within the scope of the offense of publicly disseminating misleading information and the person responsible may be sentenced to imprisonment from 1 year to 3 years. If the content of the publication constitutes a separate offense, the person or persons will be prosecuted separately under the relevant articles of the TPC (Turkish Penal Code)..

EU Digital Services Act (DSA):

Published on October 19, 2022, the Regulation on the Single Market in Digital Services, commonly known as the "Digital Services Act", has been implemented in the European Union (EU) as of August 25, 2023.

The Digital Services Act, which includes basic internet service providers and all types of online platforms and thus covers all providers of "information society services", introduces rules for the removal of illegal goods, services or content online, new obligations for very large platforms to take risk-based action, far-reaching transparency measures, measures to protect minors and new rules on traceability of commercial users.

With the entry into force of the law, 19 major platforms and search engines operating in the EU have been obliged to comply with new rules on data collection, privacy, disinformation, hate speech, etc.

With this regulation, the EU aims, on the one hand, establish uniform rules on digital services and ensure the smooth functioning of the Digital Single Market and, on the other hand, to provide secure and transparent service delivery to its citizens by putting the values of the Union and fundamental rights at the center.

Regulations:

1- With the new regulations, online news websites have also been included within the scope of the Press Law and it is now possible to issue press cards to employees working at these websites. In addition, online news websites are required to comply with certain obligations and to store their content for certain periods of time. These legal regulations aim to protect the rights of users in the digital environment, ensure the security of personal data, and enable social media platforms to operate more responsibly.

2- **TikTok Ban Debates in the US:** Due to its Chinese origin, TikTok is on the agenda to be banned in some states due to national security concerns.

Deepfake Technology and Threats

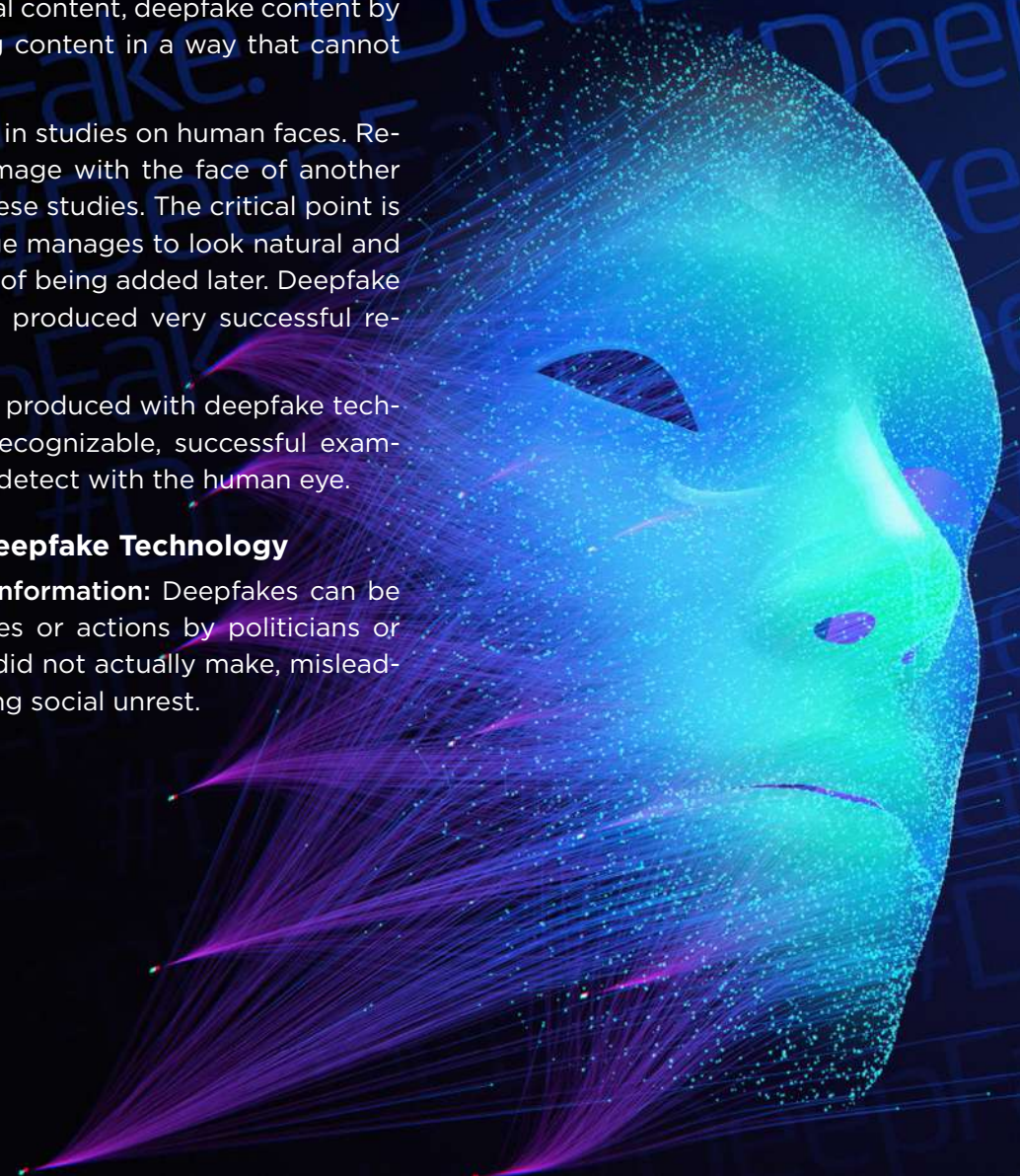
Deepfake is a concept created by combining the words deep learning and fake. In the most understandable way, deepfake the production of fake content using deeplearning. Deepfake not be confused with generative ai (generative artificial intelligence), which is an important trend of recent days. While generative ai uses machine learning and artificial intelligence technologies to create new and original content, deepfake content by altering parts of existing content in a way that cannot be understood.

Deepfake is mostly used in studies on human faces. Replacing the face in an image with the face of another person is the focus of these studies. The critical point is how much the final image manages to look natural and not to create the feeling of being added later. Deepfake technology has recently produced very successful results in this regard.

While a failed face-swap produced with deepfake technology is immediately recognizable, successful examples are very difficult to detect with the human eye.

Threats Brought by Deepfake Technology

Misinformation and Disinformation: Deepfakes can be used to portray speeches or actions by politicians or public figures that they did not actually make, misleading the public and causing social unrest.



Reputation Damage and Cyberbullying: Individuals' reputations can be damaged by mounting their faces in inappropriate content without their consent. Such content can cause psychological trauma to victims.

Financial Fraud: Deepfake technology can be used in fraud attempts by imitating the voices of company executives or financial officials. This can cause companies to suffer financial losses.

Fake News and Propaganda: Fake videos that appear realistic can lead to the rapid spread of misinformation and misperceptions in society. can have critical consequences, especially during election periods or in times of crisis.

Privacy Violations: Unauthorized use of people's private images or sounds may violate their right to privacy.

Steps to Protect Yourself from Deepfake Threats

Companies and individuals can protect themselves from the harms of deepfake by taking a few basic steps. The steps to be taken in this regard:

Education and Awareness: Individuals and organizations need to be aware of the existence of deepfakes. It is important that people accept that every image or video they see may not be real. Training programs should be organized on this subject.

Technological Solutions: There are software and algorithms developed against deepfake technology. This software can detect fake content by analyzing whether videos are real or not.

Legal Regulations: There is a need for stricter legal regulation of the misuse of deepfake content. The law should develop deterrent sanctions.

Authentication Systems: Secure authentication methods can prevent individuals' or companies' systems from being infiltrated. This is where systems such as biometric authentication and encryption for video conferences or online transactions can come into play.



Digital Security and Data Protection

Digital security is the activities based on the protection of information and communication technology assets from cyber threats and attacks. These activities, also referred to as cyber security, aim to ensure the confidentiality, integrity and accessibility of information or data.

Digital security and data protection are critical for both individuals and businesses in today's digital world. These concepts aim to protect ICT assets from cyber threats and attacks, i.e. to ensure the confidentiality, integrity and availability of information or data.



Essential Steps for Digital Security and Data Protection:

Strong Password Usage: Creating complex passwords with combinations of letters, numbers and special characters

Not using the same password for different accounts

Encryption of Data: Providing protection against unauthorized access by encrypting sensitive information

Use of up-to-date software: To ensure that security vulnerabilities are minimized by regularly updating the operating system and applications.

Use of Trusted Security Software: Providing protection against malware by using software such as antivirus and firewall.

Education and Awareness: To ensure knowledge and conscious behavior about cyber threats.

Data Backup: Ensure regular backups of important data.

Multi-Factor Authentication (MFA): Preventing unauthorized access by adding additional layers of security for access to accounts.

Using Secure Network Connections: Ensuring data protection by using VPN on public Wi-Fi networks.

Caution Against Social Engineering Attacks: Beware of suspicious emails and messages, avoid clicking on unknown links.

Comply with Legal Regulations: Complying with legal regulations on the protection of personal data.

By following these steps, you can increase your security and protect your data in the digital world. Remember, cyber threats are constantly evolving and it is essential to take proactive measures and increase security awareness.

Kars

Past to Present



Kars, as a border city located in the northeast of Eastern Anatolia, has had a strategic importance in every period of history. The name Kars originates the Karsaks. They came to the north of the Caucasus Mountains and Dagestan in 130-127 B.C. and settled around Kars and gave their name here. Research shows that Kars has been a settlement center since prehistoric times. Traces of this are found in the excavations along the Kura and Araz rivers. In 1535, Kars was annexed to the Ottoman Empire. The 1800s were a period of intense wars and changes in Kars, as the city moved back and forth between Ottoman and Russian sovereignty. Let us now take a closer look at these historical periods and developments:

Early 19th Century: Ottoman Rule and the Russian Threat

In the early 1800s, Kars was a sanjak center under the Erzurum Beylerbeylik of the Ottoman Empire. However, during this period, the Russian Tsardom's policies of conquering the Caucasus made Kars a target. During the Ottoman-Russian War of 1828-1829, Kars was briefly occupied by the Russians, but returned to the Ottoman Empire with the Treaty of Edirne. During this period, the city retained its importance as a military base with its fortress and surrounding defense structures.

1853-1856 Crimean War and Victory in Kars

During the Crimean War, Kars became an important stage of the Ottoman-Russian struggle. In 1855, the city was heroically defended against the Russian army and this resistance went down in history as the "Victory of Kars". This victory led to a city in Anatolia being given the title of "Gazi" for the first time and the "Kars Victory Medal" being issued. However, at the end of the war, with the Treaty of Paris of 1856, the strategic position of Kars remained unchanged and the Russian threat continued.

1877-1878 Ottoman-Russian War and Russian Occupation

The Ottoman-Russian War of 1877-1878 (93 War) was a turning point in the history of Kars. The Russian army captured Kars on November 18, 1877 and the city entered a 40-year period of Russian occupation (1877-1918). During this period, Kars became one of the administrative

and military centers of the Russian Tsardom in the Caucasus. The Russians established a grid-plan settlement based on Baltic architecture and constructed buildings made of basalt stone. These buildings constitute an important part of the urban fabric of Kars today.

Early 20th Century: National Struggle and Turkish Accession

After the First World War, the Russian occupation ended with the Bolshevik Revolution of 1917. Kars was briefly fell under Armenian and British control. Although it was left to the Ottoman Empire in 1918 with the Treaty of Brest-Litovsk, it experienced a complicated period after the Armistice of Mudros. In this process, the people of Kars established an autonomous administration by establishing the Cenub-u Garbi Caucasus Government. Finally, on October 30, 1920, the Turkish army under the command of Kazım Karabekir recaptured Kars and the city became a border city of Turkey with the 1921 Treaties of Moscow and Kars.



Republican Period and Today

After the proclamation of the Republic, Kars became a provincial center on the northeastern border of Turkey. In 1992, Ardahan and Iğdır separated from Kars and became provinces, shrinking its geographical boundaries. In 1993, Turkey closed its border with Armenia, which affected the economic and social structure of Kars. Today, Kars attracts attention with its historical heritage and tourism potential; especially the Eastern Express and Ani Ruins have made the city nationally and internationally recognized.



https://photos.wikimapia.org/p/00/04/47/17/76_big.jpg

Culture of Kars

As a gateway to Anatolia, Kars harbors the traces of different civilizations in its thousands of years of history. With a history dating back to 9000 BC, many cultural layers have accumulated from the Saka-Scythians to the Ottomans, from the Russians to the Armenians. This multi-layered structure has turned Kars' culture into a mosaic.

Ethnic and Religious Diversity

Kars has been a city where different ethnic groups such as Turks (Azerbaijanis, Terekemes), Kurds and Armenians, Russians and Molokans, who had a significant population in the past, lived together. This diversity has created a rich interaction in language, religion and traditions. Some of the Muslim population is Sunni, some Shia, while Christianity (especially the Armenian Apostolic Church) has played an important role in the past.

Folk Literature and Music

Kars is famous for its folk storytelling, manis, folk songs and dengbejlik tradition. The tradition of minstrelsy is still a living art in the city; "Minstrels Night" events are organized in places such as Namik Kemal House. Folk dances are performed with instruments such as drum-zurna, saz, balaban, tulum, garmon and clarinet. These dances bring the community together at weddings and festivals.



Architectural Heritage

Kars' cultural identity is also in its architecture. The Ottoman-era Kars Castle and Stone Bridge, the Baltic-style basalt stone buildings from the Russian occupation (e.g. Fethiye Mosque), and the buildings in the ruins of Ani that bear traces of Armenian architecture (the Grand Cathedral, Tigran Honents Church) reflect this diversity. Built in the 19th century by the Russians, the gridplanned city layout distinguishes Kars from other Anatolian cities.



Museums and Cultural Preservation

Kars Museum reveals the history of the region with its archaeological and ethnographic artifacts. The museum started its activities at the Vilayet Mansion in 1959 and moved to its modern building in 1981. The ancient city of Ani is a UNESCO World Heritage Site, demonstrating Kars' global cultural value.



Kars' Way of Life

Kars' lifestyle is shaped by its geographical conditions, economic structure and cultural background. The harsh continental climate, agriculture and livestock-based economy and multicultural social structure deeply affect daily life.

Economy and Livelihoods

Life in Kars has historically been based on agriculture and animal husbandry. With the Russian occupation in the 1800s, agricultural techniques were modernized and cheesemaking and beekeeping were developed by the Molokans. Today Kars is famous for its kashar cheese, gruyere and honey. Animal husbandry, goose breeding and highland culture are still widespread. Turkey's closure of the border with Armenia in 1993 affected the economic and social structure of Kars. Although industry is limited, tourism has become an important source of income in recent years. Today, Kars stands out for its historical heritage and tourism potential; the Eastern Express and the ruins of Ani in particular have made the city nationally and internationally recognized.



Culinary Culture

Kars cuisine is based on meat and pastries due to the influence of animal husbandry and the harsh climate. In the 19th century, some dishes were diversified with the Russian influence, but traditional flavors were preserved. Kete, hangel (minced meatless ravioli), bozbaş (piti), goose meat dishes, h rre (flour soup) and ayran soup stand out. Goose meat is especially cooked in tandoor and served with rice and is indispensable in winter.



Daily Life and Social Structure

Life in Kars is shaped according to the seasons. As winters are long and cold, people gather in houses and chat by the stove. In the summer, people go to the highlands, and agriculture and animal husbandry activities intensify. The city center offers a tranquil atmosphere with its wide avenues and stone houses from the Russian era. The coexistence of various ethnic groups has strengthened neighborly relations and solidarity.

Change in the Modern Era

Since the late 20th century, Kars has been a city of emigration, but has been revitalized by tourism. The Eastern Express has attracted young people and travelers, and winter activities at Sarıkamış Ski Center and  ıldır Lake have become popular. In education, the presence of Kafkas University has added dynamism to the city.



Kars is a city that has been shaped by wars, occupations and cultural interactions since the 1800s. Its history spans from the Ottoman Empire to Russian rule to the Republic. Its culture offers a rich mosaic with its multi-ethnic structure, folk literature and architectural heritage. Its lifestyle is characterized by a harsh climate, an agriculture-livestock economy and a blend of traditional and modern elements. Today, Kars stands out as a city that both preserves its past and looks to the future through tourism.

**Photographs are taken from the Official Website of Kars Provincial Directorate of Culture and Tourism of the Ministry of Culture and Tourism of the Republic of Turkey.*

A SUCCESS STORY



İDIRİS ASLAN

Kayseri Base Responder

Born in 1975 in Kayseri, İdiris ASLAN graduated from Niğde University Vocational High School Motor Department in 1997. After graduation, he worked as a technician in various companies.

Since December 2004, he has been working a responder at our Kayseri Base in BTC Oil Pipeline Project. As of December 2024, he successfully completed his 20th year and was awarded with a plaque. He has participated in numerous drills and operations in the Marine Pollution Response project and received many trainings. He also holds various operator certificates.

Some of the trainings and certificates he received during his 20 years of working life in BTC Project;

- OPRC 1&2 Certificate
- HNS 1&2 Certificate
- Seaman Certificate
- SRC 1& SRC 3 & SRC 5 Certificates
- First Aider Certificate
- Basic HSE Training
- Safe Driving Techniques
- Restricted and Confined Space Work Training
- Permit to Work Training
- Safe Lifting Techniques
- Fire Fighter Training
- Work at Height Training
- Confined Space Training

İdiris Aslan developed himself as a solution-oriented person with the ability to take quick action, equipment maintenance, truck use and oil spill response techniques and has developed himself in the areas of colleagues and supervisors. He is an exemplary employee with his work discipline and ethics, sense of duty and professionalism.



wildlife

Bülten

4. sayı çıktı



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