

ÜDS

# READING

for ÜDS

FEN BİLİMLERİ - 4



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## 1 Why is biodiversity loss a concern?

Biodiversity reflects the number, variety and variability of living organisms as well as how these change from one location to another and over time. It includes diversity within species, between species, and among ecosystems, in sum the diversity of all life on earth. Ecosystems provide the basic necessities of life such as food, clean air and water. They offer protection from natural disasters and disease, shape human cultures and spiritual beliefs, and maintain the planet's essential life processes. Biodiversity loss affects ecosystems, making them more vulnerable to perturbations and less able to supply humans with valuable services. The impact of humans on the natural environment is significant and growing: changes in biodiversity have been more rapid in the past 50 years than at any time before in human history.

### VOCABULARY

<b>reflect</b>	yansıtılmak
<b>variety</b>	çeşitlilik
<b>variability</b>	değişkenlik
<b>as well as</b>	ek olarak, ve de
<b>location</b>	yer, konum
<b>include</b>	içermek, kapsamak
<b>diversity</b>	çeşitlilik
<b>in sum</b>	özetle
<b>provide</b>	sağlamak, temin etmek
<b>basic</b>	temel
<b>necessity</b>	gereklilik
<b>such as</b>	örneğin, gibi
<b>offer</b>	sunmak, teklif etmek
<b>protection</b>	koruma
<b>disaster</b>	felaket
<b>disease</b>	hastalık
<b>shape</b>	şekil, şekillendirmek
<b>spiritual</b>	ruhsal, manevi
<b>belief</b>	inanç
<b>maintain</b>	korumak, muhafaza etmek
<b>essential</b>	gerekli
<b>process</b>	işlem, süreç, yöntem
<b>loss</b>	kayıp
<b>affect</b>	etkilemek
<b>vulnerable to</b>	savunmasız
<b>perturbation</b>	karişiklik, huzursuzluk
<b>supply</b>	sağlamak temin etmek
<b>valuable</b>	değerli
<b>impact</b>	etki
<b>significant</b>	önemli
<b>growing</b>	büyüyen, gelişen
<b>rapid</b>	hızlı

## 2 Pressures on water resources

Around the world, human activity and natural forces are reducing available water resources. Although public awareness of the need to better manage and protect water has grown over the last decade, economic criteria and political considerations still tend to drive water policy at all levels. Science and best practice are rarely given adequate consideration. Pressures on water resources are increasing mainly as a result of human activity – namely urbanization, population growth, increased living standards, growing competition for water, and pollution. These are aggravated by climate change and variations in natural conditions. Still, some progress is being made. More and more, officials are evaluating water quantity and quality together, and coordinating management efforts across borders.

### VOCABULARY

<b>force</b>	güç,zorlamak
<b>reduce</b>	azaltmak
<b>resource</b>	kaynak
<b>available</b>	ulaşılabilir
<b>awareness</b>	farkındalık
<b>manage</b>	yönetmek
<b>protect</b>	korumak
<b>considerations</b>	göz önüne alma
<b>tend to</b>	eğiliminde olmak
<b>still</b>	hala
<b>policy</b>	politika,plan
<b>rarely</b>	nadiren
<b>adequate</b>	yeterli
<b>mainly</b>	başlıca
<b>as a result of</b>	-in sonucu olarak
<b>namely</b>	yani,şöyle ki
<b>growth</b>	büyüme
<b>competition</b>	rekabet,yarışma
<b>aggravate</b>	kötüleştirmek
<b>more and more</b>	daha fazla,artan şekilde
<b>evaluate</b>	değerlendirmek
<b>quantity</b>	miktar
<b>quality</b>	kalite
<b>coordinate</b>	iş birliği yapmak
<b>management</b>	yönetim
<b>effort</b>	çaba
<b>border</b>	sınır

## 3 Nanotechnologies

Nanotechnology is the science of designing, producing, and using structures and devices having one or more dimensions of about 100 millionth of a millimetre (100 nanometres) or less.

In consumer products, nanoparticles can contribute to stronger, lighter, cleaner, and “smarter” surfaces and systems, for instance in scratchproof eyeglasses, anti-graffiti coatings for walls, transparent sunscreens, etc. They can be used to increase the safety of cars, for instance by enhancing tyre adhesion to the road, improving the stiffness of the car body, or preventing condensation on car windows. Nanoparticles can be used in a wide variety of ways in biology and medicine, for example in drugs targeting specific organs or cells.

Chemicals in their nanoparticle form have properties that may be very different from their larger physical forms. As a result, it is necessary to assess the risks arising from nanoparticles that may come in contact with humans, other species, or the environment, even if the effects of the chemicals that make up the nanoparticle are well known.

Existing methodologies need to be modified or new ones developed to be able to better determine the physical and chemical properties of nanoparticles, measure exposure to them, assess their potential hazard, and detect their movement inside living systems, be it in human tissues or in the environment.

In general, and in spite of a rapidly increasing number of scientific publications dealing with nanoscience and nanotechnology, knowledge and data are still insufficient on several aspects to allow satisfactory risk assessments for humans and ecosystems to be performed.

## VOCABULARY

<b>device</b>	araç
<b>dimension</b>	boyut
<b>consumer</b>	tüketici
<b>contribute to</b>	katkıda bulunmak
<b>strong</b>	güçlü
<b>light</b>	hafif, ışık
<b>clean</b>	temiz
<b>smart</b>	şık, akıllı
<b>surface</b>	yüzey
<b>for instance</b>	örneğin
<b>safety</b>	güvenlik
<b>enhance</b>	geliştirmek
<b>adhesion to</b>	yapışma, tutunma
<b>improve</b>	geliştirmek
<b>stiffness</b>	katılık
<b>prevent</b>	önlemek
<b>condensation</b>	yoğunlaşma
<b>target</b>	hedef
<b>drug</b>	ilaç, uyuşturucu
<b>property</b>	özellik, mal
<b>as a result</b>	sonuç olarak
<b>necessary</b>	gerekli
<b>assess</b>	değerlendirmek
<b>arise from</b>	doğmak, kaynaklanmak
<b>make up</b>	oluşturmak
<b>determine</b>	belirlemek, saptamak
<b>measure</b>	ölçmek, önlem
<b>exposure to</b>	maruz kalma
<b>hazard</b>	tehlike
<b>detect</b>	bulmak
<b>tissue</b>	doku
<b>in spite of</b>	-e rağmen
<b>deal with</b>	ele almak, çözmek
<b>knowledge</b>	bilgi
<b>insufficient</b>	yetersiz
<b>aspects</b>	yön, özellik
<b>allow</b>	izin vermek, olanak tanımak
<b>satisfactory</b>	tatmin edici
<b>assessment</b>	değerlendirme

## 4 The warming of global climate

The warming of global climate is now unequivocal. Eleven of the last twelve years rank among the 12 warmest years ever recorded since 1850. Global average temperatures have increased by 0.74°C over the last 100 years, with the greatest increase having occurred in the last 50 years.

Concentrations of greenhouse gases have continued to increase during the last few years. According to the IPCC this increase is mainly due to human activities, such as the burning of fossil fuels, land use change, and agriculture. Further, it is very likely that human activities since 1750 have had a global warming effect on the Earth.

For the period of 1980 to the end of the 21st century, global temperatures are projected to increase by 1.8 to 4.0°C, and global sea levels to rise by 18 to 59 cm. Even if greenhouse gas concentrations were to be stabilized, warming and sea level rise caused by human activities will continue for centuries.

### VOCABULARY

<b>unequivocal</b>	net, açık
<b>rank</b>	sayılmak
<b>average</b>	ortalama
<b>occur</b>	meydana gelmek
<b>according to</b>	e göre
<b>mainly</b>	başlıca
<b>due to</b>	-den dolayı
<b>burning</b>	yanma
<b>further</b>	ileri
<b>likely</b>	muhtemel, olası
<b>project</b>	proje, ön görmek
<b>rise</b>	artmak, artış
<b>stabilize</b>	dengelemek, sabitleştirmek

## 5 What is desertification?

Desertification is the persistent degradation of dryland ecosystems by variations in climate and human activities. Home to a third of the human population in 2000, drylands occupy nearly half of Earth's land area. Across the world, desertification affects the livelihoods of millions of people who rely on the benefits that dryland ecosystems can provide. In drylands, water scarcity limits the production of crops, forage, wood, and other services ecosystems provide to humans. Drylands are therefore highly vulnerable to increases in human pressures and climatic variability, especially sub-Saharan and Central Asian drylands. Some 10 to 20% of drylands are already degraded, and ongoing desertification threatens the world's poorest populations and the prospects of poverty reduction. Therefore, desertification is one of the greatest environmental challenges today and a major barrier to meeting basic human needs in drylands.

### VOCABULARY

<b>desertification</b>	çölleşme
<b>persistent</b>	kalıcı
<b>degradation</b>	bozma,bozulma
<b>dry land</b>	kuru alan
<b>variation</b>	çeşitlilik
<b>occupy</b>	işgal etmek
<b>nearly</b>	yaklaşık
<b>affect</b>	etkilemek
<b>livelihood</b>	geçinme
<b>rely on</b>	güvenmek
<b>benefit</b>	fayda,faydalanmak
<b>provide</b>	sağlamak,temin etmek
<b>scarcity</b>	kıtlık
<b>limit</b>	sınır,sınırlamak
<b>crop</b>	ürün
<b>forage</b>	yem aramak,toparlamak
<b>therefore</b>	b yüzden
<b>vulnerable to</b>	savunmasız
<b>especially</b>	özellikle,bilhassa
<b>ongoing</b>	devam eden
<b>threaten</b>	tehdit etmek
<b>prospect</b>	umut
<b>poverty</b>	yoksulluk
<b>reduction</b>	azaltma
<b>challenge</b>	sorun,engel
<b>meet needs</b>	ihtiyacı karşılamak

## 6 What are PCBs?

Polychlorinated biphenyls, in short PCBs, are a group of man-made chemicals.

PCBs have been used in many different products, including electrical equipment, surface coatings, inks, adhesives, flame-retardants, and paints. PCBs may be released into the environment, for instance when waste that contains PCBs is incinerated or stored in landfills. About 10% of the PCBs produced since 1929 still remain in the environment today. Because of possible impacts on human health and the environment, the use and production of PCBs are now banned or severely restricted in many countries. More...

All PCBs are man-made and have a similar basic structure. They are made of carbon, hydrogen and chlorine atoms. Because these atoms can be combined in many different ways, a total of 209 different PCB molecules can be formed. Some PCBs are more harmful than others.

Generally, PCBs are very stable which explains their persistence in the environment. At high temperatures, PCBs can burn and generate dangerous by-products such as dioxins. PCBs tend not to evaporate or to dissolve easily in water. However, they are very soluble in fat and similar substances, which explains why PCBs can build up in animal fat and along the food chain.

## VOCABULARY

<b>in short</b>	kısacası
<b>including .....</b>	---dahil
<b>adhesive</b>	yapışkan
<b>release</b>	salmak,yaymak
<b>waste</b>	atık,israf etmek
<b>contain</b>	içermek
<b>store</b>	depo ,depolamak
<b>remain</b>	kalmak,kalıntı
<b>because of</b>	--den dolayı
<b>possible</b>	mümkün ,olası
<b>impact</b>	etki
<b>ban</b>	yasaklamak
<b>restrict</b>	sınırlandırmak
<b>severely</b>	şiddetli bir şekilde
<b>man-made</b>	insan yapımı
<b>similar</b>	benzer
<b>basic</b>	temek
<b>made of</b>	bir şeyden yapılmış
<b>combine</b>	birleştirmek
<b>form</b>	şekil,oluşturmak
<b>harmful</b>	zararlı
<b>generally</b>	genellikle
<b>stable</b>	sabit,istikrarlı
<b>explain</b>	açıklamak
<b>persistence</b>	sürme,devam etme
<b>burn</b>	yakmak
<b>generate</b>	üretmek
<b>by-product</b>	yan ürün
<b>tend to</b>	eğiliminde olmak
<b>evaporate</b>	buharlaşmak
<b>dissolve</b>	çözülme
<b>easily</b>	kolayca
<b>soluble</b>	çözülebilir
<b>build up</b>	inşa etmek,birikmek
<b>chain</b>	zincir

## 7 The Chernobyl accident

The Chernobyl accident is the most serious accident in the history of the nuclear industry. Indeed, the explosion that occurred on 26 April 1986 in one of the reactors of the nuclear power plant, and the consequent fires that lasted for 10 days, led to huge amounts of radioactive materials being released into the environment and a radioactive cloud spreading over much of Europe. The greatest contamination occurred around the reactor in areas that are now part of Belarus, Russia, and Ukraine.

Since the accident, some 600 000 people have been involved in emergency, containment, cleaning, and recovery operations, although only few of them have been exposed to dangerous levels of radiation. Those who received the highest doses of radiation were the emergency workers and personnel that were on-site during the first days of the accident (approximately 1000 people).

At present, more than five million people live in areas that are considered to be 'contaminated' with radioactive materials from the Chernobyl accident 1. The area closest to the reactor site was most heavily contaminated and the 116 000 people who lived there were evacuated soon after the accident.

At the time of the accident, large parts of Europe were contaminated by radioactive materials. The greatest contamination occurred around the reactor in areas that are now part of Belarus, Russia, and Ukraine. Focusing on that region, Chernobyl's Legacy compiled the latest research on the accident's impact on humans, plants, animals, as well as the economy.

### VOCABULARY

<b>accident</b>	kaza
<b>serious</b>	ciddi
<b>indeed</b>	gerçekten
<b>explosion</b>	patlama
<b>plant</b>	bitki,dikmek,fabrika
<b>consequent</b>	izleyen ,takip eden
<b>last for</b>	sürmemek
<b>lead to</b>	yol açmak
<b>huge</b>	kocaman
<b>contamination</b>	kirlenme
<b>be involved in</b>	karişmak
<b>emergency</b>	acil durum
<b>containment</b>	çevreleme
<b>recovery</b>	iyileşme
<b>approximately</b>	yaklaşık
<b>at present,</b>	şu anda
<b>consider</b>	düşünmek
<b>evacuate</b>	tahliye etmek
<b>compile</b>	toplamak
<b>focus on</b>	odaklanmak

By 2005, according to the report, about 50 people – most of them emergency workers – are known to have died of either Acute Radiation Syndrome (ARS) or cancer as a direct consequence of the accident. A considerable increase in thyroid cancer has been observed especially among local children, though the survival rate has been high. In the long term, is the report estimates that the accident might lead to about 4000 cancer deaths among the 600 000 most exposed people. However, estimations are difficult because those who have been exposed to radiation often die from the same causes as unexposed people.

The report indicates that many people were traumatized by the accident and the rapid relocation that followed; they remain anxious about their health, perceiving themselves as helpless victims rather than survivors. Current government aid programs that pay benefits to millions of people are a great burden on national budgets and the Chernobyl Forum recommends that financial support be refocused on those who need it most. Others may need help to normalize their lives, or better access to social services, employment, and credible information about the effects of the accident. Stimulating a growing confidence among the region's population would be an essential step towards redeveloping the local economy and fighting increasing poverty in the area.

according to	-e göre
die of	-den ölmek
as a consequence of	-in sonucu olarak
considerable	önemli,kayda değer
observe	gözlemek
especially	özellikle
survival	hayatta kalma
in the long term	uzun vadede
estimate	tahmin etmek
indicate	göstermek
traumatize	sarsıntıya uğratmak, yaralamak
relocation	tekrar yerleştirme
follow	takip etmek
anxious about	kaygılı ,endişeli
perceive	algılamak
helpless	çaresiz
victim	kurban
rather than	-den ziyade
survivor	hayatta kalan
current	şu anki
aid	yardım ,yardım etmek
benefit	fayda,faydalanmak
burden	yük
budget	bütçe
recommend	tavsiye etmek
access to	ulaşım,erişim
employment	istihdam
credible	inanılabilir
stimulating	uyaran
growing	büyüyen
confidence	güven
essential	gerekli
step	adım,önlem
local	yerel
fight	mücadele etmek,mücadele
increasing	artan
poverty	yoksulluk

## 8 What challenges does agriculture face today?

For decades, agricultural science has focused on boosting production through the development of new technologies. It has achieved enormous yield gains as well as lower costs for large-scale farming. But this success has come at a high environmental cost. Furthermore, it has not solved the social and economic problems of the poor in developing countries, which have generally benefited the least from this boost in production.

Today's world is a place of uneven development, unsustainable use of natural resources, worsening impact of climate change, and continued poverty and malnutrition. Poor food quality and diets are partly responsible for the increase of chronic diseases like obesity and heart disease. Agriculture is closely linked to these concerns, including the loss of biodiversity, global warming and water availability.

The International Assessment of Agricultural Science and Technology for Development (IAASTD) focuses on agriculture as the provider of food, nutrition, health, environmental services, and economic growth that is both sustainable and socially equitable. This assessment recognizes the diversity of agricultural ecosystems and of local social and cultural conditions.

It is time to fundamentally rethink the role of agricultural knowledge, science and technology in achieving equitable development and sustainability. The focus must turn to the needs of small farms in diverse ecosystems and to areas with the greatest needs. This means improving rural livelihoods, empowering marginalized stakeholders, sustaining natural resources, enhancing multiple benefits provided by ecosystems, considering diverse forms of knowledge, and providing fair market access for farm products.

### VOCABULARY

<b>challenge</b>	sorun,engel
<b>face</b>	yüz yüze gelmek
<b>boost</b>	desteklemek artırmak
<b>through</b>	aracılığı ile,sayesinde
<b>achieve</b>	başarmak,ulaşmak
<b>enormous</b>	büyük
<b>yield</b>	ürün,ürün vermek
<b>gain</b>	kazanmak
<b>cost</b>	mal olmak,maliyet
<b>success</b>	başarı
<b>furthermore</b>	dahası,ayrıca
<b>solve</b>	çözmek
<b>uneven</b>	düzensiz
<b>unsustainable</b>	sürdürülemez
<b>worsen</b>	kötüleştirmek
<b>poverty</b>	yoksulluk
<b>malnutrition</b>	kötü beslenme
<b>partly</b>	kısmen
<b>responsible for</b>	sorumlu
<b>closely</b>	yakından
<b>linked to</b>	bağlantılı
<b>concern</b>	ilgi,endişe
<b>loss</b>	kayıp
<b>availability</b>	ulaşılabilirlik
<b>assessment</b>	değerlendirme
<b>provider</b>	sağlayan,temin eden
<b>nutrition</b>	beslenme
<b>equitable</b>	tarafsız
<b>recognize</b>	tanımak,kabul etmek
<b>fundamentally</b>	kökten
<b>rethink</b>	tekrar düşünmek
<b>knowledge</b>	bilgi
<b>diverse</b>	çeşitli
<b>empower</b>	güçlendirmek
<b>marginalize</b>	yok saymak,dışlamak
<b>stakeholder</b>	pay sahibi
<b>sustain</b>	sürdürmek
<b>enhance</b>	güçlendirmek
<b>fair</b>	adil

## 9 What are the pros and cons of bioenergy?

Bioenergy is heat, electricity, or transport fuel produced from plant or animal materials. Millions of people still depend on traditional bioenergy like wood or charcoal for cooking and heating, which can be unsustainable and pose health risks.

In many developed countries, the rising costs of fossil fuels, as well as concerns about energy security and climate change, are generating new interest in other forms of bioenergy. For example, new liquid biofuels are made from crops or from agricultural and forestry residues. However, energy is needed to grow, transport and process bioenergy crops, causing considerable debate about their net benefit in terms of greenhouse gas reduction. Another major concern is that using crop land to produce fuel could raise food prices, drive small-scale farmers off their land and prolong hunger in the world.

Electricity and heat can also be obtained from plant residues and animal wastes, either by burning them directly or by first producing biogas then burning it. These renewable energy sources usually produce less greenhouse gas emissions than other fuels. They can be effective, for instance in places not connected to the electric grid.

Decision-makers should compare all forms of bioenergy to other sustainable energy options and carefully weigh full social, environmental and economic costs against realistically achievable benefits. Decisions in this context are heavily influenced by local conditions.

### VOCABULARY

<b>depend on</b>	dayanmak, bağı olmak
<b>pros and cons</b>	artıları eksileri
<b>pose risk</b>	risk yaratmak
<b>generate</b>	üretmek
<b>interest in</b>	ilgi
<b>liquid</b>	sıvı
<b>be made from</b>	bir şeyden yapılmış
<b>forestry</b>	ormancılık
<b>process</b>	işlem, süreç
<b>considerable</b>	önemli
<b>debate</b>	tartışmak, tartışma
<b>in terms of</b>	bakımında, açısından
<b>reduction</b>	azaltma
<b>raise</b>	artırmak, artış
<b>prolong</b>	uzatmak
<b>hunger</b>	açlık
<b>obtain</b>	
<b>compare</b>	elde etmek
<b>option</b>	seçenek
<b>carefully</b>	dikkatli
<b>weigh</b>	ölçmek
<b>achievable</b>	ulaşılabilir, başarılı olabilir
<b>heavily</b>	yoğun şekilde
<b>influence</b>	etki, etkilemek
<b>condition</b>	durum, koşul