

# EARTH ROOT



CRIME AGAINST THE ENVIRONMENT AFTER ONE MONTH OF RUSSIA'S WAR WITH UKRAINE

IS CLIMATE CHANGE RESPONSIBLE FOR COLDER WINTERS

RISK INVOLVE IN THE USE OF NUCLEAR WEAPON

CONFESSIONS OF A CLIMATE BRAWLER

**HOW EUROPE CAN WEAN ITSELF OFF RUSSIAN GAS?** 

## **About E-magazine**

"Earth Root" is an open access e-magazine in the discipline of Environmental sciences published by Earth Root Foundation. The aim of the e-magazine is to provide information and upgradation of knowledge about environmental issues on wider scale and to share ideas and resources to the readers. Using essential knowledge people can lead a healthy life, which is more sustainable and can connect with ongoing efforts for stopping catastrophically the climate change. E-magazine caters to all related environmental aspects ranging from big issues like climate change, renewable energy and pollutants in the atmosphere to the health of human and living beings on Earth. We also take topics of water resources and efforts and measurement to provide optimum use of it; including large scale atmospheric circulation linked with oceans and ecology.

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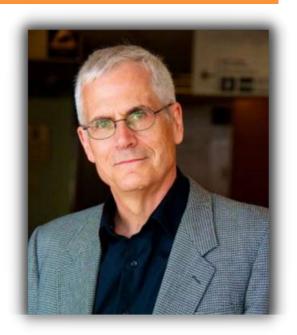


### **CONFESSIONS OF A CLIMATE BRAWLER**

### **Gerald Kutney**

Twitter has over 300 million monthly active users from around the world. Of these, I have estimated the number of climate deniers to be around 100 million, but many are passive tweeters. Of particular concern are the high-profile, hard-core climate deniers who tweet aggressively and usually dominate the platform. Their numbers are relatively small; personally, I have seen a few thousand, including the bots, at most.

Climate deniers gravitate to Twitter as it is a way of finding others of the same ilk, and it is a global soapbox for their propaganda, conspiracy theories, and other lies. So, the platform can serve as a teaching tool as one can observe the dirty tricks of these keyboard outlaws on a live basis. More importantly, since Twitter easily exaggerates their influence, they must be challenged here.



Gerald Kutney
Author, Media Commentator/Public
Speaker on the Politics of the Climate
Crisis & Climate Activist.

Just after joining Twitter ten years ago, I was tweeting on "climate skeptics." Four years later, my tweets were much more frequent but I was now using the better term "climate denier". There are many shades of climate denialism that range from complete denial of climate change to those who allegedly accept climate change but believe that immediate action is not necessary; all shades deny major aspects of accepted science and challenge any action to restrict the burning of fossil fuels.

By this time, I was challenging climate deniers on a regular basis on Twitter. I was using the common defensive strategy of sharing scientific studies that unequivocally proved that the climate deniers were wrong. Though "winning" every battle in the Twitter trenches, there was no overall victory: undeterred, the climate deniers just kept on aggressively tweeting one lie after another.

I soon tired of playing their game. After much trial and error, I switched to an offensive strategy where I made the climate deniers defend their evidence, their sources, and their own credentials. After more than 150K tweets, I found this to be an effective strategy. A nagging problem arising in Twitter engagements with high-



"A person who does not accept that climate change is happening, or does not accept that it is caused by human activity such as burning Fossil fuels."

profile climate deniers proved to be their swarm of followers who would enter the fray, making engagements more intense and gruelling. Many believe that you can just walk away (stop replying) if this happens. All I can say is once you are caught in a heated tweet storm, it is not so easy quit. and such to engagements become exhausting because it is you alone against one denier, then another, then another.

I could tell that there were others on Twitter who would help, if only I had a way of contacting them in the middle



of such an engagement. I thought that I would try something new for me: introduce a hashtag – #ClimateBrawl – as a Twitter bat signal to let the twitterverse know that an intense engagement with a climate denier was underway and support was needed. Here is the tweet that started it off:

And the hashtag worked! No longer was there one isolated defender of science in a Twitter brawl. #ClimateBrawl has since morphed into the "friends of #ClimateBrawl," a community of like-minded tweeters who support each other. The motto of the friends of #ClimateBrawl is to "be active, civil, and factual." Often, when climate deniers are met now with the hashtag, they tend to block, instead of staying to fight.



The friends of #ClimateBrawl are found around the world. How many are there? Many of my 60K followers are members, but I also keep a Twitter list that recognizes the most active ones:

The twitterverse, at least my small section of it, has become better since the arrival of #ClimateBrawl. There are still bullies and other trolls, but the faux-science tweets, once so popular, are now mostly gone.

What remains are rants and raves, insults, and babbling, which just demonstrate that climate denial is a lost cause (one of my favorite slogans).

the strategy of #ClimateBrawl to Is challenge the propaganda of climate deniers the proper one to take? "Don't feed the trolls" is a traditional internet adage; in other words, don't engage them. Also, with the hard-core climate deniers, there is no hope of influencing them anyways. But there is a greater problem: propaganda repeated, again and again, becomes the "truth" if not challenged, and silence is an enabler of propaganda. Such propaganda has depressed the political will to act on friends climate crisis. The the #ClimateBrawl are attempting to discredit the propaganda and influence the followers of climate deniers and others on Twitter.

Why not just block the climate deniers? I don't block, for their tweets are still there; you have only made youself blind to their

tweets, preventing you from challenging their propaganda. At the same time, I do wish to limit their exposure on Twitter. To balance the issue of feeding the trolls, I generally save my engagements for high-profile climate deniers, and I keep my engagements short; often ending with: "Your tweets betray your character and credentials. No need to engage further. Have a nice day." For other climate deniers who have tweeted obvious nonsense, I screenshot their tweet and add it to a tweet of my own to avoid promoting them and simply let their own words discredit them.

There are many ways to help stop the climate crisis. and the friends of #ClimateBrawl, by challenging the propaganda of climate denial, raise public and political awareness which will hopefully trigger action. If you wish to join, please follow me (@GeraldKutney) and friends of #ClimateBrawl other and, especially, use and follow the hashtag.



## CRIMES AGAINST THE ENVIRONMENT AFTER ONE MONTH OF RUSSIAN WAR WITH UKRAINE

*Dolly* 

Guru Gobind Singh Indraprastha University, New Delhi

The environmental impacts of the conflict after one month of Russia and Ukraine are very devastating. Spilled fuel, wrecked equipment, and expended weapons, as well as exploding missiles, all poison the land and groundwater with toxins and heavy metals. The risk of a hazardous waste spill from one of Ukraine's chemical plants, such as the plant in Torsk, is one of the most serious hazards. Some environmental repercussions may take several years to manifest even after the war. This will result in a build-up of hazardous materials. Since the beginning of the conflict, oil and gas facilities in Kharkiv have come under severe bombardment, interrupting Ukraine's energy supply and spewing massive volumes of greenhouse gas emissions and other toxins into the atmosphere, making it impossible breathe.

Russia and Ukraine war forces cause technological and environmental calamities which also destroy natural regions that offer habitats for wildlife animals and settlements. Fighting near Kherson to seize the Dnieper Bridge led to flames in the Black Sea Biosphere Reserve. These flames were visible from satellites and may have devastated trees and rare bird habitats in Ukraine's largest wildlife reserve. Wetlands are critical for carbon storage, and they are good at absorbing pollutants from surface water, their capacity is limited. Forest fires sparked by rockets near the Chornobyl nuclear power plant have released hazardous particles into the atmosphere. Russian forces launched rockets at the Zaporizhzhia nuclear power station, nearly

causing a catastrophic calamity. "War industrial districts poses significant dangers of hazardous contamination due the to concentration of power facilities. chemical plants, and metalworking companies." Such structures are generally filled with petroleum hazardous chemicals. products, combustible compounds that, if released into the environment, can cause extensive short and long-term damage.

Irrespective of the real effect of Co2 emission, it is the change in certain nations' goals around economic development and rebuilding, as well as a rupture in confidence, that poses the greatest risk in the battle against climate change. The deterioration of the environment has a direct impact on the health, food supply, and livelihood of the Ukrainian people. And the dangers are not restricted to Ukraine: wheat prices are already skyrocketing internationally as a result of the disturbance to Ukrainian agriculture, and air and water pollution traverse boundaries. A nuclear calamity might have genuinely global ramifications. Spikes in global oil and gas prices will have a complicated impact on emissions. On the one hand, high costs may restrict consumption, but if they persist, they may promote greater exploration and production from less economically valuable hydrocarbon reserves.

#### **DID YOU KNOW**

According to the UN, 3.5 million Ukrainians left the country after the month of the war, another 11-12 million resettled in other regions.



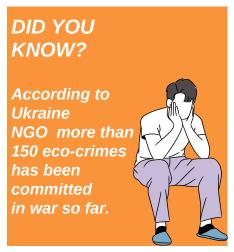
## Earth Root • Volume 12 • May 2022 NUMBER OF ENVIRONMENTAL CRIMES COMMITTED BY RUSSIA IN ONE MONTH



The use of tank shells in inhabited areas causes pollution from pulverized building materials, which may include asbestos, metals, and combustion products, as well as enormous volumes of debris, and can lead to soil and contamination groundwater by breaking wastewater pipelines. Large clouds of smoke engulfed civilian neighborhoods. These are made up of hazardous gases and particle debris, as well as heavy metals and energetic materials where conventional weapons have been housed. There will also be significant soil and water pollution at these locations; the amount to which these pollutants can move

from military facilities will vary depending on the place. Pollution may include leftovers from firefighting foams when attempts were made to suppress flames. Damaged naval stations have the potential to pollute the shoreline. Where military sites have been in operation for a long time, this new pollution may exacerbate existing military contamination. Attacks against ships, whether intentional or unintentional. can endanger the marine ecosystem. We will eventually return to the long-term menace of global warming. For the time being, the people of Ukraine deserve our assistance, support, and pravers.





SOURCE: dw.com Article | 8

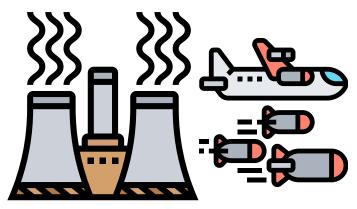
## RISK INVOLVED IN THE USE OF NUCLEAR WEAPON

By- Nimarpreet Kaur Kalsi Mata Sundri college for women, New Delhi

Nuclear weapons are the most dangerous weapons on earth. One can destroy a whole city, potentially killing millions, and jeopardizing the natural environment and lives of future generations through its long-term catastrophic effects. The danger from such weapons arises from their very existence.

Nuclear weapons pose a direct and constant threat to people everywhere. Far from keeping the peace, they breed fear and mistrust among nations. These ultimate instruments of terror and mass destruction have no legitimate military or strategic utility and are useless in addressing any of today's real security threats, such as terrorism, climate change, extreme poverty, overpopulation, and disease.

While many thousands of nuclear weapons have been dismantled since the end of the cold war, the justifications for maintaining them remain largely unchanged. Nations still cling to the misguided idea of "nuclear deterrence", when it is clear that nuclear weapons only cause national and global insecurity. There have been many documented instances of the near-use of nuclear weapons as a result of miscalculations or accidents.





The UN office for disarmament affairs agrees that one nuclear bomb "can destroy a whole city potentially killing millions, and jeopardizing the natural environment and lives of future generations through its long-term catastrophic effects".

#### **EFFECTS ON HUMANS**

The health effects of nuclear explosions are due primarily to air blast, thermal radiation, initial nuclear radiation, residual nuclear radiation, and residual nuclear radiation or fallout.

Nuclear explosions produce air-blast effects similar to those produced by conventional explosives. The Shock wave can directly injure humans by rupturing eardrums or lungs or hurling people at high speed, but most casualties occur because of collapsing structures and flying debris.

## **HOW EUROPE CAN WEAN ITSELF OFF RUSSIAN GAS?**

Ritika Sen
Freelance content writer

The war between Russia and Ukraine has made Europe rethink how it has to keep its lights on and its industries powered. To stop being a helper in financing Russia in the war measures that would have sounded irrelevant earlier — burning more coal or scaling-up government intervention in energy markets — are now needed utmost. The crisis which has occurred as a consequence of the ongoing war has shown just how dependent Europe is reliant to Russia. It is contingent on Russia for Russian

natural gas, oil, coal, and even nuclear fuel. But it's not so easy task for Europe as it must prepare itself for the scenario where Russia might cut off the continent's gas supply. To fortify itself, Europe should be handed in hands with the United States, Canada, and other major energy producers in the trans-Atlantic pact to persuade it as its energy alternative. It will take most of the decade for the continent to halt itself from more than 40 percent of its gas imports.



So far, Europe has taken its first steps to minimize its dependency on Russian gas. It can replace about 55% of the exported gas on the supply side, with liquefied natural gas. On account of the demand side, businesses and households can cut off the gas demand by 10-15% in 2022 without keeping the production down or convenient measures. Increasing domestic gas production by 14bcm from Norway, the Netherlands and the UK might help along with increased pipeline flows from the non-Russian sources by 4bcm, which is somehow good.



#### 10 things the EU can do to wean itself off Russian gas

1.No new contracts

2.Find new sources

3.Impose minimum gas storage

4.Accelerate the green transition

5.Maxamize other low-carbon sources

6.Keep energy prices down

7.Install more heat pumps

8. Speed up other energy-efficiency retrofits

9.Turn down the heat

10.Diversify power system flexibility





## LONG-LASTING EFFECTS OF NUCLEAR ATTACKS ON THE ECOSYSTEM OF THE COUNTRY

Sunanda Maurya
IIMT college of management, Greater Noida

Nuclear weapons are still one of the most serious threats to mankind with severe ecological impacts. During the production of nuclear weapons, it releases many hazardous substances. These include plutonium, benzene, uranium, polychlorinated biphenyls (PCBs), strontium, cesium, mercury, and cyanide. These all materials are very harmful to the ecosystem also the production of nuclear weapons harms oceans, rivers, and soil.

As we know only Atomic bombs to ever be used by the United States, BOMBED two nuclear weapons over the Japanese cities of Hiroshima and Nagasaki on 6 and 9 August 1945, respectively killing about 210,000 people. The effects of nuclear weapons cast for decades and have spanned across generations.

Effects of nuclear attacks on human health: Five to Six years after the bombings, the incidence of leukemia increased noticeably among survivors. After about a decade survivors begin suffering from, lungs, breast cancer at a higher than normal rate, thyroid, etc.

The UN Office of Disarmament Affair agrees that one nuclear bomb can destroy a whole city, potentially killing millions, endangering the natural environment lives of a future generation through its long-term catastrophic effects.



#### LONG-LASTING EFFECTS OF NUCLEAR ATTACKS ON THE ECOSYSTEM



•Based on how many nuclear bombs dropped:-Nuclear bombs flames would produce 4-5 million tons of carbonaceous smoke particles which would be the result in damaging the whole ecosystem.

•Thick smoke layer remains in the atmosphere:- Black smoke released from the nuclear explosion, this smoke would float to the upper atmosphere, get heated by the sun, and end up being carried around the world.





• No Sunlight, No Agriculture:- Sunlight is a natural process for helping plants to grow. It is very important for all types of plants. These black smoke particles absorb the sunlight and due to this agriculture suffers. Food production in nearby areas will be contaminated by radiation.



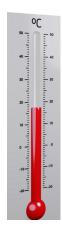
•Global Temperature Crash:- Radioactive dust from the detonating bombs rises up into the atmosphere and spread out over large areas of the world from where it falls down and cause deadly levels of radiation. The Nuclear Winter that world follow a large-scale nuclear war is expected to lead to temperature declines of 20 or even 30 degrees Celsius. Nuclear Winter would also cause a"Nuclear Famine".



•Blocking the sun rays:- This Black smoke able to block sun rays for a prolonged period due to this rapid cooling of the earth starts by an average of 1.25°C.



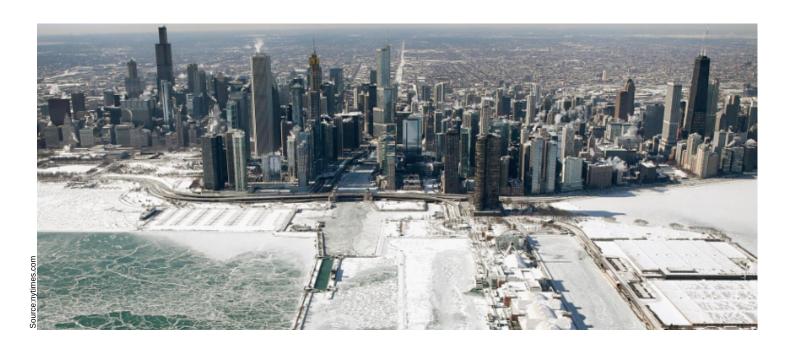
• Contamination of Water Source:- Many harmful substances are released by the production of nuclear weapons. These particles mix into water and make it polluted. Nuclear waste and nuclear explosion smoke also gives a harmful effect on soil.



• Ozone Depletion :- Nuclear war can cause years of ozone depletion. Nuclear explosion will heat the plant up to the stratosphere and result in a loss of 65-75% of ozone layer, which would take at least 15 years to heal.

## IS CLIMATE CHANGE RESPONSIBLE FOR COLDER WINTERS?

Aditi Avasthi Shyama Prasad Mukherji College



As the name suggests, climate change is the "long shifts in temperature and weather patterns" which means there could be longer than usual and colder winters, and many other variations. Climate change is indeed responsible for colder winters. Earlier people drew a correlation with the fact that colder climates meant that global warming isn't real, hence, a appropriate term coined by the National Academy of Science used the latter in a study on carbon dioxide in 1979. Climate change is caused due to numerous factors like greenhouse gas emissions which are resulting in the melting of polar ice caps, exploitation of natural resources, pollution, and destruction of forests. Increasing urbanization has caused the loss of forest cover and the intensified use of concrete has resulted in more carbon dioxide emissions, due to its manufacturing.

A recent study published in the Journal Science stated that extreme cold could be inflicted due to Arctic warming. It also stated that cold waves can become more likely with global warming or climate change. In February 2021, an incredibly severe cold wave hit vast portions of North America, from Canada to Northern Mexico and left 10 million people without power. The impact was most drastic in Texas which alone had more than 125 deaths related to the incident.

#### **DID YOU KNOW?**

Oymyakon is the coldest permanently-inhabited place on Earth and is found in the Arctic Circle's Northern Pole of Cold. In 1933, it recorded its lowest temperature of -67.7°C.



This is just one of the few tragic events that are taking place because of climate change. It feels miserable to learn that many of them are preventable and still worse to know that these are direct consequences of our reckless actions and greed.



Our planet is at stake and it's high time to take action. There's a need to overcome our differences, whether of generation or identity and to stay united, practice sustainable development and be optimistic for a bright future. There are ever-so-raging movements and protests to save the earth and a lot of hope in the people. A beautiful quote by Helen Keller goes,

"Although the world is full of suffering, it is also full of the overcoming of it."



24TH OCTOBER 2009



## INTERNATIONAL DAY OF CLIMATE ACTION

"International day of climate action" was organized to influence the delegates going to the United Nations framework convention on climate change meeting in December,2009, This was the first Global Campaign ever organized around a scientific data point. The group reports that they organized the world's "Most widespread day of political action" on October 24, 2009, reporting 5,245 actions in 181 countries.

## **CLIMATE CHANGE AND ADAPTATION**

### Manisha Mani Packaging technologist

Ever wondered how it heats up when it's not summer and showers when it's not rainy?

This Drastic change in the climate cycle is the consequence of a phenomenon called climate change or global warming to be precise. Urbanization and excessive consumption of fossil fuels lead greenhouse gases and these entrapped greenhouse gases lead to a rise in temperature leading to climate change. According to the IPCC report, It is widely accepted that global temperatures will increase and rainfall will become more variable, thereby affecting local climates across the world and that this can be largely attributed to human impacts.

Climate leads reduced change to freshwater sources due a rise in to temperature and reduced vegetation. Reduction in Freshwater sources also impacts the agricultural practices imposing significant impact on the regional economy. Forces that can contribute to climate change include the sun's intensity, volcanic eruptions, and changes greenhouse naturally occurring aas concentrations. Deforestation releases sequestered or stored carbon into the air. It's estimated that logging, clearcutting, fires, and other forms of forest degradation release an average of 8.1 billion metric tons of carbon dioxide per year, accounting for more than 20 percent of all global CO2 emissions. Depletion of the ozone layer is further adding more carbon dioxide to the earth's atmosphere.

Governments and companies are increasingly committing to climate action. Yet significant challenges stand in the way, not least the scale of economic transformation that a net-zero transition would entail and the difficulty of balancing the substantial short-term risks of poorly prepared or uncoordinated action with the longer-term risks of insufficient or delayed action. As the earth's atmosphere heats up, it collects, retains, and drops more water, changing weather patterns and making wet areas wetter and dry areas drier. Higher temperatures worsen and increase the frequency of many types of disasters. including storms. floods. heatwaves, and droughts. These events devastating can have and costly consequences, jeopardizing access clean drinking water, fueling out-of-control wildfires. damaging property, creating hazardous material spills, polluting the air, and leading to loss of life.

### Climate Change Adaptation Cycle



SOURCE: countercurrents.org

The global in surface anomaly temperature might cause an increase in sea level, a decrease in arctic ice, and a growing number of weathercatastrophes, including related storms, floods, and droughts. Carbon dioxide is a colorless, naturally occurring gas that is released after people and animals inhale oxygen. It is a greenhouse gas, meaning it absorbs and releases thermal radiation which in turn creates the "greenhouse effect". China is the most polluting country worldwide, having released 10.7 billion metric tons of carbon dioxide emissions in 2020. thus making it evident that the population also impacts climate change by releasing more carbon dioxide into the atmosphere.

As climate change effect agricultural irrigation, it increases food insecurity due to less crop yields and disturbed harvesting. Another habitat thrives on the vegetative crop is also affected and leads to the extinction of species and the food chain gets disrupted. in Change climatic conditions also leads to domestic and international migration when people search for a new livelihood. The Intergovernmental Panel on Climate that the concludes estimate for global average surface air warming over the current century ranges from 1.8°C to 4.0°C (IPCC 2007).

Adaptation is the best way for responding to climate impacts and mitigation of reducing GHG emissions are necessary measures that can be

taken to address climate change. Prepping up for that intense summer is the precautionary measure that we can take to beat the heat. Practice cold eating habits and protect yourself from harmful UV radiations that could affect the skin.

Monitor sea levels and take precautionary measures in case of tides and act as a buffer against that storm surges and erosion. Train yourself for the sudden climatic hazard and stay updated with equipment and new technologies for mitigation plans. Greenhouse farming is the unique farm practice of growing crops within sheltered structures covered by transparent, partially transparent, material.

The main purpose of greenhouses is to provide favorable growing conditions and to protect crops from unfavorable weather and various pests. Monitor and treat the emissions from factories and industrial waste to reduce air pollution which intern does not result in the formation of smog. Adopt clean energy production and renewable fuels to focus on green building to reduce the carbon footprints using decarbonization strategies!



## **KEEP SOIL UNITED**

## Aman Gogia

#### "Study Observe Unfold

For this gold, we have to contribute to taking countries together with a humble composure, as we can see that subsequent technology cannot continue to prevail in the synthetic necessities. It affects them and even has a disastrous effect on the GDP boom. So, in this shout-out for peppy leaders, we will create an extra restorative vision for the approaching generations. If we can no longer get this hassle fixed, we will be going to have a huge lack of 40% of micro vitamins from the soil in the upcoming 22 years, either next generation will spoil their internal existence style nearly half in diverse approaches and they may start living on the synthetic necessities, the splendor of nature will remain no longer greater effective, even the flexible energies of the character will now not react in a good manner, so it'll affect the whole cosmic device, even "humanity".

It is observed that "As we are talking about agricultural GDP that is currently at \$1.1/2 trillion will even get affected because of the numerous changes in soil". It is an essential indicator of the financial performance of a rustic but we are still behaving as nothing has happened, we can diagnose this case when we see that our children are consuming food that has lesser micro vitamins that they need to grow.



They will never apprehend it, however with the passing time the human frame will need to face several extreme modifications that they haven't dreamt of, occasionally we can experience dizziness, sometimes bloodless but now not in a herbal manner, because of the impacts of harmful chemical compounds that we're eating in our everyday life in numerous bureaucracy, perhaps it'll grow every day and to manipulate it the people will get reliant on dangerous drugs and different scientific types of equipment that are never good for health. Sorry to say but it is a harsh truth that we will become dependent on these life-saving equipment and will not remain a self-regulating generation anymore having no joyful showers from inside.

So, what we will answer to the upcoming generations on that basis because we never took a step on this, and in our lives, we hardly planted a single tree that is why we are facing this issue. Of course, what we had unfolded is, why the generation isn't aware of the problem faced by our Mother Earth in the modern state of affairs. But there is nevertheless time to make conclusions about the tremendous.

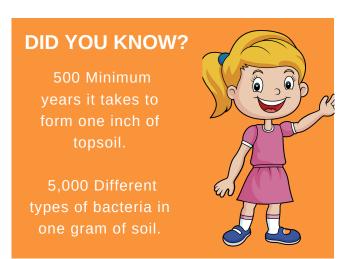
We have got an open manner and the handiest we can do for balanced lifestyles, more healthy and wealthier existence for everyone, and it may be a sport alternate moment for any other factors we called "fire, air, water, wind, and area".

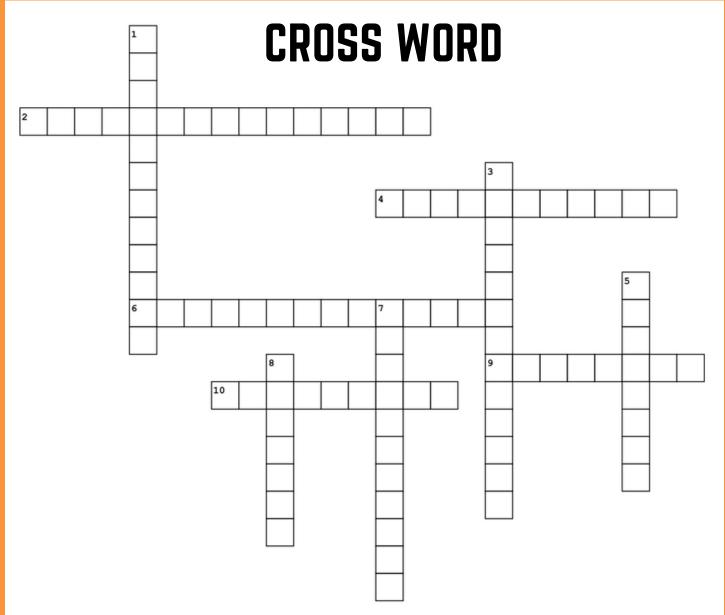
We unite right here for soil and as soon as we can take a step in the direction of one detail some other can heal robotically because they all are interconnected. We ought to take quite simple steps for that. Such that we can take manure and may exit for one hour.

Where ever Where ever we may find dry soil like in a park, gardens, and mains; we can add manure to it. Also, where farmers are doing their farming perhaps, they are doing their jobs thoroughly, we could ask them in which soil we have to mix the manure. We could also make a listing of all required places and start from there, and mention this on all your social websites to unfold recognition to save soil amongst young generations so they would get to know what is exactly required to do and for what and why we are doing this all.

By doing this we can make it the biggest worldwide moment on the planet to keep all upcoming generations safe. Don't throw your unusable plastic far away from your house as I stated. And also keep the waste in recycle bin and tell every human to do that and soon you'll examine and feel an exceptional trade in this period that is my belief.

Do as much as you could to clean the environment because it is high time to save our planet, our residents, our generations, and the maximum critical mom earth we stay on.





### **Across**

- 2. is a military conflict or political strategy that deploys nuclear weaponry.
- 4. An explosive device whose energy typically comes from the fissioning of uranium or plutonium
- 6. an increase in chemical nutrients typically compounds containing nitrogen or phosphorus, in an ecosystem.
- 9. the movement of chemicals in the upper layers of soil into lower layers or into groundwater by being dissolved in water
  - 10. rain or other forms of precipitation that is unusually acidic.

#### Down

- 1. pesticides are used to control insects in all developmental forms.
  - 3. Disassembling a weapons system to its component parts.
- 5. (water management) that part of irrigation or rainfall that runs off an area or is lost to deep percolation.
  - 7. the cultivation of aquatic organisms under controlled conditions.
  - 8. the fuel produced by the chemical and/or biological processing of biomass.



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