# Carbon: The Critical Element

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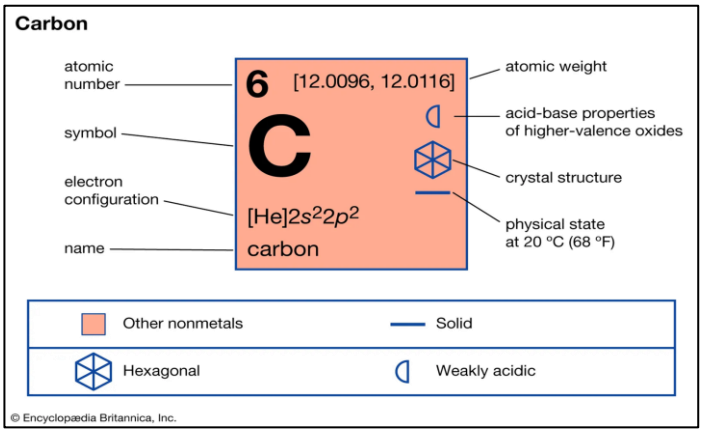
Carbon is one of the most important elements in the atmosphere. It plays an important role in maintaining the global temperature and is one of the essential elements on which life depends. However, if the carbon increases excessively in the atmosphere, it could pose a major threat to life and the natural ecosystem. Humans and modern human activities are the major contributors of carbon in the atmosphere. The following study reveals the loss of carbon terrestrial sink on the planet.

A landmark study published in the journal, 'Nature' says that the natural ability of forests to absorb carbon is decreasing, mostly due to the 'unstable' conditions created by the anthropogenic interference with the environment.




The study published on 22nd February of this year by Dr Patrick McGuire, a climate scientist working in collaboration with the Department of Meteorology and the National Centre for Atmospheric Science, both at the University of Reading, UK, states that the short-term impact of the temperature rise and landscape changes due to farming and deforestation are less likely to recover even in the long term. Dr. McGuire was a co-author of this study, led by colleagues at CREAF, Barcelona and Antwerp University.

He further states, "We found that large regions of the world are vulnerable to sudden and dramatic changes to their landscape because the ability of their ecosystems to absorb carbon has started to destabilize." He uses California as an example to explain that forest fires are more likely to occur in places with extremely dry and hot conditions caused by a hotter atmosphere. Increase in the cases of forest fire transforms the forests to scrublands, sometimes permanently. This reduces the land's overall ability to siphon carbon dioxide out of the atmosphere as it did before. He also added, "This creates a vicious cycle as areas such as these become more vulnerable to the effects of climate change in the future."

The research suggests that crop lands and regions with less forest cover are the risk prone areas and these regions will tend to face extreme weather events, such as heat waves, cold snaps. The most vulnerable areas mentioned are the Mediterranean basin, South East Asia, and West coast of Northern and Central America.

Researchers have also identified that these regions have developed a "memory" --- described as 'temporal auto correction', which means years facing lower carbon uptake will be followed by years where carbon uptake diminishes further. Researchers also emphasize that forest dominated regions, where the carbon absorption is less, are more likely to develop scrub land which would be permanent in nature and the forest cover will be lost forever.

Regions where the carbon absorption rate is fairly consistent and the ecosystems are considerably stable, include tropical forests of Amazon and central part of Europe, where carbon absorption

Source: Wikipedia.com

capacity has increased, but these regions are also more susceptible to change in the rainfall pattern in the future.

This global variation in the carbon sink has made it even more difficult for the scientists to predict the impact of the climate change.

Dr. McGuire warns us about our alarming future when he says “Terrestrial ecosystem currently absorbs almost one-third of the carbon emitted by humans; if they start to absorb less carbon, earth’s natural ability to curb climate change diminishes which means that we may need to cut the human-oriented carbon emission even faster than we had previously thought.”

It is high time we realize how important it is to not only reduce our emissions but also put a stop to the intervention with the environment which is jeopardizing the lives and the planet itself by curbing its natural healing potential and replenishing capacity.