

## Permafrost

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- Permafrost is defined as ground (soil, rock and any included ice or organic material) that remains at or below zero degree Celsius for at least two consecutive years. Permafrost is spread across an area of over 23 million square kilometers, covering about 15% of the land area of the globe.
- The latest Intergovernmental Panel on Climate Change report has warned that **increasing global warming will result in reductions in Arctic permafrost** and the thawing of the ground is expected to release greenhouse gases like methane and carbon dioxide. The total quantity of carbon that is now buried in the permafrost is estimated at about 1500 billion tonnes and the top three meters of the ground has about 1000 billion tonnes.
- The first impacts that are very rapid will affect countries where roads or buildings were constructed on permafrost. The Russian railways are an example. But the biggest international problem is to do with the potential for organic material, which is now entombed and frozen in the ground. If the ground begins to thaw, this material will become available for microbiota to break down.
- Microbiota are 'ecological communities of commensal, symbiotic and pathogenic microorganisms' found in and on all multicellular organisms. Microbiota include bacteria, archaea, protists, fungi and viruses. The biota will release carbon dioxide and methane In environment.

