DEFORESTATION DETECTION USING CNNS TO SUPPORT SDG 13: CLIMATE ACTION

**What did the project help to address in the SDG?**

The practice of deforestation rapidly contributes to climate change because it releases large amounts of carbon, leads to the destruction of ecosystems, and threatens the variety of living species. If deforestation is noticed at an early phase, it becomes easier to take necessary actions and prevent further environmental damage.

**The machine learning approach is employed.**

The investigation looked at classifying images by training them using the CNN method. Because CNNs directly find spatial features from the data in a picture, they are perfect for working with satellite and drone photos.

**Tools and Datasets:**

1. Data: A set of online pictures with labels showing forests and areas where forests have been destroyed.
2. Python, TensorFlow/Keras, NumPy, and some image preprocessing libraries are used. Images were changed to a size of 128×128 pixels and made ready for the model to accept.

**Results:**

1. The CNN model was very accurate in finding cases of deforestation.
2. Running predictions in batches on the test images gave the same and trustworthy results with accompanying confidence scores.
3. Accuracy and the confusion matrix were used to measure the model's performance and showed that it was robust.

**Ethical Considerations:**

* The data can only reflect information from some parts of the forest, so its conclusions may not apply to all types of forests or different seasons.
* If mistakes are made during classification, this may result in harmful decisions for the environment and the people living there.
* By detecting forest activity automatically, fast answers to deforestation help preserve forests according to the SDG 13 objectives.