

**PEMANTAUAN KONSENTRASI POLUTAN NO₂
SELAMA PEMBERLAKUKAN KEBIJAKAN PEMBATASAN SOSIAL
DI KAWASAN METROPOLITAN JAKARTA RAYA
TAHUN 2020 – 2021 MENGGUNAKAN EARTH ENGINE APPS**

Disusun Oleh:

Sasvita Gevi Meliyasari

INTISARI

Kawasan Metropolitan Jakarta Raya yang meliputi wilayah Jabodetabekpunjur merupakan wilayah pusat kegiatan nasional yang digunakan sebagai pusat pemerintahan, industri, ekonomi dan perkantoran. Hal tersebut memicu tingginya mobilitas kendaraan bermotor yang menyebabkan peningkatan konsentrasi Nitrogen Dioksida (NO₂). Namun pada tahun 2020 – 2021 diberlakukan kebijakan pembatasan sosial akibat pandemi Covid-19. Penelitian ini dilakukan dengan tujuan untuk (1) Mengetahui dinamika konsentrasi NO₂ selama pemberlakuan kebijakan pembatasan sosial tahun 2020 – 2021 di Kawasan Metropolitan Jakarta Raya dan (2) Membangun *Earth Engine Apps* yang informatif dan mudah dipahami untuk diseminasi informasi kadar konsentrasi polutan NO₂.

Pengolahan data pada penelitian ini dilakukan menggunakan *Google Earth Engine* dan data yang digunakan yaitu Citra Sentinel-5P dan batas administrasi wilayah *Jabodetabekpunjur*. Data tersebut kemudian diolah menggunakan metode zonal statistik dengan algoritma *reducer mean* untuk mendapatkan nilai konsentrasi rata-rata NO₂. Hasil pengolahan data divisualisasikan dalam bentuk UI *Split Panel* dan di-diseminasikan menggunakan *Earth Engine Apps*.

Hasil penelitian berupa nilai konsentrasi NO₂ per bulan, per wilayah dan per fase kebijakan pembatasan sosial selama tahun 2020 – 2021 serta *Earth Engine Apps* dinamika konsentrasi NO₂. Berdasarkan hasil penelitian diketahui nilai konsentrasi NO₂ tertinggi terdapat pada periode *new normal* dan ketiga periode menunjukkan tren peningkatan konsentrasi NO₂ selama periode penelitian.

Kata Kunci: Nitrogen Dioksida, Polusi Udara, Google Earth Engine.

***MONITORING CONCENTRATION OF NO₂ POLLUTANTS
DURING IMPLEMENTATION OF SOCIAL RESTRICTION POLICIES
IN THE JAKARTA RAYA METROPOLITAN AREA IN 2020 – 2021
USING EARTH ENGINE APPS***

Arranged By:

Sasvita Gevi Meliyasari

ABSTRACT

Jakarta Raya metropolitan area which includes Jabodetabekpunjur area is an national activity center which is used as the center of government, industry, economy and offices. This is can causes high mobility of motor vehicles which causes an increase concentrations of Nitrogen Dioxide (NO₂). However, in 2020 – 2021 social restriction policy was imposed due to Covid-19. This research was conducted with the aims of (1) determine the dynamics of NO₂ concentration during the implementation of the 2020 – 2021 social restriction policy in the Jakarta Raya metropolitan area and (2) build informative and easy-to-use Earth Engine Apps for the dissemination of information concentration of NO₂.

Data processing in this study was carried out using Google Earth Engine and the data used were Sentinel-5P Imagery and administrative boundaries for the Jabodetabekpunjur area, the data was then processed using zonal statistics method with reducer mean algorithm to obtain the average NO₂ concentration value. The results of data processing are visualized using UI Split panels and disseminated using Earth Engine Apps.

Results of the study obtained the value of NO₂ concentration every month, every region and every phase of social restriction policies during 2020 – 2021 and Earth Engine Apps NO₂ concentration dynamics. Based on the research results, it is known that the highest NO₂ concentration values are found in the new normal period and the three periods show a trend of increasing NO₂ concentrations during the study period.

Keyword: Nitrogen Dioxide, Air Pollutant, Google Earth Engine.