ABSTRACT

ARIEF YUSUP RAMDHANI. Study Potentials of Canopy Trees in Bogor Botanical Garden to Absorb Carbondioxide Emissions from Vehicles. Under the Direction of INDUNG SITTI FATIMAH.

In 2000 the number of vehicles in Bogor City are 46,250 units, in 2005 are 111,939 units, in 2010 are 178,851 units and were estimated in 2040, this number will reach 576,654 units. Increasing numbers of vehicles will increase the concentration of carbon dioxide (CO₂) in the atmosphere. In 2010, carbon dioxide (CO₂) emitted by motor vehicles in Bogor City by 225,134,96 tons and were estimated in 2040 will reach 527,566,07 tons. Bogor Botanical Gardens was chosen as study site because it is one of urban forest in Bogor City with an important role in absorbing carbon dioxide (CO₂). Therefore to calculate carbon dioxide (CO₂) that was absorbed by canopy trees in Bogor Botanical Gardens used the software ArcView 3.2 and extensions CITYgreen 5.0. Based on the result of the analysis CITYgreen 5.0 obtained information stating that existing condition in Bogor Botanical Gardens has carbon dioxide (CO₂) sequestration potential by 134,61 tons/year and it is able to absorb carbon dioxide (CO₂) emissions only 0,06% from 225,134,96 tons of carbon dioxide (CO₂) emitted by motor vehicles at this time. Scenarios were made to determine the character of the tree canopy coverage which is the most potential to absorb carbon dioxide (CO₂). Bogor Botanical Gardens with the first scenario could increase the carbon dioxide (CO₂) sequestration potential from existing condition by 117,06% which is 134,61 tons/year to 292,18 tons/year. The first scenario is able to absorb carbon dioxide (CO₂) emissions by 0,055% from 527,566,07 tons of carbon dioxide (CO₂) emitted by motor vehicles in 2040. Then the second scenario was made to increase the carbon dioxide (CO₂) sequestration potential. The second scenario could increase the carbon dioxide (CO₂) sequestration potential from the existing condition in the Bogor Botanical Gardens by 267,88% which is 134,61 tons/year to 495,20 tons/year. The second scenario is able to absorb carbon dioxide (CO₂) emissions by 0,094% from 527,566,07 tons of carbon dioxide (CO₂) emitted by motor vehicles in 2040.

Keyword : Bogor Botanical Garden, carbon dioxide (CO₂) emission, carbon dioxide (CO₂) sequestration, CITYgreen 5.0