The importance of mangrove ecosystems as blue carbon, causes the need for sustainable mangroves. National mangrove area is 3.67 million hectares; divided in Papua 1,663,657 ha (in 2009), Sumatra 902,205 ha (in 2014), Kalimantan 637,575 ha (in 2009), Maluku 210,996 ha (in 2017), Sulawesi 118,891 (in 2015), Java 129,178 ha (in 2013), Bali Nusa Tenggara 34,835 ha (in 2016). Challenges mangrove deforestation in Indonesia needs solution to maintain mangrove environment. Mangroves are quite critical in the Riau Islands, North Kalimantan, East Kalimantan and West Papua. The solution to maintain mangrove in order to become a sustainable mangrove with ecotourism implementation, so people will preserve the environment so that it remains beautiful.

The mangrove forest is one of the blue carbon assets in overcoming climate change. Carbon is formed under water, stored in coastal ecosystems and colored blue. Mangrove carbon in Indonesia is around three billion tons, but around 200 million tons of mangrove carbon are lost per year (Murdyaso, July 17, 2018 — CIFOR researchers at the Blue Carbon Summit event). This loss is caused by logging, conversion and excavation in the mangrove area. It is estimated that if this continues, 10-15 years of mangroves will run out. In fact, the largest store of carbon reserves in the world is mangrove forest ecosystems.

Mangroves store carbon in the form of biomass, both at the top (Cag, carbon above ground) and the bottom (Cbg, carbon below ground). Meanwhile, avalanches of organic material such as litter and dead mangrove stems on the substrate contribute to organic carbon in the soil. The dense mangrove root system allows the carbon to be trapped in the mangrove environment and minimize nutrient exports out of the area.

Mangrove forests in Indonesia have great potential in absorbing CO2 from the atmosphere and storing it in the form of body biomass. Indonesia has 22.4% of the world's mangrove area or around 3.22 million hectares, which is higher than Brazil and Austria (7% each from global). The widest distribution of mangroves in Indonesia is in the Papua Islands (West Papua Province and Papua), which is almost half of the national mangrove area.

Finding
Based on the value of Net Primary Productivity there is potential for carbon absorption in Indonesia. LIPI analysis shows that the average forest cover in Indonesia absorbs 52.95 tons of CO2 / ha / year which is twice the global estimate (28.42 tons CO2 / ha / year). Overall, mangrove forests have the potential of carbon absorption of 170.18 Mt / CO2 / year. The biggest potential in Kalimantan is 94.32 tons CO2 / ha / year followed by Papua (57.99 tons CO2 / ha / year) and Sulawesi (53.95 tons of CO2 / ha / year). While mangroves on the island of Sumatra (37.07 tons CO2 / ha / year) and Java (39.27 tons CO2 / ha / year) which have been heavily degraded show the lowest potential for carbon absorption.

Mangrove ecosystems have recently been developed into ecotourism by the government. However, geographical conditions affect the suitability of the development of the mangrove ecotourism. Examples of Sadik’s research, et al (2017), concerning the suitability of Mangrove Ecotourism in terms of Biogeofisik aspects in Gonda Beach, Laliko Village, Kec. Campalagian.Polewali Mandar District, West Sulawesi Province. Through this development, it is expected that sustainable mangrove ecosystems, in addition to the benefits taken by local communities. Sustainable mitigation of mangrove ecosystem in Indonesia with ecotourism implementation, so people will preserve the environment so that it remains beautiful.