

## **Reduction of GHG Emission in Peatland and Its Implication to Regional Economy of Riau Province, Indonesia**

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The average GHG emission of Riau Province during 2003-2009 was 0.29 Gt CO<sub>2</sub>. Emission from peatland and fires were main source of Emission in Riau Province (42%) that contribute 0.12 Gt CO<sub>2</sub> per year. The study introduced nine mitigation actions that cover 1) compliance of rules and improvement of peatland management, 2) action 1+ peatland rehabilitation and fire prevention, and 3) action 2+land allocation revision and forest conservation. The objectives of the study are : 1) to estimate GHG emission reduction of mitigation actions from peatland, 2) to estimate abatement cost of GHG emission reduction cost by mitigation actions, and 3) to estimate impact of mitigation actions to regional economy of Riau Province.

The mitigation strategies of the compliance of rules and improvement of peatland management will decrease land use for timber plantation and palm oil. The highest contribution of land use for forest occurs if previous strategies strengthen with peatland rehabilitation and land allocation revision and forest conservation.

Marginal abatement cost for compliance of rules and improvement of peatland management ranged from \$ 1.42/tCO<sub>2</sub> - \$15.01/tCO<sub>2</sub>. Additional strategies with peatland rehabilitation and fire prevention abatement cost are \$ 3.96/tCO<sub>2</sub> - \$22.13/tCO<sub>2</sub>. Strengthening previous action with land allocation revision and forest conservation will cost \$ 31.52/tCO<sub>2</sub> - \$147.22/tCO<sub>2</sub>.

Input-output analysis used to estimate economy impact of mitigation action to regional economy. The compliance of rules and improvement peatland management will decrease land availability for palm oil, timber and rubber. Those commodities have high output and income multiplier to regional economy, so the mitigation actions will cost Rp 101.1 billion. Previous mitigation actions strengthening with land allocation revision and forest conservation will cost much higher (Rp151.2 billion) to regional economy.