

**ESTIMASI POTENSI EMISI GAS METAN (CH<sub>4</sub>) DAN KARBON DIOKSIDA (CO<sub>2</sub>) PADA LAHAN SAWAH SYSTEM OF RICE INTENSIFICATION (SRI) DAN KONVENSIONAL DI KECAMATAN IMOGIRI, KABUPATEN BANTUL, D.I. YOGYAKARTA**

**INTISARI**

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Salah satu sektor penyumbang gas rumah kaca adalah dari sektor pertanian. Gas rumah kaca yang disumbang sektor pertanian adalah gas metan (CH<sub>4</sub>) dan gas karbondioksida (CO<sub>2</sub>). Penelitian ini bertujuan untuk menghitung dan mengetahui faktor yang mempengaruhi emisi gas metan (CH<sub>4</sub>) dan karbondioksida (CO<sub>2</sub>) pada dua jenis sistem budidaya padi yang berbeda, yaitu *System of Rice Intensification* (SRI) dan Konvensional di Kecamatan Imogiri, Bantul, Yogyakarta. Data yang diolah merupakan data sekunder yang diperoleh dari Balai Penyuluh Pertanian (BPP) Kecamatan Imogiri dan Badan Pusat Statistik (BPS) Kabupaten Bantul.

Estimasi emisi gas metan (CH<sub>4</sub>) dan karbondioksida (CO<sub>2</sub>) dihitung menggunakan metode *Intergovernmental Panel on Climate Change* (IPCC). Potensi emisi gas metan (CH<sub>4</sub>) dihitung menggunakan *tier 2*, sedangkan potensi emisi gas karbondioksida (CO<sub>2</sub>) dihitung menggunakan *tier 1*. Potensi emisi dihitung berdasarkan asumsi jika metode budidaya yang diterapkan di Kecamatan Imogiri adalah SRI atau konvensional saja. Berdasarkan hasil perhitungan diketahui potensi emisi gas metan (CH<sub>4</sub>) yang dihasilkan metode SRI adalah 177,8 ton CH<sub>4</sub>/tahun dan metode Konvensional menghasilkan 354,4 ton CH<sub>4</sub>/tahun. Sedangkan potensi emisi gas karbondioksida (CO<sub>2</sub>) yang dihasilkan metode SRI adalah 73,4 ton CO<sub>2</sub>/tahun dan metode Konvensional menghasilkan 122,3 ton CO<sub>2</sub>/tahun. Faktor yang mempengaruhi potensi emisi gas Metan (CH<sub>4</sub>) adalah jenis irigasi, jumlah bahan organik, dan jenis bahan organik yang diaplikasikan ke lahan. Sedangkan Emisi CO<sub>2</sub> dipengaruhi oleh perbedaan dosis pupuk urea.

Kata kunci: Emisi gas metan (CH<sub>4</sub>) , emisi gas karbondioksida (CO<sub>2</sub>), SRI, pengelolaan lahan konvensional

**ESTIMATION OF METHANE (CH<sub>4</sub>) AND CARBON DIOXIDE (CO<sub>2</sub>) ON  
PADDY FIELD UNDER SYSTEM OF RICE INTENSIFICATION (SRI) AND  
CONVENTIONAL METHODS IN IMOGIRI SUB-DISTRICT, BANTUL  
DISTRICT, D.I. YOGYAKARTA**

**ABSTRACT**

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One of contributors of greenhouse gases is from the agricultural sector. Greenhouse gas from agriculture sector is methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>). This study aims to calculate and analyse factors that affect emissions of methane gas (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) on two two different types of cultivation system, namely System of rice intensification and conventional in Imogiri sub-district, Bantul, Yogyakarta. Data was secondary where taken from “Balai Penyuluh Pertanian (BPP)” in Imogiri sub district and “Badan Pusat Statistik (BPS)” in Bantul district.

Estimation of methane gas (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) emission were calculated by using Intergovernmental panel on Climate Change (IPCC) method. Emission of methane gas (CH<sub>4</sub>) was calculated by using tier 2, while carbon dioxide gas (CO<sub>2</sub>) was calculated by using tier 1. Emission was calculated based on assumptions, if the Imogiri sub-district only applied SRI or conventional method for rice cultivation. The result showed that emission of methane gas (CH<sub>4</sub>) produced by SRI method was 177,8 tons CH<sub>4</sub>/years and 354,4 tons CH<sub>4</sub>/years produced by conventional method. Emission of carbon dioxide gas (CO<sub>2</sub>) produced by SRI method was 73,4 tons CO<sub>2</sub>/years and 122,3 tons CO<sub>2</sub>/years produced by conventional method. Factors affecting emission of methane gas (CH<sub>4</sub>) were type of irrigation, type of organic material, and amount of organic material applied to the paddy fields. Emission of carbon dioxide gas (CO<sub>2</sub>) affected by amount of urea fertilizer that applied on paddy fields.

**Keywords:** GHG, Emission of methane (CH<sub>4</sub>), emission of carbon dioxide (CO<sub>2</sub>), rice, SRI, conventional