



IAAIS

# Climate Change on Agriculture

Strategy on Agriculture Sustainability- Indonesia  
Experiences

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Indonesian Agency for Agricultural Instrument Standardization  
Ministry of Agriculture

COP 28

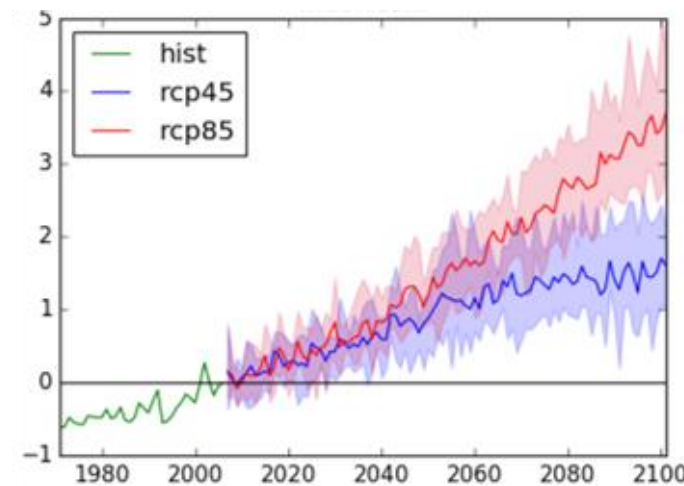
December 10, 2023







## Climate Change

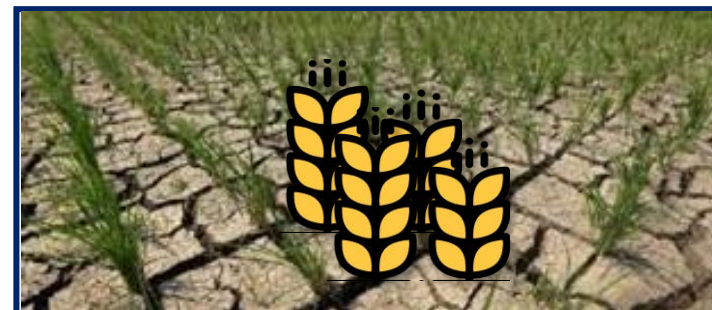


Indonesia's Climate Projection shows that the temperature increase in 2100 will reach:

- **1.5°C** with RCP4.5 scenario
- **3.5°C** with RCP8.5 scenario

## Bahaya Penurunan Produksi Padi

Proyeksi 2020-2045



Increased dry season and physiological changes in rice plants



Increase the potential for decreasing rice production

- Changing on rain pattern
- High on the extreme variability
- Extreme dry and wet climate events will be more likely to be above Normal

“Climate change has a significant impact on the agricultural sector.”

# Economic Losses Due to Climate Change

Potential economic loss in Indonesia (2020–2024)

**Rp 544 triliun**

the impact of climate change, if there is no policy intervention (*business as usual*)



Source: Kementerian PPN/Bappenas

IDR 408 T



Coast and Sea

IDR 28 T



Water

IDR 78 T



Agriculture

IDR 31 T

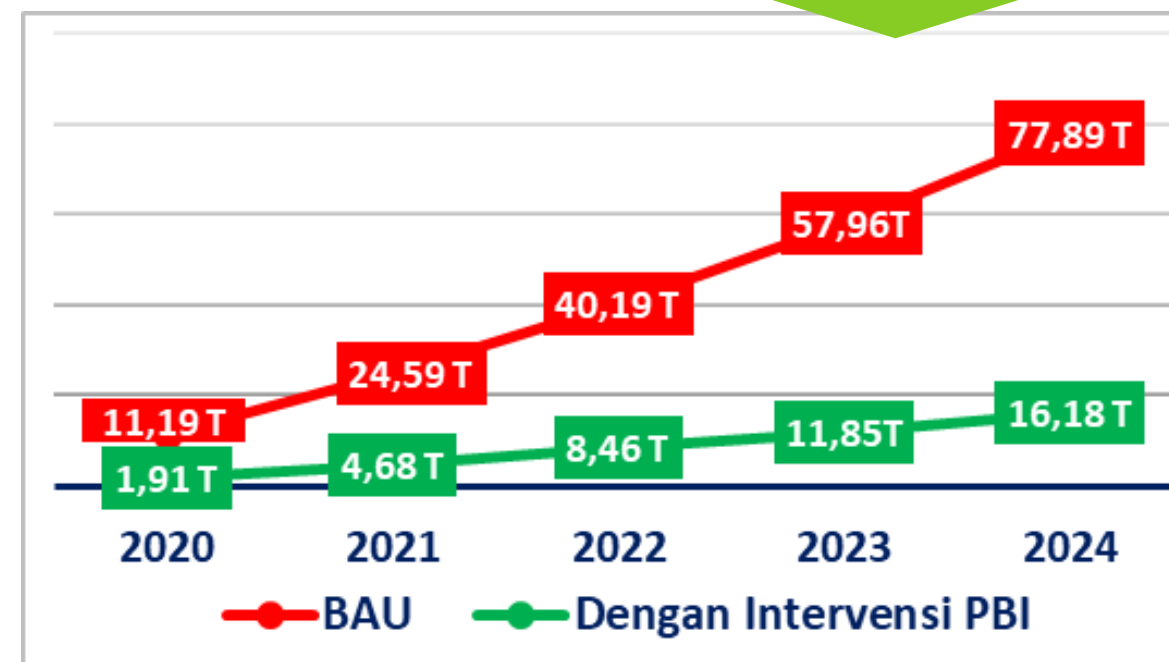


Health

Potential Economic losses:

1. Ship Accidents and Beach Inundation,;
2. Decrease in water availability
3. **Decrease in rice productivity, and;**
4. Increasing Dengue Fever

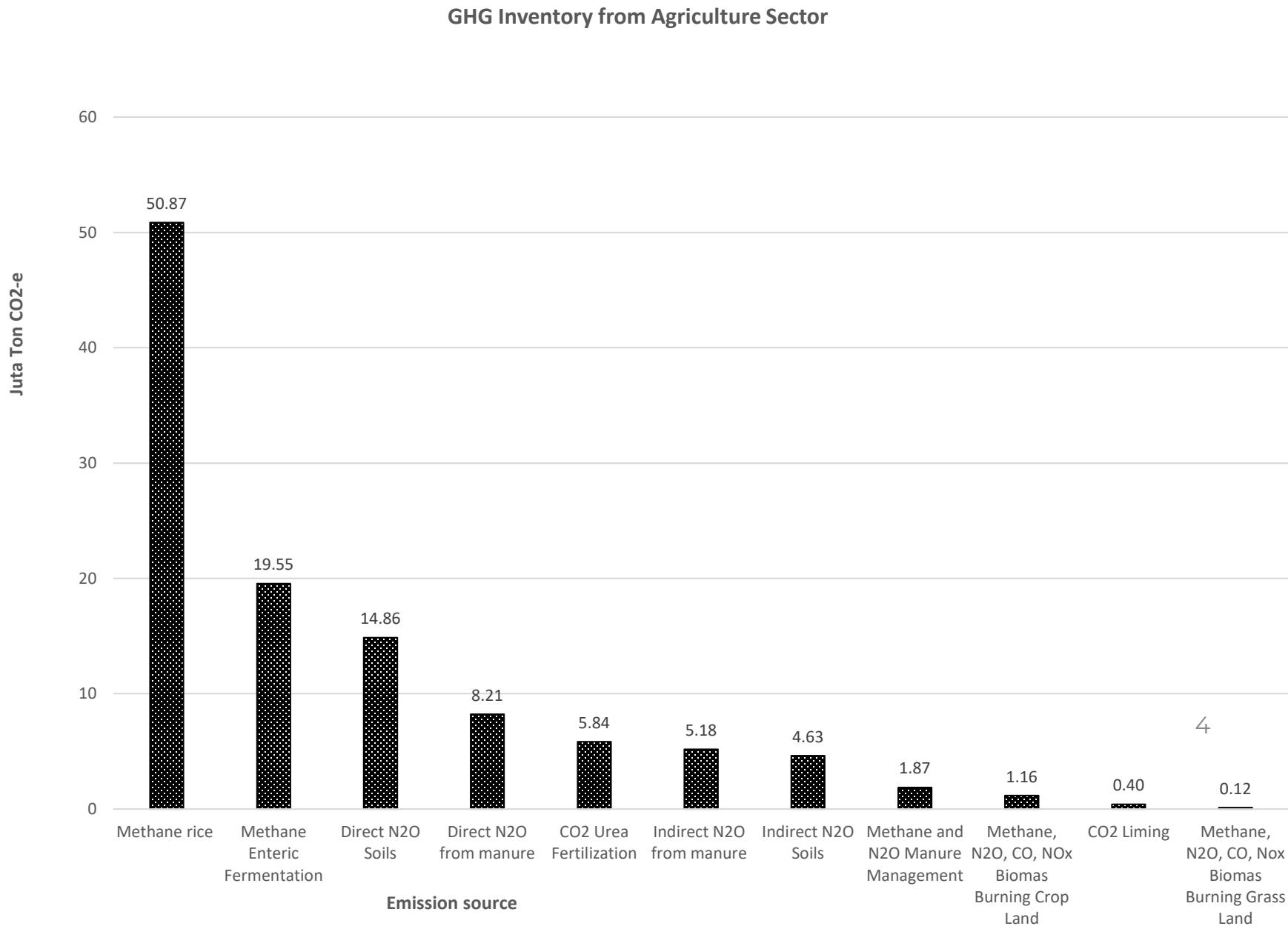
Potential economic losses in the Agriculture Sector in Indonesia



Implementation of Climate Resistant Development has the potential to reduce economic losses due to climate change by Rp 61.71 trillion or 79.2% of the total potential loss in 2024.



# The status of MITIGATION from Agriculture Sector on 2022 was 15.6-million-ton CO<sub>2</sub> equivalent



Agricultural sector emission status 2022, methane from paddy fields contributes the highest to agriculture sector emissions, followed by emissions from enteric fermentation, nitrous oxide (N<sub>2</sub>O) directly from soil and from livestock manure.

Action/program	Emission reduction (million ton CO <sub>2</sub> e)
Biogas	0,004
UPPO dan organic material management	0,082
Organic village	0,003
Low Emissions Rice Varieties	5,030
Enhanced the Feed	0,112
Balanced Fertilizer	0,492
Water Table Management on Peatland	7,830
C Sequestration on the annual fruit trees	2,063
Total	15,617

The achievement of mitigating greenhouse gas emissions in the agricultural sector in 2022 is 15.6 million tons of CO<sub>2</sub> equivalent



# Technologies and Innovations Application on Adaptation and Mitigation: A Strategy



# Adaptation Action – Priority:

- Providing of water storage (ponds, ditch, supplement irrigation, etc)
- Providing and restoration of irrigation canal
- Application of weather modification technology
- Provision of flood protection buildings, application of soil and water conservation
- Water saving technology (alternate wet and drying system on rice field)
- Application of cropping calendar
  - Provision of adaptive farming facilities: tolerant seeds (salinity, drought, submergence, high temperature), pest control, organic fertilizer, soil improver, etc.
  - Balance fertilizer
  - Improving feed quality
  - Preparing non burning land
  - Water table management on peatland





# Adaptation & Mitigation Action

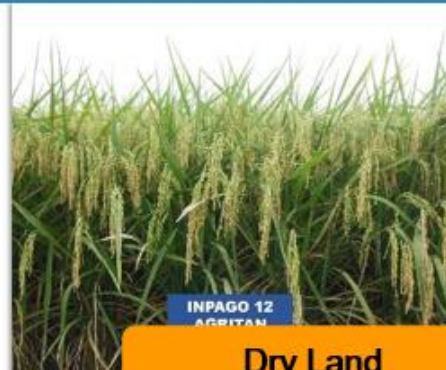
## SOIL AND FERTILIZER TEST KIT

## RICE VARIETY FOR PARTICULAR AGRO-ECOSYSTEM



**Rainfed Ecosystem**

- Inpara 39
- Cisaat
- Inpara 46 GSR TDH



**Dry Land**

- Inpara 8
- Inpara 12



**Swamp Land**

- Inpara 2
- Inpara 8
- Inpara 3
- Inpara 10



**Saline Land**

- Inpara 34 Salin Agritan
- Inpara 35 Salin Agritan



**High Land**

- Inpara 28
- Inpara 1



**Upland Soil Test Kit**



**Sugarcane Plant Nutrient Test Kit**



**Organic Fertilizer Test Kit (PUPO)**



## FERTILIZER RECOMMENDATION



**Fertilizer Recommendation for Rice in Paddy soil**



**Fertilizer Recommendation for Corn in Paddy soil**



**Fertilizer Recommendation for Soybean in Paddy soil**



**Fertilizer recommendation for Plantation crops**



**Fertilizer recommendation for Fodder plant**



**Fertilizer recommendation for Horticultural crops**

- Low methane cultivars
- N balanced for plant → N<sub>2</sub>O reduction





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# Information System

## Soil Map

- Observation point
- Soil Map (detail scale, review, exploration)

## Agroclimate Map

- Agroclimate Resource Map
- Agroclimate
- Hidrology Map
- *Real time* climate data

## Thematic Map

- Rice field map
- P and K map
- Fertilizer recom map
- Dry land map
- Swamp map
- Peat map
- Land slide map
- Comodity area map

## Residual Map

- Heavy metal residue
- Pesticide residue

## Suitability Land Map

- Crops Food: rice, corn, soybean
- Horti: Shallot and Chili
- Estate Crop: palm and cacao
- Fodder Forage

## Information System

- Cropping Calendar
- SisCrop 2.0
- Agroclimate
- AgriDSS

# INDONESIAN SOIL AND AGROCLIMATE INFORMATION (“INASOIL”)

<http://awr.bsip.pertanian.go.id/>



**SI KATAM TERPADU**  
Musim Kemarau (MK) April - September 2022

English Version  
Versi Ringan  
Lahan Rawa

Kalender Tanam | Standing Crop (SC) | Pupuk & Varietas | Alsintan & Ternak | Iklim & Prediksi | Dampak Perubahan Iklim | Info-BPP | Info Pendukung | Forum Diskusi

Peta Interaktif | Data Interaktif | Grafik | Katam Rawa

Ketik kata kunci & klik Cari | Cari | Reset | Musim/Tahun : **MK 2022** | Kolom : Katam Padi dan Palawija | Komoditas : Padi Sawah dan Palawija

**Pilih Administrasi**  
ADMINISTRASI  
NASIONAL  
BALI DAN NUSA TENGGARA  
BALI  
NUSA TENGGARA BARAT  
NUSA TENGGARA TIMUR  
JAWA  
BANTEN  
DKI JAKARTA  
JAWA BARAT  
BANDUNG  
BANDUNG BARAT  
BEKASI  
BOGOR  
CIAMIS

**PETA KATAM TERPADU TINGKAT KAB. BANDUNG, PROV. JAWA BARAT MK 2022**  
Peta | Satelit  
  

- Padi Sawah : 0 ha
- Jagung/Kedelai : 941 ha
- Kedelai : 0 ha
- Prediksi sifat hujan : ATAS NORMAL
- Prakiraan Awal Waktu Tanam Padi Sawah : SESUAI
- Prakiraan Awal Waktu Tanam Palawija : JUN II-III

[Cetak Dokumen \(PDF\)](#) | [Lokasi & Arah BPTP](#)

**GRAFIK PRAKIRAAN AWAL WAKTU TANAM TK. KAB. BANDUNG, PROV. JAWA BAR...**  
  
JUN II-III | 1/3  
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# KATAM TERPADU)

## (Integrated Cropping Calendar)

**SISTEM INFORMASI KALENDER TANAM TERPADU** Versi 3.3  
Musim Kemarau (MK) April - September 2022

BMKG | LAPAN | BIG | BPS

**MENU UTAMA**  

Kalender Tanam

Standing Crop

Pupuk dan Varietas

Alsintan & Pakan Ternak

Dampak Perubahan Iklim

Kekeringan Pertanian

SI Katam Terpadu merupakan alat bantu yang memberikan pedoman waktu tanam, rekomendasi pupuk dan varietas untuk tanaman padi, jagung, dan kedelai. Sistem ini juga memuat informasi tegakan tanaman padi (Standing Crop) terkini dan teknologi pendukungnya.

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