



BADAN PUSAT STATISTIK

RADAR PADI



Innovation in Achieving Accurate Paddy Statistics
using Area Sampling Frame Method to Support Food Policy

BACKGROUND



One of the government's work program is **MANIFESTING FOOD SOVEREIGNTY** that is in line with the goal 2 of SDGs:

ZERO HUNGER

→ Requires accurate food crop statistics



The accuracy of official rice statistics are still weak.

Innaccuracies of rice production statistics in Indonesia have been suspected since 1997.

Reason: rice harvested area data is suspected to be **OVERESTIMATE**.

Previous Method:

Rice
Production

=

Rice
Harvested
Area

×

Yield

Using conventional method: *eye estimate*



Need to improve the methodology for calculating rice harvested area statistics using objective measurements, the latest technology, transparent methodology, and up to date → **RADAR PADI using Area Sampling Frame (ASF)**

SOLUTION/INOVATION

NEW METHOD: RADAR PADI*)

Rice
Production

=

Rice
Harvested
Area

×

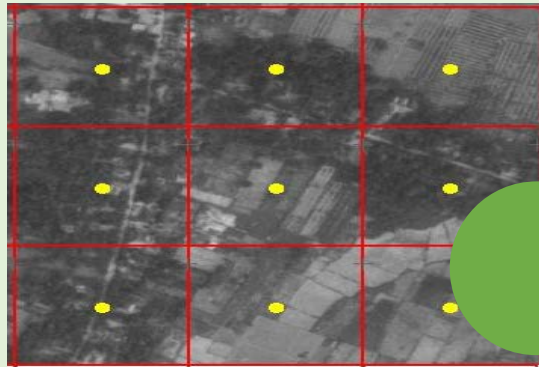
Yield

Rely on **Satellite Imagery** and a **Smartphone**



Utilizing satellite imagery

Construction of rice field sampling frame using map that is resulted from satellite imagery (BIG, LAPAN, Ministry of ATR/BPN)



Lock location

The selected segment coordinates are locked. The enumerator must take a photo of the land condition at the designated coordinates. The aim is to reduce moral hazard.



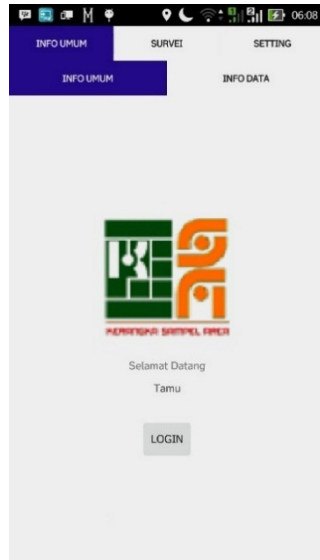
Utilizing Smartphone

The enumerator must go to the designated and observe the paddy growth phase by taking photos using a smartphone so that the results are more accurate.

*)Collaboration of BPS and BPPT, Ministry of ATR/BPN, BIG, LAPAN

OBSERVATION OF RICE GROWTH PHASE ON SAMPLE SEGMENT

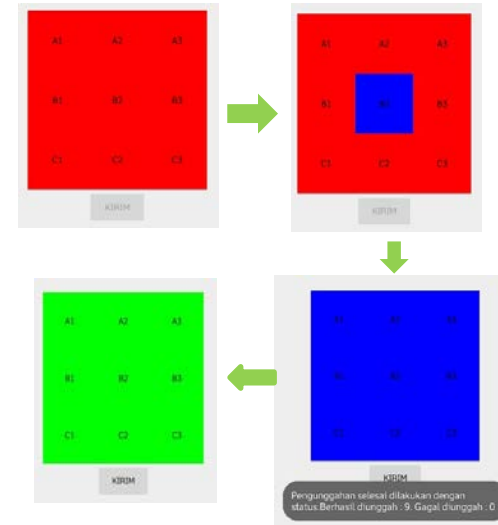
Observation of rice growth phase on sample segment using **android based application**



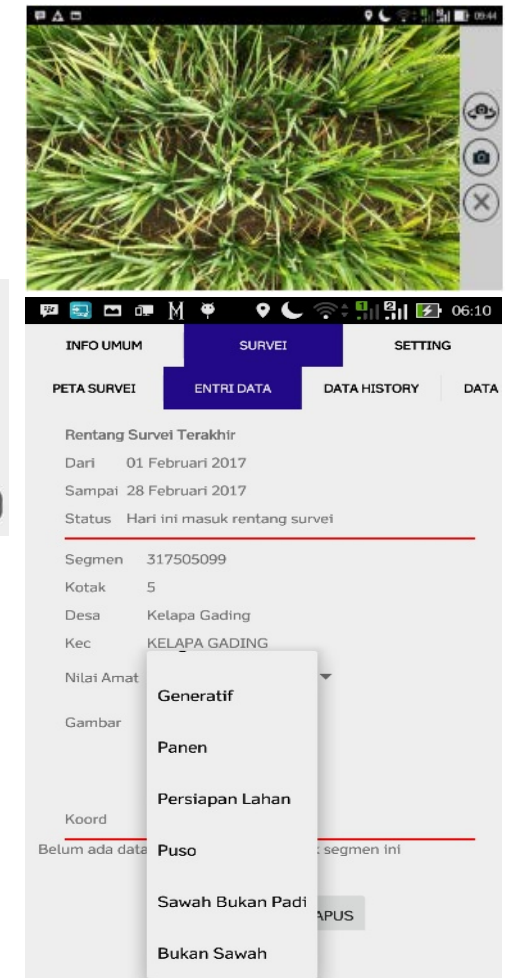
How to Take Photo of Rice Growing Phase on the Observation Point



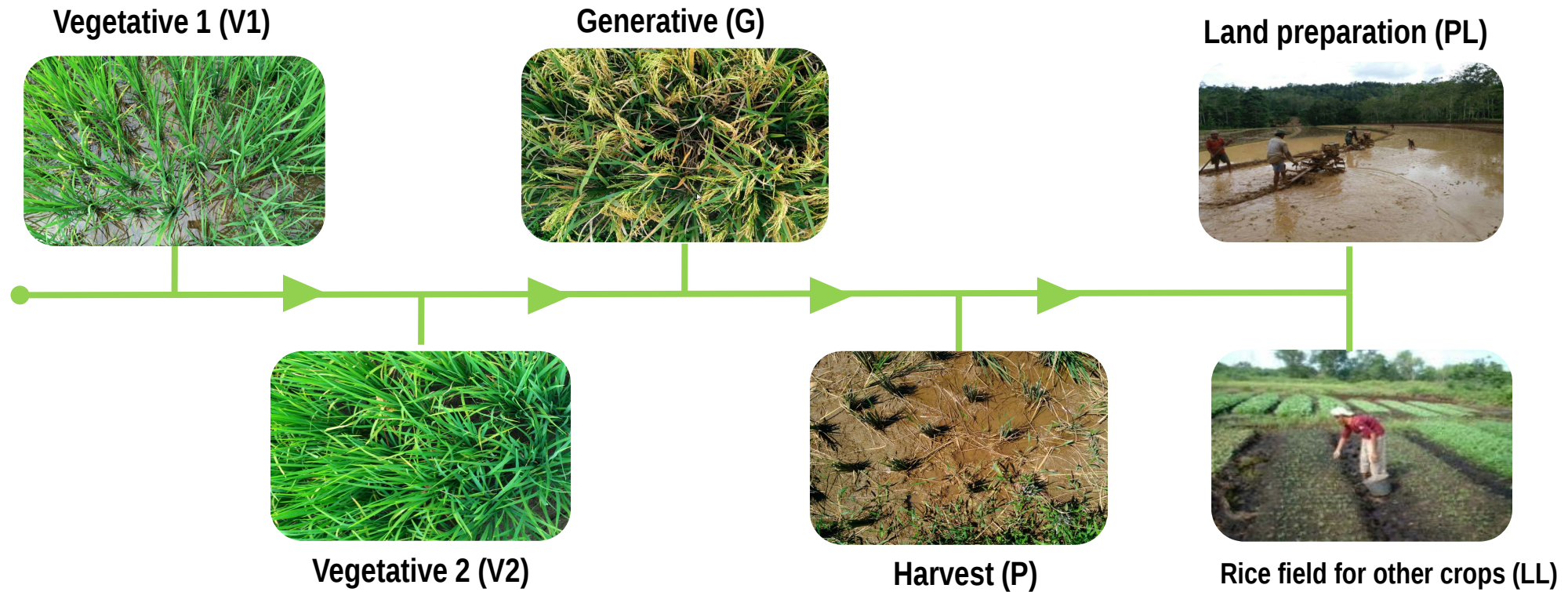
- ❖ Each surveyor will observe 9 observation points for each segment. The **total target segment** throughout Indonesia is 24.223 segments.
- ❖ The total number of observation points in September 2018 observed by surveyors was $24.117 \times 9 = 217.053$ observation points.



The process of Data Recording



VISUALIZATION OF RICE GROWTH PHASE



Others



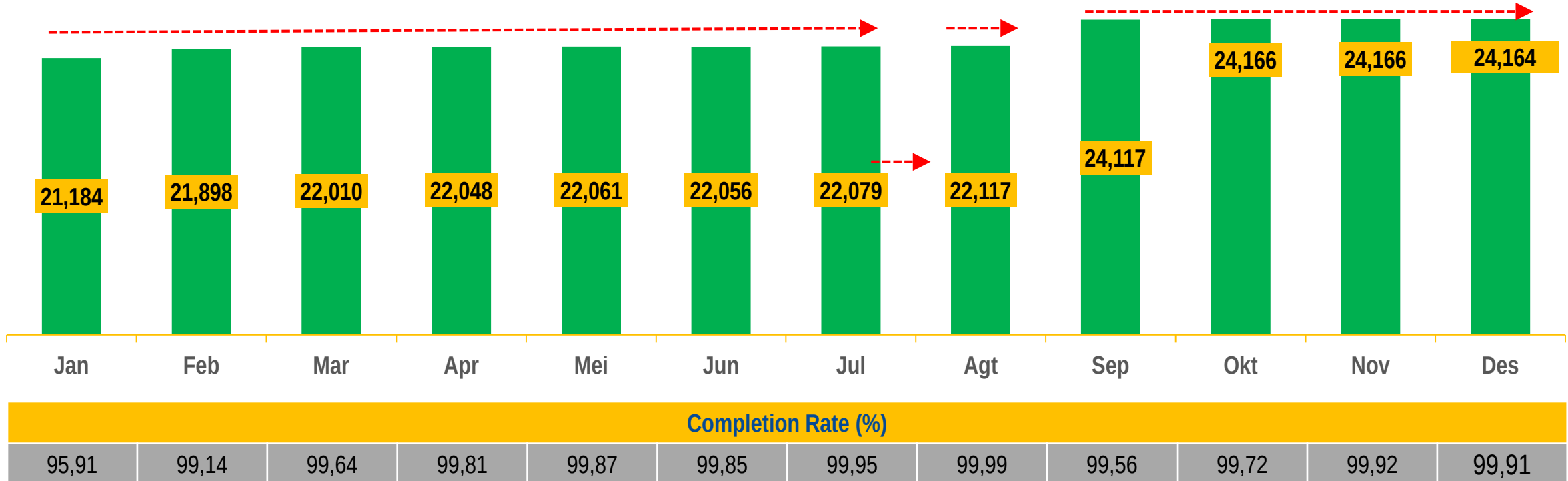
Damaged (PS)



Not rice field

COMPLETION RATE

Number of Segment

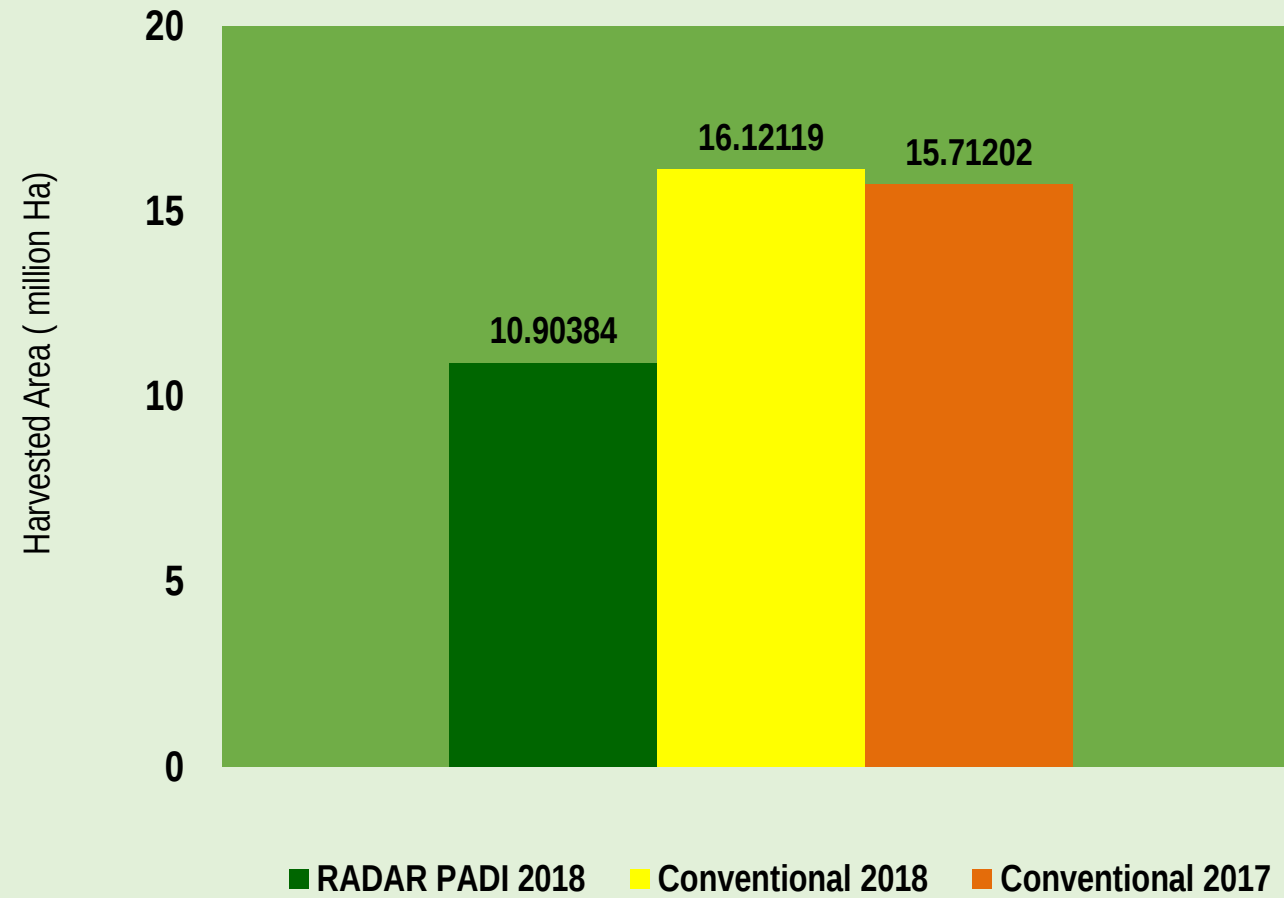


The Number of Segment Target

- Jan-Feb : 22 087
- Mar- July : 22089
- August : 22119
- Sep – Dec : 24185



RESULT COMPARED TO FORMER SURVEY



HARVESTED AREA AND RICE PRODUCTION IN INDONESIA 2018

Press Release No. 83/10/Th. XXI, 24 October 2018

Trend of Harvested Area and Paddy Production In Indonesia, January – December* 2018



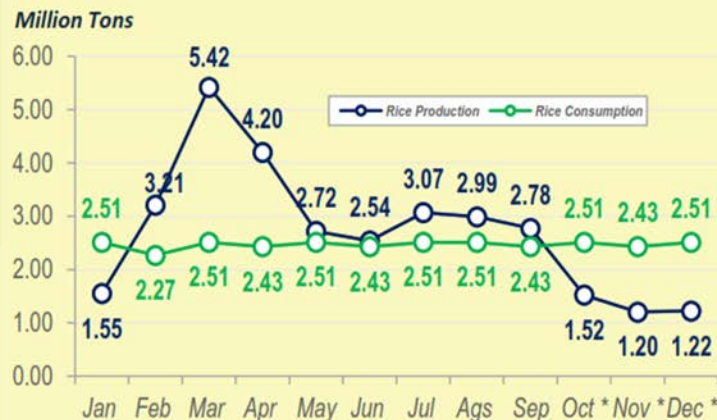
Harvested Area January – December*

10,90
Million Hectares

Paddy Production
January – December*

56,54
Million Tons
Of Dry Unhasked Paddy

Comparison of Rice Production and Consumption In Indonesia, January – December* 2018

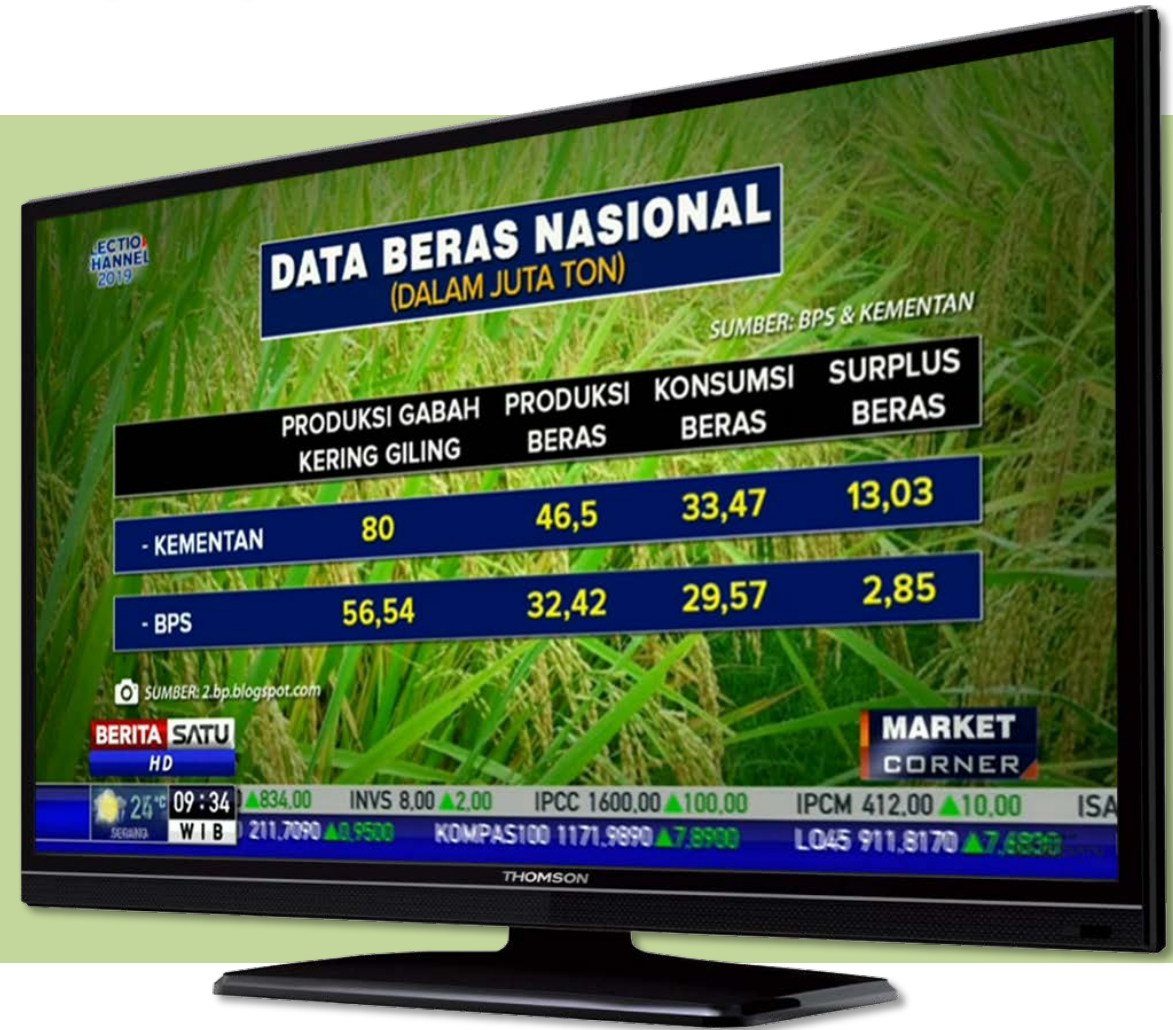


Rice Production Surplus
January – December*

2,85
Million Tons of Rice

*) October – December is a potential number

IMPLEMENTATION



Notes:

BPS used RADAR PADI,
Kementan (Ministry of Agriculture) used conventional
method

IMPACT OF “RADAR PADI”

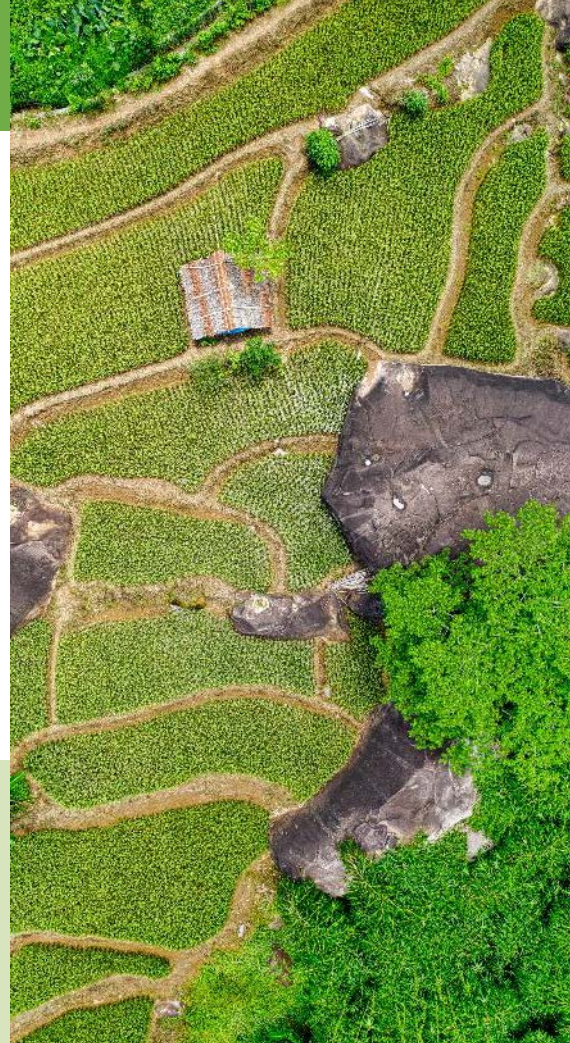
BEFORE

1. The collection of harvested area data: conventional method (**eye-estimate**)/subjective
2. Business process: rely on administrative reports paper-based through several stages.
3. The data accuracy is weak and often reap polemics.
4. Frequency of data availability: *sub-round* (every 4 months)
5. Future planning for policy: rely on forecasting results
6. Policy costs are economically and politically expensive



Spatial Information
UNAVAILABLE

LAPORAN LUAS TANAMAN PADI									
SP-PADI									
Formulir Laporan Luas Tanaman Padi									
No. 1									
2. Luas Tanaman Padi									
3. Luas Tanaman Padi									
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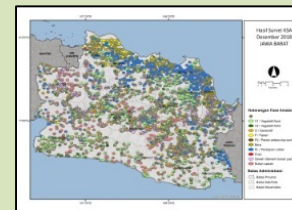


AFTER

1. The collection of harvested area data: based on **objective measurement**
2. Business process: utilizing the latest technology (android-based) → data availability are faster
3. Increasing data accuracy and alleviating polemics.
4. Frequency of data availability: monthly
5. Future planning for policy: rely on the potential of rice harvested area data for the next 3 months as an **early warning system**.
6. Policies become more targeted.

Spatial Information

- ✓ The location of rice cultivation
- ✓ Rice growth phase



SUSTAINABILITY

Implementation continues every month

Periodic evaluation
(*monitoring*)

The development of machine learning utilization to detect the rice growth phase automatically

The development of application by enriching features



REPLICATION

Since 2019 it has been replicated to provide data of national maize harvested area → expected to be more accurate and timely

Potential to be replicated for other commodities, such as other food crops, estate crops, and horticultural commodities



APPRECIATION

“The ending of rice data polemics”



Jokowi Pastikan Acuan Data Beras Hanya dari BPS

ANDRI DONNAL PUTERA
Kompas.com - 24/10/2018, 16:09 WIB



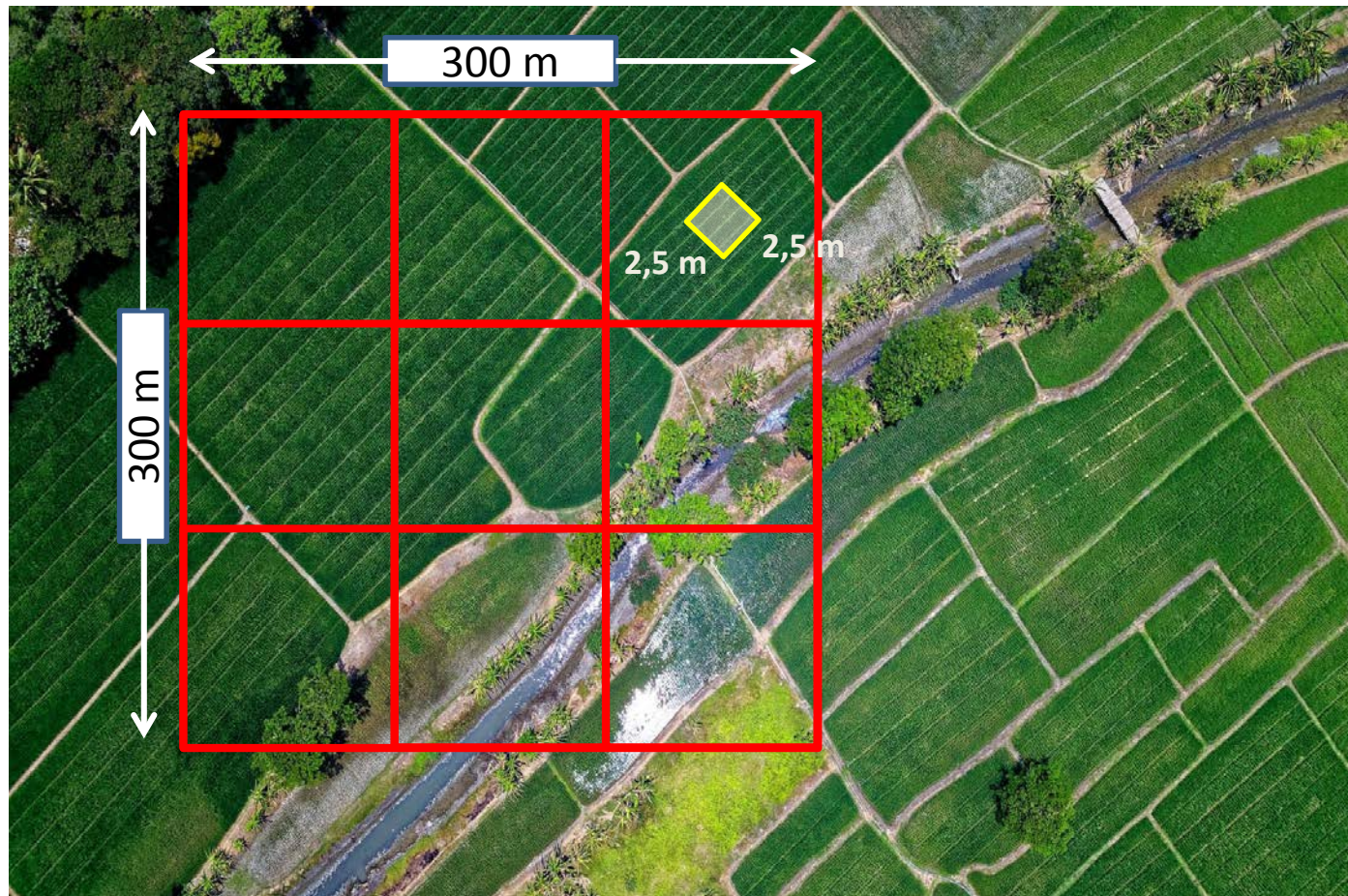
“The president makes sure the rice data reference is only from BPS”

Presiden Jokowi saat membuka Trade Expo Indonesia (TEI) ke-33 Tahun 2018, di ICE, BSD, Tangerang Selatan, Rabu (24/10/2018).
(KOMPAS.com/Isamuddin)

CROP-CUTTING SURVEY BASED ON ASF RESULTS

Since September 2018, the crop cutting survey for **rice** commodities have used **the area approach based on ASF results**

illustration of rice crop cutting survey plot based on ASF result



AWARDS



RADAR PADI became **Top 99** of public service innovation competition 2019 and in the selection process towards Top 45



TOP 99 INOVASI PELAYANAN PUBLIK Di Lingkungan Kementerian		
KEMENTERIAN PENDAYAGUNAAN APARATUR NEGARA DAN REFORMASI BIROKRASI		
	TOP 99 dari Lembaga	TOP 99 dari
Kementerian Sekretariat Negara	Badan Pusat Statistik	Pemerintah Provinsi Bali
17. BAKUL RINGPASS (Gerbak Kuliner sebagai Jaring Pengaman Sosial)	20. RADAR PADI: Raih Data Akurat Padi dengan Metode Karangka Sampel Area untuk Mendukung Kebijakan Pangan	25. Pengembangan Pupuk Organik Sipadu Mendukung Pengentasan Kemiskinan
Kementerian Sosial	Lembaga Administrasi Negara	Pemerintah Provinsi Daerah Istimewa Yogyakarta
18. PINTER MELATH ANAK KOBRA (Pendidikan Karakter melalui Terapi Psikososial bagi Anak Korban Radikalisme)	21. Laboratorium Inovasi	26. Menggapai Mimpi Sahabat Rimba - Kolaborasi Pemerintah dengan Masyarakat dalam Pemanfaatan Jasa Lingkungan Wisata Alam
19. SINS-HC: Sistem Data Terpadu Nasional Pengentasan Kemiskinan	Kepolisian Negara Republik Indonesia	27. SEPATU JOLIFA (Sistem Perpustakaan Terpadu Jogja Library for All)
	22. BARISAN SIAP (Bhabinkeambinas Respons Pengabdian Setiap Pemasyarakatan Publik)	Pemerintah Provinsi DKI Jakarta
	23. SKCK Online dan SKCK Kalling Online Polresta Sidoarjo	28. SI MAS GESIT (Sistem Manajemen Administrasi Kependudukan)



BADAN PUSAT STATISTIK

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THANK YOU



“What gets measured, gets managed” - Peter Drucker