



29 October, 2021
AWCI session

ACTIVITIES OF INDONESIA FOR STRENGTHENING WATER-RELATED DISASTER RESILIENCE AND ACHIEVING SUSTAINABLE DEVELOPMENT UNDER CLIMATE CHANGE

1. Ministry of Public Works and Public Housing (PUPR)
by Dr. Ir. Eko, Director of Technical Development for Water Resources, PUPR
2. National Disaster Management Agency (BNPBB)
by Ms. Aminingrum, Young Expert Disaster Policy Analyst, BNPBB
3. Agency for Meteorology Climatology and Geophysics (BMKG)
by Mr Marjuki, Coordinator for Climate Information Dissemination, BMKG
4. Ministry of Environment and Forestry (KLHK)
by Dr. Dwi Prabowo, Head of Sub Directorate of Planning, KLHK
5. Ministry of Agriculture (MoA)
by Mrs. Risda Sinaga, SP.M.Si., behalf of Director of Agricultural Irrigation, MoA

OUTLINE

- **About IFI platform of Indonesia**
- **National report on the platform activity**
 1. Ministry of Public Works and Public Housing (PUPR)
 2. National Disaster Management Agency (BNPB)
 3. Agency for Meteorology Climatology and Geophysics (BMKG)
 4. Ministry of Environment and Forestry (KLHK)
 5. Ministry of Agriculture(MoA)

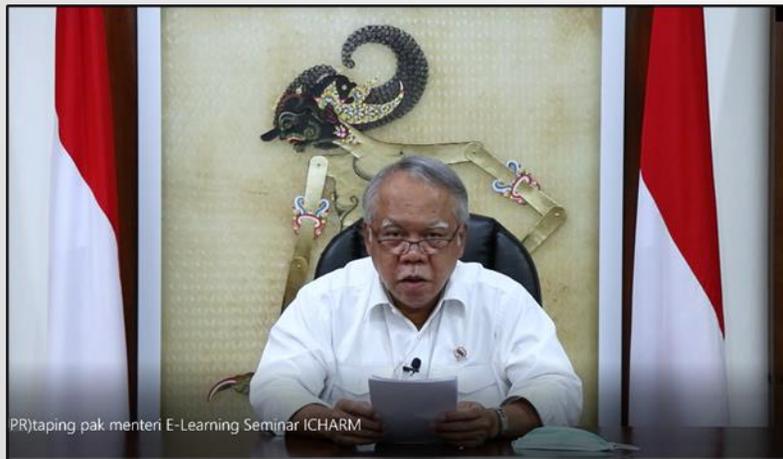


ABOUT IFI PLATFORM OF INDONESIA

- 1) **The International Flood Initiative (IFI)** is a worldwide framework to promote collaboration in integrated flood management among international organizations, including UNESCO, the World Meteorological Organization (WMO), the United Nations Office for Disaster Risk Reduction (UNDRR) and others.
- 2) **The International Centre for Water Hazard and Risk Management (ICHARM)** has served as its secretariat since the establishment of IFI in 2005. In Indonesia, the IFI Platform on Water Resilience and Disasters was established by relevant stakeholders at 5th August 2019.
- 3) ICHARM analyzes the present and future **water related disaster risks impacted climate change** and studies effective adaptation measures in Bengawan Solo River Basin.
- 4) **Core member** of the IFI Platform is:
 - ✓ **PUPR** : Ministry of Public Works and Housing, Indonesia (DGWR: Directorate General of Water Resources)
 - ✓ **BNPB** : National Disaster Management Authority, Indonesia
 - ✓ **BMKG** : Meteorological, Climatological, and Geophysical Agency, Indonesia
 - ✓ **KLHK** : Ministry of Environment and Forestry, Indonesia
 - ✓ **MoA** : Ministry of Agriculture, Indonesia

THE E-LEARNING AND WORKSHOP

- In order to **strengthening disaster resilience and achieving sustainable development under climate change in Indonesia**, ICHARM with Japanese government agencies **implemented e-learning and workshop** which is still running until November 5, 2021. The Opening Session of this activity on October 5, 2021 was opened by a video message from Minister Basuki and was attended by 70 Participants (Indonesia 49, Japan 21).
- In this e-learning, teachable how fostering abilities of **understanding, analyzing, and projecting the climate change** through the case study of the Solo river basin's climate change impacts. In general, this e-learning aims to strengthen cooperation among government agencies and operators in Indonesia.

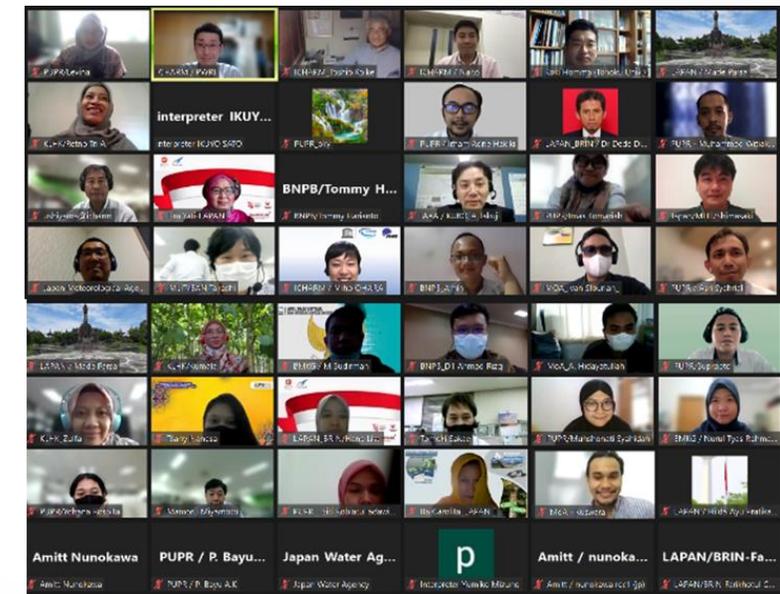


Video message from the Minister Basuki, PUPR

E-learning & Workshop of Indonesia
for strengthening Water-related Disaster Resilience and
Achieving Sustainable Development under Climate
Change by ALL
-as a part of Platform on Water Resilience and Disasters -

Opening Session Guidance
5th October, 2021
9:00 – 12:00 WIB / 11:00 – 14:00 JST

Prof. KOIKE showed "Objectives of e-Learning Workshop"





INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY PUPR

- National development with climate change adaptation agenda aims to **create resilience systems** against the current shock of climate variability (climate anomalies) and anticipate future impacts of climate change.
- Infrastructure resilience to natural disasters and global climate change **must be a priority and integrated program**, through synergy and cooperation between stakeholders and public works both at the central and regional levels.
- PUPR support coping with flood infrastructure damage as a result of climate change is done through **real-time observation, data management and engineering and infrastructure development**.
- All parties must begin to **identify plausible future climate scenarios** to understand how relevant factors such as sea levels and the intensity of projected extreme events change. Using this information, we can identify the necessary changes to the design, construction, and maintenance of the structure. Development practitioners must understand the vulnerability of various structures, based on location, design, and construction in addition to the impact of hydrology, environment, and ecosystems.
- **Evaluate non-climatic factors**, such as land use changes, to understand how they can improve or worsen flood effect.



PRIORITY ACTION ON CLIMATE CHANGE

- **Modernization of irrigation** to improve the effectiveness and efficiency of irrigation water supply to support food security;
- Improved implementation of **Smart Water Management System** in the operation and management of water resource infrastructure to improve the effectiveness and efficiency of water use, one of which supports Hydrological Modernization;
- Increased application of the use of information and communication technology for **Early Warning Systems (EWS)** for the anticipation of flood, drought and landslide disasters especially in urban areas for the rivers of urban areas and other strategic areas prone to flooding.
- **National standar and guidance review** of water resources that are responsive to climate change. Examples of design discharge changes for flood control infrastructure and wave height for coastal safety infrastructure design.
- The use of **Information and Communication Technology (ICT)** to optimize the "conjunctive use" of surface water and groundwater for the provision of raw water in areas that often experience drought;
- Development of **construction technology** that is resilient to disasters;
- Water resource infrastructure must be **designed and built resilient** against disasters.



INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY BNPB

inaRISK
how risky is your place?

<http://inarisk.bnpb.go.id>

- InaRISK is an online disaster risk assessment information system based on user friendly GIS server.
- InaRISK is developed for the public that can be utilized for planning analysis and initial identification for risk to the community, check risk position, prevention action assessment such as building reporting



Roadmap to Develop Prevention Dashboard 2020-2024 for early action



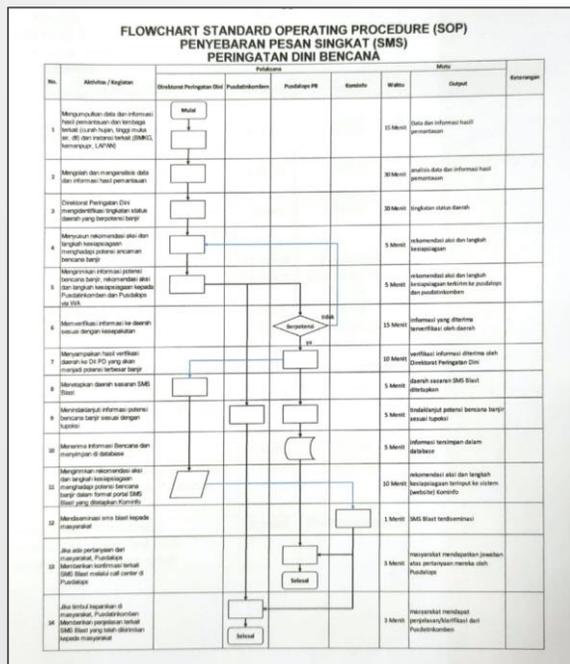
Integrated Program on Prevention and Mitigation





INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY BNPB

- Early warning SMS Protocol for dissemination early warning
- Strengthening collaboration of BMKG, PUPR, PJT, Province and Regencies on flood Coordination
- Participatory Mitigation on Peatland program to unburning methods
- Resilience Villages Program to enhance preparedness action of communities



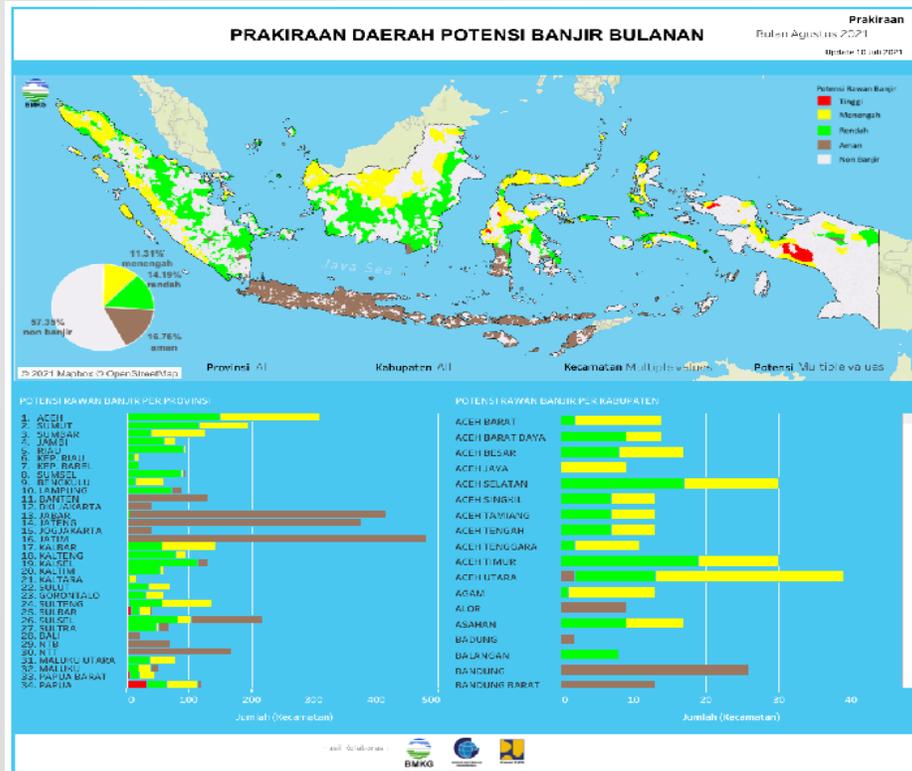
Status	Penanggung Jawab	Kegiatan	Detail kegiatan per lokasi (langkah pelaksanaan)	Kisaran waktu
Awal	BPBD Provinsi	1. Menerima atau memantau Informasi peringatan banjir dari BNPB 2. monitoring proses evaluasi dan melakukan pendampingan jika diperlukan (jika bencana meluas)	1. Melalui WAG BNPB ("peringatan dini bencana", "pusdalops BNPB") dan Web Site BNPB 2. Melalui WAG ...	
	BPBD Kabupaten	1. Menerima Informasi prakiraan dari BPBD Provinsi 2. Memantau Informasi dari BBWS 3. Memantau Informasi (cuaca harian dan Informasi Berbasis Dampak) dari BMKG 4. cek peringatan mempertimbangkan informasi dari tim siaga dan masyarakat 5. Mengaktifasi sirine tanda ancaman bencana awas 6. Melakukan pendemoan proses evaluasi jika	1. Melalui WAG ... 2. Cek Informasi PDA hidrologi pada laman https://hidrologi.bbws-bsolo.net/tma dan WAG... (yang beranggotakan BPBD dan BBWS) 3. Mengakses pada laman Signature.bmkg.go.id (atau web site BMKG lain di tingkat lokal yang memuat informasi peringatan 3 harian) dan WAG... 4. Dashboard Pencegahan BNPB	

Status	Penanggung Jawab	Kegiatan	Detail kegiatan per lokasi (langkah pelaksanaan)	Kisaran waktu
Aktivitas Rutin	BPBD Provinsi	1. Menerima atau memantau Informasi peringatan banjir dari BNPB 2. Memantau Informasi dari BNPB tentang peringatan ke BPBD Kabupaten/Kota	1. Melalui WAG BNPB ("peringatan dini bencana", "pusdalops BNPB") dan Web Site BNPB 2. Melalui WAG ...	
	BPBD Kabupaten	1. Menerima Informasi dari BPBD Provinsi 2. Memantau Informasi dari BBWS 3. Memantau Informasi (cuaca harian dan Informasi Berbasis Dampak) dari BMKG 4. Memantau Informasi dari BNPB	1. Melalui WAG ... 2. Cek Informasi PDA hidrologi pada laman https://hidrologi.bbws-bsolo.net/tma dan WAG... (yang beranggotakan BPBD dan BBWS) 3. Mengakses pada laman Signature.bmkg.go.id (atau web site BMKG lain di tingkat lokal yang memuat informasi peringatan 3 harian) dan WAG... 4. Dashboard Pencegahan BNPB	
	BMKG	1. Menyampaikan informasi cuaca harian 2. Menyampaikan Informasi Berbasis Dampak	1. Website/WAG "..."/Medos lainnya 2. Mengakses pada laman Signature.bmkg.go.id	Near Real time
	BBWS	1. Menyampaikan Informasi Hidrologi (Tinggi Muka Air dll)	1. WAG "... " atau mengakses pada laman https://hidrologi.bbws-bsolo.net/tma	Near Real time
	Tim Siaga dan Masyarakat	1. Menerima informasi pemantauan dari pusdalops BPBD 2. Melakukan koordinasi rutin dan melaporkan upaya mitigasi bencana banjir dan kesiapsiagaan (Berhenti bersui, geladi dll).	1. Melalui WAG "..." 2. Melalui WAG "... " atau HT	

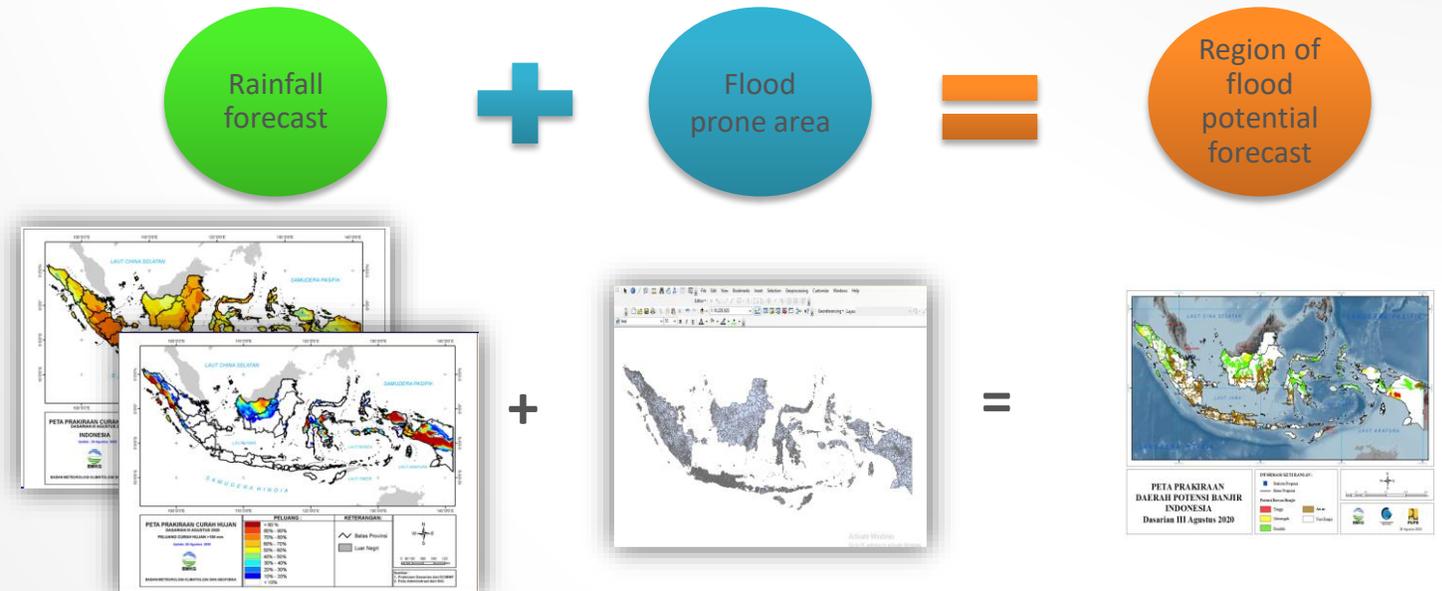


INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY BMKG

Information of region which have high potential of flood, based on monthly and decade rainfall forecast



<http://iklim.bmkg.go.id>

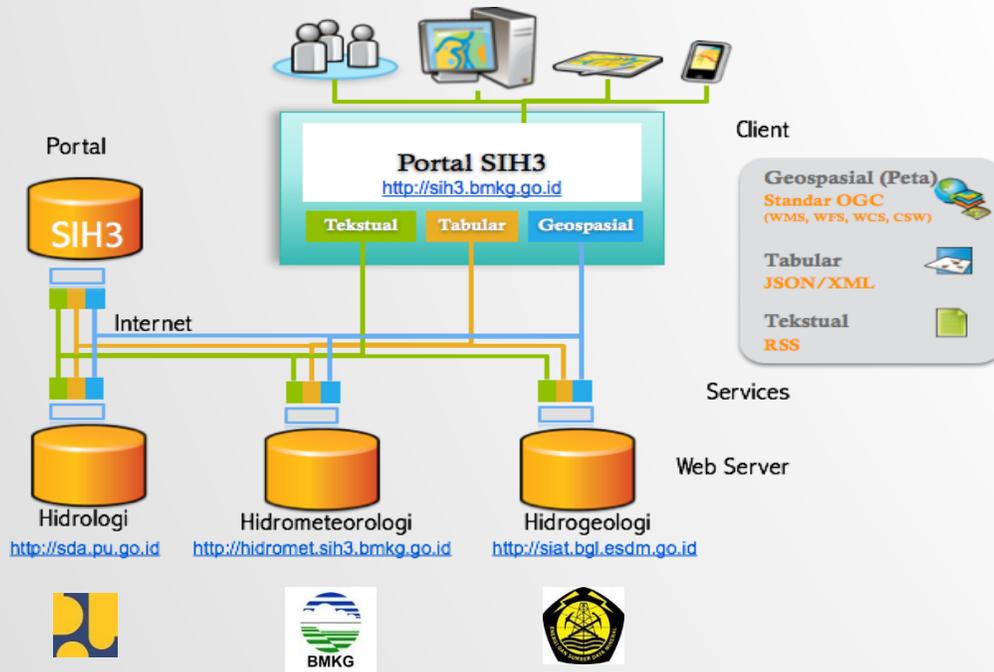


*) using GIS overlay process



INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY BMKG

Sistem Informasi Sumber Daya Air Nasional (PORTAL SIH3)



BMKG in collaboration with PUPR & ESDM, since 2013 developed Information System for Hydrology, Hydrometeorology & Hydrogeology (SIH3).

BMKG provides hydrometeorological data/information in the form of BMKG's data clearing house. PUPR and ESDM can then access and share the/their data through the data clearing house.

Hydrometeorological data/ information are presented and visualized as a gallery of maps, news, articles and any documents which has been agreed by the three agencies.



INTRODUCTION OF COUNTERMEASURES FOR CLIMATE CHANGE BY KLHK THROUGH LANDSCAPE GOVERNANCE

- Annual high rainfall intensity has occurred in Indonesia
- Indonesia is composed of hilly and mountainous terrain. The situation affects poor water retention in the terrestrial area
- Climate change affects water condition instability including the frequent event of flooding in the wet season and drought in the dry season
- High population growth increase high competition of natural resources including water use for various purposes
- Water scarcity has occurred in some areas of Indonesia islands such as Java, Nusa Tenggara, Bali, Sumatera, and Sulawesi
- Land degradation rate make it worse hydrological condition In Indonesia and numerous hydrometeorological hazard



INTRODUCTION OF COUNTERMEASURES FOR CLIMATE CHANGE BY KLHK THROUGH LANDSCAPE GOVERNANCE

STRATEGIC EFFORT

- Initiate environmental governance through a landscape approach
- Mainstreaming watershed management program in mitigating hydrometeorological hazard (flooding and landslide) and water scarcity
- Determining forest and land rehabilitation program through revegetation activities and civil work scheme of soil and water conservation measures for improving land quality and its role in soil protection and retaining rainwater and surface runoff
- Developing community engagement and people mobilization in the rehabilitation and conservation processes in terms of improvement of people resiliency in facing climate change



INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY MINISTRY OF AGRICULTURE

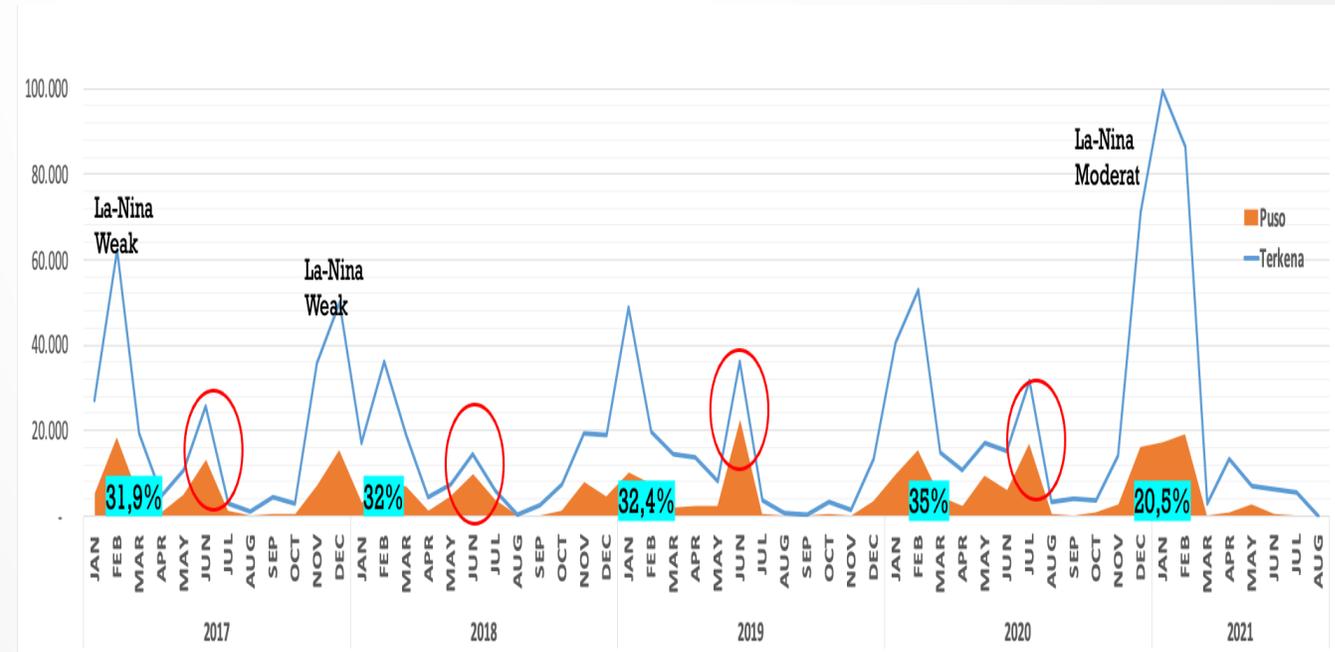
CLIMATE CHANGE

Very Influential factor when managing water resources

Shifts the beginning of the dry or rainy season

Disrupting the agricultural productivity

Flood Impact on Paddy Standing Crop



Climate Change Impact on Agriculture:

1. The losses of production due to the Water-related disasters such as Flood and Drought
2. The increasing number of Pests and diseases for crops as climate change affect
3. Agricultural Infrastructure such as irrigation channel, small dams, etc have been damaged because of climate change
4. At the end, the increasing of farmer losses because of crop failure and uncultivated agricultural area



INTRODUCTION OF COUNTER MEASURES FOR CLIMATE CHANGE BY MINISTRY OF AGRICULTURE

CLIMATE CHANGE ADAPTATION ACTION by MoA

1. Enhancing the Agricultural Infrastructure : irrigation rehabilitation, Pumping Irrigation, Small Dams, etc.
2. Human resources Empowering for agricultural stakeholders for climate change adaptation such as : Climate school, ICHARM E-learning, etc
3. Developing Climate Hazard Map for Agriculture : Flood and Drought Blueprint
4. Developing agricultural Planting calendar enhanced with climate change prediction.
5. Using agricultural Technology such as : weather-resistant seeds, System of Rice Intensification, etc.
6. Agricultural Modernization to improve the efficiency and also optimizing agricultural activities such as Precision Farming, agricultural Machinery, etc.
7. Agricultural Insurance to minimize losses



CONCLUSION

- ✓ Hopefully the results of the workshop and the implementation of e- learning In order to strengthening disaster resilience and achieving sustainable development under climate change in Indonesia that have been delivered from ICHARM in the future can be applied by colleagues from Indonesia in their respective places.