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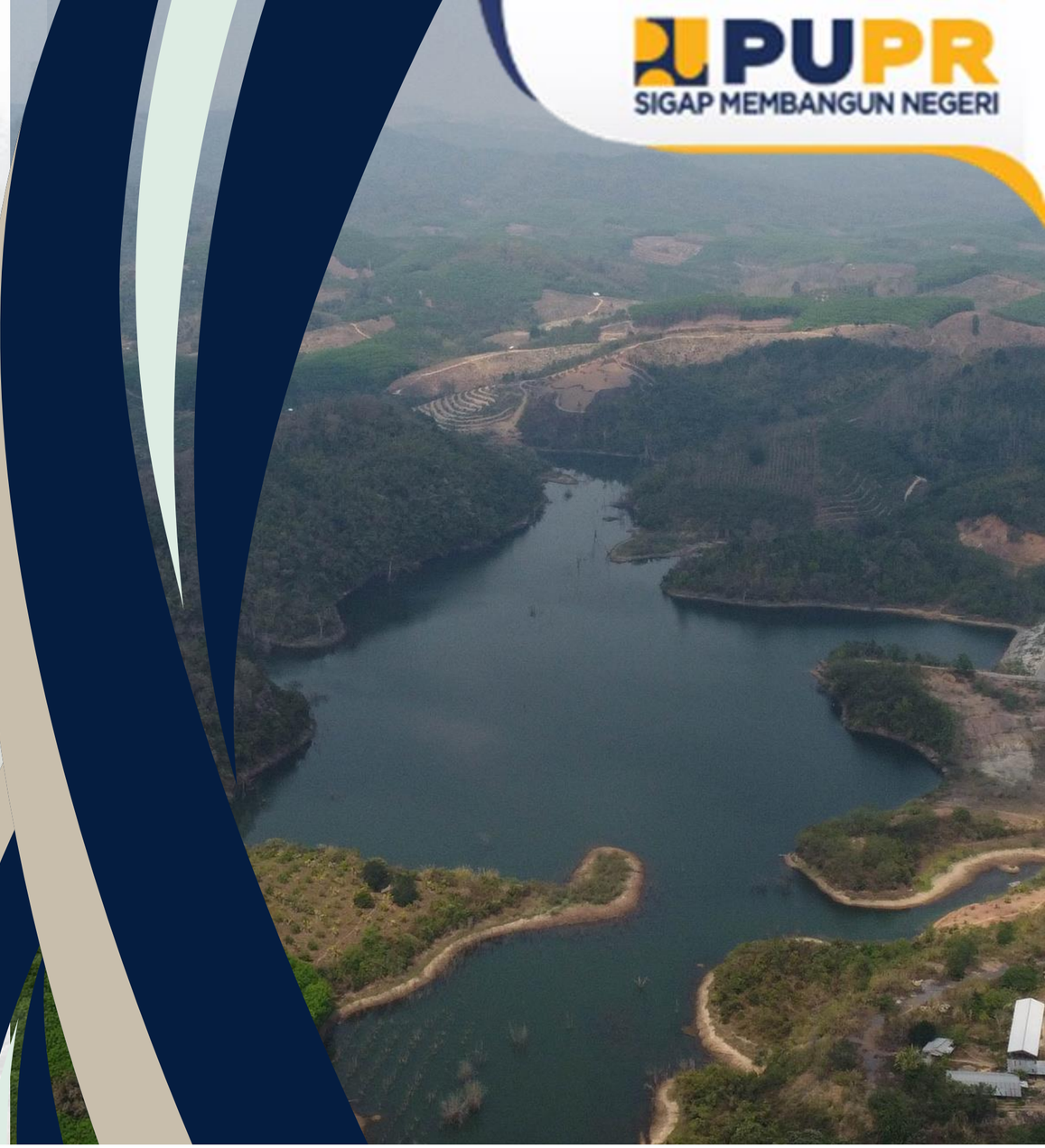
XVIII WORLD WATER CONGRESS

DEVELOPMENT IN WATER RESOURCES MANAGEMENT IN INDONESIA



Presented by:

Firdaus Ali, Ph.D.

Senior Advisor to the Minister of Public Works and Housing Indonesia in Water Resources Management
Founder and Chairman of Indonesia Water Institute
Lecturer and Researcher at Environmental Engineering Program Study Universitas Indonesia

XVIII World Water Congress
International Water Resources Association(IWRA)
Beijing, China | September 11-15, 2023

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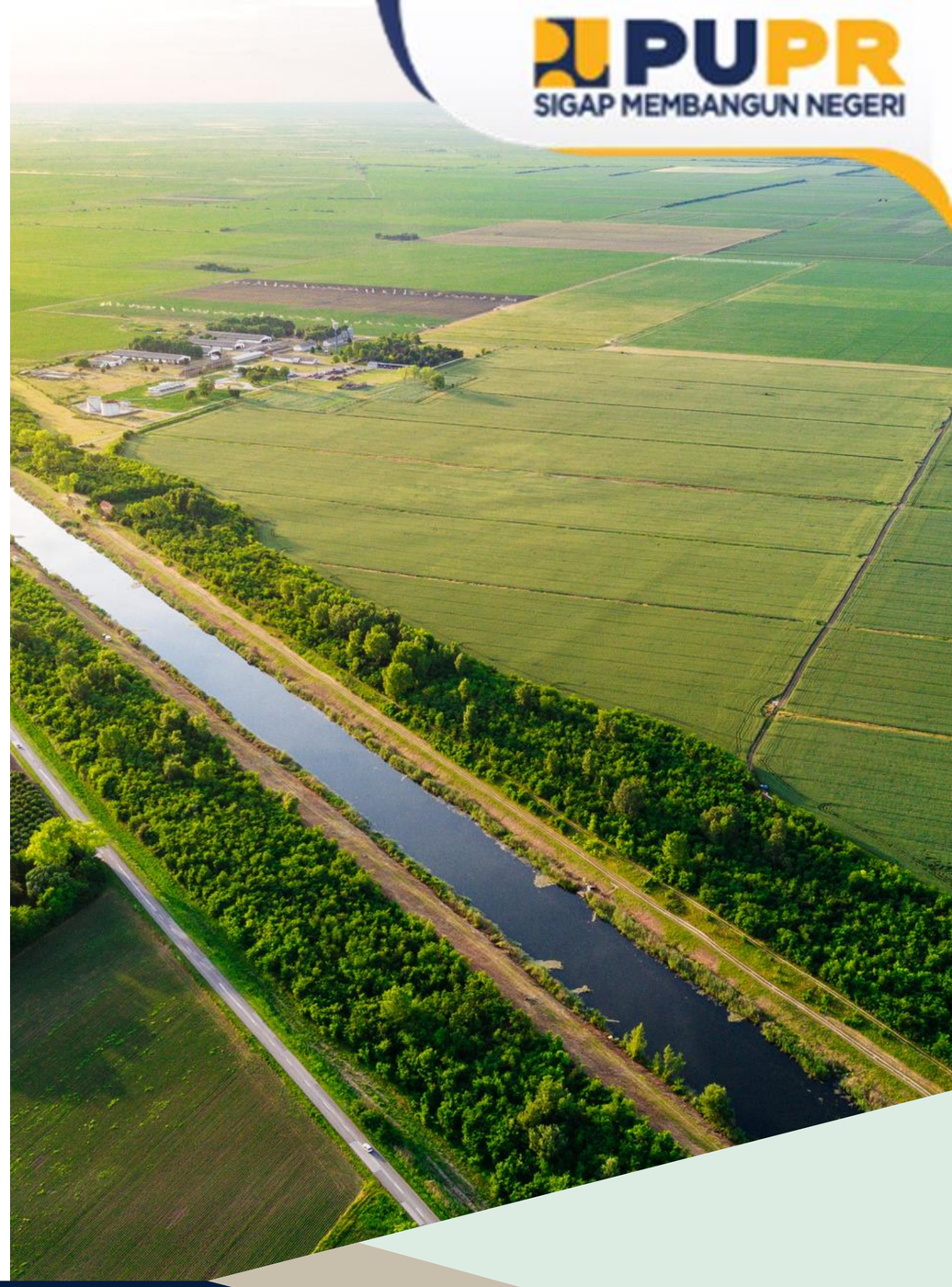
Indonesia's Water Resources and Challenges

Indonesia has an abundance of water resources, including rivers, lakes, and groundwater, but it also faces challenges such as population growth, agricultural expansion, climate change, and pollution, which threaten water quality and quantity.



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CHALLENGES OF CIVILIZATION BEFORE AND POST THE COVID-19 PANDEMIC

8 billion people competing for increasingly limited resources while simultaneously generating a pollution burden.

Economic Development & Industrialization
VS
Carrying Capacity and Earth's Carrying Capacity

Adaptation to the New Normal Way of Life

Increased Potential of Hydrometeorological Disaster Risks in the Pandemic Era

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THE CURRENT STATE OF WATER RESOURCE MANAGEMENT

Condition of Water Needs

Water Resources Potential is still idle

Population Growth follows Increasing water demand

Per Capita Water Capacity is low

UU SDA Pasal 23 ayat 2

CONSERVATION

Water Source Protection and Preservation

Water Saving
Quantity Management Of Surface Water And Groundwater

Water Quality Management
Raw Water, Irrigation, Houshold Water

Water Resources Conservation applies to rivers, lakes, reservoirs, swamps, groundwater basins, irrigation systems, water catchment areas, nature reserves, forests and beaches

WATER USE

Water Resources Management
- Zone allocation
- Water Resource Utilization
- Designation Of Water

Water Resources Supply
- Irrigation Water Supply and Household water Supply
- Management of Drainage Systems and Auxiliary Buildings

Uses of Water Resources
Water Resources for water transportation, household needs, agriculture and industry

Water Resource Development
Construction of water resources infrastructure, drainage system, irrigation, clean water and liquid waste disposal system

WATER DAMAGE CONTROL

Prevention

Handling

Recovery

Flood control infrastructure includes;
- Embankment
- Flood Overflow
- Flood Pump
- Dam
- Urban Drainage Improvement

Water Resources Management Stages (Pasal 38)

1. Planning
2. Excecute Construction and Non-Construction Water Resources
3. Operation and Maintenance of Water Resources
4. Monitoring and evaluation of Water Resources

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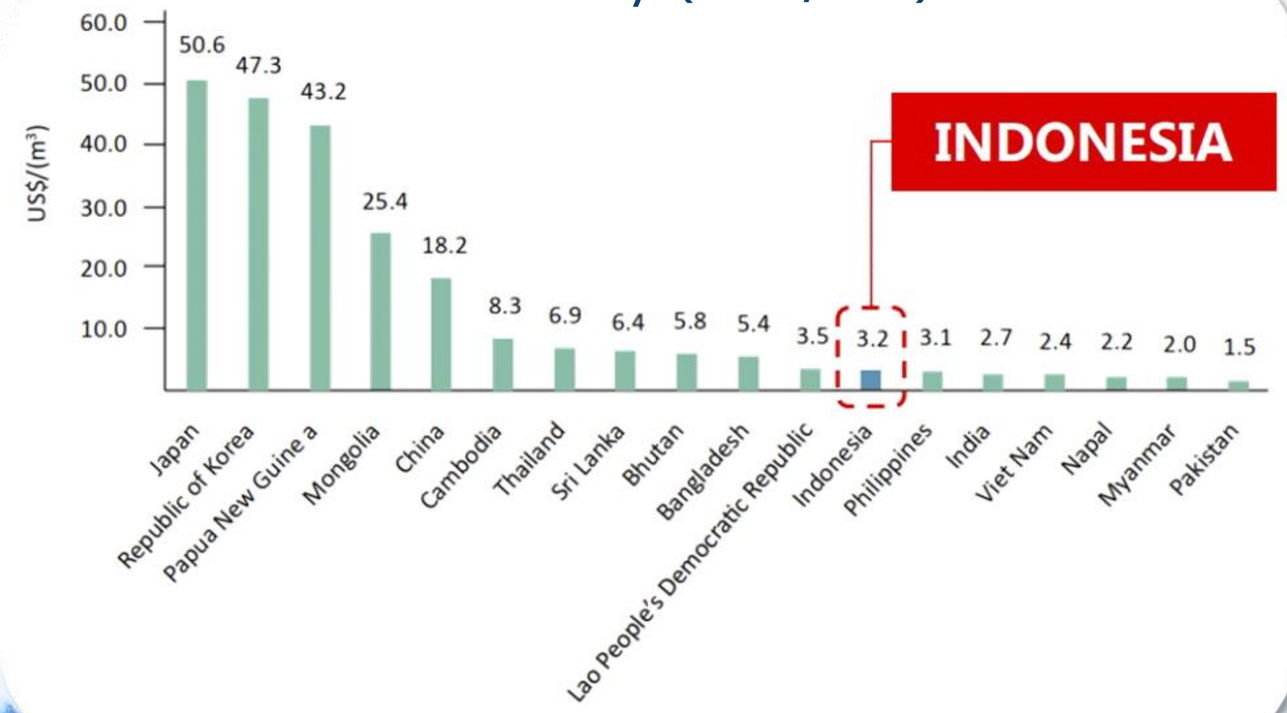
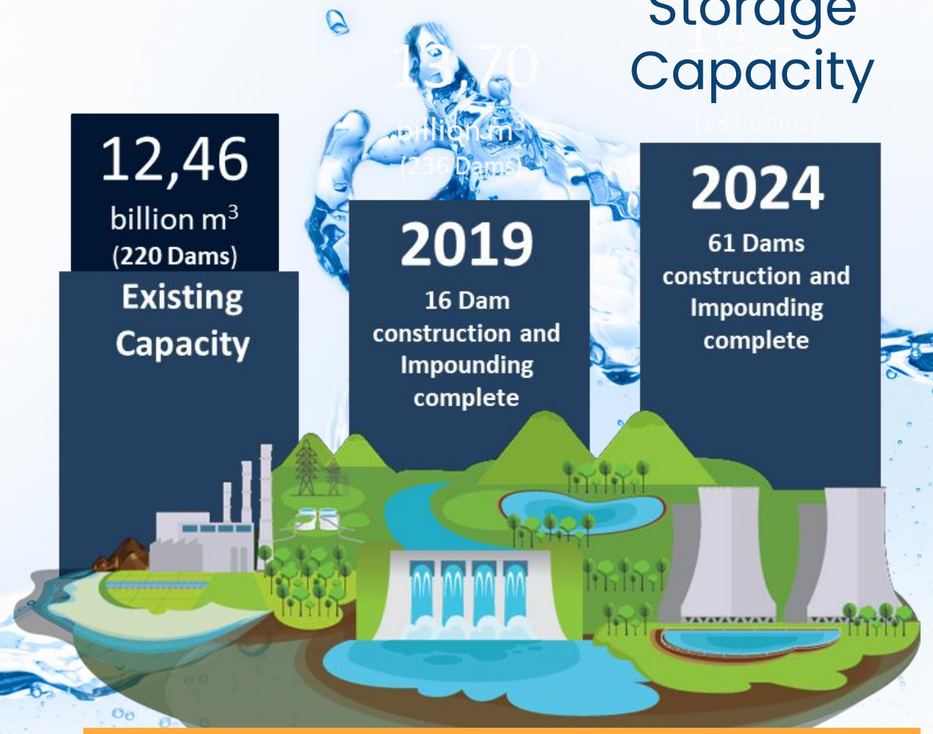
THE CURRENT STATE OF WATER RESOURCE MANAGEMENT

Water Productivity (USD/m3) in ASIA



Storage Capacity



Potency for Availability of water in Indonesia's average of 2.78 trillion m3/year in 128 River Basins

Source: Directorate General of Water Resources, 2022

Indonesia is a country of over 17,000 islands, with a diverse range of landscapes and water resources. However, poor water management has led to challenges such as water shortages, pollution, and flooding. Investing in water resource management is crucial to overcome these challenges.

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ABUNDANT WATER RESOURCES STABLE ECONOMY

NEARLY 5.700 RIVERS IN 131 MAJOR BASIS

IRRIGATE OVER 7,15 MILLION HA

PLENTIFUL RAINFALL ~2.800 MM PER YEAR

AIDED BY A NETWORK OF 2.200 DAMS

WITH 37 HYDROPOWER DAM ACCOUNTING FOR 8% OF INSTALLED GENERATION CAPACITY

GDP GROWTH : AVERAGING 5,0% PER YEAR

POVERTY RATE, IN TWO DECADES, REDUCED BY HALF TO 9,8%

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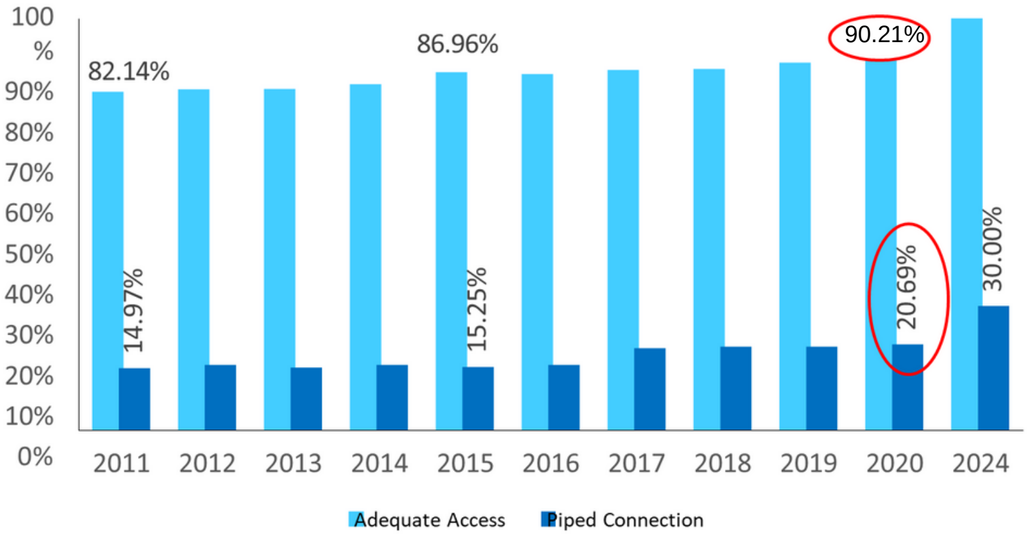
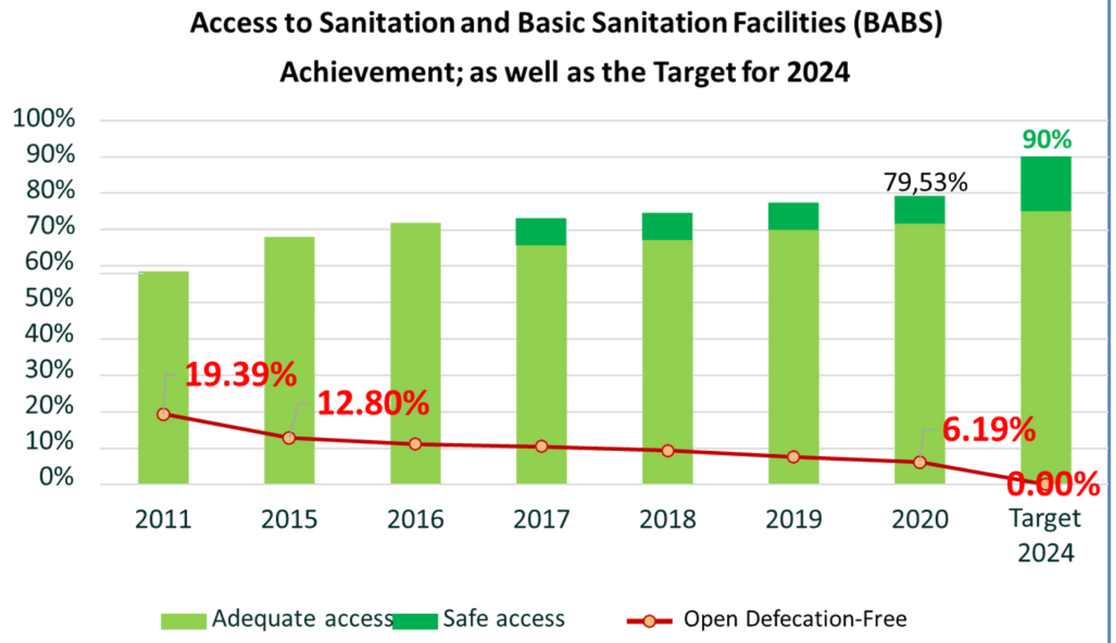
ACHIEVEMENTS IN DRINKING WATER AND SANITATION DEVELOPMENT



Achievement of access to safe drinking water increases by +1% per year

The growth rate of piped access did not reach 0.52% per year in the last 11 years (2011-2022)



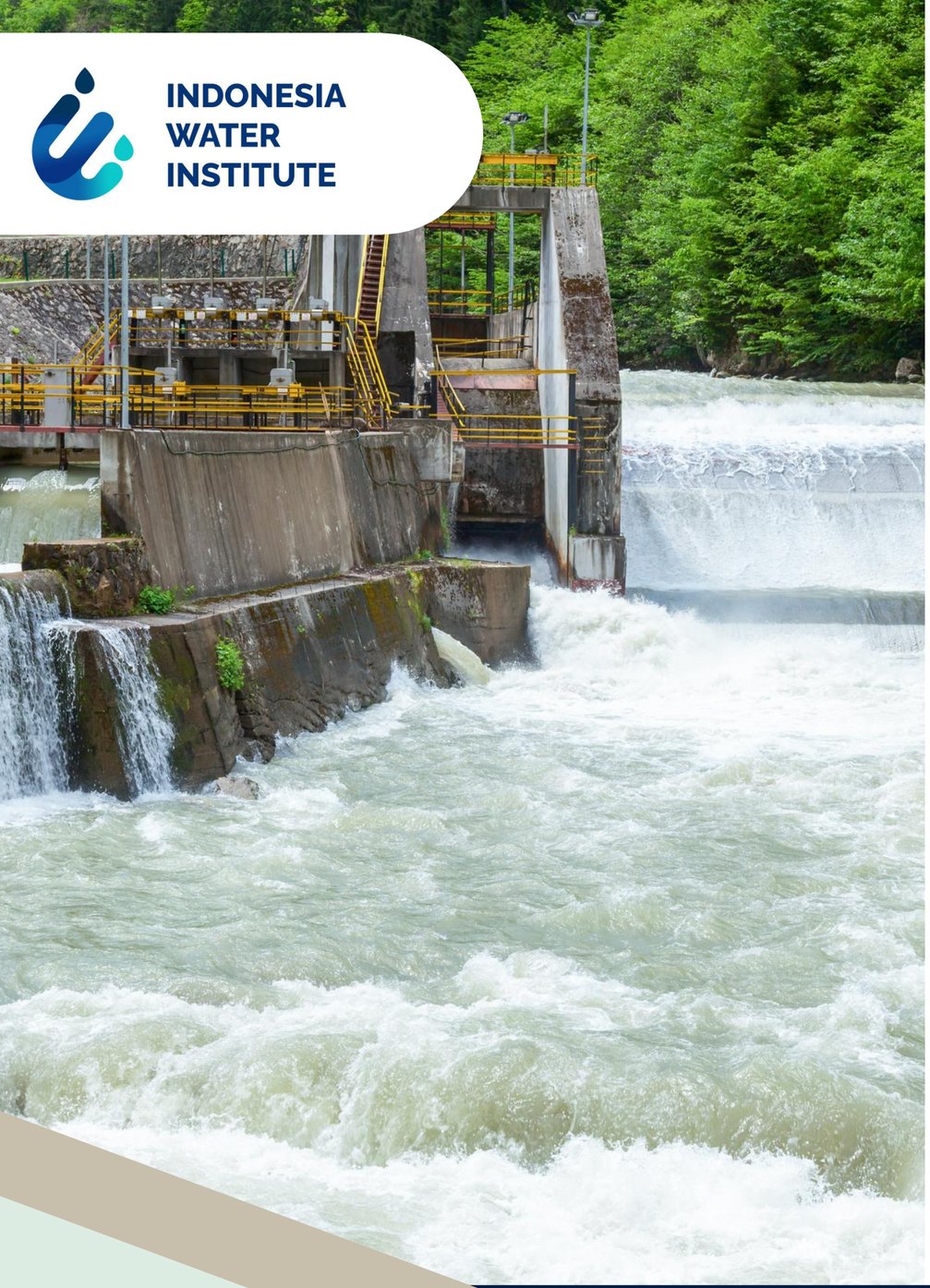
Average increase in access to proper sanitation (2011-2020): 2.35% per year

Average decrease in the rate of open defecation practices (2011-2020): 1.2% per year

NEW DIMENSION OF SDGS FACING THE CHALLENGES IN WATER SUPPLY AND SANITATION SECTOR :

The most sustainable and efficient way for the investment:
MINIMIZE RESOURCE CONSUMPTION AND FOCUS ON RESOURCE RECOVERY

CIRCULAR ECONOMY



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GOVERNMENT STRATEGIES AND POLICIES FOR SUSTAINABLE WATER MANAGEMENT

Water Law

In 2019, Law No. 17 of 2019 on Water Resources was enacted, which guarantees the people's right to water in order to meet the minimum daily basic needs for a healthy life with sufficient quantity

Water Allocation Plans

The government has developed water allocation plans at the basin level to balance water demand and availability and to ensure equity and sustainability in water use.

Water Pricing and Regulations

The government has introduced a water tariff system to encourage efficient and sustainable water use and regulate water quality standards to protect public health and the environment.

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NATIONAL DEVELOPMENT AGENDA

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POLITICAL WILL AND COMMITMENT IN WATER TO STRENGTHEN THE INFRASTRUCTURE AND TO FULFIL THE BASIC NEEDS

RAW WATER SUPPLY

50 m^3 / sec

Surface water, groundwater, and including water from reservoirs (dams)

DISASTER RESILIENCE INFRASTRUKTURE

Flood control **1.971** km

Coastal Protection **129** km

Sedimentation/Lava Control

58 Sabo Dam

126 Check Dam

MULTI-PURPOSE DAM AND MODERNIZATION IRIGATION

47 On going Dams, **11** New Dams)

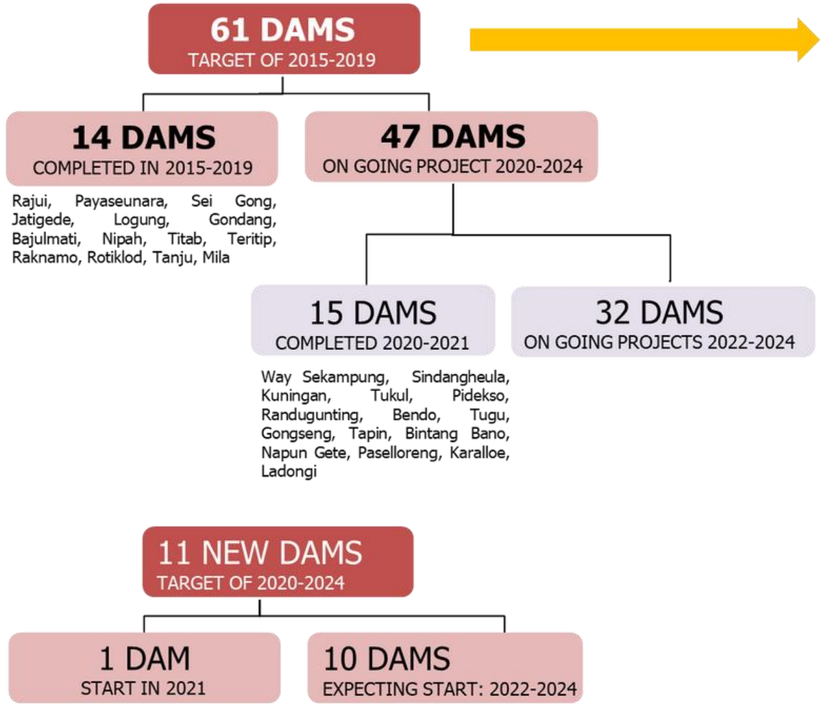
550 Small Dam (Embung)

9 unit Modernization Irrigations

New Irrigation Area **500k** Ha

Rehabilitation of existing irrigation area

1Million Ha



TOTAL : 61 DAMS

- Potential additional reservoir capacity of 3.818,89 million m^3
- Potential water to supply:
  - Irrigation of 386.045 hectares
  - Flood Reduction of 13.190,11 m^3/s
  - Raw water of 49,02 m^3/s
  - Water for energy of 256,51 MW

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INFRASTRUCTURE DEVELOPMENT FOR WATER SUPPLY AND SANITATION

RURAL WATER SUPPLY

The government has implemented the Village Water Supply and Sanitation Program to provide clean water and sanitation facilities to rural communities, including the installation of water pumps, pipelines, and water treatment units.

URBAN WATER SUPPLY

The government has invested in improving the public water supply system in cities, including the construction of water treatment plants, transmission and distribution pipelines, and metering systems.

SANITATION

The government has launched the Community-Based Total Sanitation approach to promote behavior change and improve access to sanitation facilities, including the construction of toilets and septic tanks and the management of fecal sludge.

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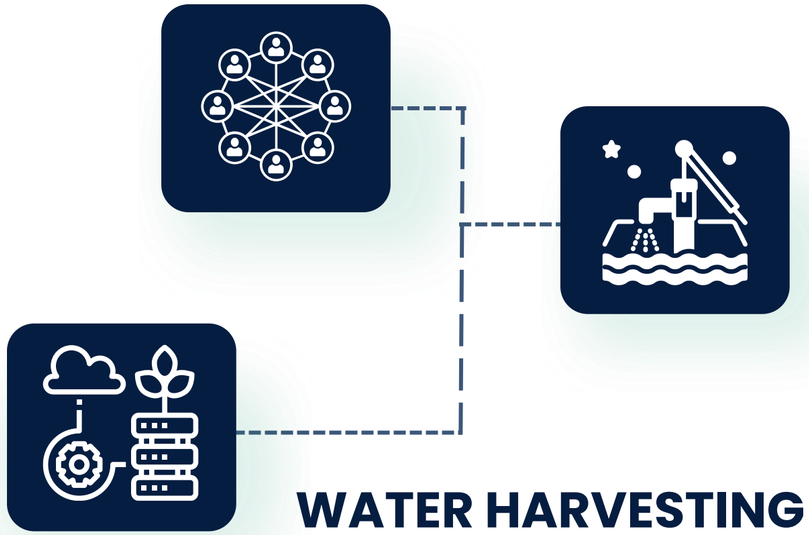
COMMUNITY INVOLVEMENT AND EMPOWERMENT IN WATER MANAGEMENT

WATER USERS ASSOCIATIONS

The government has promoted the formation of Water Users Associations to involve communities in planning, implementation, and management of irrigation systems, and to share the benefits and costs of irrigation services.



PARTICIPATORY GROUNDWATER MANAGEMENT

The government has implemented the Participatory Groundwater Management approach to involve communities in monitoring and protecting groundwater resources and to ensure the sustainability and equity of groundwater use.

WATER HARVESTING AND CONSERVATION

The government has encouraged communities to develop their own water harvesting and conservation methods, such as rainwater harvesting, small-scale dam construction, and eco-friendly farming practices.

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INNOVATIVE WATER CONSERVATION AND EFFICIENCY MEASURES

The government and other stakeholders have implemented various innovative measures to conserve and use water more efficiently, such as:

1

WATER RECYCLING AND REUSE IN INDUSTRY AND AGRICULTURE

In agriculture, reclaimed water enriches irrigation, enhancing crop yields sustainably. These practices are integral to conserving precious water resources and fostering sustainable development.

2

SMART IRRIGATION SYSTEMS USING SENSORS AND REMOTE MONITORING

Sensors gauge soil moisture, weather conditions, and plant needs in real-time, optimizing irrigation schedules. These systems epitomize technology's role in conserving water and enhancing agricultural productivity.

3

DROUGHT-RESISTANT CROPS AND CLIMATE-SMART FARMING TECHNIQUES

These innovations involve cultivating crops engineered to withstand water scarcity, along with employing practices that adapt to variable weather conditions.

4

WATER EFFICIENT APPLIANCES AND FIXTURES IN HOUSEHOLDS AND BUILDINGS

Low-flow toilets can reduce home water use by 25% or more, and efficient dishwashers and washers save water and energy, lowering costs. Promoting water efficiency conserves money and sustains reserves.

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CHALLENGES AND FUTURE OUTLOOK

CHALLENGES

Despite significant progress in water resources management, Indonesia still faces challenges such as weak institutional capacity, inadequate financing, lack of awareness and participation, and climate change impacts.

STRATEGY

The future outlook depends on the government's commitment to implementing policies and programs, involving stakeholders in decision-making, allocating sufficient financial resources, and mainstreaming water management into national development plans.

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CONCLUSION AND RECOMMENDATIONS FOR THE FUTURE

CONCLUSION

Indonesia has made remarkable progress in water resources management but still faces challenges in ensuring sustainable and equitable access to water resources, providing sanitation facilities to all, and adapting to climate change impacts.

RECOMMENDATIONS

- Strengthen institutional capacity and accountability
- Improve financing mechanisms and water pricing policies
- Enhance public awareness and participation in water management
- Promote innovation and technology transfer for water management

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Reach Us

For questions or more info

ADDRESS

Rukan Tanjung Barat Indah, Jalan Teratai Raya No. F-02, RT. 1 / RW. 2, Tanjung Barat, Jagakarsa, Jakarta Selatan 12530

PHONE NUMBER

(021) 27871616

EMAIL ADDRESS

sekretariat@indonesiawaterinstitute.org