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Climate Change impacts on Philippines' agriculture

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BACKGROUND

Population density > 100 million people.
Islands > 7,600
"about 20 tropical cyclones traverse the country's area of responsibility each year"

The location along the ring of fire >>> vulnerable to natural disasters like typhoons, earthquakes, and volcanic eruptions

-> The Philippines is highly sensitive to typhoons
-> The typhoon season is July-October which 70% of storms develop
-> Around 20 typhoons hit or pass through each year >>> averaging 19 - 20 typhoons annually, with seven to nine making landfall

Bring strong winds, heavy rain, landslides, and flooding, destroying infrastructure, homes, and crops.

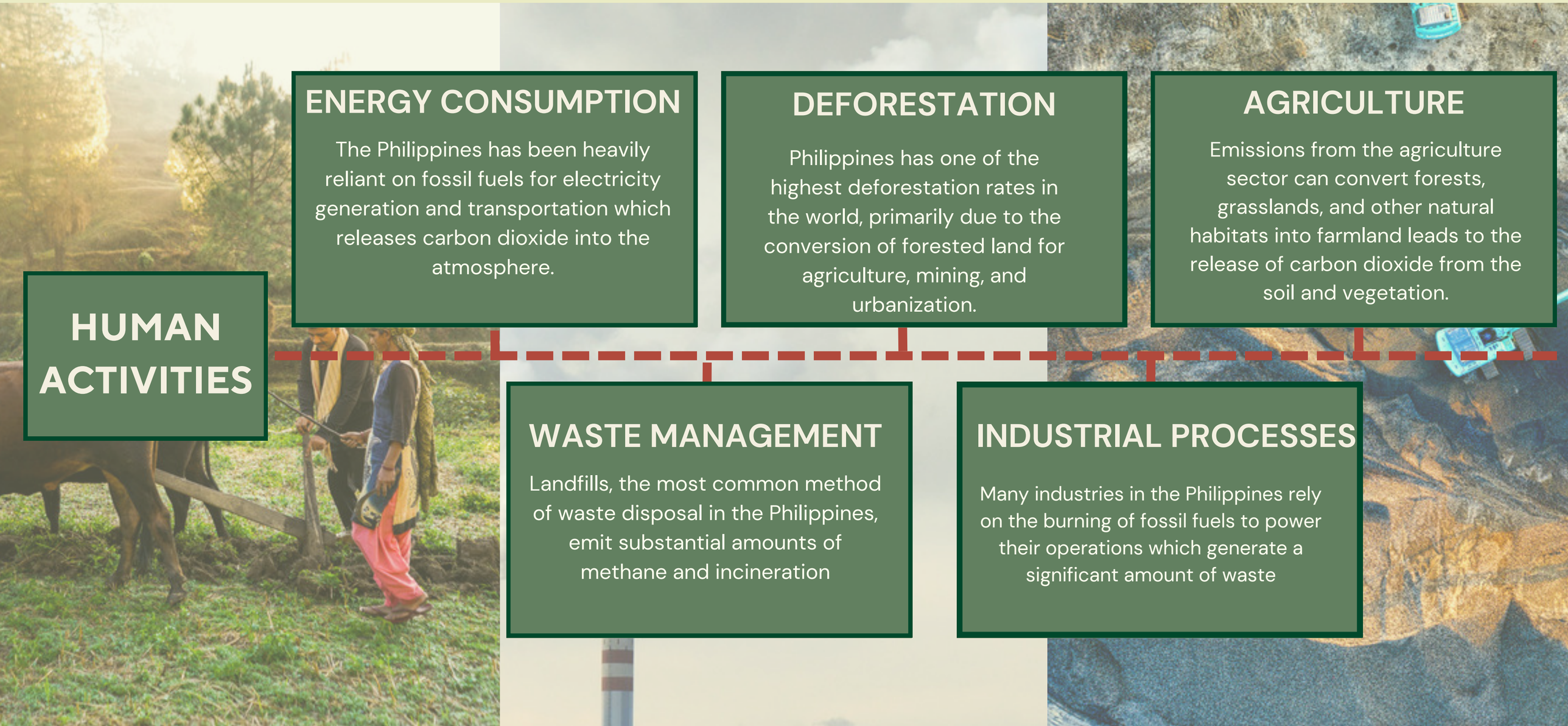
The government has implemented measures to reduce the impacts of typhoons, but some areas remain vulnerable due to inadequate infrastructure and high poverty levels.

The typhoon harmed the Filipinos and their **economy** >>> damaged the agriculture sector, reduced productivity, caused more problems of food scarcity, increased mortality, easily spread disease, and lowered the attractiveness of the investment.

The capacities of financing, human skills, and institution are limited.

KEY ISSUES

CAUSES OF CLIMATE CHANGE



HUMAN ACTIVITIES

ENERGY CONSUMPTION

The Philippines has been heavily reliant on fossil fuels for electricity generation and transportation which releases carbon dioxide into the atmosphere.

DEFORESTATION

Philippines has one of the highest deforestation rates in the world, primarily due to the conversion of forested land for agriculture, mining, and urbanization.

AGRICULTURE

Emissions from the agriculture sector can convert forests, grasslands, and other natural habitats into farmland leads to the release of carbon dioxide from the soil and vegetation.

WASTE MANAGEMENT

Landfills, the most common method of waste disposal in the Philippines, emit substantial amounts of methane and incineration

INDUSTRIAL PROCESSES

Many industries in the Philippines rely on the burning of fossil fuels to power their operations which generate a significant amount of waste

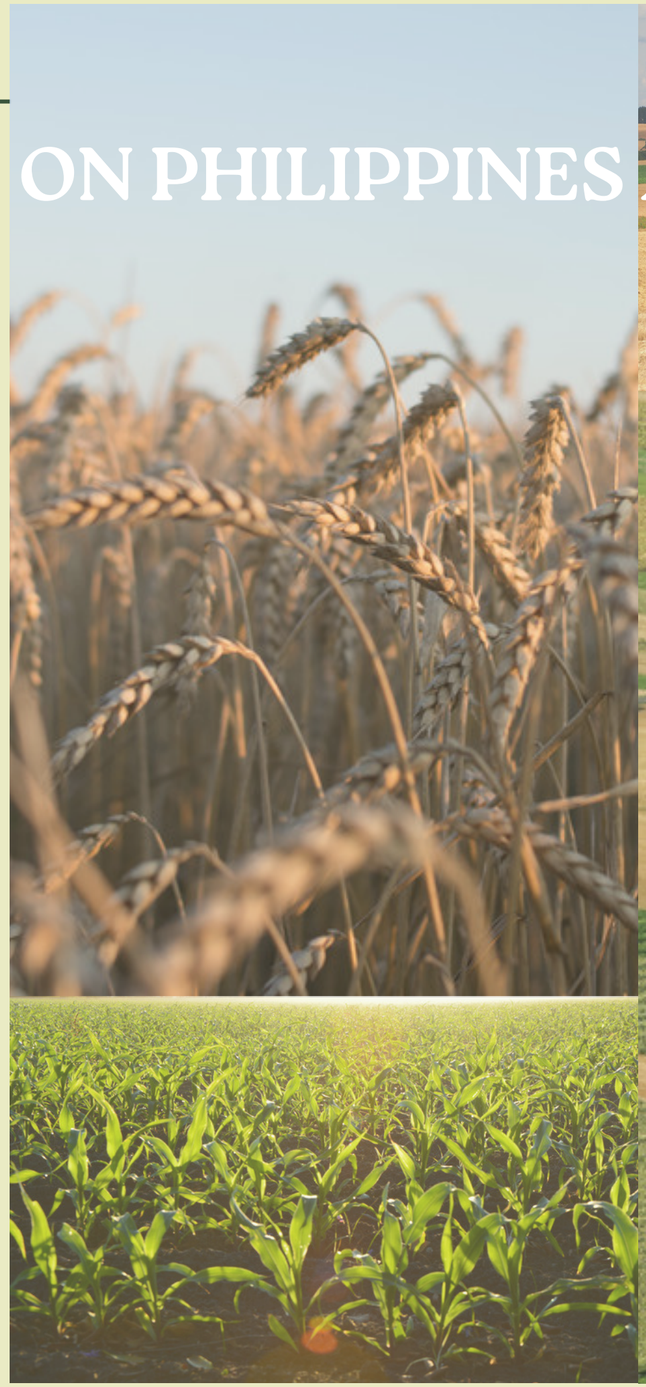
KEY ISSUES

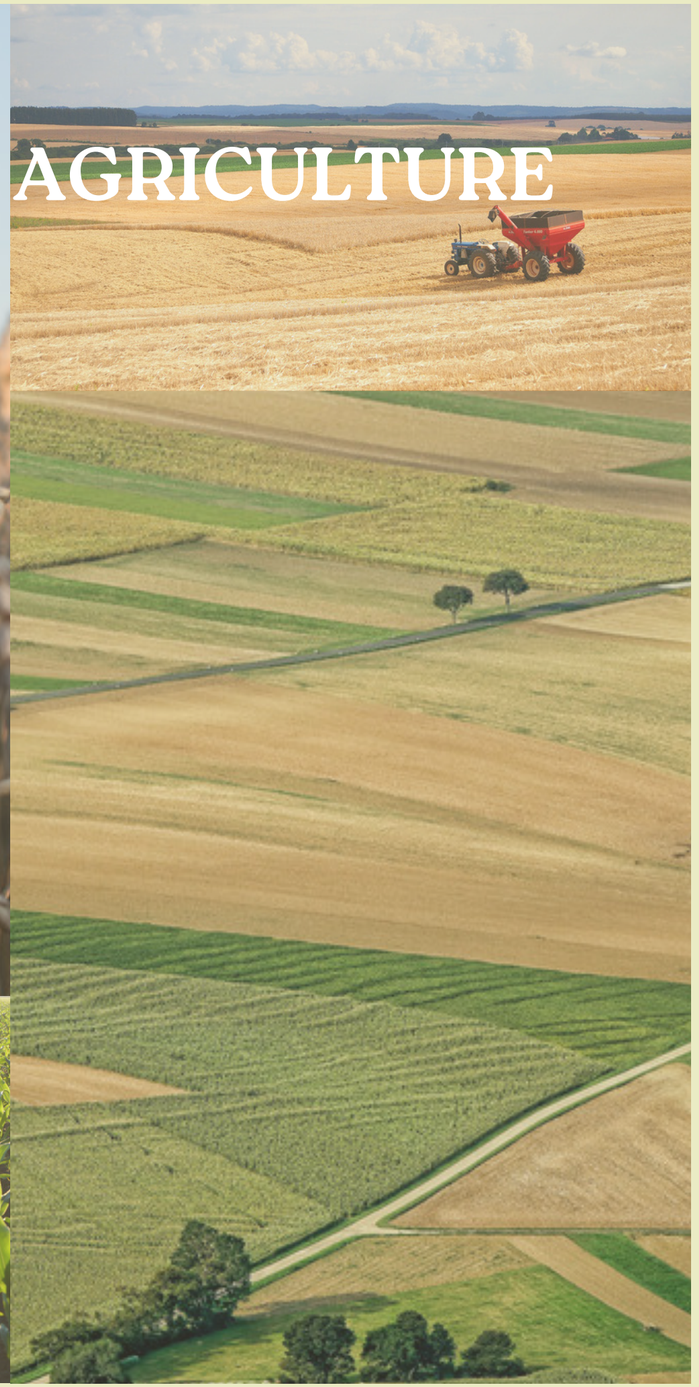
EFFECTS OF CLIMATE CHANGE ON PHILIPPINES AGRICULTURE

typhoons can cause extensive damage to crops, livestock, and infrastructure.

- typhoons can damage crops in many ways, including flattening or uprooting plants, flooding fields, and washing away topsoil
- Livestock losses was caused either through direct damage or through the destruction of feed and water supplies.
- Infrastructure damage, typhoons can damage irrigation systems, roads, and other infrastructure that are crucial to agriculture.

Indirect effects that can affect productivity: typhoons can disrupt transportation and communication networks, making transporting crops and livestock to markets difficult.





KEY ISSUES

GREENHOUSE GAS EMISSIONS FROM VARIOUS COUNTRIES

The United States, China, and the European Union are the major emitters to the Philippines. Their emissions can contribute to the overall increase in global temperatures and resulting impacts on the Philippines and other countries.

Neighboring countries which are **Indonesia and Malaysia** also emit greenhouse gas that can affect the Philippines' environment and climate.

Policies on Climate Change Adaptation

The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)

Offers public weather forecasts and advisories, flood and typhoon warnings, climatological information

Using a variety of Technology, including online, radio, TV, mobile alerts to immediately warn residents during emergencies.

COLOR-CODED RAINFALL WARNING SYSTEM

Yellow rainfall alert : forecast to see heavy rains. In low-lying areas, flooding is conceivable. Need to keep an eye on reports.

Orange rainfall advisory : Be prepared to escape, Intense rain has already begun, areas close to river channels are at risk of flooding.

Red rain alert : You need to leave right away and Local residents must start to leave as quickly as possible.

Project NOAH (Nationwide Operational Assessment of Hazards)

Use of a range of cutting-edge technologies to produce precise and trustworthy hazard information, including hazard maps and early warning systems which can then be accessible through the **Project NOAH online portal.**

Offers crucial information for disaster protection based on local vital infrastructure identification, near real-time weather data, maps of flood and landslide hazards.

WebSAFE application, which enables more intelligent and thorough resource preparation in the event of an impending severe weather disaster.

Arko app, which enables users to examine important hazard data for floods, landslides, and storm surges in their location.

The Philippine government declared in January 2017 that Project NOAH would cease operations as of March 1 due to a **lack of funding.**

After that, the University of the Philippines **absorb** Project NOAH and carry on with its operations.

Policy on Climate Change Mitigation

Metro Manila Flood Management Master Plan

In 2009, the **action against Typhoon Ketsana** to eliminate long-term flooding by building flood management dams and improving flood warning systems.

In 2012, approved by the National Economic and Development Authority (NEDA), **Recieved donation** from the Australia-World Bank Philippines Development Trust Fund and Policy and Human Resources Development Trust Fund of Japan, to finance studies and designs of other interventions for the next phase of implementation of the master plan.

On September 28, 2017, the World Bank, in partnership with the Philippine government and the Asian Infrastructure Investment Bank (AIIB) approved the Metro Manila Flood Management Project to improve urban drainage in Metro Manila.

Aims to modernize 36 flood management pumping stations and construct 20 more including supporting **infrastructure** along the critical waterways in the cities of Manila, Pasay, Taguig, Makati, Malabon, etc.

However, The Metro Manila Flood Management Master Plan still has **challenges** for example erosion and climate change that could result in higher water run-off and getting into the dam.

Conclusion

Causes of Climate Change

Energy consumption

Deforestation and land use change

Agriculture
(release of carbon dioxide)

Waste management

Industrial processes

Impact on agriculture

crop damage

Livestock losses

Infrastructure damage

reduce productivity

price increases

Climate change adaptation policies

PAGASA
offers public weather forecasts and climate change warnings

Project NOAH
improving technologies to produce precise and trustworthy information

Climate change mitigation policies

Metro Manila Flood Management Master Plan
build flood management dams

Australia-World Bank Philippines Development Trust Fund
enhance the effectiveness of the master plan

World Bank
improve urban drainage

THANK YOU