



On the path to carbon neutrality by mid-century: Sharing Korea's Experience

Small-Medium Sized Agricultural Development through Solar System

June 15, 2023

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Filipino workforce

24%

Total GDP(22')

8.9%

Agriculture in the Philippines

A large portion of Filipinos living
Farming, Fisheries, Livestock, and Forestry
Environmental Value and Food Security



Major Crops in the Philippines



Rice

8th largest rice producer in the world

Corn(Maize)

Around 600,000 farm households depend on corn as a major livelihood

Coconut

A second largest producer in the world

Banana

A second largest exporter in the world



Problem Statement

The El Niño phenomenon will affect the country's rice production as many farmlands start to dry out with the extreme drought.



The convergence of all the global challenges like increasing petroleum prices, distortion of the global supply chain, increase in shipping costs, an increase of the price of agricultural inputs like gasoline, fertilizers, feeds, and now the Ukraine crisis will definitely lead to global food price spike leading to higher food inflation.

Water management and Irrigation

- In the Philippines, Republic Act 3601 entitled “An Act Creating the National Irrigation Administration” was signed into law (1963)

65.28% out of 3.128 M hectares (DA,2021)

- Low percentage of Newly Constructed System
- Not enough budget for maintenance and operation
- Dependency on Foreign-assistance



Korea ODA Strategy in the Philippines (KOICA CP, 2022)



Inclusive and sustainable rural development

- Strengthen productivity & value Chain of agriculture, stock breeding , fishery
- Support Rural community

Budget: 1st place
53.2 USD (38%)

Multi-sectoral convergence to strengthen urban resilience

Health promotion through a life cycle approach

Establishing a transparent, accountable and inclusive governance



From the Community

Our duty is to respond from the community's needs.

With the Community

Our belief is to act together with the community.

For the Community

Our promise is to work for the community.

PHILIPPINES

TRAVEL MAP



Service Agriculture Value Chain

01

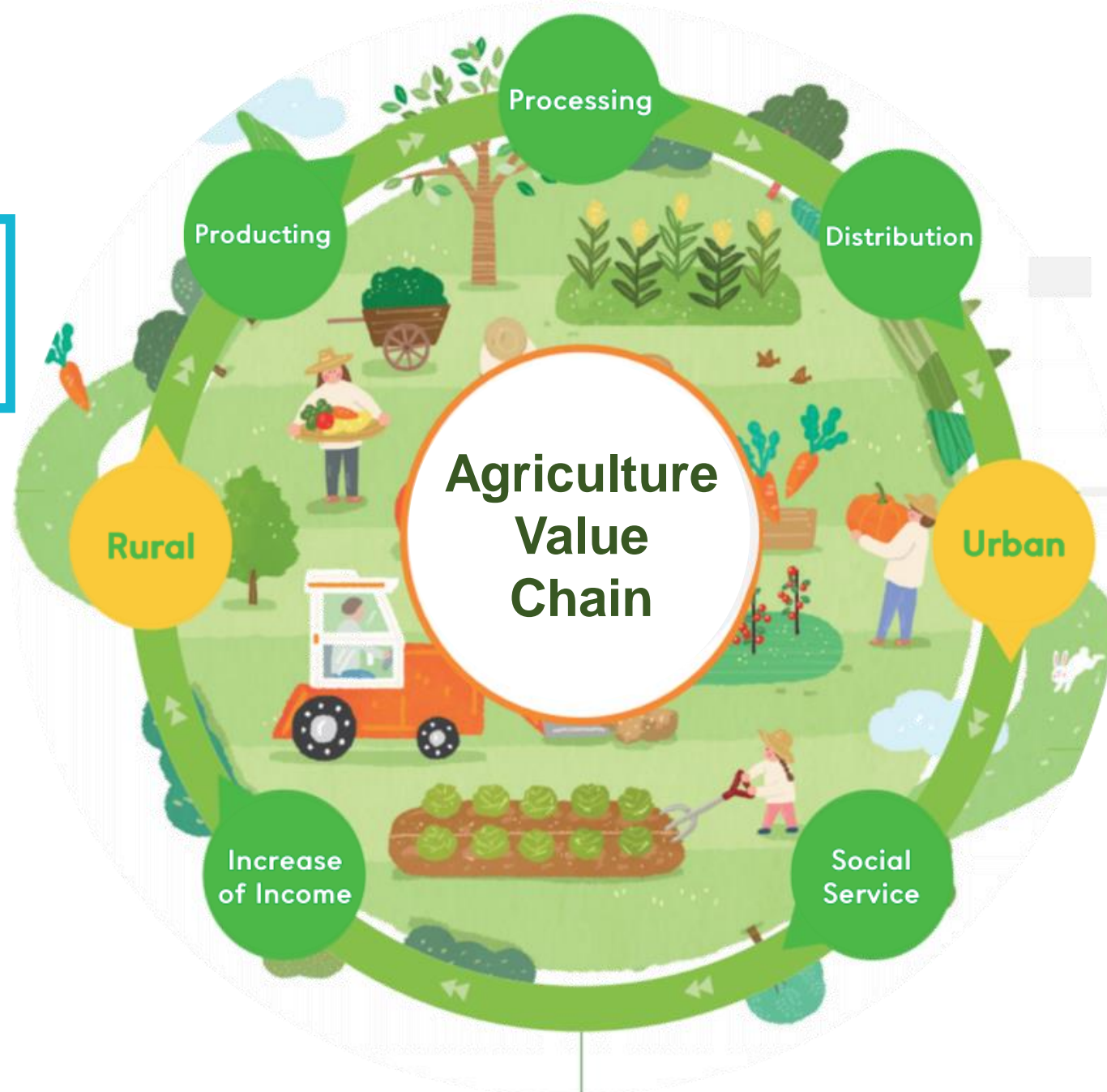
Supporting for sustainable agricultural activities

02

Adding a value by milling and processing

03

Opening the online and offline sales channels through cold chain



Value Social Impact

01

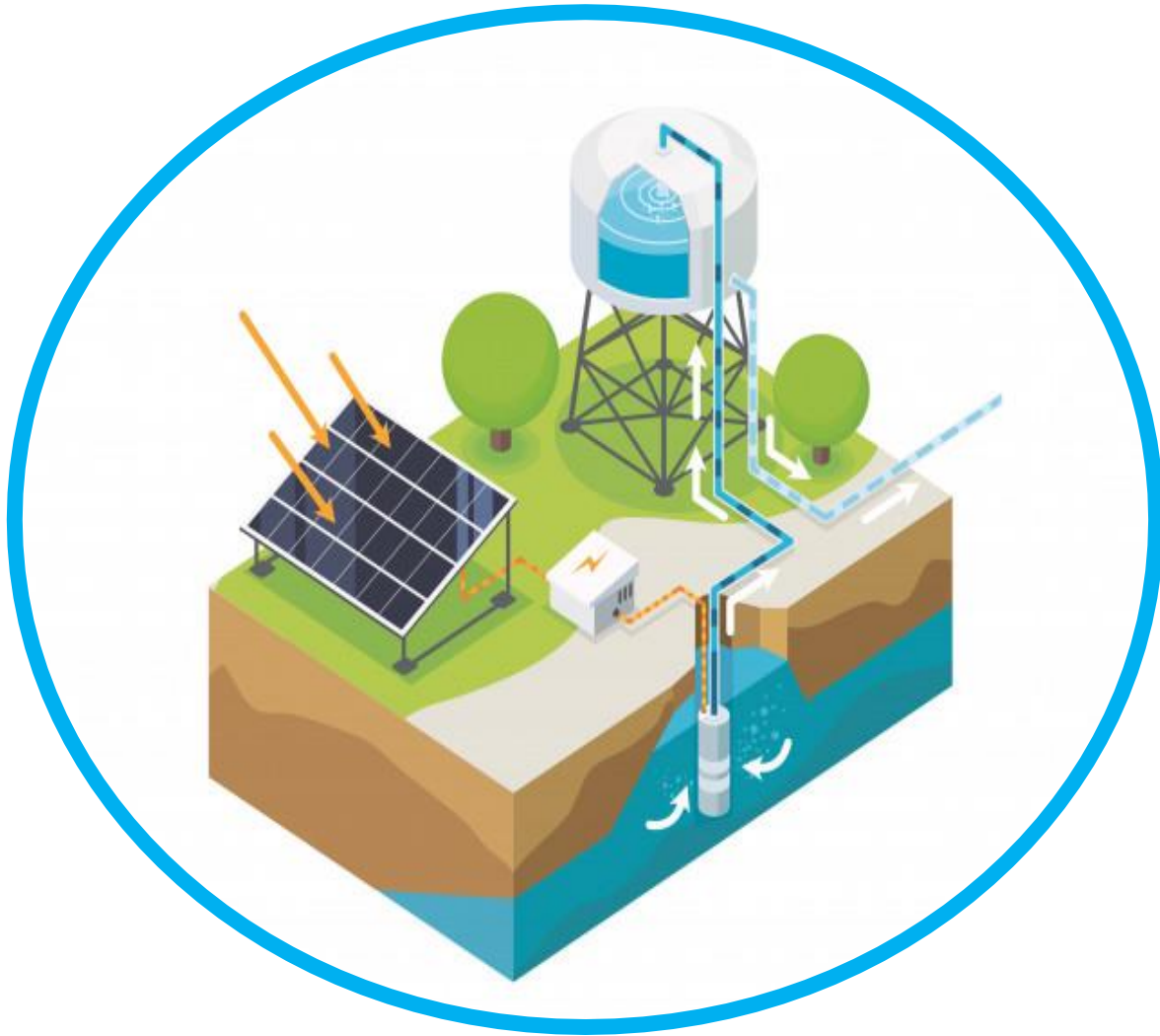
Creation of environment value through eco-friendly agriculture

02

Empowering young social entrepreneurs and creating jobs

03

Providing of social services and profit return to the community



Suggested Practice

A solar-powered irrigation system is a sustainable and cost-effective solution to irrigating crops, particularly in areas where access to electricity is limited or unreliable. The system uses solar panels to convert sunlight into electricity, which powers the irrigation pumps and other equipment needed to water crops.

Background

Potential power
generating capacity
4.5-5.5 kWh
per square meter per day

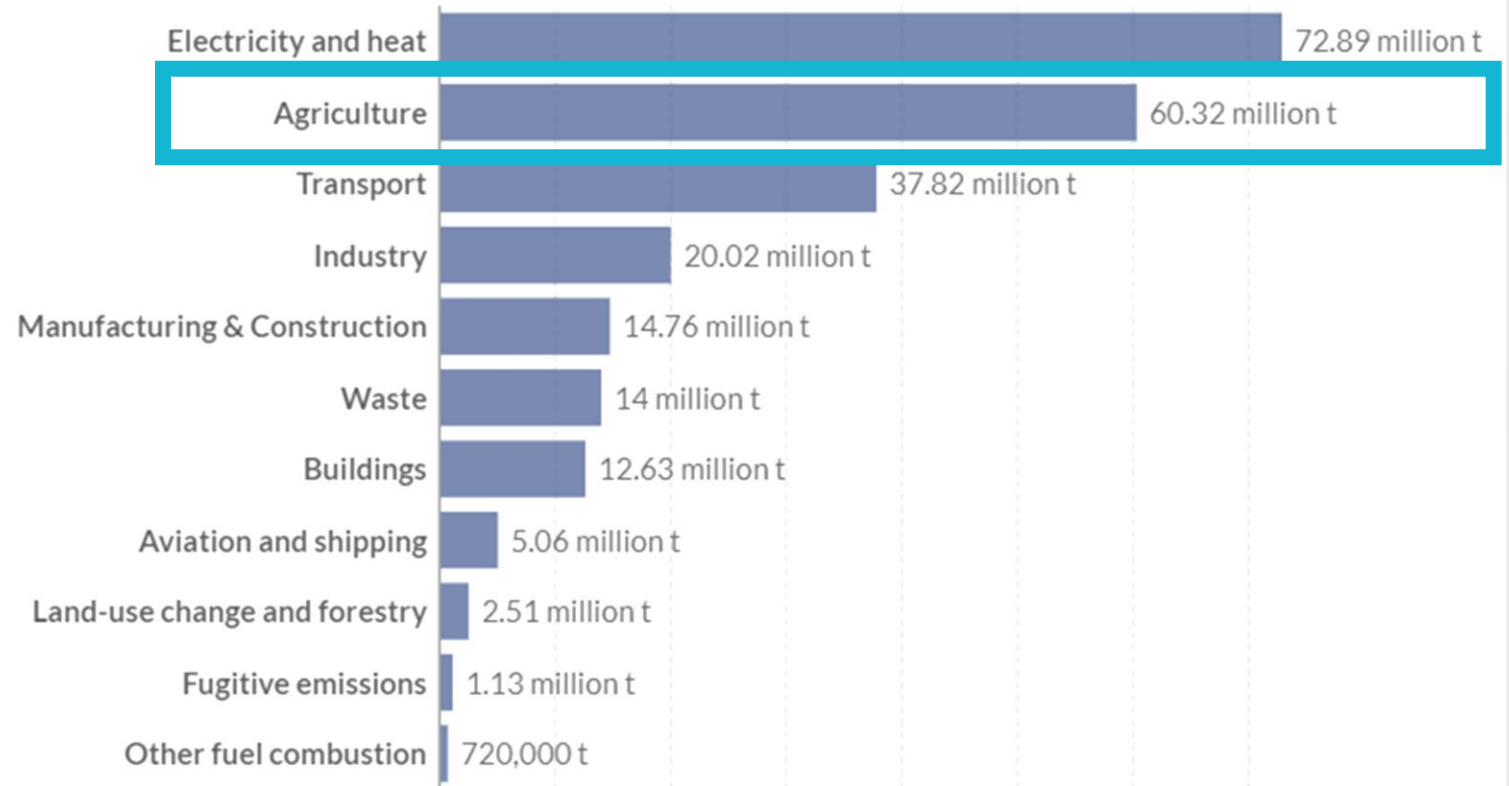


Greenhouse gas emissions by sector, Philippines, 2019

Our World
in Data

Emissions are measured in carbon dioxide equivalents (CO₂eq). This means non-CO₂ gases are weighted by the amount of warming they cause over a 100-year timescale.

[↔ Change country or region](#)



Source: Our World in Data based on Climate Analysis Indicators Tool (CAIT).
OurWorldInData.org/co2-and-greenhouse-gas-emissions • CC BY



Solar Powered Irrigation System

SPIS runs on solar energy so that bringing water to farmlands will be much more affordable than the traditional diesel and gasoline-powered engine pumps

Irrigate 32 hectares of agricultural lands that will primarily benefit 34 agrarian reform beneficiary households and neighboring farmers. (cavite)

Application

The Solar Powered Irrigation System (SPIS) of Central Luzon Integrated Agricultural Research Center (CLIARC) for Low Land Development was located in Rice Production and experimental area of the Station



Application

- Fifty Six (56) Solar Panels
- Ten foot high tank
- More or less seventy **(70kt)** kilowatts of energy per day
- Twenty seven (27m³) cubic meter or twenty thousand liters of water capacity
- Fifteen Thousand watts(1500 W) of Submersible pump
- Up to **twenty five (25) years**



In 7,200 hours or 25 years the 120 Horsepower four-cylinder Diesel engine water pump can consume **31,937,500 liters of diesel on daily use bases** or 50li of diesel for 24hrs in 25yrs with an average price of diesel today of P70.00/litter

5million pesos project will have an estimated life span of twenty-five (25) years, and it covered almost nine (9) hectares of land station production.





Benefits

Solar power, as it has **zero emissions**, can help displace some coal-based and oil-based generation, thus helping mitigate the impact of climate change.

Rural electrification as it provides **a reliable energy source** in remote areas helps reduce energy costs for irrigation and enables low-emission agriculture.

Challenges & Potentials



Severe Climate Change

- Drought
- Typhoon
- Changing ecosystem

Data Collection System

- Tracking System
- Management and support

Community Engagement

- Maintenance
- Community level operation

Collaborative Governance

- Encourage more investment and expand the practice



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THANK YOU.