GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

# CROPLAND RESEARCH GROUP:
# [South Korea]Country Update


## CRG representatives: Sun-Il Lee

National Institute of Agricultural Sciences, RDA, South Korea


silee83@korea.kr

Rural Development Administration

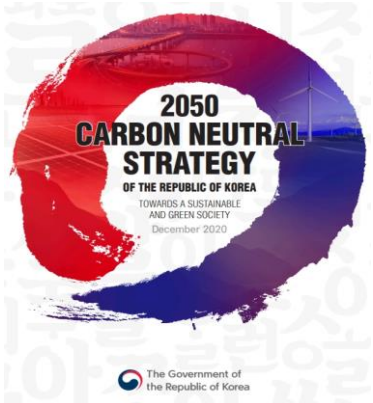
# Activities/Accomplishment since last meeting

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

- Country Update

1. Declared Carbon Neutral (December, 2020)

   (December, 2020)




2. New Carbon Neutrality Law in S. Korea

"The government legislated a national vision to achieve carbon neutrality by 2050 and reduce greenhouse gas emissions."

- Approved (September, 2021)
- Entry into force (March, 2022)


The Korea Herald

National

**Korea becomes 14th in world to legislate carbon neutrality act**

The Ministry of Agriculture, Food and Rural Affairs, the Ministry of Environment, the Ministry of Oceans and Fisheries, and the Korea Forest Service will maintain and improve the country's carbon sink with sustainable forest management. The ministries will also work on expanding carbon sinks to coastal areas and farmlands etc. (March, 2022)

# Research and Capability Opportunities

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

- Research Opportunities:

1. Agricultural climate change response project has implemented from 2020 to 2027($ 170 million).
2. Collaboration possibility : Biochar, GHG modeling, Water management(paddy) etc.

- Capability Opportunities:

1. ODA(Official Development Assistance) of RDA : 3FACIs + KOPIA

- 3FACIs : R&D network dealing with continent-specific issues that are currently faced

1) AFACI(Asian Food & Agriculture Cooperation Initiative, 13 countries, www.afaci.org)

2) KAFACI(Korea-Africa Food & Agriculture Cooperation Initiative, 23 countries, www.kafaci.org)

3) KoLFACI(Korea-Latin America Food & Agriculture Cooperation Initiative, 12 countries, www. kolfaci.org)

- KOPIA : Bilateral cooperation program to develop agricultural technologies adapted to country-specific context

# R&D Strategy against Climate Change in South Korea

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

**Goals**

Development of agricultural production technologies to effectively adapt to climate change and establishment of a preemptive disaster response system

**Contents**

## Effective R&D Implementation

### Prediction, Assessment

Climate change survey and impact assessment of agri. sector

### Adaptation

Reinforcement of the basis for stable production of climate-adapted agriculture and livestock

### Damage reduction

Policy development to strengthen prevention and reduction of damage in the agricultural and livestock sector

### Mitigation

Development of low-carbon technologies for the agricultural and livestock sector

# GHG Inventory and Statistics

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

## ▪ Advancement of GHG inventory and statistics

### ∗ Development of Country-Specific Emission Factors in Agricultural and Livestock Sector

✓ Registration for Verification and Certification of Factor : Cultivation(28), Livestock(6), LULUCF(4)

### ∗ Advancement of Calculation Method for GHG Emission in Agriculture and Livestock Sector

**- Submit after approval of MRV**

✓ Application of IPCC 2006 Guideline : AFOLU(Agriculture, Forestry Other Land Use)

| Tier 1 | | Tier 2 | | Tier 3 |
|---|---|---|---|---|
| Basic emission factor | → | Country-specific emission fator | → | Modeling, Monitoring |

✓ Improvement of Accuracy on Activity Data :
Accurately reflected -> Collection of various activity data & Establishment of system

# Mitigation Technology for Cropland

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

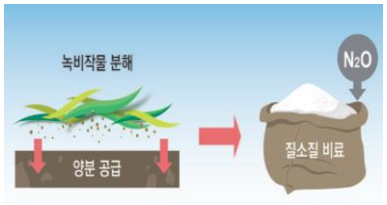
## ▪ Mitigation Technology of cultivation part : 17 kinds (Paddy 11, Upland 6)

- Paddy : Water management, rice straw, drainage water, transplanting method, soil conditioner, tillage, type of O.M., rice varieties, and side-fertilization
- Upland : Green manure, cultivation time, tillage, nitrification inhibitor, water management, and slow-release fertilizer

**∗ Technology applied with voluntary mitigation projects : 7 research projects**

**- Incentive project organized by the Ministry of Agriculture, Food and Rural Affairs**

✓ Reducing the use of nitrogen fertilizers(3)



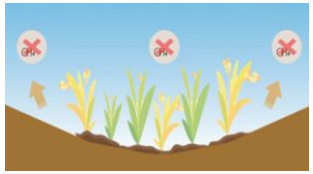
<green manure crop>

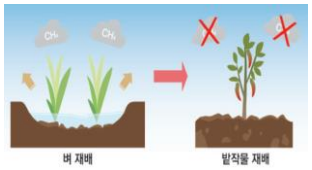
<slow-release fertilizer>

<use of by-product fertilizers>

✓ Mitigation methods in cropland(4)

<conservation tillage>


<water management>



<conversion of field use>
(mitigation of methane)


<biochar>

# South Korea : Key Initiatives for 2030 NDC Goal

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

< Stronger 2030 NDC target to 40% (October, 2021) >

- National GHG emission : 727.6 MT(2018) → 436.6 MT(2030)
- Agricultural sector GHG emission : 24.7 MT(2018) → 18.0 MT(2030)

| Area | Reduction | Key Initiatives |
|---|---|---|
| Rice and Crop Cultivation | 2.5 MT | Reduced use of mineral and nitrogen **fertilizers** |
| | | Environment-friendly cultivation |
| | | Use of **biochar** to absorb carbon in the soil |
| | | More efficient **irrigation** in rice paddies |
| | | Development of new crop varieties |
| Livestock Industry | 3.3 MT | Development of other industrial uses for animal sewage<br>Etc |
| Machinery and Energy | 0.9 MT | Increased use of renewable fuels<br>Etc |
| Total | 6.7 MT | |