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° Issue Brief

No Budget, No Cuts

Agriculture's 2030 NDC Targets at Risk

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Design	**sometype**

Solutions for Our Climate (SFOC) is an independent nonprofit organization that works to accelerate global greenhouse gas emissions reduction and energy transition. SFOC leverages research, litigation, community organizing, and strategic communications to deliver practical climate solutions and build movements for change.

No Budget, No Cuts
Agriculture’s 2030 NDC Targets at Risk

Analysis of the 2025 GHG-Reduction-Aware Budget and Fund Management Plan

Existing budget insufficient to meet the agriculture
and livestock sector's 2030 NDC and Methane Reduction Roadmap

Additional 3.9 Mt CO_2eq reduction needed through increased agricultural budget

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Can South Korea Achieve its 2030 Target for NDC Amid Current Emissions Trends?

South Korea pledged to reduce a total of 5 million tons of CO_2eq in the agricultural sector by 2030 compared to 2018 levels. However, with less than five years remaining, emissions from the sector continue rise.

As part of its 2030 Nationally Determined Contribution (NDC) goals, the South Korean government has set a target of reducing 5 Mt CO_2eq in the agricultural sector by 2030, based on 2018 levels (Ministry of Food, Agriculture and Rural Affairs, 2025a). This target represents a 22.5% reduction from the 2018 baseline of 22.2 Mt CO_2eq (see [Table 1]).

[Table 1] 2030 GHG Emissions and Reduction Targets in the Agricultural Sector

Unit: Mt CO_2eq

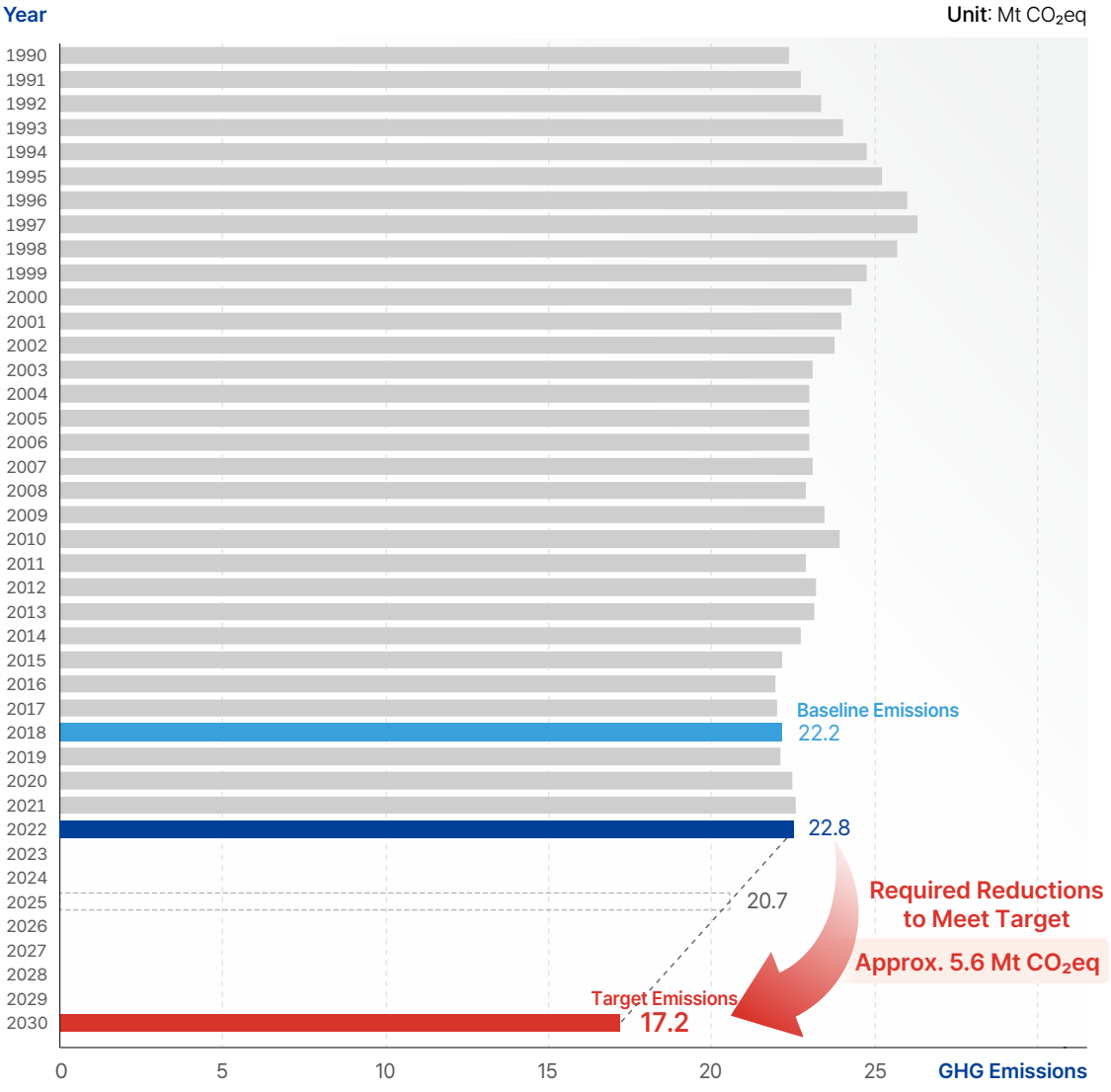
Category				Emissions in 2018	Emissions Target for 2030	Reduction Amount	Reduction Rate
Agriculture	**Total**			**22.2**	**17.2**	**5.0**	**22.5%**
	Non-Energy	**Non-Energy Subtotal**		21.2	16.6	4.6	21.7%
		Crop Cultivation	**Crop Cultivation Subtotal**	11.8	8.8	3.0	25.4%
			Rice Cultivation	6.3	4.5	1.8	28.6%
			Paddy Fields	5.5	4.3	1.2	21.8%
			Residue Combustion	0.015	0.017	△0.002	△13.3%
		Livestock	**Livestock Subtotal**	9.4	7.7	1.7	18.1%
			Manure Management	4.9	3.3	1.6	32.7%
			Enteric Fermentation	4.5	4.4	0.1	2.2%
	Energy			1.0	0.6	0.4	40.0%

Source: Ministry of Food, Agriculture and Rural Affairs (2025a)

However, sectoral emissions have continued to increase since 2018. In 2022, agricultural emissions reached approximately 22.8 Mt CO_2eq, marking an increase of around 0.6 Mt CO_2eq from 22.2 Mt CO_2eq in 2018 (see **[Figure 1]**).

If the current trajectory continues and agricultural emissions in 2025 remain similar to 2022 levels, South Korea will need to reduce approximately 5.6 Mt CO_2eq to meet its 2030 target of 17.2 Mt CO_2eq.

[Figure 1] Trends in Agricultural GHG Emissions (1990 to 2022) and Pathway towards Achieving 2030 Target[1]



Source: Ministry of Food, Agriculture and Rural Affairs (2025b), Ministry of Environment and Greenhouse Gas Inventory and Research Center (2025)

1 As this research is based on the 2030 NDC target, it uses emission estimates calculated under the 1996 IPCC Guidelines, which were applied in the 2030 NDC. It is worth noting that starting this year, Korea's National GHG Inventory has adopted the 2006 IPCC Guidelines.

The Ministry of Food, Agriculture and Rural Affairs Needs to Cut Additional 3.9 Mt CO_2eq to Meet the 2030 Targets in the Agricultural Sector

Limitations of GHG-Reduction-Aware Budget

GHG-Reduction-Aware Budget Only Accounts for 1.8% of the Total Government Expenditure, and Only Half of the Budget Can Deliver Quantifiable Reductions

> The ***GHG-Reduction-Aware Budget*** refers to an analysis of spending plans submitted by relevant ministries to the National Assembly from the perspective of reducing GHG emissions. Here, spending plan includes both the national budget (general accounts and special accounts) and government-managed funds. Strictly speaking, it would be more accurate to use *Total Expenditure to Reduce GHGs*, as it encompasses both budget and funds. However, since the South Korean government collectively refers to this as *GHG-Reduction-Aware Budget*, this issue brief uses the same terminology for consistency and clarity.

This analysis is based on the 2025 GHG-Reduction-Aware Budget and Fund Management Plan, a compilation of programs in the National Budgeting Plan and Fund Management Plans that are either aimed at, or related to, reducing GHG emissions (Government of the Republic of Korea, 2024).

Based on the initial budget, South Korea's total government expenditure for 2025—including both budget and fund accounts—amounts to KRW 677.4 trillion. **Of this, the GHG-Reduction-Aware Budget totals 12.1 trillion KRW, accounting for 1.8% of the total government expenditure.**

Within the budget, programs that can directly mitigate GHG emissions and whose mitigation impact can be quantified should be prioritized. The GHG-Reduction-Aware Budget is comprised of two categories:

- Reduction Budget: programs that can directly reduce GHG emissions
- Non-Reduction Budget: programs that contribute to mitigation indirectly

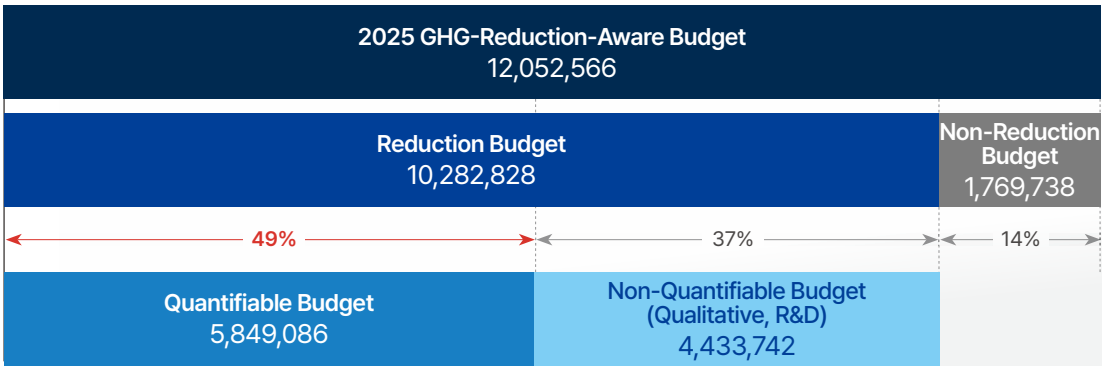
The Reduction Budget is further divided into three sub-categories:

- Quantifiable: programs for which emissions can be measured
- Qualitative: programs with mitigation impact that is difficult to quantify
- R&D: programs focused on research and development

In 2025, the Quantifiable Reduction Budget amounts to approximately KRW 5.84 trillion, accounting for just 49% of the GHG-Reduction-Aware Budget (see [Figure 2]). **In other words, over half of the 2025 budget consists of programs whose GHG reduction outcomes cannot be measured, indicating that the current budget structure is insufficient to support Korea's NDC target for 2030**.

[Figure 2] Composition of the 2025 GHG-Reduction-Aware Budget

Unit: KRW million



Source: Government of the Republic of Korea (2024)

MAFRA's GHG-Reduction-Aware Budget Falls Short

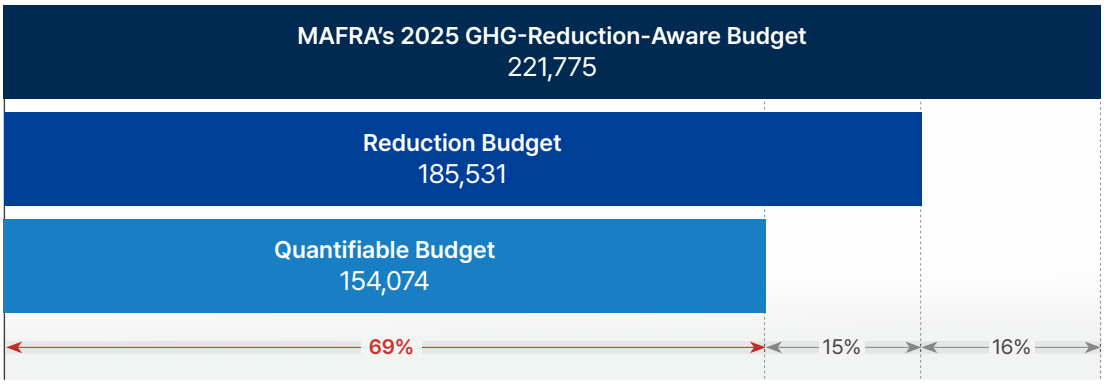
MAFRA Must Double Funding to Reflect Emissions Responsibility

In 2025, the GHG-Reduction-Aware Budget of the Ministry of Food, Agriculture and Rural Affairs (MAFRA) amounts to KRW 221.8 billion, accounting for 1.8% of the total GHG-Reduction-Aware Budget. Meanwhile, the agricultural sector represents approximately 3.5% of the total national GHG emissions. **This discrepancy suggests that the Ministry should double its GHG-Reduction-Aware Budget to reflect the sector's contribution to national emissions levels.**

Of the Ministry's GHG-Reduction-Aware Budget, KRW 154.1 billion is allocated to the Reduction Budget—programs with quantifiable GHG mitigation reductions—representing around 69% of the Ministry's total GHG-Reduction-Aware Budget (see [Figure 3]). This highlights the need to further increase the share of the Quantifiable Reduction Budget to ensure effective emission reductions.

[Figure 3] Composition of MAFRA's 2025 GHG-Reduction-Aware Budget

Unit: KRW million



Source: Government of the Republic of Korea (2024)

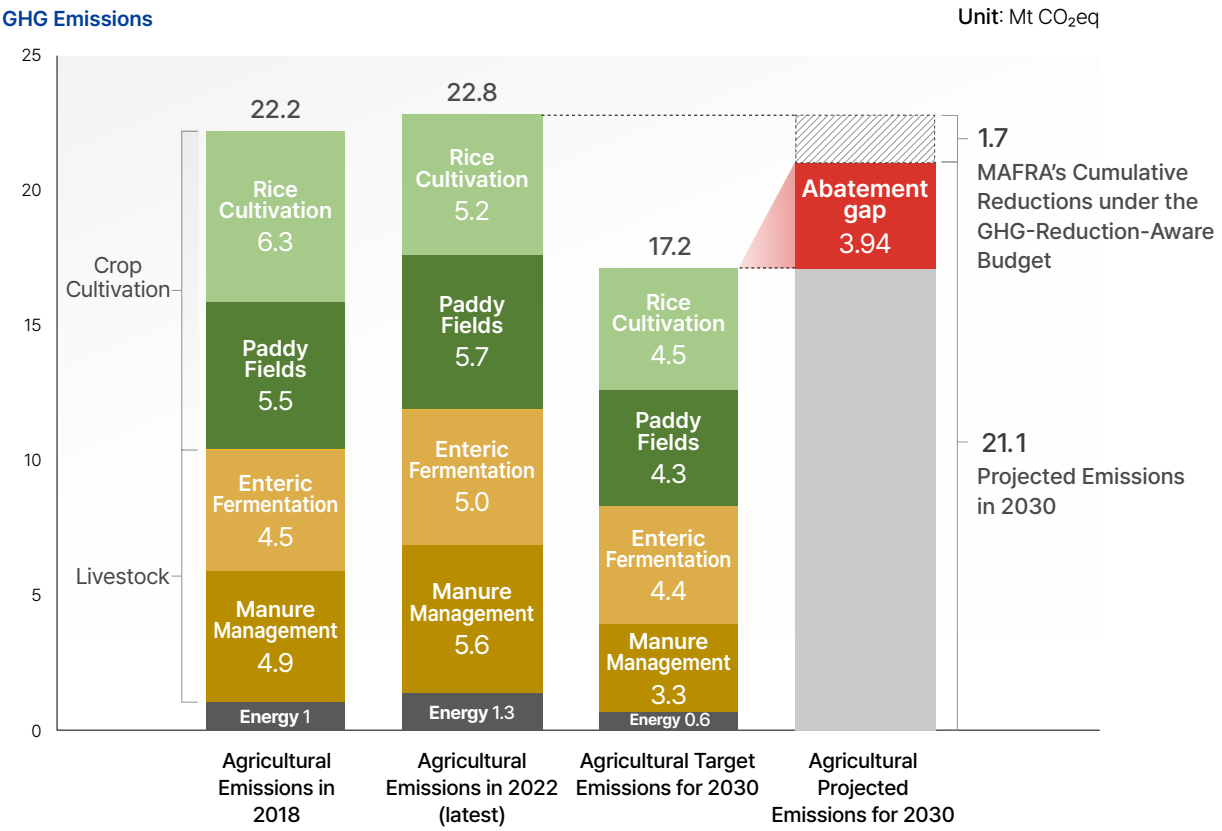
Discrepancy Between Expected Reductions and Target

MAFRA's Current GHG-Reduction-Aware Budget Insufficient to Meet the 2030 Agricultural NDC Target, Requiring an Additional Cut of 3.9 Mt CO_2eq

An analysis of the MAFRA's GHG-Reduction-Aware Budget revealed that the Ministry is expected to reduce only 279,922 tons of CO_2eq in 2025. Given the sector's emissions in 2022—22.8 Mt CO_2eq—this figure merely accounts for around 1% of the sector's annual emissions.

According to the 2025 GHG-Reduction-Aware Budget, over the five-year period from 2025 to 2030, MAFRA is projected to reduce approximately 1.68 Mt CO_2eq. However, to achieve the 2030 target, the Ministry must slash 5.6 Mt CO_2eq, leaving a gap of 3.49 Mt CO_2eq. **This underscores that MAFRA will be able to meet its 2030 target only if it reduces an additional 3.49 Mt CO_2eq** (see [Figure 4]).

[Figure 4] 2030 Emission Gap between MAFRA's Projection and the Agricultural NDC Target



Source: Ministry of Food, Agriculture, and Rural Affairs (2025a, 2025b)

Key to Reducing Emissions in the Agriculture Sector: Methane Mitigation

MAFRA's Current Budget Insufficient to Deliver on the 2030 Methane Emissions Reduction Roadmap

Budget Falls Short to Reduce Methane Emissions

MAFRA Must Reduce 0.4 Mt CO_2eq of Methane Emissions by 2030 to Meet Roadmap Targets

Methane accounts for 76% of total GHG emissions in the agricultural sector. This indicates that reducing methane emissions is the key determinant to the sector's ability to meet its GHG targets.

However, under MAFRA's current budget, the Ministry is unlikely to meet its reduction target set forth in the 2030 Methane Reduction Roadmap (Ministry of Environment, 2023). The roadmap outlines that the agricultural sector should reduce over 2 Mt CO_2eq by 2030, compared to 2020 levels (see **[Table 2]**). Among the 47 projects in MAFRA's GHG-Reduction-Aware Budget for 2025, 11 projects are associated with methane reductions (Ministry of Food, Agriculture and Rural Affairs, 2025c). The cumulative emissions for 11 projects combined over the five-year period (2025-2030) are projected at approximately to 1.62 Mt CO_2eq (see **[Table 3]**). This accounts for 96% of the total 1.69 Mt CO_2eq that MAFRA's GHG-Reduction-Aware Budget is expected to deliver.

Even under the assumption that the total GHG reductions from all 11 projects are attributable to methane, at least 0.4 Mt CO_2eq must still be reduced additionally to meet the target set in the 2030 Methane Reduction Roadmap. In reality, the shortfall is likely to be greater than 0.4 Mt of CO_2eq. Hence, the government must either expand or newly allocate budget to relevant programs that can reduce methane emissions in the sector in line with the targets outlined in the Roadmap.

[Table 2] Sectoral Methane Reduction Targets under the 2030 Methane Reduction Roadmap

Unit: Mt CO_2eq

Sector	Emissions in 2020	Emission Targets in 2030	2030 Reduction from 2020 Levels
Total Emissions	27.4	19.1 (△30% or more)	8.3
Agriculture	11.9	9.9 (△16.9%)	2.0
Waste	8.8	4.5 (△49%)	4.3
Energy	5.9	4.6 (△22.7%)	1.3
Others	0.8	0.1 (△87.5%)	0.7

Source: Ministry of Environment (2023)

[Table 3] Projects Related to Methane Reductions in MAFRA's 2025 GHG-Reduction-Aware Budget

Account	Program	Project	Budget for 2025 (KRW million)	Projected Reductions for 2025 (tons)	Projected Cumulative Reductions for 2030 (tons)
Subtotal			84,418	269,450	1,616,700
Account for Improving Agricultural and Fishing Villages	Establishing Low-carbon and Green Livestock Systems	Voluntary GHG Reduction Projects in Agriculture and Rural Areas	485	14,000	84,000
		Low-Carbon Agricultural Product Certification Project	3,583	126,450	758,700
	Insect Microbial Industry Development Support	Insect Industry Commercialization Support	180	-	-
		Establishment of Insect and Sericulture Industry Clusters	7,875	-	-
Livestock Development Fund	Manure Treatment Support	Mitigating Odor from Livestock Facilities	26,460	-	-
		IC Equipment for Odor Measurement	500	-	-
		Joint Livestock Waste-to-Resource Facilities	28,165	115,839	695,034
		Modernizing Facilities for Green Compost & Liquid Fertilizer Production	250	-	-
		Promotion of Manure Utilization	3,200	13,161	78,966
		Promotion of Circular Agriculture	6,125	-	-
		Operation of the Livestock Environment Management Center	7,595	-	-

Source: Ministry of Food, Agriculture and Rural Affairs(2025c)

Strategic Expansion of Budget Required to Reduce Methane

The Government Must Scale Up and Allocate Additional Budget to Meet its 2030 Methane Targets, as Pledged to the International Community.

The South Korean government must expand the scope of agricultural budget items related to methane mitigation by introducing a broader range of targeted programs and strategically increase funding for projects that have a higher methane reduction potential per unit of budget. Among the 11 methane-related projects under MAFRA's GHG-Reduction-Aware Budget, the two largest by budget size are *Joint Livestock Waste-to-Resource Facilities* (KRW 28.2 billion) and *Mitigating Odor from Livestock Facilities* (KRW 26.5 billion). Of the two, only *Joint Livestock Waste-to-Resource Facilities* has quantifiable GHG reduction impact, with approximately 4 tons of GHG emissions reduced per KRW 1 million. In contrast, *Low-Carbon Agricultural Product Certification Project* and *Voluntary GHG Reduction Projects in Agriculture and Rural Areas*, both associated to methane reduction, can reduce 35 tons and 29 tons of emissions per KRW 1 million, respectively.

The most effective and immediate solution to reduce agricultural GHG emissions is to mitigate methane from *enteric fermentation and rice cultivation*, as both contribute significantly to national GHG emissions.

Budget Restructuring to Achieve the 2030 GHG and Methane Targets in the Agricultural Sector

The South Korean government has pledged to reduce 5 Mt CO_2eq in the agricultural sector—equivalent of 22.5% of 2018 emissions—by 2030. Yet, the sectoral emissions in 2022 have increased compared to 2018 levels. If this trend continues, the government will need to reduce more than 5.6 Mt CO_2eq annually over the next five years to meet the 2030 reduction targets.

However, under the current budget structure, it would be realistically impossible to achieve the them. That is largely because MAFRA has limited budget resources allocated to programs that yield measurable reduction outcomes. In 2025, MAFRA's GHG-Reduction-Aware Budget amounted to KRW 221.8 billion, and of it, the Quantifiable Reduction Budget accounts for only 69%, at KRW 154.1 billion.

With this level of investment, MAFRA is projected to reduce approximately 1.69 Mt CO_2eq from 2025 to 2030. **Assuming that agricultural emissions in 2025 remain at levels similar to those of 2022, an additional reduction of over 3.9 Mt CO_2eq would be required for the sector to achieve its 2030 NDC target.**

The key to reducing emissions in the agricultural sector is methane mitigation. **Of the 1.69 Mt CO_2eq cumulative GHG reductions that MAFRA can achieve between 2025 and 2030, about 1.62 Mt CO_2eq is expected to come from methane-related projects. Nevertheless, the budget allocated for methane reduction remains insufficient.** According to the 2030 Methane Reduction Roadmap set by the government, the agricultural sector must reduce over 2 Mt CO_2eq compared to 2020. Yet the current size of budget requires an additional reduction of at least 0.4 Mt CO_2eq. This finding underscores the need to increase investment in programs that have higher mitigation potential and boost existing budgets.

The government must therefore restructure its budget, prioritizing on projects that can deliver measurable reductions and increase funding in methane-intensive

sources, such as enteric fermentation and rice cultivation. These areas offer the most practical and effective opportunities in the short run for reducing agricultural emissions.

Finally, in the long term, the government should establish a system to track and publicly disclose how the *GHG-Reduction-Aware Budget and Fund Management Plan* contributes to the NDC target. The current Budget is not aligned with the detailed project plans under the *National Strategy for Carbon Neutrality and the First National Basic Plan*, that reflects Korea's 2030 NDC target. As a result, it is difficult to evaluate whether South Korea is on track to meet its NDC using the budget data alone. Ultimately, South Korea's chances of meeting its NDC goal depends on how much the government increases the Reduction Budget and how transparently it manages its implementation and outcomes.

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