

食糧政策は気候変動下の米価変動を緩和するが政策コストは上昇する

Estimation of cost and effect of food policy to mitigate rice price variation under climate change in Bangladesh

Bangladesh is geographically characterized by frequent natural disasters such as floods and cyclones, making it vulnerable to climate change. The impact of climate change on agricultural production is a major concern. Here, we estimated the cost and effect of food policy to mitigate rice price variation under climate change.

Under the climate change scenario RCP6.0 and the crop yield model MIROC5, rice yields show an increasing trend in the ranges of variation (Fig. 1, Table 1).

When comparing the policy of strengthening procurement, storage, and distribution with the current policy, the stabilization of rice prices is achieved (Fig. 2), and the effect is a reduction in the coefficient of variation by 2.34 percentage points (Table 2). The additional cost required for the policy is estimated to be 1.67 billion dollars per year.

Climate change is projected to make the crop yields unstable in Bangladesh, hence we estimated the cost and effect of procurement and distribution policies in mitigating rice price variation under climate change.

When inputting future climate data from climate scenario RCP6.0 into the yield model, rice yields show an increasing trend in the ranges of variation (Table 1 and Fig. 1).

As Fig. 2 shows, the intensified new policy can reduce the range of price variation. The reduction in price variation is almost 2.34 percentage points (Table 2), while the additional cost associated with the policy is US\$392 million.

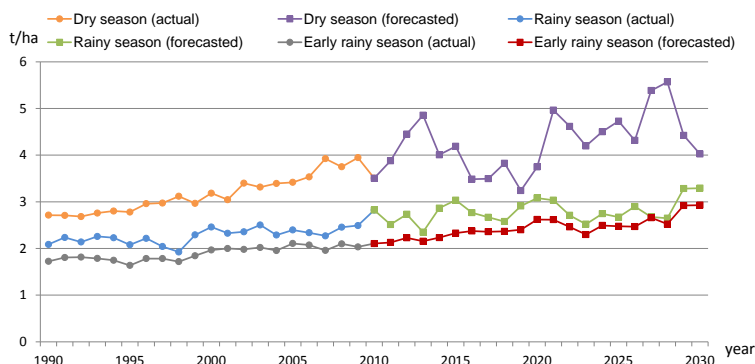


図1 コメ収量の実績と将来予測(改良品種の場合)
Fig. 1. Actual and forecasted rice yields of improved varieties for different rice seasons

表1 コメ収量の変動と気候変動の影響

Table 1. Rice yield variation and climate change impact

Rice season	Coefficient of variation (%)		Climate impact (% point)
	Until 2009	2010 - 2030	
Early rainy (Aus)	8.32	9.30	0.98
Rainy (Aman)	7.76	8.72	0.96
Dry (Boro)	12.28	14.6	2.32

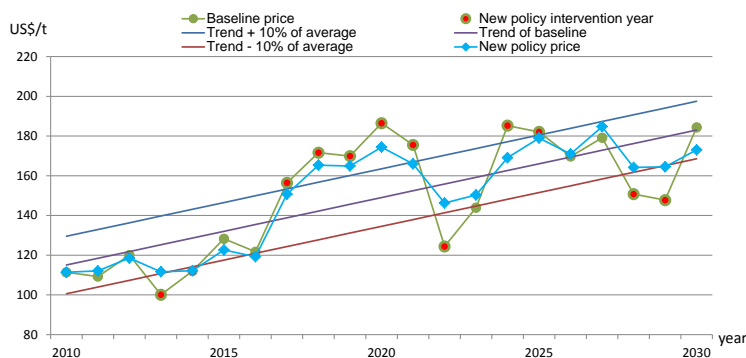


図2 食糧政策による価格の安定化(農家庭先価格の例)
Fig. 2. Stabilization of rice price by an intensified food policy (farm gate price)

表2 コメ価格の変動と食糧政策の効果

Table 2. Rice price variation and policy effect

Price type	Coefficient of variation (%)		Policy effect (% point)
	Baseline	New policy	
Farm gate	19.85	17.50	-2.35
Retail	25.75	23.42	-2.33

