

HSC024-02

Room:201A

Time:May 24 09:00-09:15

Impact of rainfall and flood on rice cultivation in Bangladesh

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The long-term variation in rice production in Bangladesh was examined for the period from 1947 to 2008, and the impact of rainfall and recent severe floods was discussed. Although rice production is highly dependent on summer monsoon rainfall in India and other Asian monsoon countries, the relationship is poorly identified in Bangladesh. On the other hand, a clear relationship has been observed between severe floods and rice production. In general, there are three varieties of rice crop in Bangladesh, namely Aus in the early rainy season, Aman in the late rainy season, and Boro in the dry season. The cultivated area of Aman was almost constant throughout the study period, with some sharp drops in severe flood years. That of Aus slightly increased before the mid-1970s, and then began to decrease subsequently, decreasing more rapidly after the late 1980s until 2006. The yield of Aus tended to rise sharply in years following severe floods. The cultivation area of Boro gradually increased after the mid-1960s, in particular after years of severe flooding. The yields of all varieties, especially Boro, consistently increased starting in the mid-1960s, due to the introduction of high-yielding varieties. Because yields also tended to increase after severe flooding, the total rice production rose sharply after years of severe floods. After the severe flood of 1998, the production of Boro exceeded that of Aman for the first time, and the difference in production between these two varieties has since increased. As such, rice production in Bangladesh has almost consistently increased in time, even with severe flood damage during rainy season.

Keywords: rice cultivation, flood, rainfall, irrigation