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Mitigating Climate Change Impacts on Agriculture: A Comparative Study between Bangladesh and Japan

Mohd Basheer[1]*, Luma AbuOrabi[1]
[1] Department of Civil Engineering, University of Jordan, Jordan
* Corresponding Author's Email: mhm8220041@ju.edu.jo

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Extended Abstract

Climate change presents hurdles for farming in both Bangladesh and Japan. In Bangladesh, farmers are at risk due to soaring temperatures, erratic monsoons, and escalating floods. Meanwhile in Japan despite its progress the country grapples with changing rainfall trends and the ramifications of typhoons [1-3]. This research examines the challenges confronting both countries and underscores areas for cooperation. A study analyzing climate patterns and agricultural output data from the Bangladesh Meteorological Department (BMD) [4] and Japan's Ministry of Agriculture (MAFF) [5] and insights gathered from interviews with 50 farmers in both nations from 2000 to 2020 revealed trends. (See Figs. 1-2 and Table 1.). It was observed that Bangladesh is facing challenges such as rising flood occurrences and soil salinity issues; in Japan, improved agricultural practices like automated irrigation systems and the cultivation of resilient crops have led to a 10% increase in productivity. The research highlights Bangladesh's potential to gain from Japan's affordable precision agriculture methods and for Japan to explore Bangladesh's community-centered approaches in regions. They can share knowledge by combining technology with farming practices and engaging in joint research to tackle the challenges posed by climate change in agriculture.

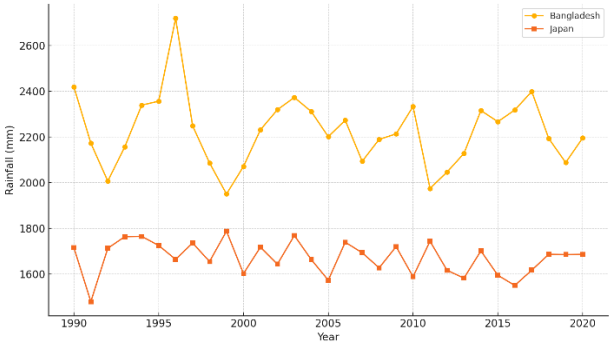

Figure 1: Annual Rainfall Trends in Bangladesh and Japan (1990-2020).

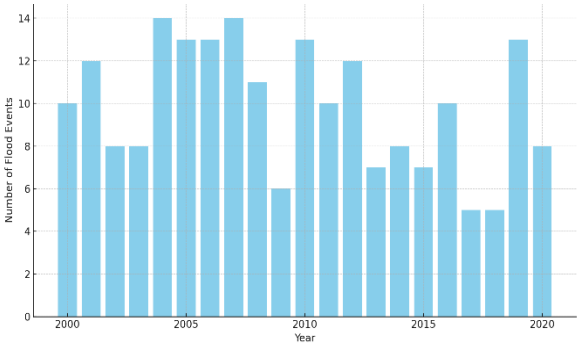

Figure 2: Frequency of Major Flooding Events in Bangladesh (2000-2020).

Table 1: Crop yield differences with and without precision agriculture in Japan. (Data from Japan's MAFF [5]).

Crop	Yield Without Precision Agriculture (tons/ha)	Yield With Precision Agriculture (tons/ha)
Rice	5.2	5.7
Soybeans	2.8	3.1
Vegetables	6.5	7.2

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