

# 2019 Annual Summary Report

**RCA Project Number:** RAS5077

**RCA Project Title:** *Promotion of the application of mutation techniques and related biotechnologies for the development of green crop varieties*

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**Status:** On schedule

**Progress and Achievements:** Two Regional Training Courses on methodology and mechanisms for Screening of photosynthetic efficiency, molecular approaches for selection of desired green traits in crops, were held in Philippines and Indonesia, respectively. One Technical Meeting on assessing nutrient use efficiency in mutation breeding programmes in China. Significant preliminary achievements have been obtained in most of the GPs who has a long-term mutation breeding program in national, and new comers with less background of mutation successfully started their work, promoting the application of irradiation induced mutation techniques in plant breeding in this region. Mutant genes for heat tolerance and nutrition use efficiency were mapped and characterized. 5 protocols of mutation induction by heavy ion beam irradiation were optimized. 78 advanced promising mutant lines in diversity crops have been developed for official regional multi-location trials, in which 19 mutant lines including rice, wheat, maize, soybean and chickpea with improved green traits were released and disseminated to farmers to contribute in food security. Strengthened human resources in GPs by conducting two training courses and functioning the Asia and Oceania Association of Plant Mutagenesis (AOAPM).

**Challenges and Recommendations:** Participating countries should provide financial support for implementation of the national workplans of the project. Participants not having an irradiation facility in their country are encouraged to use the irradiation service of the FAO/IAEA Plant Breeding and Genetics Laboratory in Seibersdorf, Austria, or arrange irradiation of their material in one of the projects participating countries (RRUs)having such facilities.