

Project Progress Assessment Report -RAS5077

Basic Information

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| Project Number: | RAS5077 |
| Project Title: | Promoting the Application of Mutation Techniques and Related Biotechnologies for the Development of Green Crop Varieties (RCA) |
| Project Objective: | To increase environmentally friendly crop productivity through the application of mutation techniques and related biotechnology. |
| Field of Activity: | 20 Crop production |
| SDG: | |
| Country: | Regional Asia & the Pacific |
| Counterpart Name: | Luxiang LIU |
| Counterpart Institution: | Chinese Academy of Agricultural Sciences CAAS - Beijing |
| 1st Year of Approval: | 2016 |
| Estimated Duration (years): | 4 |
| Expected End Date: | 2019-12-31 |
| Reporting Period: | 2020 |
| Has anything affected project implementation? | No |

Output Progress

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| Output: | 01 - Project Management Team Operational |
| Indicator: | |
| Output Base Line and Target: | |
| Progress Towards Target: | N/A |
| Rating: | Completed |
| Comments on progress made: | The planned regional training course, and technique meeting have not been implemented in face to face on schedule in 2020 because of the COVID-19 pandemic through the world. The final review meeting etc. was suggested to be hosted in 2021. Due to the global pandemic of COVID-19, a coordination meeting via videoconferencing of RCA Project RAS5077 was held on 8 - 9 October 2020 to access progress of the project, . A virtual dry run for preparatory meeting was conducted on the 5 October 2020. Seventeen National Project Coordinators (NPCs) or senior members of national project teams from 17 Government Parties (GPs) in Asian and Pacific countries and the Technical Officer (TO) of the Project (FAO/IAEA Joint Division), Section Head (SH) of the Plant Breeding and Genetics, Programme Management Officer (PMO) and RCA Focal Person (RCA FP) participated in the meeting. |

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| Output: | 02 - Project management and regional cooperation / partnerships |
| Indicator: | Project activities and budget are implemented and utilized as planned |
| Output Base Line and Target: | |
| Progress Towards Target: | N/A |
| Rating: | Completed |
| Comments on progress made: | One group meeting of NPCs taken place in virtual from 5, 8 to 9 October 2020 and GP project progress in the past four years with the focussion on the year 2020 were reported on line. The two RTCs and final review meeting was suggested to be implemented in 2021. Due to the global pandemic of COVID-19, a coordination meeting via videoconferencing of RCA Project RAS5077 was held on 8 - 9 October 2020 to access progress of the project, . A virtual dry run for preparatory meeting was conducted on the 5 October 2020. Seventeen National Project Coordinators (NPCs) or senior members of national project teams from 17 Government Parties (GPs) in Asian and Pacific countries and the Technical Officer (TO) of the Project (FAO/IAEA Joint Division), Section Head (SH) of the Plant Breeding and Genetics, Programme Management Officer (PMO) and RCA Focal Person (RCA FP) participated in the meeting. National project activities and progress made were presented, as well as the national project workplans, which were discussed and amended in order to align with overall objective of the project. The meeting was also used as an occasion to reinforce the activities of the Asia and Oceania Association of Plant Mutagenesis (AOAPM). The outcome of the meeting resulted in the formulation of 9 recommendations (2 for IAEA, 3 for the Government Parties and 4 for the National Project Coordinators) aimed at efficient implementation of the project, three main concluding remarks were also formulated. Reports were prepared and submitted by the NPCs; which includes, the prevailing situation in relation to the project, progress report, and the national workplan for 2020 and future sustainability. |

Output: 03 - Trained personnel on breeding of green crop using nuclear techniques and related biotechnologies
Indicator: At least 5 scientists/officials per country attended and benefitted from the regional training courses (RTCs)
Output Base Line and Target:
Progress Towards Target: N/A
Rating: Completed
Comments on progress made: The two RTCs were suggested to be implemented in 2021 as of the impact of covid-19

Output: 04 - Advanced mutant lines with green targeted traits and screening protocols developed
Indicator: At least 5 advanced mutant lines with target green traits selected by the end of the project
Output Base Line and Target:
Progress Towards Target: N/A
Rating: Completed
Comments on progress made: Focusing on green traits such as disease resistance, drought and salt tolerance, high nutrition use efficiency, etc. Four meetings and Four training courses organized. The main achievements of the projects since 2019: five protocols of mutation induction by heavy ion beam irradiation were optimized; 78 advanced promising mutant lines, in which 19 mutant lines including rice, wheat, maize, soybean and chickpea with improved green traits were released; Strengthened human resources in GPs by conducting 2 training courses and functional activity of AOAPM Mutation Breeding Network (MBN) for Asia and Pacific: initiated in 2019 and 13 signed members plus some observers. Put forward suggestions of implementation activities for discussion: training courses via video-conferencing; to provide some pieces of equipment (hardware/software) for participating countries. Each GP participants highlighted progress been made in their national activities and some key achievements made. These include number of protocols (focusing on green traits) developed, number of mutant varieties and mutant lines etc. developed/released or in the pipeline for release. Participants agreed to develop a success stories achieved in other to show the impact of the project. None of the 2 regional trainings and one final technical meeting earmarked for 2020 workplan could not be carried out , due to the pandemic of COVID-19. .It was proposed to have e-training and final review meeting through videoconference which is to be organized by the end of this year or by end of Q1 in 2021; Financial support through purchase of small equipment, or chemicals/ markers etc was agreed to be provided to some participating countries that have no financial support from their government for mutation breeding to implement the respective RCA projects.

Equipment and Human Resources

Rate overall contribution towards achievement of project Outputs: Procurement and Human Resources

Equipment (EQ) / Sub-Contract (SC) Rating: Not Applicable
Comments:

Expert Mission (EM) Rating: Not Applicable
Comments:

Fellowship (FE) Rating: Not Applicable
Comments:

Scientific Visits (SV) Rating: Not Applicable
Comments:

National Training Courses (TC) Rating: Not Applicable
Comments:

Meetings (MT) / Workshops (Ws) Rating: Very Good

Comments:

The NPC virtual meeting held on 8-9 Oct 2020 was successfully . The meeting was attended by 17 NPCs or senior members of national project teams from Australia, Bangladesh, China, India, Indonesia, Japan, Lao P.D.R., Malaysia, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, the Republic of Korea, Sri Lanka, Thailand and Vietnam, and the Technical Officer (TO) of the Project, Section Head (SH) of Section of Plant Breeding and Genetics (IAEA, Joint FAO/IAEA Division), Programme Management Officer (PMO) and RCA Focal Person (RCA FP).The meeting began with a preparatory and administrative session on 5 October 2020, and was chaired by Dr. Luxiang Liu, Leading Country Coordinator (LCC) of the Project RAS5077. Dr. Sinh Van Hoang, RCA FP and PMO of the project introduced the background of the virtual meeting, and emphasized that objectives were looking at the past four-year progress and planning the next year work.Dr. Isaac Kofi Bimpong, the TO of the project in his remarks welcomed the participants. All participants made a brief self-introduction and resolved arisen problems in smooth running of videoconference.

Comments and Recommendations by CP**Rating by CP****Rate the project progress:**

Very Good

Good 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. The project counterparts stressed the importance of continuing the project activities to allow further development of mutant lines/varieties to ensure the sustainability of the project.

Comments:**Rate the support received from the Agency:** Very Good**Comments:**

The supports from the Agency were timely and highly effectively for the successful implementation, especially in the very difficult year of 2020 with covid-19 panedemic.

Lessons from previous projects or learned during implementation:**Recommendations (if any) to PMO :**

The management and timely direction of this project under the very hard year 2020 of covid19 is highly perfect.

Recommendations (if any) to Technical Officer(s) :

The technique direction of this project is very helpful and timely.

Recommendations (if any) to NLO :

a) Government authorities of participating countries should promote mutation breeding as effective approach to counteract the effect of climate change, green agricultural development, nutrition and food security. b) Participating countries should provide long-term financial support at national level as well as human resources and necessary facilities for implementation of mutation techniques for crop breeding. c) Government authorities of participating countries should communicate frequently and closely with National Project Coordinators through national representatives to strengthen process management.

Recommendations (if any) to others :**Outcome Progress****Outcome:**

Enhanced capability of the RCA Government Parties in effective use of mutation techniques and biotechnology for the development of green crop varieties

Indicator: Trainers trained on mutation breeding techniques and related biotechnologies. Number of new improved mutant varieties/lines of local selected green crops.

Outcome Base Line and Target:

Progress Towards Target: N/A

Rating: To be achieved as planned

Comments: Trainers trained in the past regional activities in the past 4 years on mutation breeding techniques and related biotechnologies has played important roles for dissemination of the expertise learned from the RTC and promoted the mutation breeding work in the national network. New advanced mutant lines with improved target green traits of local selected crops have been developed and to be released and applied in the farmers' filed.

Feedback by IAEA

Rating and comments on the project progress by PMO

Rating of the project progress: Very Good

Comments: Very good

Name: Sinh Van HOANG

Date: 2021-02-19 08:38

Planned Regional Events under RCA Project RAS 5077 in 2021

| No. | Title of Event | Date | Objective/purpose | Remarks |
|-----|--|------------------------|---|---|
| 1 | RTC on Molecular Approaches for Selection of Desired Green Traits in Crops | July 2021 | <u>Objective:</u> to provide technical and practical knowledge on modern molecular technologies for mutation discovery <u>Target participants:</u> Qualified mid-level scientists actively involved in the national workgroups of the project <u>Estimated number:</u> 25 | Virtual Mode 12 lecturers for three days |
| 2 | Home-based assignment (HBA) to develop E-learning materials on molecular approaches for Selection of desired green traits in crops | June to August 2021 | N/A | 20 working days needed |
| 3 | RTC on advanced plant mutation breeding and molecular markers | September 2021 | <u>Objective:</u> to provide technical knowledge on advanced plant mutation breeding and molecular markers <u>Target participants:</u> Qualified scientists actively involved in the national workgroups of the project <u>Estimated number:</u> 25 | Virtual Mode 12 lecturers for three days |
| 4 | Home-based assignment (HBA) to develop E-learning materials on advanced plant mutation breeding and molecular markers | August to October 2021 | N/A | 20 working days needed |

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| 5 | Final Project Review Meeting | December 2021 | <p><u>Objective:</u> to review the project and provide final and updated information on the methodologies suitable for selection of desired green traits in crops in a mutation breeding programme</p> <p><u>Target participants:</u> NPCs or A/NPCs or senior members of national project team.</p> <p><u>Estimated number:</u> 25</p> | Virtual Mode Three days |
| 6 | Home-based assignment (HBA) to assist in the preparation, organization, implementation and reporting on final project review meeting | November 2021 to January 2022 | N/A | 30 working days needed |