



**Projects Description
for
ARASIA TC Programme**



TC Cycle 2012-2013

Project Number: RAS5058

Project Title: Supporting Mutation Induction and Supportive Breeding and Biotechnologies for Improved Wheat and Barely - Phase II

Field of Activity: Crop production

Objective: To contribute to the increase of wheat and barley yields in ARASIA Member States through the application of mutation induction technology.

Problem statement: Drought, disease, heat and salinity are major constraints affecting sustainable agricultural productivity in ARASIA States Party. Most of cultivated areas depend on rainfall. Where cropping relies on limited rainfall, the concerned areas are already affected by drought. Where the complementary part depends on irrigation, disease infection results in significant reduction in yield. This situation requires an integrated approach to develop technology packages of mutant lines (resistance to diseases, salinity and heat traits, and sustainable high yield under variable climatic conditions) with proper water utilization practices. In this context, mutation induction technique has shown potential as a valuable tool in developing drought / salinity/diseases tolerant mutant lines of wheat and barley. In order to address these agricultural constraints, ARASIA States Party started a mutation breeding program under the RAS/5/048 project in 2007 with the assistance of the International Atomic Energy Agency (IAEA). Under this project some segregating mutant lines with the aforementioned targeted agronomic characters have been developed. These mutant genetic stocks need to be further evaluated, in order to ascertain their utility for breeding programs (breeding a new cereal variety takes 8 to 10 years, mutation induction has proven to shorten this period by at least 2 years, but this is still beyond the biennium timeframe of TCPs). Therefore, there is a need for a second phase which builds on the progress made under the TC project RAS5048

Linkages to regional strategies or equivalent: The project is linked to ARASIA regional profile.

Past and present regional efforts to address the need: The ongoing ARASIA project (RAS5048) tackled the problem of producing good yield under harsh conditions in the two most important seed crops of the region, namely: wheat and barley. To that end it employed the mutation breeding technique which has proven to cut at least two years of the normal 8-10 years cereal breeding program duration. Since this is still beyond the biennium timeframe of TCPs, there is a need for a second phase which builds on the progress made under the TC project RAS5048 whereby the selected mutant genetic stocks need to be further evaluated, under regional replicated field trials, in order to ascertain their utility for breeding programs in the respective countries.

Past and present support to the region by the IAEA in the same Field of Activity: IAEA has supported ARASIA countries through the ongoing project RAS5048.

End users: All the stakeholders working in the agricultural sectors and interested people in this field, and eventually the consumer through enhanced food security.

Strategy: The strategy is produce mutants varieties of strategic crops such as wheat and barley in order to contribute to food security.

Implementation arrangements: The project will build upon and continue the efforts that have been exerted under the TC project RAS5048.

Monitoring and progress reporting: Project implementation will be monitored through coordination meetings.