Impacts of the Bean Technology Dissemination Project in Guatemala, Honduras, Nicaragua, and Haiti (including Impact Overview)

The final meeting of the BTD Project was held at the Hotel Holiday Inn in Guatemala City, Guatemala, March 19–21, 2014, to review the objectives and accomplishments of the project since its establishment in 2011. PIs and project directors met to consider the project's vision and goals, achievements, and the country-specific challenges over the past three years. An analysis of the different seed dissemination models in Honduras, Guatemala, and Nicaragua was also presented.

Participants in the 2014 End-of-Project BTD Meeting held in Guatemala City, March 19-20, 2014

A brief summary of the impacts of the BTD project follows.

Quality seed ("Quality Declared" or Certified seed in 5 to 20 pound sacks) of improved bean varieties, developed through long-term research investments in the breeding programs at the Escuela Agricola Panamericana–Zamorano/Honduras, the University of Puerto Rico and in national bean programs by the Bean/Cowpea and Dry Grain Pulses CRSPs, was distributed to 100,315 smallholder farmers in Guatemala (33,344), Honduras (24,286), Nicaragua (16,045), and Haiti (26,640) through the BTD Project. (See Table below.)

In addition, 46,335 doses *of rhizobium* inoculum were distributed along with the sacks of quality-declared bean seed to smallholder farmers in these four countries, with expected significant enhancement in biological nitrogen fixation and grain yields.

More than 400 community seed banks (including CIALs) were either established and/or multiplied bean seed in the three Central American countries, of which approximately 35 percent are projected to continue to operate beyond the completion of the BTD project. Community seed banks are an informal system managed by leader farmers in a community who assume responsibility for the multiplication of seed of preferred bean varieties within a bean production area. The community seed bank model ensures "seed security" to smallholder farmers, specifically, access to quality seed (genetic purity, disease free, high germination rate, and vigor) at an affordable price for planting during future cropping seasons. The BTD project has demonstrated that leadership by a committed group of experienced bean farmers and appropriate

incentives (profitability, civic responsibility, access to technical assistance from NARS [National Agriculture Research Systems], and access to registered seed of newly released bean varieties) are important for the sustainability of community bean seed systems in Central America.

The BTD has also contributed to building up the capacity of the National Agriculture Research Systems in Guatemala (ICTA), Honduras (DICTA), Nicaragua (INTA), and Haiti (NSS) to produce and handle (clean, condition, package, store, etc.) large quantities of Foundation and/or Registered seed of improved bean varieties. Utilizing the expertise of Legume Innovation Lab-supported scientists, technicians from Haiti and Nicaragua were trained in *rhizobium* inoculant production, and more than 3,687 farmers received training in integrated management practices to produce (disease diagnosis and management, soil fertility management, etc.) and handle (seed drying, storage in silos, bruchid control) quality bean seed.

The DG of ICTA–Guatemala indicated that the BTD project greatly benefited his institution. To oversee the production of "quality declared" seed and the dissemination of the seed to communities of farmers throughout the country, the bean scientists of ICTA, including breeders, had to interact with bean farmers and farmer organizations, gaining tremendous knowledge of the diverse agroecologies in Guatemala where the beans are grown and of the challenges faced by smallholder farmers.