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**“The Impact of Molecular Markers and Marker Assisted Breeding on
Asian Research Systems and on Farmers: A Case Study of the Asian
Maize Biotechnology Network”**

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ABSTRACT

The Asian Maize Biotechnology Network (AMBIONET) is a network of maize scientists that was set up in 1998 by CIMMYT and five National Agricultural Research Systems (NARS): China, India, Indonesia, Philippines, and Thailand. Vietnam has since joined during the second phase of the project which started in 2002. The Network term is due to terminate in 2005.

The objectives of AMBIONET were to strengthen the research capacity of key government maize research institutions in Asia and to improve the ability of Asian NARS to produce improved maize cultivars for poor farmers in Asia. The research capacity building component focuses on the use of molecular markers and molecular breeding.

The primary method for seeking answers to these questions was through personal interviews conducted between November 2003 and August 2004 with many of the NARS and CIMMYT scientists who were involved in AMBIONET and through interviews with government scientists and officials in private firms outside AMBIONET. We developed a questionnaire that was filled in by the country coordinator of each country. In addition we reviewed the reports and some of the published papers of the AMBIONET team and other networks.

The main findings of the interviews are:

1. Although AMBIONET was developed and expanded in two projects funded by the Asian Development Bank; the resources provided to AMBIONET by ADB and CIMMYT in the two projects were quite small – \$2.4 million from ADB and about \$1.3 million from CIMMYT,

2. Despite the limited amount of resources invested, maize research in Asia has been strengthened, particularly at the institutes that were collaborating with AMBIONET in China, India, and Indonesia. Vietnam also seems to be making good progress, despite its recent start. AMBIONET has strengthened the research of individual scientists in the Philippines and Thailand even though it was less successful at building research institutions.
3. Much of the AMBIONET research is focused on problems of small farmers and has made good progress toward developing improved disease resistant lines that can be used in breeding programs.
4. Farmers are just starting to benefit from AMBIONET research. The size of the benefits in the future is difficult to predict, but these benefits will easily pay for the costs of AMBIONET expenditures many times over.
5. CIMMYT has also benefited from this program gaining knowledge about Asian maize germplasm and knowledge and molecular markers for important diseases and drought. AMBIONET has helped CIMMYT move towards its goals of stronger maize research programs and improved technology for the poor in developing countries.