### Title of case study
Unraveling the cocoa genome

### Name of organization(s)
Mars, IBM and U.S. Department of Agriculture

### Business sector
Food & Beverages; Science & Technology

### Region(s) relevant to case study
- All regions
- Africa and the Arab States
- Asia and the Pacific
- Caribbean and Central America
- Europe
- Least Developed Countries
- North America
- Polar regions
- Small Island Developing States
- South America

### Country(s) relevant to case study
USA (IBM and Mars headquarters)

### Adaptation sector(s) relevant to case study
- Business
- Education and training
- Food security, agriculture, forestry and fisheries
- Human health
- Oceans and coastal areas
- Science, assessment, monitoring and early warning
- Terrestrial ecosystems
- Tourism
- Transport, infrastructure and human settlements
- Water resources
- Other (please specify): "Genetic mapping"

### Adaptation activity
In the past several years, the cocoa industry has been hit with a series of destructive fungal diseases that have cost the world's growers an estimated US$700 million in losses every year.

In 2010, Mars, IBM and the U.S. Department of Agriculture (USDA) completed a two-year effort to sequence and annotate the cocoa genome. By analyzing the DNA of hundreds of cocoa trees in South America, Mars’ scientists identified 10 distinct structure groups of the tree and their exact origins. Researchers used IBM's computational biology technology and expertise to develop a detailed genetic map, identifying the specific
| Cost-benefit | This research is playing an important role in helping to safeguard the world’s chocolate supply, making Mars’ supply chain more resilient to the impacts of climate change. It will lead to quicker, more accurate breeding and allow farmers to plant better-quality cocoa that is healthier, stronger, highly productive and more resistant to pests and other threats that will be exacerbated by climate change. |
| Case study source(s) | Mars, Inc. website IBM “Smarter Planet” website |

Source: www.mars.com