How do cacao genetic resources contribute to a sustainable world cocoa economy?

Jan Engels
CacaoNet Coordinator
Table of content
1. What are cacao genetic resources?
2. Why and how are they critical?
3. Why do they need to be conserved and made available?
4. What is CacaoNet? What is its role?
What are cacao genetic resources?

- Wild relatives of cacao (i.e. the *Theobroma* genus)
- Wild populations, all traditional varieties as well as modern bred varieties of *Theobroma cacao*
- Genetic stocks, breeding and research materials
- Related information and knowledge to use these resources
What are cacao genetic resources?

• Genus originated in South and Central America
• Cacao was first domesticated in Central America
• Centre of diversity is in the Amazon basin
• Interdependency of countries for genetic resources
• Limited research being done (considering cacao’s worldwide economic importance)
Cacao is a challenging crop to conserve!

- Seeds cannot be dried and stored at low temperature.
- Only way to conserve them is as living trees in the field or as tissue culture in the lab (ex situ), or in nature (in situ).
- These methods are risk-prone (i.e. natural calamities; pests and diseases; etc.) and costly!
Why and how are these genetic resources critical?

- They allow species and crops to **evolve** in nature and in farmers’ fields
- They are the **basis** for farmers and breeders to produce good planting material
- They possess the **genes** that allow the crop to **adapt or to cope** with new conditions (climate change!; pest and disease resistances; quality aspects; etc.)
- They are **critical to sustainable cocoa production**
Why must cacao genetic resources be conserved and made available?

• Genetic diversity is under severe threat (e.g. deforestation; crop and variety replacement; pest and diseases; land use changes; etc.); losses are irreversible!

• Breeders and researchers need access to well characterised/evaluated germplasm to support the development of improved planting material

• Future generations need adequate genetic diversity to allow adaptation of the crop to new conditions and requirements (e.g. new pests in new locations; new qualities; etc.)
What is CacaoNet?

• Launched in Oct. 2006
• Specialist input and oversight provided from Expert Working Groups
• Coordination by Bioversity International
• Financial contributions from public and private sectors
CacaoNet priority areas

- Germplasm collecting
- Conservation of public domain germplasm
- Germplasm exchange, incl. plant quarantine
- Characterization (morphological and molecular)
- Evaluation and germplasm enhancement
- Information and database management
Conclusions

1. CacaoNet provides a platform for the conservation and utilization of genetic resources

2. Full involvement of all countries and stakeholders is needed

3. Long-term funding for global conservation and use is essential
Thank you for your attention!

RSCE2
Port of Spain, 23-26 March 2009