Global Vision for the Reunion Island Cassava Germplasm Transit Center

1) Methods to support immediate awareness and measures to take to reduce the chance of movement of CBSD
   - Communication with extension systems, implement seed system diagnostics for CBSD in seed systems in Africa.
   - Organization of the rapid deployment of the best available genes for CBSD resistance, CMD resistance and other traits to help farmers in Africa.

2) Pilot test demonstrates that intercontinental and interregional germplasm transfer can take place facilitated by safe introduction, hybridization and distribution of germplasm through Reunion Island.

3) Regional consultation with African cassava breeders to prioritize traits and opportunities for fast track utilization of interregional transfer of cassava germplasm (Breeders, subregional organizations, gender researchers, socio economists, AATF, CG centers).
   - Happening in year 2 of the project.
   - This is an important activity to engage regional cassava breeders
   - A workshop could be held in Reunion Island or at one of the regional centers of excellence.

4) Organize regional African distribution system for botanical seed with alleles for new traits that are important to regional breeding programs.
   Create a strong linkage with subregional organizations and regional centers of excellence through WAAPP, EAAPP and similar programs.
   Initial focus recipients in Africa will be IITA, RCE Ghana, RCE Uganda and selected advanced National cassava breeding programs.

5) Additional important parents from regional African countries can be sent to Reunion for introduction of important traits.

6) Production and distribution of clean planting material of selected clones by the Reunion Island Transit Center. This will target regional cassava programs that cannot easily produce planting materials from tissue culture plantlets.

7) Prebreeding for selected cassava traits utilizing expertise of CIRAD scientists targeted to specific regional cassava priorities.

8) Provide opportunities for involvement of regional PhD students and post docs to advance African cassava breeding programs especially as forum to complement existing capacity development programs in Africa.

9) Pan-African CMD, CBSD, whitefly cassava breeding consortium targeted at minimizing current and future loses from cassava virus/white fly complex.
10) Lead cassava bacterial blight management consortium to reduce global threat from bacterial diseases.

11) Other breeding research potential including
   • Effective exploitation of heterosis based on interregional hybridization,
   • Targeted utilization of wide crosses in cassava

Justification and Benefits:
   • Document need and economic benefit of efficient use of genetic resources between cassava growing regions.
   • Reduce risk of inter region disease and pest transfer.
   • Estimate cost of Pilot project for CIRAD in La Reunion Island
   • 3 years-Pilot Project with strong diagnostic plan with at least 3 diagnostic steps upon entry, BL3-BL2, BL2-field and organizing regional germplasm exchange system
   • 5 years – second cycle demonstrating benefit to regional cassava breeding programs with expanded traits and parents
   • 10 years – prebreeding implemented involving post-doctoral researchers from regional African breeding programs focused on developing CBSD/CMD/whitefly resistance and important post-harvest traits such as high starch, waxy starch, biofortification using germplasm from regional breeding programs.
   • Efficiently incorporate the variability and products of advance breeding methods that utilize genomic technologies including genomic selection and gene editing strategies specifically targeted to benefit African farmers.