A conceptual modelling approach of tropical agroforestry systems: a case study on coffee-based agroforests in “Guinée forestière” (Guinea, West Africa)

**Objective**

Develop a conceptual model of coffee-based agroforests using the method of Wery et al. (2009) developed for the conceptual modelling of a cultivated field in order to:

- Better understand the production of coffee-based agroforests
- Share knowledge with scientists of various disciplines and local expert
- Using a case study in Guinée forestière (West Africa)

**Results**

1 - The trajectory of a coffee-based agroforest field

is represented by the succession of structural groups (composition and structural criteria of the vegetation) along the coffee-trees development.

2 - Structural analysis of a coffee-based agroforest field

- Coffee-based agroforests can be described with a limited set of components (the tree strata, the coffee-trees strata, the tree and herbaceous regeneration strata, the soil strata, a pest and disease component).

3 - Dynamic analysis of a coffee-based agroforest field

**Conclusion**

- The method proposed by Wery et al. (2009)
  on simpler cropping systems is relevant to study agroforest fields
- The conceptual model will be further improved with expert interview and validated by agronomic diagnosis (Rapidel et al. 2006)
- After this in-field validation, the conceptual model can be used for designing new systems by experiments and building a numeric model of the long term dynamic of coffee-based agroforests’ production.