Introduction
Slash-and-burn agriculture by subsistence farmers remains a significant cause of deforestation. Sustainable agricultural intensification around protected areas has been shown to improve farmers' livelihoods and contribute to changes in land use patterns that reduce encroachment on forest land. Cassava is one of the main food crops produced in communities around the national parks for food and income in the Southwest of Cameroon. Processed roots constitute a major source of food and income, especially for women. Cultivation methods are largely traditional using lower yielding farmer varieties with little knowledge of soil fertility improvement techniques, resulting in low yields and soil degradation. In collaboration with the Project for Sustainable Management of Natural Resources-Southwest (PSMNR-SW), the International Institute of Tropical Agriculture (IITA) has been engaged in the sustainable intensification of cassava around three protected areas in the Southwest of Cameroon (Mt Cameroon, Korup and Takamanda National Parks) to improve productivity, income and livelihoods of populations around the national parks. Intensification over a 5-yr period consisted of participatory evaluation, multiplication and dissemination of disease/pest resistant and high yielding crop varieties, improvement in agronomic practices and farmer capacity development.

Approach
1. Training of trainers
The capacities of farmer leaders and Park and MINADER staff were enhanced on cassava cultivation techniques, rapid multiplication techniques of cassava stems, and soil fertility improvement. A special module on adult education techniques was prepared for the farmer leaders and Park and MINADER staff.

2. Introduction of improved cassava varieties
Four improved cassava varieties were introduced in target villages. The fields were managed under farmer field conditions, but supervised by IITA.

3. Village-based trainings
Trainings were organized and carried out with cassava farmers in all target communities in Korup, Takamanda and Mount Cameroon National Park villages. Farmers were trained on innovative cassava production technologies and soil fertility improvement skills.

4. Participatory evaluation of cassava varieties and farmers perceptions
At harvest, farmers evaluated the performance of different varieties and compared them with their local varieties in terms of yields and pests and diseases status. This was closely followed by tasting exercises to complete the preference rankings.

5. Distribution of selected varieties
Farmers' preferred varieties were multiplied and distributed to the communities for planting.

6. Soil improvement
- Conducted fertilizer experiments and introduced use of Mucuna, a leguminous cover crop to improve soil fertility and shorten fallow periods;
- Farmers' capacities were enhanced through trainings in use of fertilizer and Mucuna for soil fertility improvement;
- 75 demonstration fields were established for further participatory evaluation Mucuna-based short falls and as Mucuna seed multiplication gardens.

Achievements
- 1,159,300 improved cassava cuttings were disseminated to 1,128 farmers - 292 men and 836 women - in 23 communities in the three National Parks;
- Fertilizer use enhanced cassava root yield by 28% to 47%; greater yield increase in continuous cropping fields; fertilizer not accepted by park service;
- 72 village-based farmer leaders - 22 men and 50 women - were trained on improved cassava cultivation technologies and soil fertility management;
- 22 Park and MINADER staff - 5 women and 17 men - were trained on adult education techniques and improved cassava cultivation technologies;
- 928 farmers - 286 men and 642 women - improved cassava cultivation enhanced;
- 248 farmers - 55 male and 192 women - were trained on how to effectively use Mucuna for soil fertility improvement;
- 180 kg of Mucuna seeds were distributed to 248 farmers.
- Improved cassava adoption is high: 86% of farmers in MCNP, 82% in Takamanda and 44% in Korup (71% average across all parks);
- 40% more income is generated from adoption of improved varieties over the local variety;
- Expansion of improved cassava farming to over 3,715 farmers;
- 20% farmers declared that they have reduced use of forest land for farming;
- 46 % farmers in Korup, 83% in Mount Cameroon and 23% in Takamanda shortened fallow periods from at least 5 yrs to 1-2 years.

Conclusions
- Factors contributing to project success:
  - Well tested innovations and good collaboration between the executing partners;
  - Program in line with aspirations and needs of communities around protected areas;
  - Competence of collaborating partners and experience of IITA in participatory technology transfer strategy.
- Way forward:
  - Promote yellow root cassava for improved nutrition and scale to other communities;
  - Promote soil fertility improvement options – fertilizer and leguminous cover crops to improve productivity and shorten fallows;
  - Additional studies on the impact of project interventions on target communities livelihoods and changes in perception towards management of protected landscape;
  - Assessment of project interventions on biodiversity and forest conservation.