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MINISTERE DE L'AGRICULTURE, DE L'ELEVAGE ET DE LA PECHE

SECRETARIAT GENERAL DU MINISTERE

Institut National des Recherches Agricoles du Bénin

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STDF-48 Project

Progress Report January - May 2009

STDF	STDF - 48
Approval Date	February 2006
Start date of project	The contract between STDF and CRA-Agonkanmey was signed on 15. July 2008, but activities have started since February 2008 pre-financed by both IITA and PTAA due to agricultural season

BROAD PROGRESS ACHIEVED DURING THE PERIOD JANUARY – MAY 2009:

- Perception study on factors that influence cashew and shea quality and quality characteristics finalized; consumer attitudes on quality characteristics assessed.
- Quality parameters for shea and cashew nuts samples taken at beginning of harvest and during storage determined; microbiological analysis finalised.
- Critical control points identified for the two value chains and technological solutions to be tested prioritised.
- Analyses on physical, chemical and microbiological qualities of cashew nuts and apples collected from the production zones performed
- Analyses on sensorial, physical, chemical and microbiological qualities of shea kernels collected from the production zones performed
- Tests on technologies for improving cashew and shea products quality in progress such as
  - Study on harvesting technologies of cashew apple that do not result in negative effects on the quality of both cashew apple and nut;
  - Study on drying and storage technologies of cashew nuts and kernels;
  - Valorisation of cashew apple by conceiving derived products;
  - Conception of equipments for processing both cashew apple and nut into derived products.
- Impact of environmental indicators on shea butter quality during 3 months of storage assessed.

Broad Work achieved during the period of January – May 2009: Research highlights (in attached files)

- Physical analysis on shea kernels revealed high percentage of kernels with fungal contamination and germination that do not respect the national standards and norms.

Résultats analyses charactéristiques phy

- Chemical analyses on shea kernels finished. Statistical analyses of data being performed
- Effect of storage conditions on shea butter physicochemical quality determined. Most of physicochemical properties of shea butter were affected by storage duration and the storage structures used. High level of contamination of shea butter by microorganisms was noted during storage, but depending on the storage structures used. Storage of shea butter in basket is inadvisable to small scale processors.

shea butter storage.pptx

- Study on value chains of both shea kernel and butter finalised.

Value chains of shea kernel and shea butte

- Harvesting technologies of cashew apple that do not result in negative effects on the quality of both cashew apple and nut determined. Of the four techniques tested, two seem to give better performances in terms of sensorial and physicochemical qualities of both cashew apple and nut. These two techniques also chosen by the producers involved in the tests are namely: (i) the use of metallic small basket with long handle for picking individual matured apple, and (ii) the use of a wide net attached to cashew tree branches under foliage.

Présentation techniques récolte1.p

- Study on drying and storage technologies of cashew nuts and kernels still in progress. A countrywide survey was conducted in February 2009. Another one has just started in order to know the reasons explaining the fact that producers do not dry the cashew nuts before selling to collectors. Corrective solutions will be discussed with all actors from producers to exporters. Later in December 2009, drying and storage technologies will be tested and the ones with better performances will be proposed to producers and collectors.

Présentation sur séchage et stockage

- Valorisation of cashew apple and nut tackled by conceiving derived products. Two new products have been conceived and tested. These are: (i) candied cashew apple called by PTAA as "*cajou pomme délice*", and (ii) a delicious breakfast called "Pella breakfast" that

is a mixture of cereals (sorghum, fonio, parboiled rice) and roasted cashew nuts. Sensory and physicochemical qualities of the two products characterised. Patents will be further asked for these two products.

présentation diversification produit

- Conception of equipments for processing both cashew apple and nut into derived products also in progress. Various equipments planned to be conceived or adapted. One is already ready, i.e. the one specially conceived for putting the candied cashew apple into a regular form.

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BROAD WORK REMAINING FOR NEXT PERIOD (JUNE – DECEMBER 2009):

- Pursue technologies tests such as:
  - Test on drying and storage of shea nut and shea kernel.
  - Effect of shea nut pre-treatment on the physicochemical quality of shea butter.
  - Conception or adaptation of equipments for improving the quality of both cashew and shea derived products (cashew nut decorticator, shea nut sheller, shea nut dryer, etc.).
  - Socioeconomic studies on the technologies.
- Start with capacity building of stakeholders on good production and processing practices and on available norms and standards for cashew and shea.
- Improve the capacity of stakeholders in the value chain to respond to quality requirements of local, regional and international markets for the two commodities.

Impact	• A number of students from public and private national universities have completed their research work in the project for different degrees as follows: – **PTAA**: 2 students (2 women) in Food Sciences. Degree is BSc ; – **IITA**: 4 students (1 man and 3 women) in Food Sciences and Socioeconomics of which 2 women (agricultural economist) are strengthened in some analysis tools, 1 woman is doing her MSc in Food Sciences and the man his BSc also in Food Sciences;

Deliverable / Targets Table *(Log-frame)*

Item ID	Item Description	Target Finish Date	Actual or Forecast Finish Date	Status: (% Complete)	Comments *(Agency responsible)*
1	Contract signed	15.07.08		Completed	WTO
2	Perception study on cashew and sheanut quality, quality characteristics and factors that	1.5.09		Completed	IITA

	influence them.				
3	Identification of critical control points along the production to sale continuum to for the improvement of microbiological quality and other physicochemical parameters for cashew.	1.5.09		Completed	IITA
4	Identification of critical control points along the production to sale continuum to for the improvement of microbiological quality and other physicochemical parameters for sheanut	31.5.09		Completed	PTAA
5	Test of technological options to improve the quality of shea and cashew products	15.10.09		In progress (50%)	PTAA
6	Organise information session in villages with all the stakeholders on quality approach, Good agricultural practices (GAP) and Good Processing Practices for shea and cashew	15.2.10		In 2009	PTAA
7	Train farmers and members of inter-professional organizations on GAP and technology options to improve quality	15.2.10		In 2009	PTAA
8	Design and diffuse to stakeholders document on GAP and Good Processing practices, quality approach and critical control points for cashew and sheanut quality in 2 local languages and French	15.11.09		In 2009	PTAA/IITA
9	Inform stakeholders especially private sector on the services offered by the quality control services and national and international certification schemes	15.3.10		In 2009	Cebenor

Item ID	Item Description	Target Finish Date	Actual or Forecast Finish Date	Status: (% Complete)	Comments *(Agency responsible)*
10	Impact of environmental factors on storage and conservation of cashew and shea products (microbiological quality and other physicochemical parameters and nutritional quality).	1.5.09		In progress (70%)	IITA/PTAA
11	A study on the improvement of traditional process for the processing of shea nut into shea butter to stabilize quality characteristics including cost/benefit	15.9.09		In progress (30%)	PTAA/IITA
12	Establish a map that shows the different shea tree populations based on the chemical characteristics of the nuts and butter destined for the different market segments	15.3.10		In progress (30%)	PTAA
14	Establish a steering committee and facilitate six-monthly meetings of the steering committee.	15.9.08		In Progress (20%)	IITA
15	Establish internal indicators and a monitoring system.	15.9.09		In Progress (30%)	IITA
16	Execute an ex-ante impact assessment of the project impact.	31.8.09		In Progress (40%)	IITA
17	Project Conclusion with final workshop	31.5.10		In 2010	PTAA/IITA
18	Project external evaluation	15.9.10		In 2010	PTAA/IITA
End of Project	14.7.2010				

Budget overview

	STDF contribution ($)	In-kind contribution ($)	Total ($)	% of Total project cost
Projected Total Project Budget	455,575	36,080	491,655	
Total sum received from STDF	136,672.5			
Total expenditure from inception to 31th May 2009	127,419.6			
Unspent funds ($)	9,252.9			