

Full Length Research Paper

Assessment of Ngo SARA activities on sustainable agriculture and poverty reduction in Benty, Guinea

Moussa Camara^{1*}, Yali Wen¹, Saoudatou Toure¹, Sékou Marc Camara² and Mamadouba Traore²

¹School of Economics and Management Beijing Forestry University, Beijing, China.

²Institut Supérieur Agronomique et Vétérinaire Valéry Giscard d'Estaing-Faranah, Guinea.

Accepted 26 September, 2011

Agriculture is the principal activity of households and primary source of income, the high rate of poverty among farmers in Benty was about 63%. The type of agriculture practiced in Guinea being mainly subsistence farming, the cultivated areas are generally low. Although about 94% of farming households have hand tools (machetes, hoes, rakes and wheelbarrows), just one in ten has animal-drawn or mechanized tools. In these conditions, yields and sales capacity cannot be high. These results clearly indicate the need to prioritize the development of agriculture and rural areas in general, for rapid poverty reduction. This paper presents a socioeconomic analysis of Ngo SARA activities in Benty and prospects of improvement of farmer's living conditions. In order to better understand Ngo SARA's activities on poverty reduction, a semi structured survey consisting of 20 farmers chosen from nine villages was carried out from April to June 2011. Three complementary ways were identified to improve farmer's living conditions: (1) support to supply and production; (2) support to Marketing and (3) support of peasant organizations.

Key words: Sustainable agriculture, Benty, farm management, cooperative agriculture, poverty reduction.

INTRODUCTION

Today, Guinea is faced with huge problems among which poverty reduction and food security remains the central point. This food insecurity manifests itself in the very acute poverty covering all aspects of people, lack of employment, low family income, inaccessibility to individuals with basic social services (drinking water, health, education, etc...), is a violation of human dignity (Barnett and Grellier 2003), and it is clear to recognize that the people most vulnerable are living in rural areas.

Despite global pledges, the recent report of the United Nations Special Reporter on the Right to Food highlighted that the number of people suffering from hunger has increased every year since 1996. In Guinea, more than half of the rural population lives below the

poverty line, the incidence of poverty stands at 49.2 and 19.1% for extreme poverty (Magassouba, 2003). Agriculture is considered as a basis for economic development; it employs 80% of the workforce and is largely dominated by family farms that occupy 95% of the country's farmland as the sizes of these farmlands vary from 0.30 to 0.50 ha (Moussa et al., 2010). SARA activities on sustainable agriculture in Benty is not simply a question of producing enough food to meet demand but also influenced by a multitude of factors some of which are natural whilst some others are caused by humans. Increased food supply does not automatically mean increased food security for all.

In April, the World Food Program (WFP) estimated that prices of key staples have been rising since January 2011: Imported rice increased by 41%, maize by 23%, and palm oil over 41%. The increase in the retail price of local rice shows a rising trend, which may be due to trade restrictions adopted in Guinea. The

*Corresponding author. E-mail: panini80@yahoo.fr. Tel: (+8610)13488678075.

latest detailed survey on poverty and vulnerability shows that about 600,000 people located mostly in Kindia, Labe and Nzérékoré regions suffer from severe food insecurity, while an additional 1.7 million are considered to be at risk (WFP, 2011). This situation is particularly affected by high imported cereal prices from the international market (FAO, 2011).

In Benty, the majority of households (43%) felt able to eat enough in quantity and only 6.6% eat as quality. However, nearly one third of households (33.6%) said they do not meet the nutritional needs for neither quality nor quantity, and more than 25% of population lives below the income that provides a minimum caloric intake (Camara, 2005). In Conakry urban area the ratio is 4.6% against 25.3% in Benty area, the average deviation from this threshold is 10.8% (Fakemo, 2001). By contrast, the potential development existing in Benty is large and diverse (agriculture, livestock, fishing, crafts, and small trade). Thus, helping farmers is a veritable strategy to fight against poverty and achieve sustainable economic growth, which is a major concern fight of all humanity. So, Ngo SARA struggles to ensure a sustainable agriculture in Benty through: Support to supply and production; Support to marketing and Support of peasant organizations. The growth of agricultural production (increase in the outputs) can have a very positive effect on the rural economy through increased productivity of small farmers (particularly considerable). This agricultural growth would contribute to the reduction of the number of undernourished people, provided that the population growth is moderate. For example in China, between 1990 to 1992 and 2001 to 2003, the number of undernourished people fell from 194 million to 150 million and the rate of malnutrition, from 16 to 12%. This was obtained by economic growth and sound agricultural policy while the annual growth of population was only 1% (Aladji, 2002; FAO, 2009).

This struggle is one of the major concerns of Guinean government and a central theme of development policy. Benty area is a production center for excellence though it suffers more from food shortages and malnutrition, which is not as a consequence of poor agricultural production only but also as a result of mismanagement of agricultural resources, especially during lean season. Without appropriate intervention, poverty would with its consequences be repeated at each generation, hence there is a need to act quickly (Sacko et al., 2004). The sustainable agriculture depends on the success of farmers producing food of higher quality and quantity and is able to deliver these products toward a commercial network to all consumers rich or poor (Abdoulaye, 2005). Thus reforms undertaken encourage the intervention of Ngo SARA in the implementation of agricultural activities. After seven years in this field, to better understand the challenges and solutions, SARA worked closely with farmers and other stakeholders, which enhanced the

identification of the best ways to increase agricultural production, rural incomes and overcome such obstacles as technical, institutional, socio-economic and political. More so, the activities proposed by SARA extended the actions of the current project of poverty reduction, and also undertook new initiatives to ensure sustainable agriculture through the structures set up by farmers unions and their partners. This program aims to help low-income food-deficit countries such as Guinea to achieve food self-sufficiency and reduce poverty through a participatory and multidisciplinary approach based on solid economic and environmental sustainability. However, this paper is focused exclusively on impact of Ngo SARA activities on socio-economic development of farmers in Benty area.

METHODOLOGY

Study area

Benty, headquarters of the sub-prefecture was founded on Monday 20 September 1869 following a treaty signed between E. Gentile infantry captain of the French Navy and Besseyboura King of Samou. The first inhabitant in Benty was Ansou Camara called Ansou Benty a son of Alkhaly Gbontö, from Titiket. Benty sub-prefecture called "Samou" is divided into three zones; upper Samou, lower Samou and special zone of Benty center. It is one of the nine sub prefectures of Forecariah prefecture, located at 85 km to the capital of the prefecture. It is bounded on the north by the Farmoriah sub prefecture to the west by Atlantic Ocean to the south and east by Republic of Sierra Leone. It covers a total area of 574 square kilometers with a population of 19,825 inhabitants and an average density of 42 inhabitants per km² (Census, 2010). It has 11 districts (Benty centre, Bouramayah, Kaléyiré, Kounsouta, Kigbaly, Makaré, N'börö, Morkaniah, N'compan, Salatougou, Dakhagbé.). Etymologically, the meaning of Benty comes from Mandenya (native dialect) "Bring with you " this sentence is linked to the stays of the original inhabitants who advised the new migrants and visitors to bring their food because of the remoteness of the site (UPB, 2008a, 2009b, 2010c).

Brief analysis of data collection

To realize this work, Human Resources of SARA were consulted with a questionnaire on basic indicators of well-being so as to better understand Ngo SARA' s activities on poverty reduction. Each questionnaire had ten pages and their design was based on previous similar studies conducted by other researchers in Guinea. The questionnaire was made as simple as possible to allow the investigators and field staff to administer it without any particular survey preparations. Secondary data, on the other hand, was collected from various published documents and reports. The data collected were analysed using additional information found during the research through participation, dialogue and consultation of farmers and their cooperatives. The data collected, concerns agricultural production (input/output); Marketing support; and household's activities. Both descriptive and inferential statistics were used for data analysis, out of the 11 districts, nine were randomly selected and the choice of sample was 20 farmers' groups distributed in these nine districts (Table 1), with 80% of the Geographic coverage. Thus a total of 687 people were interviewed

Table 1. Sample of farm groups surveyed by districts.

Districts	Groups	Effective	
		Total	Women
Benty	Champion Wali fan	23	14
	Sabou Fangni	37	12
	Khakhili Ms Traore	19	19
Bouramayah	AJVB	46	17
Kaléyiré	Progrès	49	28
	Söübè	39	24
	KFT	16	10
Kounsouta	Allah Bè	32	21
	COPASK	37	17
	GASNB	40	25
Kigbaly	Liberté	33	19
	Dikipali	31	16
Makaré	Kondébörökhi	19	12
	Niama Yigui	63	41
N'börö	Barabara	25	12
	Wassoulou	32	17
Morkaniah	Manden Morkanou	34	18
N'compan	N'panou	33	19
	N'tinkè Tuku	21	12
	Gorè	58	19
Total	20	687	372

Source: Information obtained during survey.

during the investigation with the number of female farmers listed for each farmer group.

The survey covers 20 groups of producers for a total of 687, with 372 women (54.14%). This proportion of women shows the dynamism of female farmers in the poverty reduction and especially the place they occupy in the socio-economic life of Benty. The group Khakhili Ms. Traore composed only of women that are a perfect illustration of this interpretation.

RESULTS

The socio-economic activity realized by Ngo SARA in Benty aims to improve the living conditions of farmers (fight against poverty). During the investigation, the following results were found: 15 ha were planted with *Acacia mangium*; 11 groups received funding amount

1100000 GNF (\$220 USD) mobilized by 23 groups; the enrollment rate of females increased from 33.33% in 2008 to 34.67% in 2010.

Support to supply and production

In the context of the implementation, the outcomes were calculated as follows:

$$\text{Growth rate (\%)} = (\text{MC} - 1) \times 100 \quad (1)$$

$$\text{MC} = \text{FV} \div \text{IV} \quad (2)$$

Where MC = Multiplication coefficient, FV = Final value and IV = Initial Value

Table 2. Situation of cultivated areas (ha).

Groups	Rice cultivation /ha		Growth rate (%)	Gardening/ha		Growth rate (%)
	Before SARA	With SARA		Before SARA	With SARA	
N'panu	0.50	1.550	210.00	0.25	1.00	300.00
Gorè	0.45	2.00	344.44	0.23	1.00	334.78
COPASK	0.60	2.00	233.33	0.30	1.00	233.33
Kondébörökhi	0.50	3.00	500.00	0.30	1.00	233.33
KFT	0.60	1.50	150.00	0.35	0.50	42.85
Liberté	0.30	1.00	233.33	0.10	0.50	400.00
Progrès	0.60	2.50	316.66	0.35	1.00	185.71
Allah Bè	0.50	3.00	500.00	0.22	1.00	354.54
Champion Wali fan	0.35	1.50	328.57	0.10	0.50	400.00
Wassoulou	0.60	1.45	141.66	0.20	0.50	150.00
Sabou fanyi	0.35	1.65	371.42	0.15	0.50	233.33
Dikipali	0.55	2.00	263.63	0.30	1.00	233.33
GASNB	0.60	3.00	400.00	0.30	1.00	233.33
Khakhili Ms Traoré	0.30	1.00	233.33	0.35	1.00	185.71
Barabara	0.55	1.00	81.81	0.15	0.50	233.33
Manden Morkanou	0.65	1.00	53.84	0.40	0.50	25.00
N'tinkè Tuku	0.50	1.40	180.00	0.20	0.50	150.00
Söübè	0.55	3.00	445.45	0.30	1.00	233.33
Niama Yigui	0.65	2.50	284.61	0.30	1.00	233.33
AJVB	0.60	1.50	150.00	0.20	1.00	400.00
Union	0.50	3.00	500.00	---	---	---
Total	10.80	40.5	276.00	5.05	16.00	216.83

Source: Information obtained during survey.

$$\text{Growth rate \%} = [(FV \div IV) - 1] \times 100 \quad (3)$$

Table 2 shows that the cultivated areas increased from 10.80 to 40.5 ha with Ngo SARA in rice cultivation and from 5.05 to 16 ha in market gardening with a growth rate of respectively 276 and 216.83%. This increase in acreage is due to the use of plow, which gets easier with SARA. The group holders of these plows use only for their own work and also make some services to get money.

From Table 3, the group yields in rice cultivation and gardening increased from 15325 kg/ha before to 56273 Kg/ha with project and a growth rate of 267, 19% and 19650 kg/ha before SARA to 491900 kg/ha with SARA, or a growth rate of 2403, 30%. That is because all of these groups received thematic training and intensification of activities offered by Ngo SARA.

From Table 4, hectares were arranged to introduce the new varieties of rice by ecology. In Kaléyiré the production was bad because the rice field was completely invaded by seawater. The success of these two varieties allowed the farmer groups to extend their crops.

Six persons including one female were trained to install 9000 plants at three groups (Table 5). The installation helped to reforest 10 ha in those villages (Kamayenne,

Gore Morkaniah, Benty center Dakhagbé, Kounsouta, N'compan, Makaré Kigbaly and Barbara).

22.65 ton of fertilizer was bought by farmers union (2.750 ton of urea, 18.900 ton of NPK and one ton of ammonia) and these fertilizers were fully sold to the different groups to diversify production and 11275 g of vegetable seeds and purchased 957 kg of food crop seeds (Table 6).

Marketing support

For a dynamic trade and good preservation of agricultural products, Ngo SARA has implemented the following actions: Establishment of processing units to facilitate the marketing of production, the project installed three rice husking machines in three districts and five metal silos for four groups (Liberté, Manden Morcanou, AJVB and KFT).

These husking machines are a great alleviation for households and easy to have a large quantity of rice in record time which is more expensive on the market (Table 7).

Three banks of seed and store of transshipment were built in four districts for ten groups and this facilitates the storage and conservation of agricultural products. It is

Table 3. Yield of groups surveyed in rice cultivation and gardening.

Farmer groups	Rice cultivation (kg/ha)		Growth rate (%)	Gardening (kg/ha)		Growth rate (%)
	Before SARA	With SARA		Before SARA	With SARA	
N'panu	750	2 710	261.33	1000	25000	2400.00
Gorè	720	2 710	276.38	950	25000	2531.57
COPASK	725	2 700	272.41	1100	22000	1900.00
Kondébörökhi	700	2 700	285.71	900	25000	2677.77
KFT	730	2 650	263.01	1000	24450	2345.00
Liberté	720	2 700	275.00	1000	24000	2300.00
Progrès	720	2 600	261.11	1200	24000	1900.00
Allah Bè	730	2 600	256.16	1000	24500	2350.00
Champion Wali fan	750	2 650	253.33	900	24000	2566.66
Wassoulou	700	2 700	285.71	1000	25000	2400.00
Sabou fanyi	740	2 745	270.94	1100	24000	2081.81
Dikipali	735	2 743	273.19	900	25500	2733.33
GASNB	735	2 710	268.70	850	25000	2841.17
Khakhili Ms Traoré	740	2 650	258.10	900	24450	2616.66
Barabara	750	2 745	266.00	1000	26000	2500.00
Manden Morkanou	750	2 650	253.33	850	24000	2723.52
N'tinkè Tuku	750	2 700	260.00	1000	25000	2400.00
Söübè	720	2 700	275.00	1100	25000	2172.72
Niama Yigui	730	2 600	256.16	900	24000	2566.66
AJVB	700	2 600	271.42	1000	26000	2500.00
Union	730	2 710	271.23	---	---	---
Total	15.325	56.273	267.19	19650	491900	2403.30

Source: Information obtained during survey.

Table 4. Situation of plots of seed production.

Districts	Ecology	Rice varieties	Areas/ha	Rice production (ton)	Observation
Bouramayah	Mangrove	Rock 5	1	3.00	Good
Kaléyiré	Mangrove	Rock 5	1	---	Bad (Fields invaded by seawater)
Kounsouta	Shallows	CK 21	1	1.90	Good
Total	-	-	3	4.90	

Source: Information obtained during survey.

Table 5. Training in technical installation of nursery.

Districts	Groups	Number of people trained			Numbers of seedling
		Men	Women	Total	
Kigbaly	COPASK	2	-	2	3000
Kamayenne	Sabou Fanyi	1	1	2	3000
N'compan	N'panu	2	-	2	3000
Total	3	5	1	6	9000

Source: Information obtained during survey.

Table 6. Situation of fertilizer purchased.

Nature and fertilizer quantities			Total
Urea	NPK	Ammonium	
1.250	7.400	-	8.650
1.500	11.500	1	14.000
2.750	18.900	1	22.650

Source: Information obtained during survey.

Table 7. Situation of groups' beneficiary of husking machines.

Districts	Groups	Number of huskers
Talayen	Dikipali	1
Kigbaly	COPASK	1
Kaléyiré	Union	1
Total	3	3

Source: Information obtained during survey.

Table 8. Distribution of Infrastructure.

Locality	Districts	Infrastructures	Groups beneficiary
		Bank of seed	
Morkaniah	Dakhagbé	1	Wassoulou, Manden Morcanou
Kaléyiré	Kaléyiré	1	KFT, Progrès, Söobè
Kigbaly	Kigbaly	1	COPASK, Liberté, GASNB, N'panu
Bouramayah	Bouramayah	1	AJVB

Source: Information obtained during survey.

worth noting that groups may procure improved seeds (Table 8).

In the context of the implementation, the outcomes were calculated as follows:

$$\text{Gap} = \text{FV} - \text{IV}$$

Where FV = Final value and IV = Initial Value.

Table 9 shows that the average income of groups increased from 254,999, 35 GNF (\$51 USD) before Ngo to 23,445,789, 35 GNF (\$4,689 USD) with SARA (with increase of 23,190,790 GNF (\$4,638 USD)). This increase is due to the diversification of income generating activities and dedication of beneficiaries.

Support of peasant organizations

The groups surveyed experienced a diversification of activities. This diversification has allowed the groups to increase their assets and income so as to diversify the local economy in Benty (Table 10).

Table 11 shows that the income of certain professions (fishermen, bricklayer, carpenter, blacksmith...) in different localities has increased from 173300 GNF (\$ 35 USD) to 667675 GNF (\$134 USD) with a difference of 494375 GNF (\$99 USD). This increase is due to the improvement of farmers' income.

Conclusion

In line with the positive results (technical and organizational) found by the work conducted by Ngo SARA to fight against poverty in Benty, the Guinean government with FAO assistance intend to continue this program while strengthening the agricultural extension at national level. There is significant improvement in terms of area cultivated (ha), seed quality, technical innovation, fertilizer inputs, crop yields, marketing support, storage facilities, distribution of infrastructure, training of peasants and income increment of Benty farmers. There is no doubt that structural agriculture policies can improve food security for vulnerable groups though it may be revised

Table 9. Situation of group's income with SARA.

Groups	Income/GNF		
	Before SARA	With SARA	Gap
N'panu	256 250	28 048 750	27 792 500
Gorè	222 650	29 065 000	28 842 350
COPASK	317 250	26 050 000	25 732 750
Kondébörökhi	257 500	31 075 000	30 817 500
KFT	238 300	15 206 250	14 877 950
Progrès	361 200	28 875 000	28 513 800
Allah Bè	237 750	30 350 000	30 112 250
Champion Wali fan	136 875	14 981 250	14 844 375
Wassoulou	247 000	15 436 250	15 189 250
Sabou fanyi	173 150	15 396 937	15 223 787
Dikipali	276 487	29 641 500	29 365 013
GASNB	281 850	31 097 500	30 815 650
Khakhili Mme Traoré	235 200	26 437 500	26 202 300
Barabara	219 375	15 058 750	14 839 375
Liberté	125 600	14 025 000	13 899 400
Manden Morkanou	340 625	13 987 500	13 646 875
N'tinkè Tuku	231 250	15 335 000	15 103 750
Söübè	303 600	31 075 000	30 771 400
Niama Yigui	301 075	31 175 000	30 873 925
AJVB	247 000	28 925 000	28 678 000
Total	5 099 987	468 915 187	463815200
Average income /group	254 999.35	23 445 789.35	23 190 790

Source: Information obtained during survey.

Table 10. Situation of groups' activities.

Activities before Ngo SARA	Activities with Ngo SARA
Rice cultivation ; trade; Gardening	Rice cultivation, salt and palm oil extraction, trade, soap making, horticulture, technical agri-food, arts and crafts, service delivery, fishing, drying fish

Source: Information obtained during survey.

Table 11. Situation of certain workers income in Benty.

Profession	Locality	Income /GNF		
		Before SARA	With SARA	Gap
Fisherman	Salatougou	21 800	114 800	93 000
Carpenter	N'compan	13 600	100 200	86 600
Builders	Kigbaly	7 350	14 175	6 825
Smith	Kigbaly	32 000	127 000	95 000
craftsman	Benty Centre	98 500	311 500	213 000
Total	-	173 300	667 675	494 375

Source: Information obtained during survey.

by the following proposals: Strengthening collaboration with farmers' associations to support the management of

community infrastructure for production; more training (seminars and meetings) of farmers and managers in the

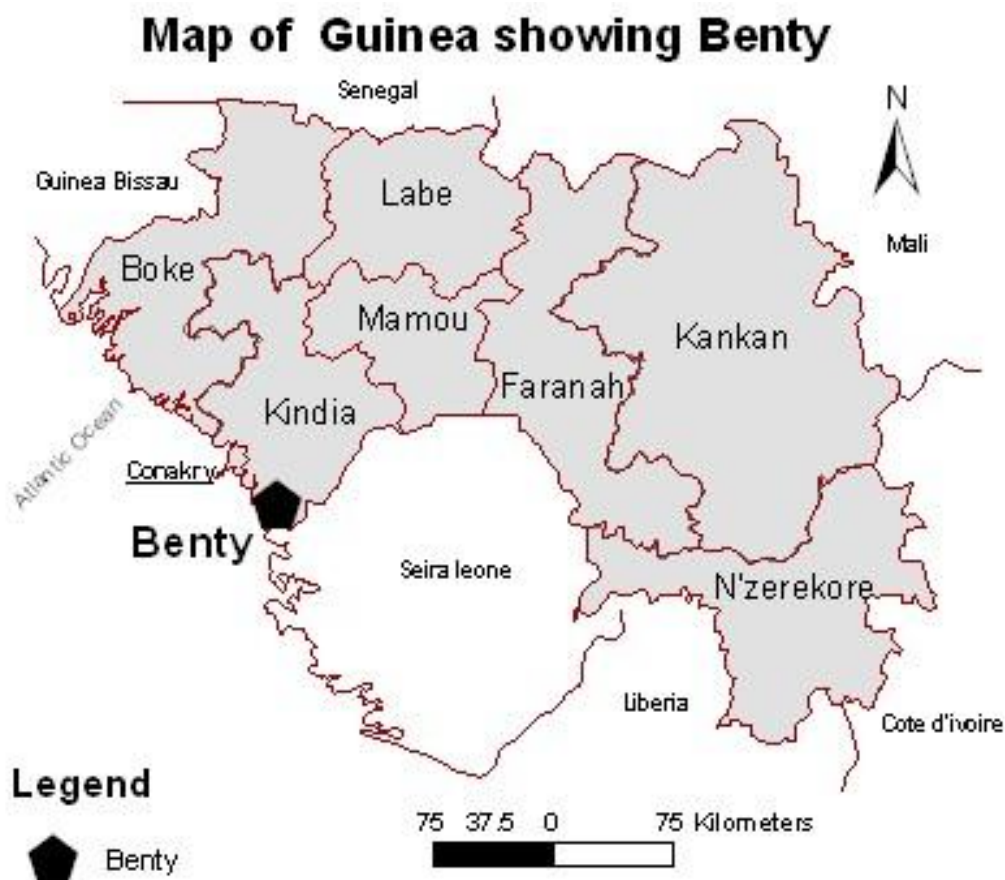


Figure 1. Map of Guinea showing sub prefecture of Benty.

most important activities; maintenance of seed varieties and promotion of the production of quality seeds, improvement of water application; improved access to inputs and markets for the marketing of products; promotion of a system of proximity to rural credit through a partnership with financial institutions, establishment of storage infrastructure and processing units; Promoting measures that can protect the environment, harmonize production and ecology, considering the development of rice cultivation (ROCK 5) the test was a success. At the end, Benty farmers are convinced that if SARA rationalizes further and persists in this way for few more years, it is certain that it will bring enough innovation in agriculture, more importantly in the field of food safety and inducing a deep socio-economic development in rural areas.

ACKNOWLEDGEMENTS

The authors thank Prof Wen Yali for his unconditional support. They also greatly appreciate financial support from the research fund of Beijing Forestry University and

Higher Institute Agronomy and Veterinary of Faranah.

REFERENCES

- Aladji C (2002). Fight against malnutrition and meet the challenge of development. *Democrat. J.*, 126: 4(French).
- Abdoulaye S (2005). Report of the Regional Office of SARA-Kindia at www.Guinee44.com/index.php (French).
- Barnett T, Grellier R (2003). Mitigation of the impact of HIV/ AIDS on rural livelihoods through low-labor input agriculture and related activities, Norwich: Overseas Development Group. Report submitted to DFID 107 p. at <http://www.dfid.gov.uk/R4D/PDF>.
- Fakemo C (2001). The economic development of Africa by agriculture is an illusion. *Independent newspaper No. 455 Thursday, December 27*, p. 6 (French).
- FAO (2011). Food Security Information for Decision Making Price Monitoring and Analysis Country Brief http://reliefweb.int/sites/files/resources/Full_Report_782.pdf.
- Latham M (1997). Human Nutrition in the Developing World: FAO. Food and Nutrition Series # 29 FAO: Rome.
- Magassouba D (2003). Impact assessment of PDD on improving the incomes of farmers groups in Dabola prefecture. Thesis paper in agricultural economics / ISAV - Faranah / Guinea (French).
- Sacko M (2004). impact assessment of CLUSA-Guinea on social and economic development of farmers in Kabak district. *ISAV/VGE-Faranah Thesis paper in rural economics / ISAV - Faranah / Guinea (French)*.

SARA (2010). Structure Networking Support farmers / farm service monitoring and evaluation report at www.Guinee44.com/index.php (French).

UPB (2008a-2009b-2010c). Union of Benty Producers: Activity Report of the office of union of producers in the sub prefecture of Benty (French).

WFP (2003). World Food Programme United colors of Benetton at www.onubenin.org/IMG/pdf, p 2.

WFP (2011). World Food Programme: Prices and food security; Global update food security Monitoring at <http://home.wfp.org/stellent/groups/public/documents/ena/wfp234060.pdf>.