

*Full Length Research Paper*

# **A cameroonian community development incidence of a three decade rise-fall rice economy on NDOP plain in the upper nun valley, Cameroon**

**Zephania Nji Fogwe and Nghengwa Ache Patience**

Department of Geography, Box 3132, F.L.S.S., University of Douala

Accepted 17 March, 2014

**This paper examined the community economy of the population of the Ndop plain prior to the priming of rice cropping. It evaluated the infrastructural achievements to individuals and the community accruing from their adoption and involvement in the cultivation of rice. The study held these achievements as significantly beneficial to the community's development contrary to some perceptions of the advent of rice cropping in Ndop as a mixed blessing. The innovation diffusion mechanisms propelled by the Upper Nun Valley Development Authority (UNVDA) yielded significant increases in rice farm sizes and rice incomes. The farmland area of cultivated wetland rice increased by 6 735 percent, in 37 years, passing from 23 ha in 1970 to 1 572 ha in 2007. The success story of this rice production basin has had sturdy spatial signatures on the plain land use and socio-economic infrastructure. This paper then suggested initiatives to preserve protect and uphold rice culture and ecological rice agriculture in this unique wetland production basin of the Western highlands of Cameroon.**

**KEY WORDS:** Community lifestyle, development infrastructure, dynamics, monoculture, Ndop, production basin,

## **INTRODUCTION**

Intensive commercial rice monoculture emerged as the prevalent method of food production in the Ndop Plain since the early 1960s. This altered the quantity and quality of rural resources deployed in the agricultural domain of the extractive primary sector. It also reshaped the pattern and demographic characteristics of the rural economic partners. It pulled in men and women of the community into this new activity that saw the swallow up by floods of what was, hitherto, rain fed farmland. The immediate cry of what appeared as an the environmental setback had within the thirty years of the existence of the rice cultivation in Ndop ushered a web of local community enhancement and peasant development activities like the construction of houses, bridges, terraces, irrigation canals, water harvesting and distribution systems. This opposes the weighting of the merits and demerits by Canute (2004) of the rice production impact between

1970 and 1995. This paper considers that the rice cultivation incidence has been overwhelmingly positive and not gender biased (Fonjong et al. 2007), even though total production and market prices have fluctuated over the years. Despite some climatic constraints (Forba, 2011) rice farming and multiple crop cultivation went on along side with animal husbandry involving sheep, pigs, fowls, goats and cattle and their products (Nghengwa, 2008).

This paper probes into the nature and consequences of the Ndop community dependence on rice as an income earning crop. It traces community lifestyle prior to mono cropping, and assesses the development contribution value of this crop in the Ndop production basin. The paper considers that the over three decades of organised rice production in Ndop has been more of a self and community development blessing despite the external mitigating circumstances that affected the production inputs and prices. The significant link between the rice prices, number of farmers and cultivated surface, calls for recommendation that would maintain the rice production

---

\*Corresponding authors: E-mail: [nfogwez@yahoo.co.uk](mailto:nfogwez@yahoo.co.uk)

level in this production basin of the Western highlands in Cameroon.

The methodology involved field observation of physical development infrastructure within all the villages of the Ndop where rice farming has generated the income. This was followed by semi-directed method interviews with farmer groups and rice management authorities of the UNVDA. Information about the impact of rice income on individual farmers and their households was obtained through focus group discussions at village/quarter level. Primary data was also obtained from some 120 questionnaires administered in a random systematic sampling manner for the socio-economic characteristics and rice impact on the indigenes of Ndop. Integrated multi-source economic and agro-production data was collected from the services of the UNVDA and as well as the Delegations of Agriculture and Rural Development in the Ndop plain.

## PRESENTATION AND DISCUSSION OF RESULTS

### **A balanced and moderate agro-pastoral income economy before the advent of rice**

At the dawn of the rice crop monoculture in the 1970s, the Ndop rural economy was self sustaining system in which the indigenes of this plain practised diverse economic activities. This ensured the survival of their community lifestyle anchored on multiple cropping assuring distinct socio-cultural stability and rural economy. There were socio-cultural determinants of rural development in the Ndop plain before 1970. The Fons headed villages each with traditional councils made up of village elders planned and discussed development. All native land was controlled by the institution of village Fons and elders who in turn gave out, rented or sold to the natives and other inhabitants. This institution ensured that, no farming activity took place on village feast days, which reduced agricultural productivity.

The agricultural crop system was that of mixed cropping, using traditional techniques such as bush fallowing, shifting cultivation and slash and burn with rudimentary tools. The number of crop species varied from two to ten on the same farm plot whose crop associations included maize / beans, maize / groundnuts / beans, cassava / beans / maize, yam / cocoyam / groundnuts, Irish potatoes / beans / maize; yam / cocoyam / maize/ palm tree, vegetable/ pepper/ raffia palm; bean /Irish potatoes / maize / pumpkin / cocoyam, yam / sweet potatoes / Irish potatoes / cocoyam / maize / beans, and kola nut/ pear / coffee / plantain/ banana / maize / beans / Irish potatoes / sweet potatoes / cocoyam.

Even though crop cultivation was the economic mainstay, animal rearing and fishing appeared as non-negligible traditional economic activities. This involved

cattle, goats, pigs, sheep and domestic birds kept in subsistent small numbers within family land limits. It provided revenue and a source of social regulation and settlement to its owners. Some cattle was brought in through transhumance from neighbouring Bui, Noun, Bambotous, Mezam and Menchum to the marshy parts of Ndop. This provided the farmlands with organic manure (cow dung) as they feed on crop residues on the farms. This maintained a good productivity that stabilised the income of both the farmers and animal rearers.

Fishing was traditionally practiced in Bambalang village within the flood waters of the Bamendjin dam. Fresh fish from here was sold in the different local markets while smoked fish was sold in distant markets in Cameroon. A complementary income activity was the artisanal craft work industry in Bamessing.

### **The fluctuating rice production and market price epoch of the 1970s**

The gradual introduction of rice in the Ndop plain took the form the dominant income crop generator as from the time of the creation of the UNVDA in 1976 to pilot and oversee the production of rice in the Ndop plain. The economic base of Ndop thus shifted from mixed cropping with some complementary animal rearing to that of a sure annual income crop whose produce was certain to be bought by the UNVDA or the local market if not consumed. Whole families, men and women alike, have been pulled into this "white gold" production for three decades since the inception of the UNVDA. The trends shows rise and fall fluctuations in the number of rice farmers, the total acreage of land cultivated and the total output (Table 1).

The number of farmers increased from 2 500 in the 1977/1978 production year to 2 575 the next production year. The total acreage of land under cultivation also increased as well as total production. Though the cost price per kg remained at 42.5 francs CFA, the UNVDA purchased more paddy from farmers being a rise from 1 310 tons in the 1977/1978 production year to 1 612 tons in the 1978/1979 production year.

More and more farmers were excited and guaranteed by the prompt income from rice cultivation by the buys of the UNVDA; 55 695 000 F CFA in the 1977/1978 production year to a rise of 68 510 000 F CFA in the 1978/1979 production year. During the 1979/1980 production year, a fall was observed in the total number of rice farmers, the surface area cultivated as well as the total production because prices fell to 42.5 frs/kg. Some farmers who were discouraged did not cultivate rice that year causing a fall in the number of farmers declined from 2 575 to 2 404. The surface area cultivated also fell from 869 hectares to 774 hectares with a consequent total production fall from 3 041 tons to 2 709 tons. A sharp rise in the number of rice farmers between 1980/1981 and

**Table 1:** Rice economic trends in Ndop plain: 1977 - 2007

Production year	Rice farmers in Ndop	Area cultivated (hectares)	Average area per farmer (hectares)	Estimated production (tons)	Tonnage purchased by the UNVDA	Average cost Per kg (F.CFA)	Purchased by the UNVDA (F.CFA)
1977/78	2 500	824	0.33	2 884	1 310	42.5	55 695 000
1978/79	2 575	869	0.34	3 041	1 612	42.5	68 510 000
1979/80	2 404	774	0.32	2 709	2 246	42.5	95 955 000
1980/81	2 638	894	0.25	3 129	2 433	55.0	133 815 000
1981/82	3 177	1 273	0.40	5 092	3 162	55.0	173 910 000
1982/83	3 225	1 231	0.38	4 924	3 900	62.0	241 800 000
1983/84	5 542	1 518	0.27	6 092	5 500	62.0	341 000 000
1984/85	6 400	1 753	0.27	7 012	5 753	78.0	386 686 000
1985/86	5 862	2 178	0.37	8 712	6 898	78.0	538 838 000
1986/87	5 687	2 058	0.36	8 232	6 124	78.0	477 672 000
1987/88	4 682	1 612	0.34	6 448	4 937	78.0	385 096 000
1988/89	3 475	1 087	0.31	4 348	1 608	30.0	48 240 000
1989/90	3 350	1 243	0.37	4 972	1 387	36.0	49 932 000
1990/91	3 754	1 215	0.32	4 860	2 448	36.0	88 128 000
1991/92	4 377	1 299	0.30	5 196	2 287	36.0	82 332 000
1992/93	4 386	1 247	0.28	4 988	2 445	36.0	88 020 000
1993/94	4 197	1 245	0.30	4 980	1 830	30.0	65 800 000
1994/95	4 554	1 426	0.31	3 565	0 733	53.0	38 849 000
1995/96	5 715	1 704	0.30	4 260	1 211	83.0	100 513 000
1996/97	5 617	1 744	0.31	4 360	0 578	84.0	48 552 000
1997/98	5 594	1 760	0.32	4 402	0 498	80.0	39 866 640
1998/99	6 741	2 009	0.30	6 966	0 584	80.0	46 727 120
1999/2000	7 026	2 225	0.32	7 787	0 139	80.0	11 131 840
2000/2001	2 195	1 740	0.35	6 091	1 194	80.0	95 520 000
2001/2002	6 930	3 045	0.44	7 613	1 515	90.0	136 350 000
2002/2003	7 698	2 076	0.27	8 304	0 505	90.0	45 450 000
2003/2004	7 474	1 877	0.25	7 508	-	-	-
2004/2005	6 731	1 531.12	0.22	5 575.48	-	-	-
2005/2006	7 248	1 881.61	0.25	4 704	-	-	-
2006/2007	7 814	1 572.1	0.20	6 282	-	-	-
2007-2008	-	1 828.22	-	6 398.8	-	-	-
2008-2009	-	2 169.28	-	8 677.1	-	-	-
2009--2010	-	2 634.12	-	10 536	-	-	-

Source: compiled from UNVDA reports

1987/1988 production years was a response to the constant rise in the price of rice from 55 frs/kg to 62 frs/kg and even reached 78 frs/kg. This steady increase in price encouraged many farmers and coupled with the fact that the UNVDA bought three quarters of the rice produced, supplied fertilizers to farmers during cultivation. There were trained field collaborators (extension workers from the UNVDA) such that with as few as 5 862 farmers during the 1985/1986 production year, production rose to 8 712 tons with prices being 78frs/kg.

During the 1988/1989 production year, market price of rice dropped from 78 frs/kg to 30 frs/kg causing an unprecedented fall to 4 348 tons from only 1 087 hectares cultivated though 3 478 farmers involved. The loan scheme of the Ministry of agriculture had been suspended for loan delinquency as out of the 92 young farmers who received loans during the 1987/1988 farming season, only 29 repaid. Some farmers

abandoned after receiving the loans and in most cases did not use the loans for rice farming. Pesticides and herbicides that were initially given to farmers by UNVDA were stopped, yet pests caused a great damage to rice plants. The French authorities who financed the buying of rice through the UNVDA withdrew in 1988 because of a drastic drop in the price of paddy from 78 to 30 F CFA/kg, leaving the UNVDA financially bewildered.

The UNVDA came to a near closure especially as the extension services from the UNVDA coordinated by the Production and Extension Service Sector encountered two upheavals. The first was the decline in the number of extension workers and consequent drop in the range and quality of services offered. The 1976 UNVDA the official ratio of 1 farmer extension demonstrator to 60 farmers soon became 1 to about 270. The global economic recession of the mid 80s and early 90s lowered the rice prices further darkening the days for the Ndop rice

**Table 2:** Ndop rice farmers' cultural calendar

Months	Activities
January	Paddy buying continuous
February	Paddy buying continuous
March	Paddy buying terminates. Land preparation for other crops (maize, beans, soya beans). Planting begins.
April	Termination of planting and weeding of other crops
May	Weeding continues and fertilizer application on other crops
June	Clearing of rice plots and nursery establishment. Acquisition of farm inputs: fertilizers, seeds, sickles.
July	Puddling and transplanting of about 25 days old seedlings. Begins harvesting of other crops
August	Termination of transplanting and harvesting. Fertilizer applications and weeding with other farm sanitation. Water management commences.
September	Weeding, fertilizer application, general farm sanitation and water management continue.
October	Preparation for bird scaring and last fertilizer application
November	Birds scaring, preparation for harvesting and spraying of buying centres.
December	Harvesting and buying commence

economy. The struggle to handle the economic crises made the government of Cameroon to implement the IMF/World Bank terms privatise para-statal companies like the UNVDA cutting down its functional budget from 385 096 000 F CFA to 48 240 000 F CFA and its personnel by 51%.

Disheartened the farmers between 1989 and 1994, nonetheless, continued to cultivate rice that was touching on the lifestyle of every household of this plain. The indigenes had adapted a cultural calendar that is that involved rice production throughout the year (Table 2).

From 1994, devastating market price of rice occurred with the devaluation of the Franc CFA but this did not prevent the crop from securing a firm foothold in the culture of the Ndop production basin. Though the price of rice fluctuates, it has been increasing since 1997. This price rose back to 90frs/kg in 2002. In 2002, the UNVDA received 250 million FCFA from government called the minimum objectives contract to buy paddy so the corporation could buy a kilogram of paddy at 90 F CFA. Farmers increased during that production year to 7,698 as against 6,930 during the 2001/2002 production year and could sell in the different market and big towns like Bamenda, Dschang, Bafoussam, and Yaounde and to countries like Gabon and Equatorial Guinea.

### **The spatio-social and infrastructural positive incidence of rice dependence**

Despite the production and income fluctuations between 1977 and 2007, the introduction of the rice crop cultivation as an income earner has had a positive incidence on the Ndop plain population.

### **Rice-induced land use transformations**

The economic and development activities in the Ndop

plain have been modified by rice related agrarian practices through:

- The widespread adaption of rice cultivation and the sprawl of the cultivated area into marginal areas where other crops hitherto failed like the marshy and Bamendjin dam margins.
- Increasing accruing rice income and purchasing power of the population and so the expansion of construction of administrative and residential areas.
- The need for agricultural raw materials for rice mill factories and other uses pushes the population to invest in marginal lands (wetlands).
- Rice income affordable and enhanced means of transportation and communication through motor cycle up from the widespread bicycles have opened up initially inaccessible areas.
- Introduction of tractor mechanisation into rice farming and adoption of new techniques that permits more to be produced and at the same time liberating extra labour for other rural land uses.

These land use transformations have made the farmers to opt for extensive production rather than hand tillage, thus increasing the surface area under cultivation 23 hectares in 1970 to 1 572.1 hectares in 2007 (UNVDA, 2007). This is an increase of 6 735 % in a period of 37 years. These signify that land use in the Ndop rural economy has changed since the introduction of rice with the increasing population and infrastructure.

### **Poverty and unemployment alleviation**

Rural poverty that characterised the pre-rice economy created a lot of joblessness out of the subsistence agriculture that prevailed. The poverty-reducing effect of

**Table 3:** Quantity of paddy rice processed Ndop in 2005

<b>Rice mills</b>	<b>Quantity processed (kg)</b>
UNVDA	489 013
Farmers rice mill I	7 611
Farmers rice mill II	11 798
Abakwa young farmers mill	20 723
Jehova Jerry rice mill	17 284
UNI Food rice mill	17 777
ONA Food rice mill	199 707
Minyam rice farmers mill	1 999
Minyam II rice mill	13 901
Central rice mill	19 677
Nche street farmers rice mill	15 240
Nun valley farmers rice mill	555 844
Ngoketunjia food stuff rice mill	10 495
Farmers Zion rice mill	16 534.8
FIT CIG rice mill	27 353
Ndop women cooperative rice mill	-
<b>Total</b>	<b>1 447 702.8</b>

Source: DDARD Ngoketunjia 2007

**Table 4:** Educational institutions of the Ndop plain

<b>Sub Division</b>	<b>Nursery schools</b>			<b>Primary schools</b>			<b>Secondary schools</b>		
	<b>State</b>	<b>Private</b>	<b>Total</b>	<b>State</b>	<b>Private</b>	<b>Total</b>	<b>State</b>	<b>Private</b>	<b>Total</b>
Balikumbat	02	-	02	25	12	37	03	02	05
Ndop Central	02	05	07	32	12	54	06	12	18
Babessi	04	-	04	29	15	44	05	07	12
<b>Total</b>	<b>08</b>	<b>05</b>	<b>13</b>	<b>86</b>	<b>39</b>	<b>135</b>	<b>14</b>	<b>21</b>	<b>35</b>

Source: Divisional Delegations of Basic and Secondary Education, Ngoketunjia, 2008.

rice is due in part to was its generation of both agricultural and non-agricultural employment. About 7,500 to 8,000 farmers are directly involved in rice production while the UNVDA has about 80 permanent workers (Cameroon Tribune, May 15, 2008). Rice production alone gave the farmers of the Ndop rural economy an estimated sum of 747 360 000 F CFA during the 2002/2003 farming season alone (UNVDA Production Statistics, 2007).

This Ndop rice production basin has over 16 rice mills. Each rice mill employs an average of 6 permanent workers. The mills so reduce the rate of unemployment and pay taxes into the state coffers and partly to the Ndop rural council and so directly contribute to the development of this community. These mills handled 1 447 702.8 kg (Table 3). The waste from these hulling machines commonly referred to as rice brown is sold to poultry and pig farmers who use it to feed pigs and fowls.

### Social Infrastructure improvements in the Ndop plain

The social consequences vary from one village to another within the plain. Investment in rice triggered

development in the social sectors: educational health and Common Initiative Groups (CIGs). Ndop plain had 254 registered rice production CIGs, five unions and a federation (Cameroon Tribune, 15<sup>th</sup> May 2008) that help to orientate rural development in this community. Schools have been created for the children of rice farmers (Table 4).

In order to hold down the required labour force needed in the rice fields the government and some individuals constructed and made operational some 35 secondary schools to contain the many students that were migrating out of this area in search of secondary education. It was because of this dependence on mono cropping that some individuals and other stakeholders invested in the construction of schools that matched with the community lifestyle of the Ndop plain.

The presence of health units have been created in the Ndop plain such that rice farmers no longer travel out of their localities in search of health service (Table 5).

The presence of extensive rice fields in the different localities has influenced the construction of farm to market roads. There are over 100 kms of farm-to-market

**Table 5:** Health units and their location in the Ndop rice dependent community

Sub Division	Health units	
	Government	Private
Ndop Central	Ndop general hospital	Saint John catholic health centre
	Bamunka urban health centre	
	Bamunka rural health centre	
	Bamali health centre	
	Bamessing health centre	
	Mighang-Mbaw Health centre	
	Bambalang health centre	
	Mbissa-Mbaw health centre	
Babessi	Babessi health centre	Baba I Saint Monica's catholic health centre
	Babungo health centre	Bangolan Baptist health centre
	Baba I health centre	
Balikumbat	Baliumbat health centre	
	Bamukumbit health centre	
	Bafanji health centre	

**Table 6:** Roads in the Ndop rice production basin

N°	Description	Length (Km)	Last intervention / funding
1	N11 Bamessing – Babessi – Kumbo	48	2007/ Road Fund
2	Inter N11 – Balikumbat	27	-
	Rural roads		
	Ndop – Bamunka Fon's Palace - Bambalang	17.3	2005/UNVDA Ndop
	Bamali – Bambalang –Bambalang market	18	-
3	Bamessing market – Inter Ring Road N11	13.25	2005/Road Fund
	Babessi – Bangolan –Inter P20	18.3	2007/HIPC
	Balikumbat – Bamunkumbit – Baligas	14.3	-
	Ndop – Ntango – Baba I	10.4	2006 DDPW/Ngo
	Bafanji – Ekwo – Bambalang	13.4	2005/ Road Fund
	Farm to market roads		
	Babungo (inter N11) – Ndawara	9.5	2006/ BIP MINPW
	Bamunka Fon's Palace – Messi - Ntango	7.6	-
4	Baba 1 market (Inter N11) Fon Palace -Mbanka	7.2	2004/Villagers
	Babungo (Inter N11) – Inter Babungo – lbal road	3.4	2006/BIP
	Baba 1 (Inter N11) - Membeh- Ndjerem	13.6	Villagers
	Bambalang market – Bambalang beach	9.1	Villagers
	Balikumbat – Jongolo	9.5	Villagers

Source: Divisional Delegation of Public Works, Ngoketunjia, 2007.

roads plus the tarred part of the “Ring Road” (N11) that passes through Ndop (Table 6).

The different road networks serve the different rice fields and facilitate the transportation of inputs and outputs from the farms to the different commercial centres in and out of the Ndop rice production basin. These roads also facilitate economic transactions in the Ndop community.

## CONCLUSION

With the creation of the UNVDA in this plain, a successful

agricultural intensification has transformed the traditional extensive farming practices based on shifting cultivation to more sedentary and mechanized forms of production. The Ndop community adaption and dependence on rice since the 1970s brought several physical advantages that this article identifies in the domain of changes in land use, economic and social benefits to the livelihoods of the indigenes of this plain. For the sake of posterity, the future of this rice production basin must be in the hands of committed farmers and stakeholders who share a vision of sustainability. Ndop plain community dynamic rice economy has thus revealed another option of modelling a sustainable agriculture based on mono

cropping that increases agricultural productivity and community development.

## REFERENCES

- Badawi AT (2004). "Rice based production system for food security and poverty alleviation in the Near East and North Africa: New challenges and technological opportunities", *Proceedings of FAO Rice Conference*, Rome, Italy, 12-13 February 2004.
- Canute AN (2004). "An historical evaluation of mixed fortunes of the rice sector in the economy of Ndop plain under the Upper Nun valley Development Authority (UNVDA) 1970 – 1995" *Journal of Applied Social Sciences* Volume 4 No 1 2004 pp 107 – 132.
- Fonjong L, Mbah FA (2007). "The fortunes and misfortunes of women rice producers in Ndop, Cameroon and the implication for gender roles", *Journal of International Development*, 13(2), pp 133-147.
- Forbah AW (2011). Observed impact of the present trend of climate change on rice production in Ngoketunjia Division, Unpublished DIPES II dissertation, Higher Teacher training College, Bambili, University of Bamenda, 93p.
- Lambi CM (2001). "Environmental constraints and indigenous agricultural intensification in Ndop Plain (Upper Nun Valley of Cameroon)" in Lambi and Eze Bassey Eze (Editors) *Readings in Geography*, Unique Printers and Publishers Bamenda pp 197 – 190.
- Molua EL (2010). "Response of rice yields in Cameroon: some implications for agriculture price policy", *African Journal of Social Sciences*, Vol. 1(3) pp. 73-90.
- Nghengwa AP (2008). The introduction of rice and the development dynamics in the Ndop plain (Upper Nun Valley, Cameroon). Unpublished Master Thesis, Department of Geography, University of Douala, 123p.
- Ngwa NE, Ojuku T, Balgah NS (2006). "Emergent vegetable horticultural and honey production basins in the South West and Western Highlands of Cameroon: Stakes and prospects" in *Annals of the Faculty of Arts Letters and Social Sciences*. Volume 1 N° 5 Nouvelle série Deuxieme semestre pp 1-25.
- Ojuku T (2005). Dynamics and impacts of vegetable cash income population movement in the Bamboutos Highlands of Cameroon, Unpublished Ph.D Thesis, Geography Department, University of Yaounde 1, Yaounde, Cameroon
- UNVDA (1977). Etude de faisabilité pour passage à 3000 ha de rizières dans la Haute- Vallée du Noun Tome 4 : Le projet SEDA Yaoundé.
- UNVDA Report of Activities for January - March 1971, 1<sup>st</sup> January - 31<sup>st</sup> March 1972, October 1<sup>st</sup> - 31<sup>st</sup> December 1972, Financial Year 1991 - 1992, Financial Year 1992 - 1993, 2006/2007 production year.
- UNVDA Rapport d'Activité de l'Exercice 1982 - 1983, 1988 - 1990.
- UNVDA Information for the 1984 Bamenda Agro-Pastoral show, the Ebolowa 1991 Agro-Pastoral show, Brochure No. 3.