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Action Intervention to Provide Health Care Services to the Rural Poor in India

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Abstract: *The study undertaken by Centre for Multi-disciplinary Development Research (CMDR) and sponsored by United Nations Development Programme (UNDP) India had a focus of understanding the effects of macro economic reforms on the health sector of India with a special reference to the states of Maharashtra, Karnataka and Orissa. Apart from analyzing various theoretical aspects of Micro Impact of Macro Policies (MIMAP) on health sector, an attempt was made to examine the issue of people's participation in the provision of health care. This was done especially in the background of lack of effective health care provision through the PHC network in the majority of the Indian states. As a result in a village in the state of Karnataka in the Indian union, the People's health clinic was started which got initial doses of inputs from the project funds as seed money. People of the village also contributed both in kind and cash. A medical doctor and a nurse were supported from the project funds and select medicines and other equipments were also provided. The concept of user charges was also tried out to see whether the community members are willing and able to pay for the health care services. The results were quite encouraging and on account of proper motivation and pragmatic support such experiments could be sustained in the long run. The external support though required at the initial stages need to be withdrawn slowly. Thus it is important to put people around such developmental activities rather than putting developmental activities around the people.*

Keywords: Health for All, Health Care, Community Participation, User Fees

Introduction

As India is a signatory to the Alma Ata declaration, we were required to achieve the goal of Health for All (HFA) by 2000 A.D. It is obvious that we have not been able to achieve this goal. The goal distance as enumerated in the health policy document for various indicators still needs to be achieved. In the wake of economic reforms, there seems to be a compression of budgetary resources in general, which has reduced the share of resources for the social sector in general and more so for the health sector. Few research studies have documented this in the Indian context. Shrinking resources have their impact on the health delivery system.

As part of Centre for Multi-disciplinary Development Research (CMDR)'s study, we collected the household level information in the three selected states of Maharashtra, Orissa and Karnataka through the help of structured questionnaire. We tried to elicit information regarding the socio-economic status of households, morbidity and nutritional profiles, utilization pattern and the risk factors affecting the health status of the population. Along with this we also tried to collect the

qualitative information on the perceived status of the community with regard to the health delivery system especially in the reforms period. The results from the data indicate that, the delivery of health services through public institutions have developed certain bottlenecks, which have resulted in lower levels of utilization by the community. Secondly, the aspirations of the community with regard to the public health care institutions are many and the present set-up is unable to meet the growing demand. Such a situation might have been created due to inadequacy with regard to manpower supplied as well as other inputs at the Primary Health Centre (PHC) level.

Our data also reveals that, private practitioners are exploiting the community under the nose of public health care institutions. Sometimes as public health personnel are not available in the villages, the private practitioners (who are usually quacks) charge heavy fees to the patients. Poor people who do not have any options are forced to visit such private clinics. But at the same time we cannot afford to pass on the blame to the public system, which is trying honestly to cope up with the increased responsibilities on the one hand and declining budgetary support on the other.

A Brief Scan of Interventions with Private Partners in Health Care Delivery

About 6 million urban slum dwellers had little access to primary health care services and could not afford private care. The governments of India and Andhra Pradesh received assistance from the World Bank to establish the Andhra Pradesh Urban Slum Health Care Project (2000-02). Afterwards, the state government continued the project with its own funds.

The Commissioner of Family Welfare (CFW) contracts with Non Governmental Organization (NGO) and provides an annual budget of Rs.3 10,000 that covers salaries, operational expenses, equipment, furniture and pharmaceuticals in addition to NGO training. The NGO hires five providers and three support staff. It provides basic Reproductive and Child Health (RCH) preventive care (antenatal care, immunization, vitamin A, birth spacing, reproductive tract infections, and sexually transmitted infections); services for childhood diseases (e.g., acute respiratory infection, diarrhea, measles); referrals (for high-risk pregnancies, newborns, emergencies); and outreach. (World Bank 2004, Andhra Pradesh Commissioner of Family Welfare)

In the state of Karnataka to take over and operate the Primary Health Centers (PHCs), the government provides the building and all of its equipment, furniture, and supplies. A charitable trust manages the Primary Health Centers (PHCs). The Government also pays 75 percent of staff salaries (the trust is responsible for the remaining 25 percent) and provides Rs.75,000 annually for medications. The trust receives the facilities and uses its own funds for whatever is needed, including renovation, equipment, furniture, and beds.

The Karuna Trust hires all staff, provides training as needed, and handles procurement. The staff consists of one physician, one laboratory technician, one nurse, two auxiliary nurse-midwives, two clerks, and an administrator, all of whom are on one-year contracts. The center also supervises about 20 community workers (World Bank 2003).

In Bihar a hospital has established partnerships with the government to provide immunizations and to host and manage an HIV/AIDS voluntary counseling and testing (VCT) center; tuberculosis directly observed treatment, short-course center; and a leprosy detection and treatment center. In each case, the government has provided drugs and laboratory reagents. The hospital receives no subsidies from the government for the operation of the Community Health Center (CHC) or for its services to the poor. This is a very limited partnership (80 percent private, 20 percent public).

Community Based Distribution (CBD) volunteers were recruited, given one-year contracts, and paid by local village health committees to distribute free and branded (i.e., socially marketed)

contraceptives and other RCH products door-to-door in their communities. They will also provide family planning counseling, enroll pregnant women in antenatal care, enroll children for immunization, organize community activities, work with the auxiliary nurse-midwife, conduct group health education discussions, attend to certain child illness (e.g., diarrhea), and refer clients for Intrauterine Device (IUDs) and sterilization. The CBD volunteers will travel to nearby towns to pick up contraceptives and other supplies. In return, the CBD volunteers will receive a monthly stipend of Rs.400, plus Rs.50 for each sterilization and Rs.20 for each IUD referral (World Bank 2004, Janani Project 2004).

Rationale for Our Intervention

In the background of the above discussion, we need to evolve new mechanism of health care delivery which would strengthen the public health delivery system and also supplement it to reduce the burden on the public system. Community involvement and participation in the provision of health care services is not a new idea altogether. We can note that there are innumerable experiences both within and outside India, which have demonstrated that community participation is a effective resource in the provision of health care services.

Need for such a participation in the present day context arises firstly due to inadequate manpower at the PHC level, which seems to be over burdened. The medical officer at the PHC is finding it hard to manage his time due to his pre-occupancies in 14 programmes / schemes. Thus patients find it difficult to find him whenever they visit the PHC. One may ask for additional doctor at the PHC, but in view of changing budgetary allocations, it may not be feasible to do so.

Secondly, we also now observe that many state governments are willing to experiment innovative methods to improve the situation with regard to the health delivery system. Recently the government of Karnataka has announced the introduction of Rogi Kalyan Samiti (RKS) based on the experiment of Madhya Pradesh. It needs to be noted here that RKS is quite a novel idea in managing the public health institutions. But the Rogi Kalyan Samiti of Madhya Pradesh (A state of India) does not go below the level of Community Health Centres (CHCs), by which it means that it is meant to cater to the referral care rather than primary care. But, we need to experiment new methods of strengthening the public health delivery system even at the primary health level also.

Based on the lessons of an experiment in Karnataka with regard to the participation of NGOs in the delivery of health care services (Report of Deccan Herald –English Daily- dated 4th May 14, 2002) the Central government has made changes in the health policy document 2002. The policy document clearly encourages NGO participation in the delivery of health services through public outlets.

In this background CMDR tried to evolve an intervention package to supplement and strengthen the public health delivery system. The broad objectives of this package are,

- Community should actively participate in the provision of health care services
- Delivery of health care services should be more community friendly
- Try to inject built in mechanisms in the package to make it sustainable, after the initial doses of supplements

The intervention package is outlined as below.

- CMDR would create Primary Health Management Group (PHMG) in the adopted village where a PHC is also located.
- Formation of PHMG would be through the active participation of DHO and other programme officers, village Panchayat, CMDR and other NGOs and corporate bodies in the region
- PHMG would be registered as an NGO
- Initially CMDR would bear the salary costs of additional man power supplied

Composition of Primary Health Management Group (PHMG)

- ✓ All households in the village
- ✓ Panchayat members
- ✓ District Health Officer (DHO) and other programme officers when CMDR actually tried to operationalize PHMG. It was not possible to include DHO and his staff due to their non-co-operation for the whole experiment.
- ✓ School teachers of the village
- ✓ Youth associations of the village
- ✓ Women's Associations of the village
- ✓ Corporate bodies in the region
- ✓ CMDR

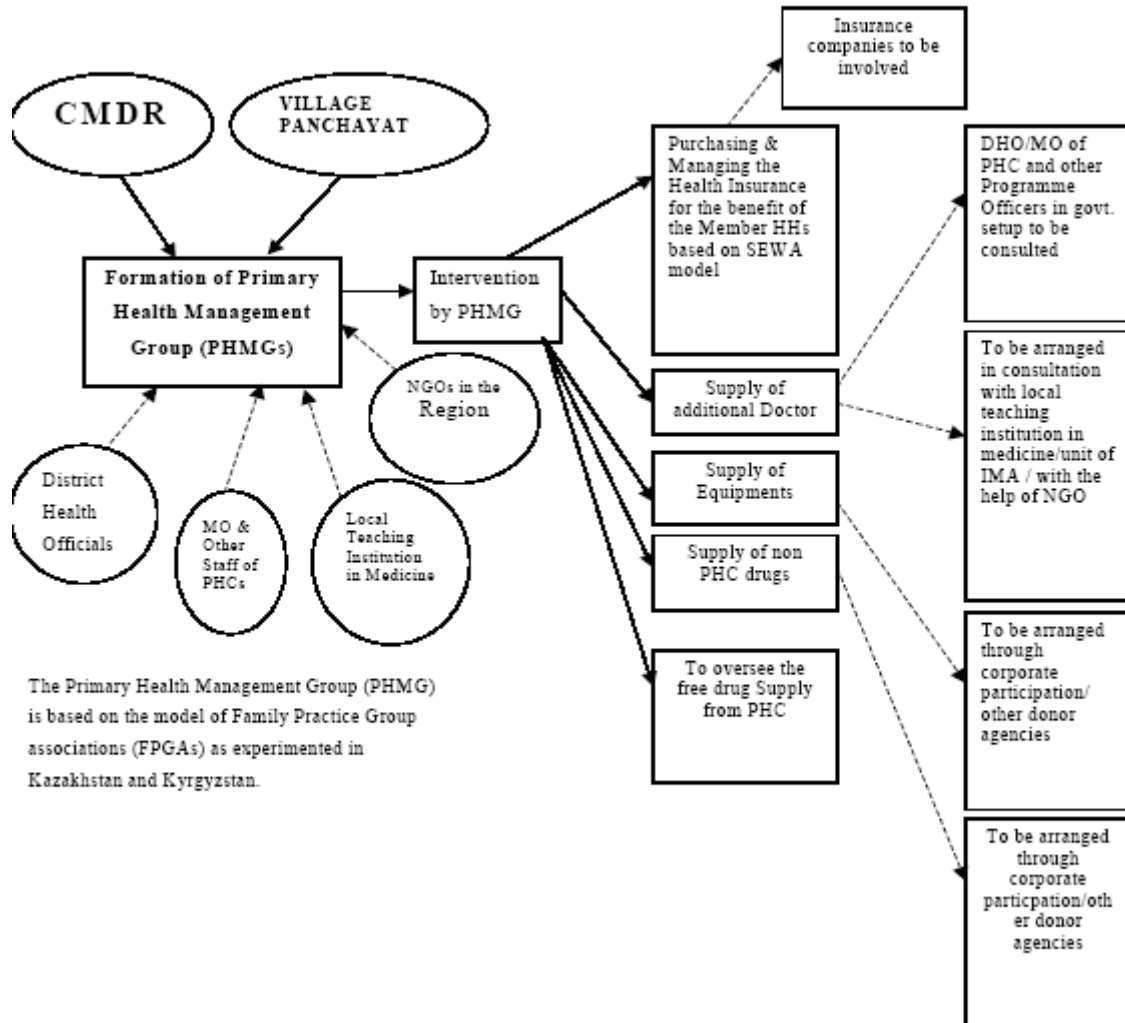
Responsibilities of Primary Health Management Group (PHMG)

- ▶ Providing M.B.B.S. Doctor to the PHMG clinic
- ▶ Providing health cards to the HHs to retain the medical history of the members
- ▶ Providing telephone facility and logistical support to the members to avail referral care
- ▶ Inviting specialized doctors to the village for the benefit of the villagers
- ▶ Organizing eye check up and treatment camps through the help of donors
- ▶ Educating the members with regard to preventive health care
- ▶ Working out the feasibility of providing health insurance to the members to avail referral care
- ▶ Collaborating with charitable hospitals to avail the referral care
- ▶ Collecting the user fees from the patients and managing the PHMG clinic on a sustainable basis

In the course of intervention, we had to hold series of meetings and Focus Group Discussions (FGDs) in different villages of the district. In a village, in which we attempted to create the PHMG at the outset provided us some useful lessons. We conducted a baseline survey to know the socio-economic information, morbidity profile, care seeking behavior and the cost of treatment. We also tried to understand the willingness of the community to pay for the services provided by proposed clinic. Though initially some young members of the community evinced interest in the whole affair, gradually the euphoria subsided. When we started holding FGDs with various sections of the community, we started realizing the ground realities. The elders in the village had no interest to promote such experiment wherein they were required to pay for the health services. One issue that came to the forefront in this village is that, the village was quite

nearer to the urban center. The people in the village had an easy and quick access to the health care institutions in the urban center, which probably acted as de-motivating factor towards arousing interest of the community to participate in such an experiment.

The following chart would depict the formation of PHMG and its responsibilities.



By this time, we had also initiated the process of bringing the District Health Officer (DHO) into the experiment. Initial discussions were held with DHO and other programme officers of the district connected with various schemes of the health sector. The interest shown by the DHO and his team was really encouraging. He very much supported the idea of making the community responsible for shouldering the responsibility of providing the primary health care services on their own. The prototype of action intervention was explained to him and his team. He also suggested that, since health happens to be a Panchayat subject it would be better to involve the Zilla Panchayat set up in the whole experiment. Such a move would also facilitate to involve the Panchayati Raj Institutions (PRIs) in overseeing the effective delivery of health care services. With this idea in mind, we arranged a much bigger meeting involving Chief Executive Officer (CEO) of the District Panchayat, Officials of Health Department. The discussion of the meeting focused on the modalities of community involvement, user charges to be levied at the clinic of the PHMG

and partnership between PHMG and PHC in the village. Partnership envisaged in this context was to depute additional doctor and nurse to the PHC through the institution of PHMG. These additional doctor and nurse would be functioning in the premises of PHC. The community would get the benefit of this additional manpower by paying user fees. One issue which came up for discussion during such a meeting was that, if a patient gets treated by the Government doctor in the PHC and not by the PHMG doctor, whether he or she is required to pay the user fees or not. If this were so, no body would opt for the PHMG doctor for the simple reason of paying the user fees. Hence it was decided in the meeting to collect the user fees from all patients who would visit the PHC irrespective of the doctor that they consult. Thus user fee turned out to be an entry fee into the PHC. The District Health Officer gave his approval for this in the meeting. Chief Executive Officer of the Zilla Panchayat (ZP) also endorsed this. He was of the opinion that, since PRIs are also involved in the experiment, there should not be any problem in collecting the user fees.

When the action intervention started taking some definite shape with these developments, we intensified the efforts to choose a village where such a experiment would take place. In this context, we started listing those villages in the district where PHCs are located and also such PHCs where either one Doctor or no doctor is functioning. In Uppin Betageri, there was only one doctor at the PHC and the community in that village as well as other villages covered by that PHC felt that there is a need of one more Doctor. Though, two posts of Doctors were sanctioned, only one Doctor was functioning. With this clue, we thought of choosing this village for the intervention. We approached the Panchayat and conducted the FGD. In the Focus Group Discussion the members of the village showed interest and were keen to participate in the action intervention. But the kind of things, which were shaping at the back of our activity were really indicative of the nature of support from government officials. The District Health Officer was quietly recruiting new doctors to the PHC of this particular village. Initially one doctor was appointed and gradually even the third doctor was installed in the PHC though there was no provision for the third doctor. With this sort of staffing at the PHC, the mood of the villagers changed very fast and they thought that it would be futile to participate in an experiment wherein they themselves should shoulder the responsibility of running the clinic after the intervention support is over. They were very happy to have three doctors next to their doors in the PHC and our efforts to entice them did not yield results in the desired manner. The DHO considering our experiment to be a competitor and damaging for his reputation as public servant was successful in foiling our experiment in this particular village. The fact that came out from this experience was that, though the public health officials were appreciating the kind of intervention that CMDR was trying to experiment, in actual practice they were not very keen to support it. They were not ready to accept the fact that public health delivery system is not effective in providing health services to the people.

In a village that we chose after this kind of experience was willing to participate in our action experiment. We had discussions with the members of the Gram Panchayat of this village. They were happy about the fact that the PHC in their village would get an additional doctor and a nurse. The CEO of the ZP was prepared to extend his help for the experiment and he even directed DHO to actively support this experiment. As a matter of caution, we had similar discussions in a different village also. This was being to keep the second village as the alternative option if again our attempt was aborted here also. One more intention of doing so was to see whether we could do such experiment in the second village without involving PHC set up. The joint meeting of ZP, District Health Officials, members of respective villages and CMDR team

was held to discuss the modalities of intervention. The people of both villages welcomed the idea of joining hands with PHC and to have additional staff in the premises of PHC. They were willing to pay for obtaining services from the PHC. During the course of meeting the District Health Officer openly stated that he would permit the additional doctor and nurse to use the premises of the PHC and the new doctor would be required to function as per the existing government framework. But very soon, in almost a weeks time we learnt that DHO had a different story to narrate. He said, he would require the permission from his higher ups in Bangalore and if only and only if he gets the approval from them, he would be in a position to handover the portion of the PHC to the new staff recruited under the experiment. This was breaking news for the team of CMDR as well for the village that was ready to participate in the experiment. The villagers were not very happy over this kind of development. They were also not very keen on doing such an exercise without involving the PHC. The office bearers of the Gram Panchayat opined that, the villagers had not necessary mental make up nor the capacity to participate in such experiment in which public set up is not participating. One member felt that the drugs and other supplies to be supplied for the peoples' clinic would be misused by certain sections of the society and people may start suspecting any transaction by the office bearers of the PHMG. Thus, the fate of the first village of the two selected met a phase of dropping out from the experiment.

In the stand by village, which we had selected as a matter of caution, we tried to experiment our prototype of action intervention. One advantage of this particular village was that, it had a good background of community participation in the drinking water supply scheme. The government of Netherlands had initiated a rural drinking water and sanitation scheme in the state of Karnataka, which tried to create the infrastructure for the drinking water supply with about 15 per cent of the cost of the project to be borne by the community. The expiry of the project phase, the created infrastructure would be handed over to the community itself for maintaining and operating the services on sustainable basis. This village by the name Morab, was managing the scheme of water supply successfully. It has the facility to treat the water before supplying and couple of water tanks were constructed to store the water to be supplied to the community. If a household wishes to own a tap in their own home, it has to pay higher user fee than the household, which gets the water through community tap. In any case community had to pay for the drinking water. The scheme was handed over to the Gram Panchayat and it has been running the show successfully for past 7 to 8 years. We considered this as the best positive factor in favor of enthusing community in shouldering the responsibility of providing health care services also along with the water supply and sanitation facilities. At the outset we informed the villagers that, we are trying our best to get the nod from the higher ups of the health department in Bangalore to initiate the experiment in this village with the effective participation of PHC set up. But if we don't get the permission, the community has to be ready to experiment on their own. As expected the government machinery did not respond at all to our various requests to have discussions with them regarding the modalities of our proposed action intervention. More than a month was just wasted in waiting for the official response. We felt that nothing would move forward in this regard. Finally we made up our mind to go ahead without joining hands with the PHC set up.

Village people also got convinced about the non cooperation of the government machinery and they also expressed the desire to experiment the action intervention. When we had decided to move forward, we actually planned the details of the experiment with the Gram Sabha members as well as other prominent members of the community. The suggestion, which came out during such meetings, was that, there is a need to place the details of the experiment before the general public of the village in a open meeting which is known as Gram Sabha or Village Meet. CMDR

team attended the such a meeting in the village and the details of the action intervention were explained to the people. To our surprise the health related matters were taken up at the outset of the meeting and people expressed a desire to have a doctor at the PHC. They made this request because the post of doctor had remained vacant for many years without a regular person taking charge of it. There were many adhoc arrangements, which never fulfilled the requirements of the PHC. Incidentally, the District Health Officer made one more adhoc posting for the vacancy of doctor, and the concerned doctor had come on the day of meeting to convince the people that government has done something to their village by sending the doctor. When the doctor informed the people that he had taken the charge of Medical Officer of PHC for the past one month or so, the people couldn't not believe it. They asked the office bearers of the Panchayat and other people as to whether they noticed the presence of this doctor at the PHC at any time. It only meant that the doctor had taken charge only on paper and had no time to visit the PHC to deliver the services. This event actually benefited us to a great extent. Our turn to present the details of the action intervention was next and hence people were very eager to learn about our experiment. We explained the details of the experiment. The idea of formation of PHMG and establishing a clinic by it in the village appealed to the people. There was a unanimous agreement for this idea. When we also explained about the introduction of user fees at the clinic there was no opposition to such an idea, in fact people were in favor of this, because getting a M.B.B.S. doctor for their village involves certain expenditure was the message from their discussion. The village meet finally gave a unanimous YES for our experiment. After this meet, we intensified our efforts to the formation of PHMG. A series of meetings were held with Gram Panchayat members and other village leaders, social activists, women organizations and youth associations. Our intention was to involve the Panchayat set up in the organization of PHMG on an official basis. This would try to encourage the process of decentralization in the provision and management of health care services But the opinion of the office bearers of the Panchayat was that, the decentralized set up has been reeling under the effects of "Red Tape" and hence it would not be proper to bring PHMG also under the a system which has got spoiled on account of many socio-political factors. We considered their argument and finally decided to keep PHMG out of the decentralized set up, but we got some of the Panchayat members as the members of PHMG also.

Thus the formation of PHMG took place in the village. The members of PHMG included, few members of decentralized set up, school teachers, representatives of women organizations, other prominent members of the community and of course CMDR was also a member of this group. The doctor and nurse were appointed for the clinic. We were able to search a experienced M.B.B.S. doctor. The doctor had several years of practice in rural areas. We had a series of meetings to complete the modalities of opening the clinic in the village. A bank account was opened in the village in the name of PHMG and three people were authorized to operate the account. The doctor of the clinic, the president of the PHMG and the president of the Gram Panchayat were to manage the financial matters of the PHMG. In any case, CMDR had taken the responsibility of shouldering the doctor's and nurse's salary, supply of medicines and 50 per cent of the rent for the premises of the clinic. CMDR had intimated to the PHMG members that such financial support from CMDR would be for a period of six months only. After the expiry of such period, the PHMG will have to take up the responsibility of running the PHMG clinic on its own. A suitable place in the in village was chosen to start the clinic. The members of PHMG named the clinic as Samudaya Arogya Kendra (SAK- Community Health Center). Before the inauguration of the clinic, CMDR supplied the minimum of equipments and other small requirements of the SAK. Following table shows the kind of materials supplied and their value.

Table 1: Assets given to the Samudaya Arogya Kendra (SAK)

Type of assets	Value of Assets (Rs)
Medical Instruments	8825.50
Furniture	4242.00
Other materials	1055.00
Total	14122.50

The clinic was opened on the 19th of September 2002. PHMG had agreed to collect the user fees from the patients visiting the clinic. An examination of the patient followed by giving minimum tablets and other medicine would require the patient to pay Rs. 5/-, and if the patient receives an injection, the user fee would be Rs. 10/-. From day one onwards the patients showed interest to visit the clinic. The mood on the opening day in the village was quite euphoric and people and the members of the PHMG were feeling contented because they were instrumental in bringing a M.B.B.S. doctor to the village. They had put up a small board for the clinic with the working hours of the clinic mentioned on it. The clinic was to function from 9 a.m. to 5p.m.

The clinic started functioning, and the staff of CMDR used to visit the village to give publicity to the clinic in the village. They also used the occasion to understand the views of the patients regarding the services offered by the PHMG clinic as well as the PHC which was also situated in the village. The following table shows the month wise income and expenditure of the PHMG clinic.

Table 2: Income and Expenditure of PHMG

Month/Year	Receipts of PHMG Clinic (Rs.)					
	Patients @ Rs. 5		Patients @ Rs. 10		Total No. of Patients	Total Amount (Rs)
	No. of Patients	Amount (Rs)	No. of Patients	Amount (Rs)		
September 2002	28	140	96	960	124	1100
October 2002	140	700	439	4390	579	5090
November 2002	145	725	431	4310	576	5035
December 2002	79	395	355	3550	434	3945
January 2003	135	675	380	3800	515	4475
February 2003	179	895	299	2990	478	3885
March 2003	554	2770	0 *	0 *	554	2770
Total	1260	6300	2000	20000	3260	26300

* Note: In view of the non-availability of breakup of patients, we have included all under Rs.5 category

The receipts of the clinic for the period from September 2002 to March 2003 shows that, a total of 3280 patients visited the clinic generating an income of Rs. 26300. Certainly this amounts to be a quite significant sum for the PHMG of Morab. But at the same time, we also need to look at the expenditure to run the clinic. CMDR was paying Rs. 10,000 as salary to the doctor plus Rs.

3000 as the allowances. Nurse used to get Rs. 5000 as the salary and Rs. 680 as the allowances. Apart from this CMDR had also spent on the non-recurring items like, equipments and furniture for the clinic and recurring expenditure on medicines was also made. This is shown in the below mentioned table.

Table 3: Recurring Expenses of the Clinic (Rs.)

Month/Year	Expenditure on Salary		Expenditure on Medicines	Total Expenditure
	Doctor	Nurse		
September 2002	5200	5676	6943	17819
October 2002	13000	5676	1390	20066
November 2002	13000	5676	--	18676
December 2002	13000	5676	2783	21459
January 2003	13000	5702	--	18702
February 2003	8000	5624	--	13624
March 2003	13000	5676	--	18676
Total	78200	39706	11116	129022

The average income per patient and average expenditure per patient would give us the overall scenario of the finances of the clinic. It would also give us the gap that exists with the present user fee structure as well as compensation structure for the staff employed. The following table gives us the average income and expenditure per patient.

Table 4: Per Patient Income and Expenditure (Rs)

Month/Year	Income / Patient	Expenditure / Patient	Difference
1	2	3	4 (Col 2 -Col 3)
October 2002	8.8	34.7	-25.9
November 2002	8.7	32.4	-23.7
December 2002	9.1	49.4	-40.4
January 2003	8.7	36.3	-27.6
February 2003	8.1	28.5	-20.4
March 2003	5	33.7	-28.7
Total	8.1	39.6	-31.5

The average income per patient varies between Rs. 5 to about Rs. 8 whereas the average expenditure is between Rs. 28 to Rs 40. This only means that the cost of providing medical care services is quite burdensome and if the community is made to shoulder this kind of responsibility, it may not be feasible for it to do so. What could be the alternatives before us to deal with a situation like this? If one considers the task of increasing the user fees, the community may not support it. Even if some segment of the community supports it, it may severely affect the equity aspects of the services rendered by the clinic, leaving out the poorer segments in the cold. In such a situation, the best thing would be to reduce the operating costs of the clinic. In order to do so, we should reduce the salary of the doctor and consider the reduction of other manpower support. In this particular experiment it was found that, as the clinic was catering to the needs of the community with regard to the treatment of common diseases and injuries, the services of the

nurse was not considered to be very essential. The clinic had no facilities to provide the MCH services, which also made the nurse less useful for the clinic. The premise of the clinic was rented at the rate of Rs 600 per month. There was a scope to shift the clinic to cheaper premises to save on the costs. The various permutations and combinations of the viability aspects of the clinic showed that, at least 35 to 40 patients must visit the clinic and it must generate an income of Rs. 7000 to 7500 per month. Out of this the clinic must find a doctor who is willing to serve for Rs. 5000 per month. Rest of the amount could be utilized for the purchase of medicines and payment of rent and the salary of the helper with of course some minimum savings for the PHMG. We were planning the withdrawal of the intervention by CMDR with this kind of situation created for the PHMG. Under such circumstances the take over of the clinic by the PHMG would be quite smooth and sustainable.

Views of the Community about the Clinic

When the clinic started functioning in the village, the news started spreading slowly within the village as well as to the neighboring villages. Thanks to the efforts of the CMDR field team which was instrumental in canvassing the opening up of the clinic as well as services rendered by it for the benefit of the community. The doctor of the clinic was also so effective in rendering the services as required by the community and his interpersonal skills also helped in gaining confidence of the community. As promoters of the clinic, CMDR was keen to know how the community was trying to evaluate the clinic vis-à-vis the PHC that was also functioning in the village. Exit interviews, discussions with the people and patients were conducted at regular intervals to elicit the information.

Young and old, male and female rich and poor were the kind of patients who visited the PHMG clinic. Usually the time of visit of the patients was more in the morning hours (between 10 a.m. to 1.30 p.m.) and in the evenings i.e. around 5 p.m. or at the time of closure of the working hours. The immediate response to the services of the clinic by the community was quite positive and it was mainly due to absence of a M.B.B.S. doctor in the village, for the past several years. Most of the quacks who did function in the village were not very impressive. The doctor at the PHC who was a M.B.B.S. was not available for most of the time

People said that the location of the clinic was in a convenient place as it was placed in the center place of the village. Space within the clinic was quite large, both for the patients to wait in queue and for the doctor to examine the patients. Doctor of the clinic, according to the patients who visited him was receptive and was humane in his approach while treating the patients. The views of the patients about the clinic are summarized as below.

- Need for the doctor to stay in the clinic during night time also
- Patients felt that the user fee of Rs. 10 and Rs. 5 was affordable for the members of the community
- Quality of the services rendered was satisfactory to the patients
- Patients preferred the services of PHMG clinic due to poor quality of services rendered by the PHC
- People expressed the need to include the maternity services in the clinic
- The ultra poor expressed a desire to get free services from the clinic
- Need was also expressed to have special health check up camps

- It was also brought out from our survey that more publicity for the clinic need to be provided in some areas of the village as well as the surrounding villages

Starting the clinic by the PHMG had good and positive impact on the functioning of the PHC located in the village. For the past several years PHC was functioning without any doctor. As the PHMG clinic started providing good service regularly, it started creating ripples around. The sleeping governmental set up woke up and started responding in a reactive way to the initiatives of the peoples' clinic. The DHO came out of his routine way of functioning and tried to save his face against the '*Patient Friendly*' services of the peoples' clinic. Where there was no doctor for years in the PHC, we could see a doctor visiting the PHC everyday. Even the holidays witnessed a doctor at the PHC, which was a rare seen in the village. The PHC also geared up its activities and started visiting the households of the village and started providing services at the doorsteps. This kind of rush of blood attitude put the villagers in confusion. They slowly started thinking that, there was no need to continue with the PHMG clinic as things are quite satisfactory at the PHC. Though this viewpoint came out from some people, the cool headed discussion was fruitful in understanding the situation in a much better way. The villagers could understand the tricks of the PHC set up and were convinced that the things at PHC have improved only because of the CMDR experiment. They were also quite sure that if the experiment is over and the PHMG clinic is closed, there is every possibility that the PHC would revert back to its defunct stage. So people were cautious enough to safe guard the interest of the community by continuing to support CMDR led action intervention.

The views of the community and the support extended by the villagers really enthused us because we had sensed the urge in the community to carry on with the experiment even after the withdrawal of CMDR. As mentioned earlier in the discussion, we were busy in identifying a less expensive doctor to be posted in the clinic, so that the finances of the clinic would be managed favorably to suit the limits of the PHMG. When we finally found a doctor who was ready to work for Rs. 5000 per month, CMDR handed over the clinic to the PHMG by withdrawing the staff earlier recruited. Thus from the seventh month of its inception, the peoples' clinic started functioning in the village as peoples' own initiative.

The experiment has brought out the fact that there is a potential in the community to participate in experiments wherein peoples participation is involved. In matters related to health, the need to participate by the community is still more acute and villagers are looking for helping hands from the world outside for initial doses of supplements. The felt needs of the community show that even the working hours of PHC are not in tune with the peoples' needs. The clinic of their own is certainly a boon to them. Our experiment supported the community clinic for just six months. The community felt that the experiment needs to be extended by about a year or so. They opined like this because, in order to encourage the community to shoulder the responsibility of running the clinic some time period is required. The people were also not able to contribute seed money on account of drought situation for the past couple of years. Capacity building in the community and getting a clear vision of sustaining such experiments on long-term basis also are time-consuming factors. A long-term experiment would certainly be more beneficial to evaluate the sustainability aspect. Nevertheless the community has now taken change of the clinic and the health services are reaching the people in a smooth manner.

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Computerization of Rural and Community in Southern Ghana: Clients' Perception

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Abstract: *Adoption of new technology plays a fundamental role in the development process as via financial institutions. However, more often than not financial institutions have focused on the technological solution or the savings that technology can generate for their businesses without considering the needs of the customers. Sampling 53 clients from 10 computerized RCBs in southern Ghana, clients' perceptions before and after computerization were analyzed using paired sample t-test. Results indicate that all existing products have been computerized but no new product has been introduced. In general delivery of bank services have improved but clients perceive that waiting time and state of bank workers at the front and back offices have not improved significantly. the paper proposes that new product such as micro insurance, weather insurance and micro home loans be introduced. It is recommended that the computerization project must be extended to all RCBs and new products such as electronic and mobile banking, micro-insurance for small entrepreneurs, weather insurance and housing products are introduced.*

Keywords: Computerization, RCBs, perception, microfinance

Introduction

Since 1976, the concept of rural banking has evolved through many stages of successes and failures with increasing number of clientele across the corners of Ghana. With competition¹ from the traditional commercial banks, the rural banks face a challenge in serving their clients most of them are small-scale entrepreneurs. The introduction of the National Payments System (NPS) also means that Rural and Community Banks (RCBs) must change from manual system of operation to computerized system, which involves networking. Computerization is when the activities of the banking system are provided via the use of computers and networking facilities. Computerized activities include withdrawals, deposits, account opening, checking of balances, and the provision of electronic products. At the retail, level banks offer Automated Teller Machine (ATM) and other debit card services. Telephone and Internet banking services are available but their use is not widespread among RCBs in Ghana. In this direction the ARB Apex Bank, United Nations Development Programme (UNDP), Millennium Development Authority (MiDA) and the Bank of Ghana (BoG) have taken the bold step to assist in the computerization of some RCBs on pilot basis which will be extended to all banks in the future. In the original project plan, a satellite was to be connected with Very Small Aperture Terminal (VSAT) which will be linking Bank of Ghana, ARB Apex bank, the regional offices of the apex bank, and six other centres including Ho, Hohoe, Koforidua, Cape Coast, Wa and Tamale. The rationale is that there is growing consensus that computerization of banks improve the efficiency in service delivery, reduces transaction cost for clients and makes them more competitive. It is also asserted that computerization enables banks to break the barrier of serving low-income market². Computers have the ability to

¹ In Ghana all commercial banks are computerized with several products including electronic banking, online accounts, and international money transfer. This is serving as a competition against the RCBs.

² Graham et al MicroSave Briefing Note No. 47: www.microsave.org

process large amounts of data at high speed and with a high degree of accuracy. The use of computers also makes information more reliable, up-to-date and consequently improves the quality of decision-making. The use of computers, is expected, will make banks better integrate their plans and will enable quicker response to change and development. It is therefore desirable to investigate the extent of computer technology being used by these deposit money rural banks for customer and bank level services. More so, it is desirable to know the perceptions of the customers about the computerized customer and bank level services. This is because more often than not financial institutions have focused on the technological solution or the savings that technology can generate for their businesses without considering the needs of the customers.

Research Problem

Rural people and small-scale entrepreneurs do not only need savings and credit but innovative products such as money transfer, quick services, and other online transactions. The expectation is that with computerization of RCBs clients will enjoy an extension of bank services beyond the traditional working hours and reduced interest charges. At the initial stages of the computerization of RCBs, an assessment is important in order to justify the extension of the projects to the rest of the banks. It is important to know which type of customer services and bank level services are provided by different types of these rural and community banks vis-à-vis clients' needs. It is also important to know the type of banking operations in these deposit money banks where computer technology is currently being used. This will enable us to identify the areas of banking operations where computer technology is required, so that the efforts of financiers will be concentrated on these areas. The computerization of RCBs which started on pilot basis is about 50% complete. The projects have been funded by development partners like UNDP and funds from the Millennium Challenge Account (MCA) managed by Millennium Development Authority (MiDA). However, some RCBs recognizing the importance computerization funded the project themselves. Currently electronic merge (eMerge) licenses have been acquired for 4 ARB offices (Kumasi, Takoradi, Sunyani and Bolgatanga) and 43 local area networks have also been established for 42 rural banks and the ARB apex head office. Further 50 rural banks have been provided with 2 servers, 5 personal computers and 3 printers each to boost the computerization project. As at now electronic merge licenses have been acquired for each of the 124 rural banks. Even though much has been done by the financiers of the project, there is much more to be accomplished. The extension of the computerization project therefore calls for an appraisal of the pilot project. This study will provide some evidence for justifying the continuity of the project or otherwise and the future direction of computerization of RCBs in terms of product development and innovation. Section two of the paper reviews related literature, hypotheses to be tested and the activities of RCBs in Ghana. Section three discusses the methodology that was adopted in the study. Section four presents results and discussion of the survey. Conclusion, challenges and policy implications are addressed in section five.

Theoretical and Empirical Perspectives

Adoption of new technology plays a fundamental role in the development process as well via financial institutions. One of the most popular theories of computer technology usage is the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Vankatesh, Morris, Davis and Davis (2003). The theory explains the user intentions to use information system and subsequent change in behaviour. Among the factors that influence usage intention and behavior

are performance expectancy (PE) and effort expectancy (EE). The theory implies that with the introduction of a new computer technology performance and effort of users and beneficiaries are expected to change. The model of Vankatesh et al was extended by Wang and Wang (2010) in their study of 343 individuals in Taiwan to determine gender differences and mobile internet acceptance. They observed that 'perceived value' influenced the use of mobile internet. The theory underscores the fact that users of mobile internet have different perceptions in terms of value gained and that influences their usage of new computer technology.

Even though use of computers and computerization in banking has been available in the developing as well as developed countries for several years, but it is not until recently new technologies such as mobile banking, electronic funds transfer among others become very common. Several studies conducted on the subject matter have however produced varied results. In a study by Soderberg and Bangens (2008) the authors allude that the use of modern technology in banking offer the rural people affordable, fast and secured transactions. The implication is that computer technology in banking reduces operational costs to the bank and saves time. For example in a study by Soriyan and Aina (1991) in Nigerian, the authors observed that computerization provided more time for Nigerian women so that they could better manage their work in the house and in the productive sector with less stress.

Consumers as noted by Fox (2002) may be motivated to use some electronic banking because of the perceived convenience and time saving. In his study Fox concluded that among some computer banking users, 79% indicated that convenience was very important in their decision to use them whereas 71% indicated that to them time saving was more important in their use of computer banking.

Olugbenga and Olakunle (1980) categorized the Electronic Fund Transfer (EFT) system technology into four categories – the Automated Clearing House (ACHs) point of sales systems (POS), Automated Teller Machines (ATMs) and national bank cards networks (NBCNs). With the ACHs, they stressed the fact that it was cost effective, based on the extensive paperless transactions, reduced margin of error and protected customers' against loss or theft. With the POS, they stressed the ease of transfer of funds from cardholders' accounts to the merchants' accounts and the ease with which the customer can make an immediate deposit into or withdrawal from his account directly through the POS terminal. With respect to ATM the customer has a full range of services including checking g of deposit or withdrawal transfer of funds between accounts and some installment payments into the financial institutions after the normal banking hours. With the national bank cards networks, the use of paper media has decreased and the interval involved in the processing of credit transactions has also increased.

Horan (1980) identifies four categories of electronic fund transfer systems which include automated clearing house; point-of-sale systems; automated teller machines and the national bank card networks in the Nigerian banking industry and asserts that banking has become fun. The use of computers which was seen as something strange has now become very common in the banking industry and for that matter rural and community banks must join the train, a case of 'bandwagon effect'. The reason is not just joining the train that matters but what they can offer their valued clients.

Bhasin and Obeng (2007) in a study of Ghanaian banks found that the introduction of computer technology has reduced average waiting time for customer services and the quality of customer services has also improved among selected commercial banks. In the study 16 banks were sampled including six commercial banks, five universal banks, three merchant banks and two devel-

opment banks. The survey did not capture the services of RCBs which serve majority of the low income households.

In market research conducted for MicroSave Action Research Partners (MARPs) implementing mobile phone-based e-banking solutions clients identified that electronic banking is fast and saves time. With electronic banking clients were of the view that there is saving of time associated with loan disbursement process (Wright, Hughes, Richardson & Cracknel, 2006).

Abor (2005) in a perception study of computerization of Ghanaian commercial banks finds that the use of technological innovation or electronic delivery channels have impacted positively on the provision of banking services and the growth of the Ghanaian banking industry but has contributed to an increase in bank charges. Abor's study however did not cover rural banks because the survey was limited to traditional commercial banks. Contrary to Abor's findings, some authors argue that computer technology is used by banks to reduce costs. For example Morisi (1996) in a study concluded that as consumers accept the use of ATMs and telephone to make financial transactions, it allows banks to reduce the number of costly transactions made by human tellers at the counter.

Oyelaran-Oyeyinka (1991) in a study of Nigerian banks concludes that with computerization, banks have been empowered to introduce new products and services such as ATM, and that there is fast delivery of front office services and more efficient back office operations. Odebiyi and Soriyan (2001) observed that there is still scope for the use of computer technology in some banking operations of the selected banks in Ghana. It is important to underscore that none of these studies covered the rural and community banks. In this direction this paper attempts to fill that gap. Following the review of the related literature the main hypothesis tested was: waiting time at the banking hall, issuing of bank statement, checking of clients' records, bank charges, general service delivery, state of bank workers and staff interaction with clients have not improved.

Rural and Community Banking in Ghana

The genesis of rural banking in Ghana can be dated as far back as 1976 when the first rural bank was established at Agona Nyakrom followed by Mfantiman Community Bank at Biriwa in 1978. The concept of rural banking works on the principle that funds should be mobilized from the community and makes them available to the people in the same community. The Bank of Ghana initially restricted the opening of branches to the catchment areas of the RCBs. This was to ensure that the unhealthy competition among the banks was eliminated. In 1990 some rural banks were categorized as mediocre due to poor performance and as a result their licenses were revoked. The rural banking terrain was revitalized with the establishment of the apex body to supervise the activities of all RCBs. The Bank of Ghana in this respect relinquished part of its supervisory role to ARB apex bank to ensure effective coordination in rural banking industry. RCBs engage in the provision of several products and services including savings mobilization, susu, micro-credit³, child education fund, funeral loans, local micro money transfer⁴ among and international money transfer via Western Union Money Transfer. For example as at December 2009, 124 RCBs engaged in foreign money transfer through the western union money transfer with 350 payment points across the country. The apex bank for RCBs which is the ARB Apex

³ This targets women entrepreneurs. Clients are made to organize themselves into groups and compulsory savings is used as collateral.

⁴ This makes use of ordinary telephone where the recipient approaches the paying bank for collection after confirmation from the paying bank is made. The transfer can be made between any rural bank and does not require opening of account.

bank also offers products including Apex Link Domestic Funds Transfer (ALDFT), efiene funds mobilization product, inward foreign remittances, disability products (mainly for disabled with employable skills), and government securities (<http://www.arbapexbank.com/product.htm>). Apart from these RCBs also manage government funds such as MASLOC⁵ funds and Poverty Alleviation Funds. They are also mandated to source external funds for on-lending at market interest rates. In addition to financial services, RCBs offer non-financial services to their clients⁶ to ensure that funds are put to good use.

Study Design

Data for the study was obtained from interviewing clients from 10 of the 18 computerized RCBs. Permission was obtained from the Chief Executive Officers and the General Managers of Kakum Rural Bank, Manya Krobo Rural Bank, Otuasekan Rural Bank, Lower Pra Rural Bank, Atwima Kwanwoma Rural Bank, La Community Bank, Ga Rural Bank, Adansi Rural Bank and Union Rural Bank. These banks are fully computerized with either Local Area or Wide Area Networks. The selection criteria were based on the year computerization started in the various banks. For uniformity, the reference point was 2005-2007. All the selected banks are from southern Ghana because most RCBs in the northern part are not fully computerized. The sample size was made up of 53 clients selected from each of the 10 RCBs. Clients were asked to state whether they agree or disagree with specific issues including waiting time, service charges, staff friendliness, request for bank statement, records checking, general service delivery and how they see bank staff before and after computerization.

Equal samples were selected for the purposes of comparison especially in paired sample t-tests. Clients were interviewed at the exit of the banking hall because they were only available when they have finished with their transactions. For each selected bank, the interviews were conducted at the head office and two branches. In all clients from 20 branches and 10 head offices were interviewed. Descriptive statistics was used to analyze the data collected. The paired sample t-test was used to test the null hypotheses that the differences between clients' perception before and after computerization are not significant or equal to zero. In a study of this nature the paired sample t-test is recommended (Subbush, 2007). One characteristic of paired sample t-test is that observations are paired when, for example, they are performed on the same samples or subjects.

Results

Male clients that do business with RCBs constitute 62.5% as compared with female clients of 37.5% meaning males are more bankable than females as far as rural banking is concerned. It also implies that outreach is low for women. Again the distribution of clients' occupation indicates that the bulk of RCB clients are civil servants (29.8%). This implies that most RCBs in the country focus on transacting business with salaried workers whose incomes are regular. It could be recalled that among the objectives of establishing rural and community banks was to mobilize savings and lend to the rural households most of whom are not served by traditional commercial banks. Unfortunately this mission is being misdirected. Instead in Ghana RCBs serve civil serv-

⁵ Microfinance and Small Loans Centre (MASLOC) is a centre established by the New Patriotic Party government to disburse funds to funds purposely for poverty alleviation.

⁶ Non-financial services include those services such as business advisory, business and cash management, investment opportunities, monitoring and evaluation.

ants⁷ who are mostly salaried workers probably because of the low level of risk associated with this segment of market. The study revealed that other occupations (including farmers and artisans) constitute 24.7% of RCBs clients.

Table 1: Sex and Occupation of respondents

Occupation	Traders	Civil servants	Students	Others ⁸	Total
Sex					
Male	60	103	58	11	332(62.5%)
Female	82	55	42	20	199(37.5%)
Total	142(26.7%)	158(29.8%)	100(18.8%)	131(24.7%)	531

Source: Field Survey, 2009, N=531

The results of the study also show that 28.8% of respondents are elementary school leavers whereas 29.3% are secondary school leavers. A little more than a third of RCB clients are tertiary and college certificate holders and it is obvious that the level of education of RCB clients has some implications for the success of the computerization project.

Table 2: Educational background of clients

Education level	Frequency	Percentage
Elementary ⁹	153	28.8
Secondary/Technical	156	29.3
Training College	99	18.6
University	90	16.9
Other	34	6.4
Total	532	100

Source: Field survey, 2009, N=532

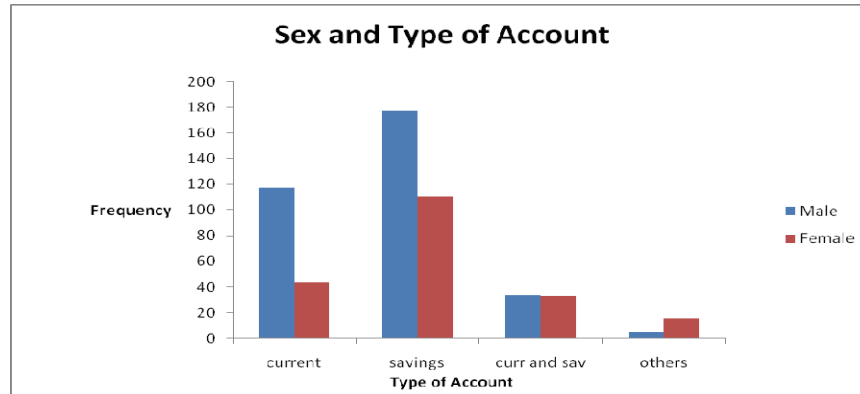
The survey (Figure 1) indicates that there are more males than females for each account type except other account (which includes microfinance, susu and micro transfer). The result confirms Ghana Living Standard Survey (GLSS 5) report that in Ghana more males (60%) operate savings account whereas women savings account holders constitute 40%. The most popular account operated by clients is savings account. Probably this is because of the fact that clients are paid some interest on their balance. The low patronage of women clients shows that financial inclusion is low for women and the nation at large. Again this is confirmed by the GLSS 5 report that just a third of Ghanaians own savings account.

⁷ They include all government workers such as teachers.

⁸ Others include all forms of occupations other than trading, government workers and students.

⁹ Elementary level of education has been defined to include junior high school, middle school leaving certificate, and all other qualifications lower than secondary technical.

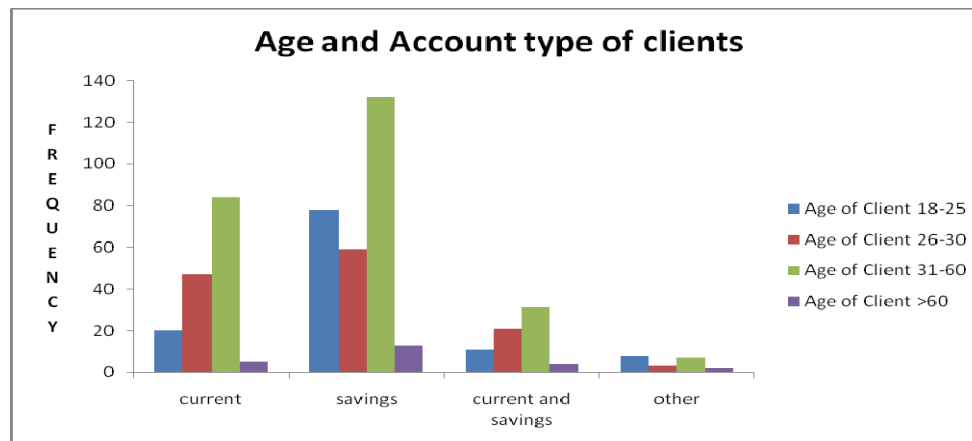
Figure 1: Sex and account type of clients



Source: Survey data, 2009

The age distribution of clients and type of account (Figure 2) indicates that clients aged between 31 and 60 constitute the majority. In all cases clients aged 60 or more constitute the minority for all types of accounts. Other account comprises holders of accounts other than traditional savings and current accounts. This is mainly made up of all clients who operate susu with the banks. They are not classified under savings account until they have reached a certain level for the bank to certify that they can do business with them. This is because such clients can withdraw their money at any time. Few clients engage in microfinance with the banks which might mean that clients of RCBs now need larger loans because probably microfinance loans are not sufficient for them.

Figure 2: Age and Account type of clients



Source: Field survey, 2009

For the sake of anonymity the names of the banks have not been disclosed in the analysis. The banks of course did not permit that their identity be disclosed for obvious reasons. On the average each bank has 3-11 branches or agencies including the head office. All the ten banks that were surveyed have internal network connections whereas seven banks have inter-branch network.

Table 3: Available computerized services

Service	Status
Savings, current and fixed deposit accounts	S, C(7)
Advancing loans/credit	S, C(6)
Interest processing	S, C(7)
Cheque clearing	S,C(4)
Cash withdrawal/deposit	S, C(7)
Checking of balances	S, C(7)
General enquiries	S, C(7)
Purchase of treasury bill	S,C(2)
Statement of account	S,C(7)
Cross-checking of accounts	S,C(7)
Bank draft and payment order preparation	S,C(3)
Overdraft facility	S,C(6)
Money transfer (local and international)	S,C(8)
Microfinance ¹⁰	S,C(10)

*S = service is available, C = service is computerized

The survey indicates that there are 14 services that are available and computerized (Table 3) at the RCBs. Microfinance is available and computerized in all the ten banks. Microfinance services in the banks include small savings and loans to micro-entrepreneurs. The RCBs do not offer products such as micro-insurance, micro-home loans and weather insurance for those in agriculture. Treasury bill operations have been computerized in two out of the ten banks. Savings, current and fixed deposit accounts, interest processing, cash withdrawal and deposit, checking of balances, statement of account, cross-checking of accounts, and overdraft facility are services that have been computerized by seven banks. Bank services that require further computerization are Treasury bill operations, general enquiries, bank draft and payment order processing and cheque clearing.

Table 4: Client perception about computerization

Hypotheses	t-value	$P>0$
H1: Waiting time at the banking hall	0.502	0.616
H2: Delivery of bank statements	1.96	0.051**
H3: Checking of Client records	2.74	0.006*
H4: General service delivery	2.74	0.000*
H5: Bank charges	3.74	0.001*
H6: State of bank workers	1.31	0.190
H7: Staff friendliness	10.48	0.000*
H8: Interaction with clients	4.68	0.000*

*Significant at 0.01, * Significant at 0.05, Source: Calculated from field survey, 2009

The paired t-test result is presented in Table 4. Perception of customers about delivery of bank statement ($t=1.96$), checking of records ($t=2.74$), general service delivery ($t=2.74$), bank charges ($t=3.74$), friendliness of bank workers ($t=10.4$), and level of interaction with bank clients ($t=4.68$) were all significant. Clients were of the view that with computerization, bank staff seems to work under tension ($t=1.31$) and waiting time has not reduced significantly ($t=0.502$). The estimated paired t-test values indicate that computerization has led to faster delivery of bank statement; faster checking of records; decrease in service charges, bank staff are now friendly

¹⁰ Microfinance services at the RCB level include daily collections of susu from registered clients. The collections may be for the purpose of loan repayment or micro-savings (saving-up).

and have more time to interact with them. On the other hand staff work under tension and waiting time has not improved significantly.

The case by case analysis of the perception of manual and computerization states is presented in Tables 5 and 6 respectively. In cases where the sample is less than 543 it means clients did not respond to all the questions.

Table 5: Client perception about the manual system

Client perception	Agreed	Do not agree
Long waiting time in the banking hall	335 (84.4%)	62 (15.6%)
Bank statement took too long a time to get	317 (80.9%)	75 (19.1%)
Delay in checking records	348 (86.8%)	53 (13.2%)
Service delivery was slow	332 (82%)	73 (18%)
Customers paid high service charge	204 (63%)	177 (37%)
Bank workers were under tension	312 (77%)	93 (23%)
Bank staff were less friendly	196 (48.5%)	208 (51.5%)
Bank staff had a lot of time to interact with clients	160 (39.7%)	243 (60.3%)

Source: Field survey, 2009

In the manual system clients were of the opinion that waiting time was high; taking bank statement took so long a time, checking of records (clients' records) delayed, service delivery was slow, and workers worked under tension. They however were of the opinion that service charge was high, banks staff were not friendly even though they had enough time to listen to clients' complaints.

Table 6: Client perception about computerization

Client perception	Improved	Not improved
Waiting time at the banking hall	61(15.4%)	336 (84.6%)
Processing of bank statement	443 (88.6%)	57 (11.4%)
Checking of clients' records	457 (98.2%)	68 (1.8%)
General service delivery	443 (90.0%)	50 (10.0%)
Service charges paid by customers	324 (63.8%)	184 (36.2%)
State of bank workers	96 (18.7%)	418 (81.3%)
Friendliness of bank staff	421(81.6%)	95 (18.4%)
Staff interaction with clients	341 (82.6%)	72 (17.4%)

Source: Field survey, 2009

Discussion

The result is in contrast with the MixMarket report that globally women constitute almost 70% of large MFIs clients and 55.8% of small MFIs clients (MixMarket, 2009). Even though RCBs are one of the major providers of microfinance, the case in Ghana with respect to RCBs is different. In the RCBs men constitute the greater percentage of account holdings except microfinance. The result confirms the report of Ghana Living Standard Survey 5 that more males (60%) have savings accounts than females (40%) for all localities in Ghana (Ghana Statistical Service, 2008).

Clients' perception that delivery of bank statements, checking of client records, general service delivery, staff friendliness, and interaction with clients have improved and bank charges have reduced are consistent with theory and literature (Soderberg & Bangens, 2008; Bhasin and Obeng, 2007; Morisi, 1996). This is because the adoption of new technology is expected to bring innovations in service delivery and reduction in overall transaction cost as well cost per unit. Unfortunately new products have not been introduced. It is the existing products that have been computerized (Table 3). Oyelara and Oyeyinka (1991) argue that the introduction of technology

in banking bring along new products. Rural and Community Banks should make an effort to introduce new products such as electronic banking and mobile phone banking.

There is no significant difference between waiting time before and after computerization. The implication might be that computerization has rather increased waiting time or waiting time in the manual system is not different from present system of computerization. The possible reasons clients assigned for this includes slow link of network facilities and power failure among others. This result is not consistent with those of Soriyan and Aina (1919), Fox (2002) and Bahsin and Obeng (2007). Another possible reason for increase in waiting time might be that since computerization is at its initial stage and new to most staff, it will require some amount of carefulness in processing client transactions especially withdrawal transactions. One can also argue that tellers (front office staff) want to be extra cautious in order no to be indebted. In this wise the notion that technology comes with time saving, one is always skeptical whether this is the case in rural banking. The perception of clients that staff works under tension was not confirmed from staff themselves. This notwithstanding however confirms clients' perception about waiting time. It stands to reason that computerization has brought some challenges as allude to earlier.

Conclusion

This paper has examined the perception of RCB clients before and after computerization. Using survey questionnaire 53 clients were selected from 10 RCBs in the southern part of the Ghana. The study adopted the paired sample t-test in analyzing clients' perception. Males hold more accounts as compared to females. Even though bank services have improved considerably, clients perceive that there has not been significant improvement in waiting time at the banking hall and they also see staff working under tension. The computerization is not without challenges even though bank level services have improved from the point of view of clients. High cost of maintaining equipment seems to be is an issue of concern.

Policy issues are addressed at three levels namely macro, meso and micro levels respectively. At the macro level government has a role to play. Funds need to be provided to complete the computerization project in all the rural banks on timely basis. This way government will be helping the RCBs to deliver quality banking services to improve waiting time.

At the meso level there is the need for support services and infrastructure to make the computerization a success. Locally available market for computer and accessories, internet connectivity, and experienced internet service providers are required to reduce operational and transaction costs further in order to serve more low income clients.

At the micro level the institutions themselves have a herculean task of making clients feel more comfortable. First, there is the need to train the human resource base of the various rural and community banks. RCBs are encouraged to take the challenge of providing enough funds to complete and maintain the computerization project within the shortest possible time. It is also RCBs for banks to devote enough time for clients by way of probably listening to their complaints and attending to them. It is recommended that separate desk should be created for client enquiries at all RCBs as it is the case in traditional commercial banks.

Clients need internet and mobile banking. Lessons could be learnt from the Philippines and Kenya where even illiterates are able to use mobile phones to access their accounts. In addition to this RCBs should use the opportunities in computerization to introduce more products such as micro housing loans, micro-insurance for small scale entrepreneurs and weather insurance products for farmers. It must be emphasized that the ability to read and write should not be a barrier in serving clients. Some respondents did not answer all the questions (Tables 4 and 5) meaning

results may not be very representative. The study did not also cover all computerized RCBs in Ghana. Staff opinion about computerization was not sought since the study focused on clients. Future research could be extended to cover all computerized RCBs and their staff.

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Self-Financing Engineering Education in Tamil Nadu: Salient Characteristics and Major Issues

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Abstract: *The self-financing engineering institutions in Tamil Nadu exploit the circumstances and emerge as something similar to the for-profit higher education in the United States. The self-financing engineering institutions have grown sporadically within a very short span covering more than 90 percent of the total engineering colleges. The present paper makes an attempt to marshal out the emerging salient characteristics and brings out the major issues of engineering education. Further, it discusses the policy responses of the state to the fast growing engineering education.*

Keywords: self-financing, engineering education, regulation, policy response

Introduction

The growth of private engineering education has been spectacular in few southern states such as Andhra Pradesh, Tamil Nadu and Karnataka along with Maharashtra, reflecting the global trend. Indeed, the engineering discipline in these states is *de facto* under the private sector. The fast growth in the private sector is on account of the fact that during the Sixth Five Year Plan (1980-85), when the central and state governments were finding it difficult to expand technical education in the country, a few state governments, especially the governments of Karnataka, Maharashtra, Tamil Nadu and Andhra Pradesh took a bold decision to permit private registered societies and trusts to establish and run technical institutions on a self-financing basis. These are institutions of a new generation unlike the charity oriented private institutions. As a result, a large number of private self-financing institutions came into existence in these states during early 1990s (AICTE, 1999).

The growth of these private institutions in few of these states further improved during the new millennium. It is important to note that this period coincides with macro economic reforms¹¹ initiated during 1990s resulting in major policy changes at both macro and sub-sectoral level. These reform package imposed decline on the public budgets on education, more specifically on higher education. The macro economic reforms also resulted in several policy directions, which paved the way to several alternatives, including self-financing courses in government and aided colleges besides the rapid expansion of the private sector in higher education.

Among the southern states of India, Andhra Pradesh and Tamil Nadu occupy the highest number of engineering colleges and also highest number approved intake of students in India (see Table 1). Along with these two states, the growth of the engineering institutions was phenomenal in Uttar Pradesh, Kerala and Madhya Pradesh. The approved intake of engineering students has also grown phenomenally in these states. The highest growth was reported in Uttar Pradesh, Andhra Pradesh and Madhya Pradesh. In terms of average intake, the highest intake per college is in Karnataka followed by Tamil Nadu (see Table 1). The present paper focuses on one such state, Tamil Nadu, holding the second place in terms of highest number of institutions, approved and average intake in the country in 2006-07.

¹¹ The five major components of the economic policy include Liberalization, Privatization and Globalization (LPG), currency convertibility and reduced role of the state.

Table 1: Number of Institutions and Intake Approved for Engineering/Technology in 1994-95 and 2006-07

States*^	1994-95			2006-07			CAGR NO I	Intake
	NOI	Intake	Average Intake	NOI	Intake	Average Intake		
Andhra Pradesh	34	8650	254	280	107575	384	19.	23.4
Tamil Nadu	77	19245	250	268	105318	393	11.	15.2
Maharashtra	98	24715	252	171	58989	345	4.7	7.5
Karnataka	50	19452	389	128	56542	442	8.1	9.3
Uttar Pradesh**	25	3309	132	123	44323	360	14.	24.1
Kerala	18	4512	251	93	29165	314	14.	16.8
Madhya Pradesh **	18	3085	171	99	35190	355	15.	22.5
West Bengal	12	2202	184	54	15671	290	13.	17.8
Other States	79	15257	193	284	95719	337	11.	16.5
All India	416	101451	244	1511	550986	365	11.	15.1

Note: CAGR indicates compound annual growth rate; * ranked as per the highest number of institutions in 2006-07; ** includes the newly carved out states; ^ States having more than 50 engineering colleges only reported.

Source: AICTE: Handbook for Approval Process; AICTE, 1999

The structure of higher education in India including Tamil Nadu consists of universities, research institutions and deemed to be universities. At the next level lie the colleges by disciplines such as general arts and science, professional including engineering, management, medical, agriculture and law colleges. The structure and distribution of higher education in Tamil Nadu is presented row wise for the year 2006-07 in Table 1. There are 35 university level institutions comprising general higher education, technical, agricultural, law and medical universities during 2006-07(see column 5 of Table 2). A large number (490) of general higher education colleges namely arts and science colleges are affiliated to general universities. These general colleges occupy the highest share of 35 percent (see column 6 of Table 2) of all higher educational institutions. The professional colleges include engineering, medical, pharmacy, agriculture, law, management (constitute another 35 percent), etc.

Another dimension presented vertically in Table 2 is the institutional type by management. The educational institutions in India and in states are of three basic types based on funding and provision: (i) government provision and financing of higher educational institutions; (ii) private provision and government financing referred as private aided institutions and (iii) private provision and financing referred to as self-financing institutions.

Table 2: Structure of Higher Educational Institutions by Type of Management in Tamil Nadu in 2006-07

Institutions	Govt. (in %) (2)	Pvt. Aided (in %) (3)	Self-fing. (in %) (4)	Total (in numbers) (5)	% of Institution type in to- tal Institutions (6)
Univs. including DU.	57.1	11.4	31.4	35	2.48
Arts and Science colleges	12.2	27.1	60.6	490	34.78
Engineering Colleges	4.0	1.2	94.8	248	17.60
Polytechnics	10.3	18.2	71.5	214	15.19
Medical colleges	60.0	0.0	40.0	25	1.77
Para-medical	6	6	88	32	2.22

Law colleges	72.7	0.0	27.3	11	0.78
Management	8.2	1.4	90.4	146	10.36
Agriculture Colleges	72.7	27.3	0.0	11	0.78
Colleges of Education	4.4	8.8	86.9	160	11.36
Colleges of Physical edn	0.0	37.5	62.5	8	0.57
Others	6.9	41.4	51.7	29	2.06
All	11.8	15.3	73.0	1409	100.00

Note: DU – Deemed Universities; Para medical includes dental, ayurveda and homeopath colleges.

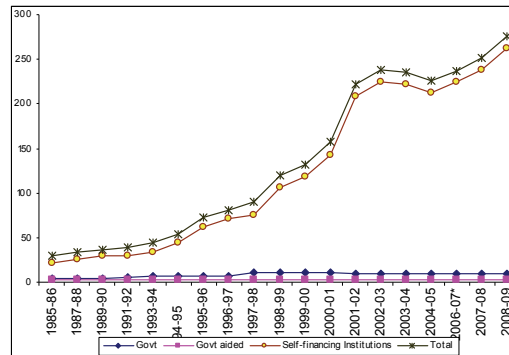
Source: www.ugc.nic.in; based on Government of Tamil Nadu (2007); Statistical Handbook of Tamil Nadu, 2006.

Internationally, three most prominent types, such as culturally pluralistic type, consisting of religious, charity, and philanthropy – termed as the fused private-public entities. These are almost similar to private aided sector in many states in India. The third type is self-financing institutions, which are non-elite but demand absorbers. Their growth is accelerated in recent decades especially since 1990s primarily because of excess demand (Geiger, 2004; Levy, 2006). The self financing engineering institutions exploit the circumstances and emerge as something similar to “for-profit higher education” in the United States (Morey, 2004; Kinser and Levy, 2007).

Growth of Engineering Colleges

The expansion in engineering education in Tamil Nadu, has been only in the private sector since the middle of 1990s. Even though private initiatives in education is an old phenomenon with the initiatives of Christian missions and Nattukottai Chettiar community, but since 1980s, it was the turn of politicians, industrialists and other individuals. This trend led self-financing colleges to occupy a share of three fourth of total engineering colleges. Eventually, private sector exhibits almost full presence in engineering education in Tamil Nadu in 2008-09 (see Figure1).

Figure 1
Growth of Engineering Colleges by Management Type in Tamil Nadu



Source: Statistical Hand book of Tamil Nadu, Chennai

The self-financing colleges grew at an annual rate of 18.14 percent during the period from 1993-94 to 2008-09. The Government and private aided colleges constitute five percent of the total engineering colleges. It is clear that number and share of government colleges and universities are declining while self-financing institutions are growing in strength, strongly tied to broader processes of LPG. This has resulted in the private sector implicitly attracting a growing number of students who do not qualify the entrance exams to public institutions. Even though this has not been an stated policy, but by limiting the intake of public higher education institutions without expanding the government institutions gave a green signal to the expansion of the private

sector, which absorbs the excess demand. Given this, the thrust of the paper is on elucidating the salient characteristics of self-financing engineering colleges and the response from the regulatory authorities.

The information used here primarily comes from websites of the individual institutions, besides AICTE website and Statistical Abstracts and Policy Notes on Higher and Technical Education in Tamil Nadu. The individual websites of 43 self-financing engineering colleges (courtesy: tamilnow.com). In each aspect, information provided by the colleges varies at great deal. Such variation exists despite the fact that AICTE stipulates for a mandatory disclosure in a standard format.

Salient Characteristics of Self-financing Engineering Colleges in the State

All such institutions are to be established with the permission of the state governments and are affiliated to the universities of the region with the approval from both the State Board of Technical Education and AICTE. With the policy change since 2001, all private engineering colleges are affiliated to Anna University. The major characteristics of the self financing engineering colleges are examined in terms of provision. The major aspects covered under this include:

- number of institutions and intake by location
- background of sponsors and affiliation
- size and composition of faculty at different levels and qualifications and
- infrastructure (extent of campus, presence of major facilities such as library, labs, etc.)

Number of Institutions by Location

It can be observed by looking at the number of private engineering colleges across districts in the state that ‘the private sector comes forward to participate in such locations where the public sector had already invested and are economically prosperous’. In 2002-03, there were 241 private engineering colleges situated in different parts of the State. These had increased to 255 and 261 during 2004-05 and 2006-07 respectively (see Table 3). Kancheepuram has the highest number of private engineering colleges covering 25 percent of the total private colleges in the state (see Table 3). The number of colleges has increased from 58 in 2002-03 to 63 in 2004-05 to 64 in 2006-07. The official statistics from the Statistical Abstract do not report the private engineering colleges in Chennai. However, the information from AICTE shows that Chennai and surrounding areas (including Kancheepuram and Thiruvallur) alone have 87 engineering colleges.

Table 3: Number of Self-financing and Total Engineering Institutions by Districts in Tamil Nadu in 2002-3, 2004-05 and 2006-07

District	2002-03			2004-05			2006-07		
	Self-Finan-	Total	Propn. PUA to total*	Self-Finan-	Total	Propn. PUA to total*	Self-Finan-	Total	Propn. PUA to total*
Kancheepuram	58	58	25.33	63	63	25.93	64	64	25.70
Thiruvallur	27	27	11.79	27	27	11.11	23	24	9.24
Coimbatore	17	20	7.42	18	21	7.41	21	24	8.43
Namakkal	10	10	4.37	10	10	4.12	14	14	5.62
Vellore	11	12	4.80	11	12	4.53	11	12	4.42
Thirunelveli	10	11	4.37	10	11	4.12	11	12	4.42
Kanniyakumari	7	7	3.06	10	10	4.12	11	11	4.42
Thiruchirappalli	9	10	3.93	10	11	4.12	10	10	4.02
Erode	9	9	3.93	9	9	3.70	8	8	3.21
Virudhunagar	5	5	2.18	5	5	2.06	8	8	3.21
Pudukkottai	8	8	3.49	8	8	3.29	7	7	2.81

Villupuram	6	6	2.62	6	6	2.47	6	6	2.41
Sivagangai	5	6	2.18	5	6	2.06	6	7	2.41
Thiruvannamalai	6	6	2.62	6	6	2.47	5	5	2.01
Dindigul	5	5	2.18	5	5	2.06	5	5	2.01
Thoothukudi	4	4	1.75	4	4	1.65	5	5	2.01
Other districts	32	37	14.0	36	41	14.8	34	39	13.7
Tamil Nadu	229	241	100	243	255	100	249	261	100

Note: * indicates proportion of private unaided colleges in a district to that of total private unaided colleges

Source: Policy Notes, Higher Education, 2003-04; 2004-05 and 2006-07.

The next highest number of private engineering colleges is located in Coimbatore having 21 colleges covering eight percent of the total private unaided engineering colleges. It clearly emerges that not only the private deemed universities but also the private engineering colleges breed in and around Chennai and Coimbatore, the two business and industrial centers in the state. On the contrary, the backward districts neither have a government or aided nor private engineering colleges. This brings out the fact that the private sector flourishes only in those districts which are economically prosperous and also where the public investment has been made not only in the higher educational institutions but also in the infrastructure facilities such as good roads, airports, etc.

Number of Intake by Location

Similarly, districts in and around Chennai contribute to 35 percent of the total approved intake of students in private engineering colleges in the state. A distinct trend from institutional location is that except these five districts listed in Table 4, a large number of districts having less than five percent of the total intake indeed contribute to about half of the total intake.

Table 4: Number and Proportion of Approved Intake in Private Unaided Engineering Colleges in Tamil Nadu by districts in 2005-06 and 2006-07

District	2005-06			2006-07		
	PUA	Total	% PUA to total	PUA	Total	% PUA to total
Kancheepuram	14653	14653	16.8	16917	16917	16.7
Chennai	10667	10685	12.3	12073	12091	11.9
Coimbatore	7488	10310	8.6	9413	12344	9.3
Tiruvallur	6249	6249	7.2	7919	7919	7.8
Namakkal	4772	4772	5.5	6218	6218	6.1
Districts Less than 5 % share	43178	44676	49.4	49015	50391	48.1
Tamil Nadu	87007	91345	100	101555	106140	100

Source: Based on AICTE website downloaded in June, 2007

It presents a paradoxical situation that about one third of the institutions and enrolment is concentrated in and around Chennai, yet half of the approved intake is distributed across the remaining 25 districts. Within the 25 districts, ten districts, contribute less than one percent of the total intake in private engineering colleges.

Background of Sponsors and Affiliation

As per the policy note 2008-09, the state houses 249 self-financing engineering colleges. An attempt has been made here in order to understand the background of sponsors of these colleges. As noted earlier, individual websites of 43 self-financing engineering colleges are the main source of information. Background of sponsored is broadly grouped under four categories, viz., *minority institutions* – either Christian, Muslim, or Telugu Linguistic minority institutions; *chain of institutions* – having at least more than five educational institutions under the same trust; *in-*

*dustrial background, and others*¹². It is to be noted that these grouping is among the sub-sample of 34 colleges in which eight are minority institutions.

Among these eight minority colleges, three institutions own more than two educational institutions. Besides these three colleges, another 17 colleges run a minimum of five and above educational institutions. For instance, Arulmigu Meenakshi Amman College of Engineering under Meenakshi University runs 23 educational institutions in the state as per the information provided in their websites. Yet another Vel's group of institutions, which began with the Vel's College of Pharmacy in 1992, became a group now with 11 different colleges on three campuses in and around Chennai. They also offer a one-year Diploma in Nautical Science, and a two-year Higher National Diploma in Nautical Science. Students of the Higher National Diploma spent the first year at VGAMS, and the second year at Glasgow College of Nautical Studies (GCNS), U.K. Vel's Academy of Maritime Education and Training (VAMET) offers B.E. in Marine Engineering, a one-year Graduate Mechanical Engineering, a two-year Diploma in Mechanical Engineering, and a Higher National Diploma in Marine Engineering. Students of Higher National Diploma spend the first year at VAMET and the second year at GCNS, U.K. These courses are affiliated to Vinayaka Mission Institute of Technology, a deemed university at Salem. All the courses at VAMS and VAMET are residential. Another eight colleges are under the industrial category ranging from software to real estate. Yet another five colleges fall in other category wherein no specific similarity could be found, which are single institutions run by people from different backgrounds.

Size and Composition of Faculty at Different Levels and Qualifications

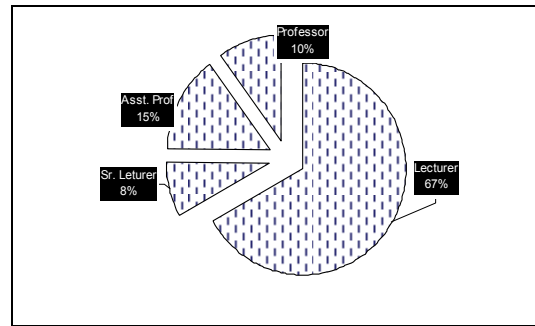
With regard to teachers in engineering colleges, there is no published information available on the numbers and many other characteristics of teachers such as their designation, qualifications, years of experience, salary, etc. An attempt has been made here to collect the information on teachers in self-financing engineering colleges. The websites of 17 colleges provided information on teachers by designation and qualification. The available information is based upon a total sample of 2,172 teachers teaching in 17 self-financing engineering colleges in Tamil Nadu. However, the information on teachers by designation was available only from 1,708 and the designation wise distribution suggests that a majority of them (67 percent) are at the lecturer level (see Figure 2).

Senior lecturers constitute another eight per cent, who are likely to be in the teaching profession. Many of them join at the entry level, as they could not find any other immediate jobs. The assistant professors with at least more than five years of experience constitute another 15 percent. The professor level constitutes a mere 10 percent who are also in many of the cases heads of the departments.

Technical education is facing acute shortage of qualified faculty. Because of the rapid growth of professional education, there is an acute shortage of experienced and qualified faculty, on account of which most of the colleges have to depend heavily on fresh graduates and post graduates. From the data available on teachers with a sample of 1,708 reveal that about 50 percent of the lectures hold PG qualification (see Table 5). Another 30 percent are with UG qualification. Above the lecturer level, PG qualification becomes a pre-requisite. Senior lecturers having PG

¹² It is difficult to assign some of the colleges into a particular group for instance only minority institutions but runs more than three educational institutions. Similarly, the colleges which run many educational institutions do have industrial and political background. That real estate businessmen do run engineering colleges.

Figure 2: Distribution of Teachers by Designation in 2007-08 in Tamil Nadu



Source: based on websites of sample colleges

qualification constitute above 60 percent. Another 30 per cent hold above PG level qualifications either M.Phil. or Ph.D. It may also be noted that teachers holding M.Phil. are primarily from non-engineering disciplines. At the assistant professor level, 57 percent of the teachers have PG qualification and another 38 hold above PG qualification. Unlike the middle and junior levels, at professor level above 50 percent of the teachers have a doctorate degree. It may be noted that very few colleges provided the information about the part-time and visiting faculty. Even if reported, such part-timers are found to be very few.

Table 5: Percentage of Faculty by Designation and by Qualification in the Sample Self-financing Engineering Colleges in Tamil Nadu

Designation	UG	PG	M.Phil	Ph.D.	Total	Colleges
Lecturer	32.5	49.3	16.4	1.7	1143	17
Sr. Lecturer	7	62.2	17.5	13.3	143	15
Asst. Prof	5.6	56.8	20	17.6	250	17
Professor	4.7	30.2	12.8	52.3	172	17
All	23.6	49.6	16.7	10.1	1708	17

Source: based on websites of sample self-financing colleges downloaded in May-June 2008

Though there is no information on mobility of teachers, some trends can be deciphered based on the distribution of years of experience of teachers by designation. Major share of the lecturers (61 percent) are with less than three years of teaching experience at the lecturer level. Another 27 percent have experience between four to seven years of experience. But 45 percent of the senior lecturers have four to seven years of experience. Similar picture can be observed at the assistant professor level as well. As they move up on the designation, the years of experience is also high. At the professor level, majority of them (above 60 percent) have more than ten years of experience. It may be noted that many of the professors are heads of the departments and many of them are retired professors from other colleges¹³ (Table 6).

¹³ Very few colleges provide information on the experience of teachers that in 43 colleges, only 7 colleges provide details of years of experience for about 509 teachers.

Table 6: Percentage of Faculty by Designation and by Experience in the Sample Self-financing Engineering Colleges in Tamil Nadu

Designation	less than 3	4 to 7	7 to 10	above 10	All	No data	Grand total	Colleges
Lecturer	61.0	27.6	9.6	1.9	23	71.7	1143	6
Sr. Lecturer	26.3	44.7	18.4	10.5	8	73.4	143	5
Asst. Prof	19.2	17.9	21.8	41.0	8	68.8	250	5
Professor	5.7	20.0	10.0	64.3	0	59.3	172	7
All	44.4	26.3	12.2	17.1	09	70.2	1708	7

Source: based on websites of sample self-financing colleges downloaded in May-June 2008

Competent faculty can be retained only at higher and attractive levels of salary, which is a serious hindering factor in the private engineering colleges. With very limited salary data available from the websites that only three colleges provide information for about 149 teachers, it can be found that the minimum salary of a lecturer is as low as Rs.3,500 which is one fifth of the salary paid by the State at the entry level (see Table 7). The maximum salary paid at the lecturer level is Rs. 20,000 and the average salary is Rs.9,680. Similarly, the salary at other levels is also lower than the state pay and much lower than the pay that would have otherwise been available in the market.

Table 7: Average Salary by Designation in the Sample Self-financing Engineering Colleges in Tamil Nadu (in Rs.)

Designation	Minimum	Maximum	Average	All 1*	No data**	Grand total*	Colleges*
Lecturer	3500	20000	9680	13	88.5	1143	3
Sr. Lecturer	14750	--	--	1	99.3	143	1
Asst. Prof	13360	34000	1957	10	96.0	250	1
Professor	6550	33860	2328	7	95.9	172	2
All	9540	29287	1751	14	91.3	1708	3

Note: * in numbers; ** in percent to the grand total, Source: same as the above table.

Infrastructure

The private institutions invested heavily on the physical infrastructure. As far as the area of the campus is concerned, the land area ranges from 25,000 square meter to a vast 800 acre campus (see Table 8). This is indeed one of the attractions. Besides the huge area, they invested on a number of facilities from class rooms to AC seminar halls. It is important to note that many of the colleges provided the information regarding the infrastructure in details. On the contrary, the investment on human infrastructure was neglected as seen earlier. Further, the state government has also granted incentives for the colleges that have created infrastructure well above the minimum prescribed by the AICTE.

Major Issues Relating to Self-financing Colleges

Major issues relating to self financing colleges are examined in terms of admission criteria and procedures such as seat sharing; fees; quality and performance and functioning of regulatory authorities.

Table 8: Extent of Campus in the Sample Self-financing Engineering Colleges in Tamil Nadu

Sl. No	Name of College	Area of campus
1	Annai Mathammal Sheela college of Eng Arunai Eng of College	100 acre
2		110 acres of land, built-in area of 75,000 Sqm
3	Asan Memorial College	12 acres
4	Bannari amman Institute of Tech	165 acres in Built-up area of 11 lakh square feet
5	Sri Sairam Engineering College	25,000 sq. meters
6	Adhiyamaan College of Eng	250 acre
7	Coimbatore Institute of Eng	26.5 acres
8	Sakthi Mariamman Engineering	27.9 acre
9	B.S Abdur Rahman Eng College	60 acres
10	Aarupadai Vedu	60 acres
11	Anjalai Ammal College of Engg.	65 acres
12	Adhiparasakthi College of Engg.	800-acre
13	K.C.G College of Tech	50 acres

Source: same as the above table

Admission criteria and Seat Sharing

The Government of Tamil Nadu has abolished common entrance test which was the eligibility criterion for admission till 2006-07. Due to various factors, there has been a large number of vacancies under payment category and this is on the increase year after year, putting the managements of engineering colleges under financial strain. The Government has reduced the eligibility marks followed by representations from the Tamil Nadu Self-Financing Engineering Colleges Association (Chennai, The Hindu, July 19, 2007). Hence, in a Government Order in 2007, the minimum eligibility marks for admission into the engineering colleges has been reduced. Accordingly, the minimum eligibility marks will be (with basic qualification of higher secondary (academic)/higher secondary (vocational) / diploma holders) 60 percent average in the related subjects for Other Caste (OC), 55 percent average in the related subjects for BC, 50 percent average in the related subjects for Most Backward Caste (MBC)/De Notified Caste (DNC), and mere pass for Scheduled Caste (SC)/Scheduled Tribe (ST)¹⁴. There is no variation in terms of the eligibility criterion for admissions.

Self-financing engineering colleges entangle on seat sharing with government for admissions under management quota. There are two categories- Category-I consists of seats in government engineering colleges and seats in aided courses in government aided engineering colleges. Category-II comprises of seats in self-supporting (financing) courses in government aided engineering colleges and seats surrendered by self-financing engineering colleges. 50 percent seats are filled up by state government and the remaining seats by the management. The Self-financing Engineering College Association wants that admission under free-seat and payment seat categories ought to be maintained equally to sustain the economic viability of the self-financing colleg-

¹⁴ as per GO No. 115 dated 25.05.2007

es. Following this, the unaided non-minority engineering colleges gave an undertaking to surrender 50 percent of their sanctioned seats to the government (that is filled by the single window system under Category-II). The minority-run colleges' undertaking stated that they would surrender 30 percent of their intake to the government. The Higher Education Department had proposed that the colleges surrender 70 percent of the seats to the single window pool. The seat sharing varies across institutions. Some of the colleges surrender about 92 percent of the seats to government allotment (see Table 9).

Table 9: Percentage Share of Government and Management Quota in Intake of Students in the Sample Self-financing Engineering Colleges in Tamil Nadu

S l. No	College Names	Govt. Quota			Management Quota		
		2004- 05	2005- 06	2006- 07	2004- 05	2005- 06	2006- 07
1	Adhiparasakthi College of Engg.	51	55	--	49	45	--
2	Anjalai Ammmal College of Eng	60	49	44	40	51	56
3	Coimbatore Institute of Eng	81	43	45	19	57	55
4	Adhiyamaan College of Eng	--	30	49	--	70	51
5	Bhजारang Eng College	46	43	52	54	57	48
6	Sakthi Mariamman Engineering	--	52	56	--	48	44
7	S.K.R Engineering College	--	46	59	--	54	41
8	St. Peter's Engineering College	92	46	62	8	54	38
9	B.S Abdur Rahman Eng Col- lege	37	40	63	63	60	37
10	K.S.R College of Eng	56	65	64	44	35	36

Source: Same as above table

During the initial years of establishment of the colleges, the seats are being surrendered to government. Once the colleges establish themselves, they slowly reduce the number of seats surrendered to the government.

Fees

To finance the physical and human infrastructure fee income is the main source for private unaided institutions. From the private institutional perspective, these institutions charge commercial fee rates and “capitation” fees and are neither accounted by receipts nor follow a transparent admission procedure. In addition, the private institutions collect exorbitant and compulsory fees of many forms and kinds in the name of transport, canteen, library, text books, mark sheets, caution deposits; degree certificates; hall tickets; association fees, etc. It would be extremely difficult to estimate these costs based on very limited and scanty knowledge except from the NSSO (2003a; 2003b).

Tamil Nadu Government has revised fees payable by students for admission to self-financing engineering colleges. The revised fee is fixed under two heads – tuition fees and development fees. The tuition fees include special fees and laboratory fees. It is also be inclusive of library expenditure, maintenance expenditure, training cost and contingent expenditure such as stationery, sports, water and other recurring expenditure. The institutions are not permitted to collect any other fees. According to the GO, the fee per annum for B.E., B.Tech., M.E., M.Tech. and MCA in self financing (unaided) engineering colleges will be: Rs 15,250 (Rs 12,250 tuition fees

and Rs 3,000 development fees) for free seat category and Rs 49,750 per annum (Rs 41,750 as tuition fees and Rs 8,000 as development fees) for the payment seat category. Whereas the details of fee, as approved by the State Fee Committee, for the self-financing engineering colleges amount to Rs.52,500 (see Table 10).

Table 10: Fee as Prescribed by Government and State Fee Committee in Tamil Nadu

Details	State fee committee*	Govt Order**
Admn. & Tuition Fee	40000	41750
Text Books	3000	
Insurance Postage Charges P & T	4500	
Self Devl. Course	1000	8000
Caution Deposit	4000	
Total	52500	49750

Note: * correspond to the year 2006-07; ** correspond to the year 2004-05

Source: Based on websites

The variation with the self-financing colleges in terms of the ratio of the fees of management seat to free seat is 3.26 times higher. In the case of Government-aided engineering colleges, the total fee to be charged is Rs 8,500 inclusive of Rs 4,000 as tuition fees, Rs 1,500 as special fees and Rs 3,000 as development charges. Between government and self-financing free seat, the variation of fees in terms of the ratio of the fees of government colleges to free seat in self-financing colleges is 3.17 times higher. Similarly, the variation of fees in terms of the ratio of the fees of government colleges to management seat in self financing colleges is as high as 5.17 times higher. But the fees charged as provided in the websites of various colleges vary. The minimum fee charged for UG is Rs.32,500 in nine colleges and a maximum fee is Rs.77,500 (see Table 11). Similarly, for PG the minimum fee is Rs.25,000 and a maximum of Rs.50,000. It is to be noted that these are besides the capitation fee.

Table 11: Fees in Sample Self-financing Engineering Colleges in Tamil Nadu (in Rs.)

Sl no	Name of Colleges	U.G	P.G
1	A.V.C College of Eng	32750	
2	Anjalai Ammmal College of Eng	45000	29000
3	Annai Mathammal Sheela college of Eng	32500	42500
4	Asan Memorial College	32500	
5	Coimbatore Institute of Eng	32500	
6	Dhanalakshmi College of Eng	32500	25000
7	Dr.Mahalingam College of Eng	32500	25000
8	Easwari Eng College	40000	
9	GKM college of Eng	32500	30000
10	Hindustan College of Eng		
11	Jaya Engineering College		
12	K.S.R College of Eng	32500	
13	Karpaga Vinayaga College	32500	25000
14	King's Eng College	48550	
15	P.R Engineering College'		32500
16	S.K.R Engineering College		
17	S.S.N College of Engineering	77500	77500

18	Sakthi Mariamman Engineering		
19	Sri Sairam Engineering College	40000	
20	Sri Venkateswara College of Eng	40000	
21	St. Peter's Engineering College	40000	
22	Vel Tech Eng College		
23	Velammal Engineering College	40000	32500
	Average	38683	35813

Source: based on websites of sample self-financing colleges downloaded in May-June 2008

Efforts against Collection of Capitation Fee and Excess Tuition Fee

All self-financing engineering colleges in the State are now under Government scrutiny with the Directorate of Technical Education intensifying its drive against the collection of capitation fee and tuition fee in excess of what has been prescribed. Recently, Department of Technical Education (DOTE) officials conducted surprise checks in 142 colleges and released a list of institutions found collecting excess tuition fee. The self-financing colleges are divided into seven zones and formed 81 teams, headed by principals of government engineering colleges, to inspect these institutions. *Suo motu* checks were conducted and followed up with cross-checking with the list of students allotted seats in these institutions through Anna University's counseling.

DOTE officials found evidence of 14 colleges violating the prescribed fee structure. The sample colleges among them are, Vel Sri Rangarajan Sakunthala College of Multimedia, Vel Tech Engineering College and Vel Sri Rangarajan Sakunthala Hitech Engineering College, Dhana-lakshmi College of Engineering, Sri Sairam Engineering College and Adhiyaman College of Engineering. The surprise checks could find that a donation of Rs. 5 lakh was paid by a student through demand draft to a trust was an unregistered entity linked to the college. The government may initiate legal action against the college and also ask AICTE to cancel recognition from next year.

The annual fee for a "payment seat" in self-financing colleges in Tamil Nadu amount to more than Rs.50,000. This is in addition to the capitation and other fees that many private colleges invariably charge. This was because their focus was on 'profit making'. Since the norms for fixation of fees are not adhered, the quantum of fees charged has no rational basis and it is an attempt to cover more than the full cost of engineering education. While the illegal capitation fees range from Rs. 2 to 8 lakh for some of the courses, the regular fees also vary considerably among courses and across colleges as well (Anandkrishnan, 2006). Since, private institutions are privately owned and financed, they are governed less by the state. In other words, since they are owned and financed by private groups (either business, minority, chain of institutions or family) and it is these groups that tend to govern and demand accountability (Levy, 1992) and not the academic excellence.

Quality and Performance

There is wide variation in the quality of education offered by different private engineering institutions. The engineering courses are accredited by the National Board of Accreditation (NBA) an autonomous body under the AICTE. An attempt is made here to look at whether the sample colleges have accredited¹⁵ their courses under the NBA or not. From the information available

¹⁵ The evaluation parameters for accreditation are elaborate and consist of eight components viz, organization and governance, financial resources, allocation and utilization, physical resources, human resources, human resources-student welfare, teaching-learning processes, supplementary processes (extra curricular) and R&D and interaction effort having the total score of 1000.

out of 43 colleges, only 29 colleges have accredited their UG and PG programmes. Among them five colleges obtained five year validity of the courses which indicate a better score (above 75 %) in the accreditation. Accredited for five years indicate an excellent/very good score, which indicates meeting all accreditation criteria or exceeding them. If accredited for three years, then it is good implying meeting the minimum criteria with deficiencies being marginal and can be improved within a short time. As an incentive, for colleges that have created infrastructure well above the minimum prescribed by the AICTE and got accreditation from the NBA, are permitted to collect 10 percent more fees; the accredited colleges that have got 'A' grade (five year validity) in five or more courses will be allowed to collect 20 percent more fees.

Accreditation of programmes is to regulate quality from the supply side. An outcome of quality can be known from the number of successful candidates who pass out from the system. An attempt is made here to look at the distribution of pass percentage of self-financing colleges, a proxy measure of quality. In Tamil Nadu, the minimum percentage of mark required to pass the final examination is about 40 percent. The average pass rate was 42.6 percent for all the 229 private unaided engineering colleges (see Table 12).

Table 12: Pass percentage of Private Unaided Engineering colleges in Tamil Nadu 2003-04

Pass % Range	No. of Colleges	No. Appeared	No. Passed	Pass %
70-80	5	6669	4983	74.7
60-70	21	24826	15872	63.9
50-60	22	21861	11866	54.3
40-50	31	24457	11168	45.7
30-40	66	42502	15087	35.5
20-30	52	26680	6926	26.0
10-20	27	10364	1629	15.7
0-10	5	1343	132	9.8
Total	229	158702	67663	42.6

Source: Anna University as reported in Anandkrishnan (2004)

It may be noted that only 21 percent of the private unaided colleges could get more than 50 percent pass rate. 32 out of 229 private unaided engineering colleges had less than 16 percent pass rate. In majority of the colleges that is 65 percent of the private unaided colleges, the pass percentage ranged between 25 and 50 percent. It is important to note that no college scored above 80 per cent results. Lack of qualified, experienced and competent teachers is found to be the major factor as shown earlier. The evidence clearly brings out that private sector has increased stupendously, but, their quality is extremely fragile as there is no accountability of these institutions in terms of performance. While a few of them make significant contributions to the need for a highly skilled work force, others merely exploit the situation.

Performance of the institution in terms of the job market absorption has been examined here. Most private institutions claim to be commercially oriented, preparing graduates for the job market. Professional institutions promise potential students lucrative positions in their field of choice upon graduation. The number of students placed in various companies include a minimum of 25 to a maximum of 1,444 in the year 2007 (see Table 13). However, this needs to be examined in terms of the proportion of students placed in the total intake in the college. But no such information is available from the websites. The individual colleges report that each year the number of students they have placed in various companies keep rising except a very few which show either stagnant or declining numbers. Besides, the number of students placed, number of companies visited the college campus range from a minimum of 25 to a maximum of 384.

Table 13: Number of Students placed and the Number of companies visited for Campus Interviews across the Sample of Self-financing Engineering Colleges in Tamil Nadu

S. NO	Name of the College	2005	2006	2007	No. of Companies Visited*
1	A.V.C College of Eng	70	1	2	
2	Aarupadai Vedu College of Engg				30
3	Adhiparasakthi College of Engg	44	83	2	15
4	Adhiyamaan College of Engg	40	1	1	86
5	Anjalai Ammmal College of Engg	27	56	76	
6	Annai Mathammal Sheela college	146	6	6	
7	Arunai Eng College	78	8	6	27
8	B.S Abdur Rahman Eng College	308	3	9	105
9	Bannari amman Institute of Tech				136
10	Dhaanish Ahmed College of Eng				25
11	Dhanalakshmi College of Eng	29	48	0	17
12	Dr. M.G.R Group of College		14	31	
13	Dr.Mahalingam College of Eng	182	2	8	55
14	Hindustan College of Eng	-	-	-	49
15	Jaya Engineering College	149	88	7	50
16	Jeppiaar Eng College			21	
17	Jerusalem College of Eng		18	1	51
18	K.C.G College of Tech		9	27	45
19	K.S.R College of Eng	107	7	4	50
20	King's Eng College		15	3	
21	P.R Engineering College'		9		18
22	S.S.N College of Engineering	425	47	50	
23	Sakthi Mariamman Engineering	41	29	4	-
24	Sathyabama Institute of Science and Tech			35	
25	Sri Venkateswara College of Engg			14	132
26	St. Peter's Engineering	104	13	25	28
27	Vel Tech Engineering college	-	8	7	-
					384

Note: * for campus interview

Source: based on websites of sample self-financing colleges downloaded in May-June 2008

Functioning of Regulatory Authorities

The State has the second largest intake capacity in the country in engineering education. Challenges for self-financing engineering colleges are how to tackle decreasing demand which is to the tune of above 25 percent of the intake capacity. Based on the market forces of demand and supply, colleges are now offering much lower fees (price) than that fixed by the Government to

attract students and yet there aren't many takers (The Hindu, July 28, 2003). In 2003-04, the seats remained vacant in self-financing colleges were 33 percent of the sanctioned seats (see Table 14).

Table 14: Sanctioned and Admitted Seats in Engineering Colleges in Tamil Nadu

	Sanctioned Intake	Admitted	Vacancy	Vacancy as % intake
1997-98	22192	22594	-402	-1.81
1998-99	22192	22873	-681	-3.07
1999-00	32735	31463	1272	3.89
2000-01	42892	38893	3999	9.32
2001-02	60470	48887	11583	19.15
2003-04	71460	48106	23354	32.68
2004-05	68190	49466	18724	27.46

Source: Statistical Hand book of Tamil Nadu, Chennai

It is because; the sanctioned intake has grown three and a half times from 22,192 students in 1997-98 to 71,460 students in 2003-04. As discussed earlier, the most prominent reason is many engineering colleges do not have trained faculty. With these serious constraints, it is surprising to find that the total number of seats have increased from 47,417 in 2003 to 69,100 in 2004 despite the fact that 21,505 seats remained vacant in 2003. Recently, the demand has been absorbed by the students from other states, though there is no information available on this.

The state government and the All India Council of Technical Education have not seriously looked into permitting so many engineering colleges in the state, without relating the capacity creation for engineering education to the pattern of industrial growth in the state/country and requirements of qualified engineers. This also speaks of the approach of the Government of Tamil Nadu in promoting higher education, mainly higher technical education is to create manpower for export. There is no performance evaluation in place either by AICTE or by the state government. It may be noted that the central and state governments stipulate on a number of major aspects from eligibility criteria, admission procedure, sharing seats, maximum fees to be charged and quality, etc., but not on the terms and conditions of recruiting teachers – the vital input for education. The self-financing colleges do not seriously follow even many of those stipulations except the eligibility criterion.

Need for regulation of the private self-financing colleges from both the centre and state has to be ensured. Although the AICTE was legally equipped with sufficient powers for enforcement of standards, it has hardly lived up to the task that was envisaged for. It is important to note that the Government of Tamil Nadu plays an active role in governance if not in regulation. A couple of interventions namely single window system and abolition of common entrance test is noteworthy in this context.

The state regulation has been in an incremental approach, resulting in piece-meal additions to programs that are already in place. When private self-financing institutions came in large numbers in the eighties in the four States of Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra, there was no effective mechanism to control their functioning, nor was there a systematic admission procedure, except in Andhra Pradesh, where all seats were filled up by the Government on merit basis. In other states, 50 percent seats were filled up by the respective governments and for the remaining seats, large sums of money were collected as donations. Since the demand for admissions continued to increase and there was no effective control, the situation led to a sort of commercialization of technical education. The above situation continued even after all institutions were brought under the AICTE control. Later, the Supreme Court, in a historical judgment in 1993, defined the norms for admission and the fee structure for all self-financing engineering colleges. As per the Supreme Court directive, all admissions to self-financing private

colleges are to be done by the respective state governments based on merit. 50 percent of the seats are “free seats” for which the fee structure is the same as those of government institutions in the state government (AICTE, 1999, p.151).

Following this, the State Government of Tamil Nadu has introduced a single window system of admission of students to engineering colleges during 1997–98 and streamlined the admission procedure on the basis of merit. The single window system of engineering admissions has been executed by the Anna University (GoTN, 2006a). However, in conducting examinations and evaluation, these colleges were under the Madras University and operating independently until 2002. In 2003, the state government brought all these colleges under Anna University. The State Legislature has passed an Amendment Bill disaffiliating all engineering colleges from six general purpose universities of the State and affiliating the same to Anna University. The amendment also contains a provision for transfer of all the Government engineering colleges to Anna University as constituent colleges. In 2001, the state came up with a common entrance test covering all engineering colleges.

Later, the State Government enacted the Tamil Nadu Regulation of Admission in Professional Courses Act 2006 whereby the CET was abolished for students clearing the State Board Examination. The students of other boards such as the Central Board of Secondary Education are required to write the CET for admission to professional courses. Though abolition of CET is an attempt to place the rural students at parity with that of urban students, such policy response boosts the demand for engineering education from rural areas.

Given the intensity of the nexus between high fees combined with poor quality and no accountability of the private institutions, the state does make an attempt but not an effective one because of the nature of dynamic and complex relationship among education, finance and polity.

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The Okonko Ethos in Igboland and Issue of Poverty: An Overview

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Abstract: *In Southeast of Nigeria are the Igbos who maintains their existence through culture and traditional institution embedded in Okonko Society. The Igbos over time has developed stable dependent economic ties and culture contact with their neighbours. Gradually they aspired for a corporate status that would guarantee justice, equity, fair play and peace. This was aimed at reducing poverty to the minimum. However, the challenge of social change, emergence of modern democracy in Nigeria and increasing rate of corruption tend to destroy the institution and ethos of Okonko Society in Igboland, Nigeria. In the present study, an attempt has been made to grasp the nature of Okonko ethos within the context of the greater good of the greater number of people. Focus has also been made on the reality of poverty as it affects majority of the people in Nigeria today.*

Keywords: Okonko Ethos, poverty, Igboland, social change, Nigeria.

Introduction

The common nature of people, regardless of culture, and the universal character of God point to a common goal and purpose of men. That is to say, they point to one destiny. In this regard Aristide (1993:48) correctly observed that, there is only one history: that of human beings, that which helps us to explain the struggle for humanity.

Those human actions are good which contribute to the realization of the common good; and those actions are bad which lead man away from the ultimate good obstruct its realization.

In the light of the above, the emphasis about tackling poverty is based on intellectual capital and technology. Natural resources such as gold, and oil are no longer the basic determinants in addressing the issue of poverty.

The present technological era is based upon oneness of science, on the global character of communications, and on the sustained absolutely interrelated economic world. Above all, people of all cultures are waking up to the reality of a new and more radical dimension of unity; for they perceive that their resources; as well as the precious treasures of air and water-without which there cannot be life-and the small delicate biosphere of the whole complex of all life on earth, are not infinite, but on the contrary must be saved and preserved as a unique patrimony belonging to all mankind (O' Brien 1992; Shannon 1992:89).

However obvious this maybe, the contradiction remains the fact that, within this context of global unity the forces of discrimination and corruption seem to be increasing in volumes particularly in Nigeria today. Poverty here, is seen as the social situation personal to the human being or group in which he or she cannot undertake the funding of essential services to self or group and in which participation in social development is systematically lowered if not aborted for the lack of the major currency decimal applicable within the Nigerian environment.

Ancestral stereotypes between tribes and regions, between states and classes, now possess new face of destruction. Arms trading and kidnapping flourish as threats to man's highest good, which is abundant life. Insecurity of life makes poor peoples yet more miserable, while making richer those already powerful. Life is constantly threatened from the face of the earth.

The thrust of this study is, therefore, to examine the ethical contents of Okonko Society that enhanced the greater good of greater number of people in South Eastern Nigeria. In doing this, attention is paid to the issue of poverty as a phenomenon and some of the factors that enhance its

prevalence in Nigerian Society. The study concludes with summary of the salient arguments raised in the body of the work.

Theoretical Framework of Social Change

Written materials on society and change in ancient Africa usually centre on the influence of external forces in the elimination of socio-cultural institutions considered as nasty and the enthronement of new ones, seen as dynamic and progressive. Augustine of Hippo, born in 354 AD was among the first scholars to articulate the idea of social change and what propelled historical change. As the proponent of the concept of divine providence, Augustine argued that the trend of human history is directed by beings rooted in the spiritual realm. In his submission, the meaning of this line of thought is that God is the cause of all changes. This line of thought ruled the world till the 18th century when the era of enlightenment became a challenge (Mbakwe 2005).

The outstanding minds of the enlightenment period were Immanuel Kant and George Hegel. Kantian-Hegelian theory emphasized the shift from spiritual agency to humans as the agents of historical change. Karl Marx and Frederick Engel stepped in and gave economic interpretations to Kantian-Hegelian theory of change. As noted by Marx and Engel, any change in society is propelled by the conflict between different classes in society, and the most essential factor of this conflict is group economic interest (Thingan 1981:82). Furthermore, Arnold Toynbee saw historical change within the context of challenge and response.

However, a number of scholars of African studies place socio-cultural changes in traditional African settings on colonialism and missionary expansionism. Therefore, the two basic perspectives of change in Africa are: the neo-Marxist school and the orthodox school (Mbakwe 2005:7). Nwabughuogu (1993:5-18) in his examination of change, particularly in Igboland saw responses and initiatives as important factors of change in pre-colonial and colonial Africa. Thus, this study rides on the framework that external influence contributed significantly to the changes that has made Okonko Society to loose grip of social control in Igboland. The consequence of this socio-cultural change is corruption and wide spread poverty in Africa.

The Igbos and Their Land

Igbo civilization embedded in conscious efforts to over come poverty is a gift of the Niger in the context that Egypt is said to be a gift of the Nile. As the earliest world civilizations developed around river basins and deltas, so did there develop a vibrant and dynamic cultural heritage around Niger Delta.

The people now known as the Igbos or southeasterners in Nigeria thought of themselves as Awka, Bende, Aro, Ngwa and Ibeku. The word "Ibo" was perhaps derived from "Heebo" which, according to some European traders of the 19th century, was the name given by Biafran traders on the coast to the hinterland area where they traded. Subsequent European traders slightly changed the word to "Eboe" from which "Ibo" was derived. It should be noted, also that the same Biafran traders on the coast differentiated between the "Ibo" in the hinterland and the "Kwa Ibo", that is, Ibos living on the kwa river. The latter are now known as Ibibios. The merchants, of course, were merely using the word "Ibo" as a general nomenclature for people living in the hinterland rather than for a tribe in the modern sense of the word.

Again, the riverine groups on the banks of lower Niger, Onitsha, Osomari and Oguta, refer to their hinterland neighbors as "Igbo", a term which they do not apply to themselves. Thus, it would seem appropriate say that, modern tribal consciousness, represented by the application of the term Ibo, Ibibio, Ijo, Ogoja in Biafra, was fostered not by the people themselves but by for-

eigners who were ignorant of the intricate bonds which held the country, Nigeria together (Biafra 1967:7).

According to Ilogu (1974:1), where the southeasterners (Igbos) came from and when, will remain for a long time a matter of conjecture, because of absence of helpful records. However, it can be asserted that Igboland has been under continuous human occupation for at least 3,000 years and, as is now being discovered, that her people developed an ancient civilization, that is about half a millennium before the emergence of the kingdom of Benin. Linguistic information also confirmed the antiquity of the main languages spoken in the area. Therefore, the main groups of southeaster Nigeria were indigenous to the territory and contact among them has existed, through Okonko Society, since primeval-times.

Igboland is, demarcated to the west by the lower reaches of the River Niger and its Delta, to the East by the Obudu plateau and the High lands of Oban and Ikom, to the south by the Bight of Biafra and to the North by an administrative boundary following, approximately, the 7 deg. N. latitude. The total area is over 29,400 square miles (Biafra 1967:4).

This means that Igboland is almost as big as Gambia and Sierra Leone put together. The region is bigger than Togo or Rwanda and Burundi combined, and is twice the size of the Republic of Israel.

The Igboland, in terms of natural endowment, is well-vegetated throughout the year, lying to a large extent in the basins of Niger River, the Cross River, the Kwa River and the Imo River. Three quarters of these river basins are low land less than 400 feet above sea-level. Today, with a very high population density in some Ibo areas (about 711 persons per square mile) resulting in the difficulty of finding enough food through agriculture to support the population, many Ibo people migrate to different parts of the world (Ilogu 1974:4). With this physical mobility goes the spreading of the Okonko ethos in other parts of Nigeria as well as inculturating the Ibo way of life through influences from other parts of the nation. This phenomenon was dangerously affected by the recent Nigerian-Biafran war. Yet in the study of perspectives on poverty in Nigeria, one clearly notes the effects of such human movements and contact upon those who stay behind at home and those who are in diaspora. This paper is concerned with the influence of Okonko ethos in Igboland which definitely addressed the influence and reduction of poverty at a certain time in history.

It was not only natural resources and trade that gave birth to a homogenous Igbo race in the pre-colonial era; there was also the contributions of intellectual capital enhanced by Okonko values or ethos. The consequence of this was the prevalent division of labour within Igboland aimed at tackling poverty. Individual communities were noted and relied upon for specific skills. This encouraged their movement from one place to another, bonded together by Okonko, during which the peaceful coexistence of all the communities was emphasized. For example, the people of Awka were famed throughout Igboland as wood-carvers and sculptures, while the Nri people supplied the priestly class so essential for the social and religious cohesion of the region. Southwards, there were the blacksmiths, of Nkwerre, the Item and Ibibio doctors, the warriors of Ohafia and Abam and the priests of Okonko from Arochuku.

Thus, it came to be generally accepted that one community supplied the wants of another and the tradition of mutual reliance and support, rooted in Okonko Society, became established. This also became a general distinctive note of the social teaching of various families in Igboland, stressing in particular the absence of poverty in the land. The welfare of all the citizens was safeguarded. Hence, in Igboland poverty is termed, "Ogbe enye" (inability of neighbour giving) and of course, this was not possible except if one was or is an out-cast. This context may no longer

exist today, yet attention must be paid to it in today's global efforts to eliminate or reduce poverty to the minimum.

Okonko Society and Ethical Theories

The ethical theory of Okonko Society in Igboland can be designated as science of meanings for the Igbo race. It is concerned with the common good of people, especially people related to the South Eastern Nigeria in any way. Okonko Society is the most prominent society of the Igbo that has "mma" as a form of greeting. It is the association of free born male adults in Igboland. It is primarily a social, political, judicial, and religious organization established for the purpose of justice, peace and order in the land. Okonko Society exists and functions in Igboland for the well-being of, not only the initiates, but the entire community. The Society originally enforced and maintained traditions, customs and beliefs, determined ritual behaviour and regulated social attitude (Awolalu 2005; Dopamu 2005:243-244). It still plays a relevant role in the life and culture of the Igbo race especially in the areas of social behaviour, and moral.

Recently, Onyejekwu (2003:15) in an article, with an apt caption "Okonko Society in Igbo land", tried to lend credence to the relevance of this society. According to him, Okonko was a powerful institution, which dominated the government of the community. During the pre-colonial and colonial era, Okonko promulgated laws, enforced law and order and performed the function of social control. It employed different techniques to its rules and regulation.

This means that Okonko society had the effect of preventing crime and checking corruption in the community. It was a vital society that reassured the rest of the populace concerning the enforcement of customary laws, especially in land matters marriage cases and trade transactions

Tamuno (1998:181) aptly described Okonko and its vital role thus, the head of a family (no less a staunch Okonko member), among the Olokoro Ibo of the Bende division, used his Ofo stick (believed to represent the Spirits of ancestors) to prevent strife within the ezi (family) and especially the poisoning of one member by another member of the same family. A palm leaf over a debtor's door indicated that the Okonko Society was attempting to enforce the payment of a debt. No one could pass through an entrance guarded by the leaf signifying Okonko Operations.

Okonko Society had and still influences the social and community lives of the Ibos despite western culture and Christian religion. Heads of various families of Igbo traditional settings are still proud and staunch members of Okonko Society.

Like some societies in the world, the origin of Okonko Society is shrouded in mystery and obscurity. The exact period and date that the society originated in Igboland is not known. Most heads of families and elders in South Eastern Nigeria today cannot give the historical origin or the beginning of Okonko in the land. They are content with saying that the society was in existence even before their forefathers.

Some elders argued that Okonko Society came into being in an attempt to put stop to community conflicts, inter-tribal wars and eventually create peaceful coexistence among people and neighbours as a way of eradicating poverty and enhance trade. According to Jones (1976:19) in his book, "the Trading States", realizing that warfare was incompatible with trade, the Aros used the Okonko society in order to win the co-operation of different communities.

From another angle, prominent elders from Ohafia, Bende and Ikwuano areas of Abia State strongly opined that Okonko was derived from the Epe society of the Efik-Ibibio. As noted by Gogo (2008): ...Okonko originated in the Ekot area, and by the early part of the part of the eighteenth century, it had spread to the Cross River territory. It is likely that Ekpe diffused into

Arochukwu a neighbouring group where it was known as Okonko during the same period. From Arochukwu, Okonko spread to other parts of Igboland.

In the light of the above, Ekpe Secret Society migrated into Igboland as Okonko, spreading to almost all communities in Igboland that have “Ndee wo” and “Mma ma” as their form of greetings.

It is note worthy at this point to mention that early members of Okonko were associated with the Long-juju of Arochukwu. According to Offenberg (1975: 204) pilgrims visited Arochukwu so that the oracle would solve such problems as “poor crops, continues illness, epidemics and lack of children In addition, the long-juju was recognized in southeast and in some parts of the south-south Nigeria as a court of appeal. Communities referred difficult cases, which might threaten their stability to the oracle for arbitration.

Before a case was referred to the Long-juju, leaders of a community usually appointed a few local traders who had gained some experience in traveling to accompany litigants to Arochukwu. The traders were expected to inform their leaders about the decision of the oracle when returned home. In order to strengthen their relations with the local traders, the Aros received them cordially. They gave their leader a symbol of the oracle (Ihu-Chukwu) so that he could act as its agent in his area. A local agent of the Long-juju received fees from people of different communities who wanted him to accompany them to Arochukwu. Again, those who had minor problems gave him gifts such as yams, chickens, and goats so that he would offer sacrifices to the oracle (Onyemaizu 2008).

A middle stance opinion on the origin and history of Okonko Society claims that the local agents of the Long-juju of Arochukwu were pioneers of the Okonko Society. They were called “friends of the Aro” (Enyi Ndi Aro). It is claimed that the Aro gave them a secret symbol of Okonko (Ngbara) which empowered them to found the society in their localities (Abadsit 1954:12).

The founder of Okonko in each Igbo community was recognized as the president or “Eze Ngbara”. The President presided over the weekly meetings of the society and regulated its affairs with the multi-title holders (Ndi Ochi akalabu). The multi-title holders constituted the second rank in Okonko Society (Abadsit 1954:20).

Talbot (1926) noted that people of Igbo stock invested their wealth in Okonko and other titled societies. According to him, Since initiation fees were shared in relation to the number of Titles a man had purchased, the multi-titled holders were among the richest members of Okonko. The single title holders (Eze Okonko) and their and fourth ranks respectively (Talbot 1926:755-756).

This means that Okonko Society in Igboland placed more emphasis on achievement than on ascribed status and this must have contributed and heightened the development of democratic values, handwork and industrial advancement among the Igbos.

So, in respect of the origin of Okonko Society in Igboland, the consensus of opinion is that the society sprouted from among the free-born as a platform of social, economic and religious metamorphosis. It existed and still is a formal society in Igboland permeated by a sense of mystery. Just like the description Camara (1981) gave to a coherent society with a consistent manner of life, Okonko Society is a society whose origins “are incapable of explanation. This brings up the issue of ethics.

It is generally accepted that ethics is concerned with right and wrong of human behaviour. Adhering to ethics brings stability and cohesion in the society, but violenting ethics breeds corruption and crises.

According to Akanmidu (1995:4) the word “ethics” derives its origin from the Greek word “ethos”. The idea in the word ethos connotes the rules of a people or community. From this angle, ethos, in meaning, relates to character or to person’s nature or disposition.

Recent ethical discussions pay increasing attention to poverty and just distribution of natural resources. Given the disparate environments in which the discussions arise, their articulation of poverty, too, differ from context to context. In this study, the interest is centered on the influence of Okonko Society on a people’s way of life and search for meaningful life. A definite view concerning the goal of a meaningful life enters in every ethical reflection as the condition of its contents. This was the stabilizing role Okonko Society played in Igboland through its ethics and values. In other words, Okonko ethics condensed Igbo anthropology to a focal point that influences values and judgments (Nwosu 2008:4). The different values and judgments about the ultimate goal of human being are within ethical theories. Akanmidu (1995) classified them into three. They are utilitarianism, consequentialism and the futurist moral theory.

Akanmidu (1995) noted that the essence of utilitarianism may be looked for in temporal happiness and welfare. That is, pleasure and happiness is the only thing good in itself, while evil is what causes pain and sorrow. Ethically right then, is what is useful and profitable for achieving the goal of temporal well-being and success.

Utilitarianism may as well be a typical instance of consequentialism, “... on the ground that utilitarianism is used to refer to any outlook which holds that the rightness or wrongness of an action always depends on the consequences of the action” (Akanmidu 1995:35). However, the consequentialist cannot be dissuaded by an action that is good in itself without having to wait for the consequences that such action will elicit (Akanmidu 1995:36).

In the light of community living, Okonko Society never admitted and cannot admit the principle of unrestrained, private happiness or prosperity. Individualism and selfishness had no place in Igbo community, no matter how much pleasure that can bring to the person. Okonko Society condemned and punished criminal recklessness perpetrated on grounds of utilitarianism and consequentialism. The greatest happiness of the larger community was encouraged through community values and judgments. And this can be described as modified utilitarianism and moderate consequentialism.

The futurist moral theory holds that an action is moral when it justifies and motivates the recipient to show appreciation in the future (Akanmidu 1995:37). This concept belongs essentially to the religious domain. The attitude of the ingrate is jettisoned and deemed inappropriate.

Okonko Society presents ultimate morality that centers on the community and union with God via the ancestors. This accounts for the reason why the Igbos agree on the real world of meaningful existence, the need to sustain it while dealing with poverty eradication.

For the traditional Igboman, who is always related to Okonko, the community is basically sacred with religious, economic, social and political contents. This warrants the frequent use of the first person plural “we”, “ours” in daily interactions. People generally return to their villages to celebrate important traditional events. Mbiti (1982:704) underscored this point and the sacredness of the community when he wrote that, the individual can only say “I am because we are and since we are, therefore I am... .

Another important value is the family. Families and members of difference kindreds from minimal to maximal lineages commonly live together and form communities. They share life intensely in common. And like the Israel of old, they believe that their existence in the community is within the context of the divine. Daniel-Rops (1980:29) described it succinctly when he said that,

...They were certain that their presence ... had a meaning under providence and that God Himself had set them in their land.

There are communal farmland, economic trees, streams, bans, and markets. For the Igbos and by extension, the Africans, community and family are more than simply social or biological grouping of people bound together by reasons of origin and values. It is both a family, society as well as a unity of visible and invisible worlds in which the issue of poverty in today's context did not exist.

The Influence of Okonko and Poverty in Nigeria

Poverty, in its real sense, is the state of lacking the means to exist adequately. This lack of means to exist adequately is often hanged on certain factors. O'Neill (1986:11) makes reference to such factors by noting that, at one time it may be a poor harvest, lack of work or cash to buy food, or payment due to a landlord or a money lender, at another an essential or unavoidable expense-a funeral, seeds or tools.

A few hundred years ago when Okonko controlled human affairs, the different regions of Nigeria were largely self-contained, self-sufficient, and linked to each other only through a relatively small amount of trade in luxury goods. Then came the imperialist expansion of four or five European countries. They set up colonies in most of what we now call the Third World; and the economy of the colonized areas was reorganised to serve the interests of the imperial powers. Colonialism is almost gone, but it has been replaced by a neo-colonial system. This means that control over poorer countries is not usually exercised now by undue gun and political power but mainly in economic ways. This economic control can create even greater hardship than the old-style colonial rule because it affects every sphere of life. This has resulted to Niger Delta restiveness in Nigeria.

Webster Dictionary of English Language considers poverty in two major dimensions: unproductiveness or in adequate supply (that is lack in the face of need). It also gives a format of the ideas section of poverty, which is defined as the monastic renunciation of the right to own.

For the international conglomerate of civil societies these perspectives get proper definition in the reduction of the person to the margin below what is called poverty line, which, on its own, is defined as the marginal income line at which an adequate living standard is not possible.

The term poverty designates in the first place material poverty, that is, the absence of economic strength necessary for a human life worthy of the name. In this case, poverty is considered degrading and is rejected by the governments of the world. Even those who are not aware of the remote causes of this poverty believe that it should be eliminated. To affirm the reality of poverty, Gustavo (1996:164) wrote that, what we mean by material poverty is a subhuman situation. Concretely, to be poor means to die of hunger, to be illiterate, to be exploited by others, not to know that you are being exploited, not to know that you are a person.

The typical poor country is dependent for foreign earnings on the export of one or two agricultural products such as tea, coffee, bananas, sugar-cane, or beef. In Nigeria it is crude oil export. Trade in these products is grossly imbalanced in favour of the rich countries in America and Europe: the prices are low and unstable at the expense of the poor countries. The market is controlled by multi-national companies. A country in this situation sinks ever deeper into debt; and so it is no longer in a position to make important decisions about its economy –these are made by the foreign countries and banks to whom it owes money. Locally owned industries are largely replaced by euro-dollar companies which have no interest in the long-term welfare of the country: their only concern is to make as much profit as possible as quickly as possible. The country

does not have the money to extract and process its own mineral and energy resources. So, mining corporations and oil companies are invited in to exploit these resources. In most cases even the agriculture of the poor country comes to be controlled by foreign interests: land that could produce food for the poor is given over to growing crops for export at very low prices.

The result of all this is that poor countries are trapped in their poverty. No matter how richly endowed they are with natural resources or how hard people work, it is highly unlikely that they can ever catch up with the rich countries, so long as the present system continues. According to Dorr (1986:54).

The poverty of the Third World is not due to a lack of resources. Neither is it to be explained by saying that the people are lazy, or not interested in work, or not good at looking after machinery. These accusations may be true in some cases but they are not the crucial issue.

This poverty in Nigeria has to be explained in terms of structures and in terms of moral behaviour. If the poor are apathetic, that is the result of their poverty rather than its basic cause.

The failures of government in Nigeria and development plans since 1960s to date have widened the indices of poverty. And the complacency with which policy makers of the time overlooked this reality has made scholars to re-articulate poverty as a systemic issue.

As Sugirtharajah (2000:170) noted, poverty is a by-product of society and economic systems, rather than the fault of the poor themselves. It is the State that caused the poor themselves to lack the means to exist adequately. On his own part, Gutierrez (1984:84) defined poverty as, "a sub-human existence without the basic necessities, a scandalous state incompatible with the Bible" In their views, poverty is not the fault of the poor. It can and should be eliminated through structural and behaviour change. It is only by this will to change that any intellectual and technological input would become result oriented.

In Nigeria, the common people confront socio-economic poverty as well as anthropological poverty. This is caused by the rape of communal living and cultural heritage. Agunwa (1993:6) puts it thus, there is a collapse of the social control system. Western education has replaced traditional socialization process which inculcated wisdom and salient Values.

The ethical norms and hold Okonko Society had on people and communities are no longer strong enough. Sadly, the resulting effect has caused majority of the ruling class and policy makers to internalize the values and models of selfishness, individualism, thus falling victims of mammon (organized consumerism and greed).

The major problem in Nigeria today remains the prevalence of poverty. Political office holders are enjoying vastly enhanced packages along with entertainment and other allowances while workers wages have remained poor over many years, with worsening inflation. Awuzie (2009:11) captured the situation when he said that, what is happening is that small percentage of people in this country, less than one percent, have garnered 90% of the resources of this nation and they put others under perpetual penury and hardship.

This organized greed and consumerism have weakened the power of restrictive modes of society control embedded in Okonko society. The society could no longer effectively punish greedy politicians. Banality has taken over the whole country.

Conclusion

We have attempted in this study to discuss the reality of Okonko Society in Igboland and ethical theories. The basic universal ethical theories have been identified; utilitarianism, consequentialism, futuristic and modified utilitarianism are highlighted. Poverty and some factors that en-

hance its prevalence have been discussed. Behavioural change and regain of cultural values have been suggested as the starting points of tackling the issue of poverty.

It is argued in this paper that the core values of Okonko Society, the native cultural integrative elements have been watered down by western influence. Organized greed, individualism, “characterized by the politics of the belly and accumulation interest of the ruling class” are strongly entrenched to perpetuate poverty. All these sent a disruptive force on Okonko Society in Igboland that has rocked it to its foundation.

Deliberate effort must be made to reestablish the regulatory role of Okonko Society in Africa and Nigeria in particular. This can be started by including the basic Okonko ethics in Nigeria school curriculum. The implementation of this would be a good foundation in a long term structures of poverty alleviation and policy formulation. This is urgent because even though Okonko Society is no longer politically strong, it still performs certain functions in South Eastern Nigeria.

As individuals, unprecedented choices must be made in our daily lives to subordinate self to the good of greater number of people. Okonko ethos teaches people to put humanity before self and realize that leaving one’s country better than one found it is the greatest mark of a life of fulfillment. As people of the emerging economy we have a great load to topple over. And we need to avail ourselves of the lever which would multiply our strength a hundred-fold. Education, discipline and culturally tested ethos combined with self-reliance should form the basis of this new disposition to face the challenges of reducing poverty in the land. This paper advocates that Nigeria begins to seek original solutions to our systemic problems of poverty and corruption. This begins by dispelling the facile glory we have built around economic growth. Our laws in Nigeria in respect to corruption, so far, are benevolent. Therefore, the issue of corruption that has created a lot of problem for Nigeria has to be taken into account while tackling poverty. Corruption has killed creativity in Nigeria and discouraged entrepreneur. And Okonko ethos has within it a traditional way of dealing with corrupt practices and persons.

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Urbanization and Loss of Traditional Ecological Knowledge: Lessons from Rumuodomaya Community in Rivers State

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Abstract : *The study sets out to examine Urbanization and Loss of Traditional Ecological Knowledge focusing on Rumuodomaya community in Rivers State. Traditional ecological knowledge (TEK) is accumulated over generations to help people protect their health and manage their habitats. If traditional ecological knowledge vanishes with urbanization, then urbanization comes at the cost of losing humanity's heritage and diversity. We analyze the assumption by measuring ethno-botanical knowledge and skills among 20 elders of Rumuodomaya community in Rivers State. The study relied on key informant interview (KII) and observational techniques for its information. We nevertheless established a link between urbanization and loss of TEK in areas such as trado-medicine (herbs from leaves, roots, tree barks etc.), nutrition, technology and resource conservation. We conclude that urbanization erode traditional ecological knowledge and point out that the challenge lies in finding and promoting forms of urban development that do not undermine traditional knowledge. We therefore recommend that there should be a synergy between city developers and community members to document and conserve TEK in the future.*

Keywords: Urbanization, traditional ecological knowledge, ethno-botanical, indigenous people, Rivers State

Introduction

Traditional knowledge accumulated over generations help people protect their nutrition (Johns, 1996) and health (Etkin, 2000) and manage their habitats (Olsson, Folke, and Berkes, 2004). The possibility that traditional knowledge may be rapidly and widely lost in response to urbanization has become a major concern of scholars and policy-makers (Agrawal 2002). This concern emerges from the presumed link between traditional knowledge, conservation and development (Orlove and Brush, 1996). For example, researchers have said that traditional knowledge related to the habitat –or traditional ecological knowledge- contributes to ecological adaptation and might help design policies for conservation (Berkes, Colding, and Folke 2000). The loss of traditional ecological knowledge concerns policy-makers because it represents the irreversible loss of information about different ways to manage natural resources.

Traditional ecological knowledge has attracted researchers' interest since the beginning of the nineteenth century. The initial interest focused in documenting how native people classified their environment (Berlin, Breedlove, and Raven, 1966). By the mid-1980s, the international recognition of the potential value of traditional ecological knowledge generated increasing interest in the topic (WCED, 1987), at that point researchers shifted their interest from documenting how people classified their environment to studying how traditional ecological knowledge contributed to human adaptation. Researchers have found that traditional ecological knowledge resembles scientific knowledge developed through inductive methods (Miller et al. 2004) and that it can contribute to the conservation of biological diversity (Olsson, Folke, and Berkes 2004), agriculture (Brush, 2000), health (Etkin, 2000), nutrition (Johns, 1996), and the management of natural resources (Davis et al., 2004).

Despite the growing interest in the topic, there has been little research about the causes and rate of loss of traditional ecological knowledge here in Nigeria. Although generally speaking some researchers have linked the loss of traditional ecological knowledge to rate of urbanization (Reyes-García et al., 2005), others have found persistence in traditional ecological knowledge despite the rise of cities (Zarger and Stepp, 2004). The debate matters for policy because proving that urbanization erodes traditional knowledge would hamper the possibility of simultaneously achieving conservation of traditional knowledge and economic development. The finding would mean that economic development comes at the cost of losing humanity's heritage and diversity. In contrast, if the expansion of cities does not affect or does not *always* affect the loss of traditional ecological knowledge, then some forms of modern institutions could develop without eroding traditional knowledge.

In this article we test how urbanization affects traditional ecological knowledge. We rely heavily on Key Informant Interview (KII) to unravel lost ethno-botanical knowledge within the study area and attempt to compare results with standard measures of urbanization rate. We hypothesize that urbanization and its twin partner industrialization takes individuals out of their culture and environment and therefore correlates with the loss of traditional ecological knowledge. To explore the topic, we draw on information from a wide range of indigenes of the study area- a horticultural society in Rivers State.

Statement of the Problem

Numerous studies have drawn attention to the fact that a crisis, of a magnitude estimated to be far greater than other problems associated with urbanization, is affecting the world's diverse cultures especially their knowledge of ecological systems. Recent estimates put the impending rates of species extinction caused by urbanization on Earth at 1,000-10,000 times (UNEP, 2004) or at least four orders-of-magnitude (Lawton and May, 2005) faster than rates that have happened in the past. As a concrete example, a middle-ground prediction for the extinction of seed plant species in the next 3,000 years is 50 per cent (Oviedo, Gonzales and Maffi, 2005). By contrast, estimates for the proportion of native languages (and thus, by and large, the knowledge expressed by them) that will have gone extinct or face extinction in the next one hundred years are as high as 90 per cent of over 6,000 native people (Krauss, 1996).

Interest in Traditional Ecological Knowledge (hereafter TEK) has been growing in recent years, partly due to a recognition that such knowledge can contribute to the conservation of biodiversity (Godoy, 1998), rare species and protected areas (Johannes, 1998), ecological processes (Krauss, 1996), and sustainable resource use in general (Berkes, 1999). Conservation biologists, ecological anthropologists, ethnobiologists, development sociologists, other scholars and the pharmaceutical industry all share an interest in TEK for scientific, social or economic reasons.

However, while it could be said that quite a number of empirical works are replete within the field of TEK, it is nevertheless sad to point out that most of the studies mentioned above have all been carried out outside the shores of Nigeria. The literature shows a concentration of TEK studies in Latin American countries, especially in Brazil. Our current study is therefore an intellectual milestone towards contributing to the extant body of knowledge on how urbanization contributes to the loss of TEK in Rumuodomaya community, Rivers State of Nigeria. Essentially, the study aims to provide answers to the following questions: What aspects of traditional ecological knowledge have been affected by urbanization? What is the effect of the loss of such ecological knowledge on the overall wellbeing of community life? How are community members coping with such changes in ecological knowledge? What is the way forward?

Clarification of Key Concepts

The key concepts to be clarified in this paper are urbanization and traditional ecological knowledge (TEK). This is done below:

Urbanization: Urbanization has been defined as the removal of the rural characteristics of a town or area, a process associated with the development of civilization and technology (Cohen, 2004:11). However, for the purpose of this study, we choose to see urbanization as a process in which an increasing proportion of an entire population lives in cities and the suburbs of cities. Historically, it has been closely connected with industrialization. When more and more inanimate sources of energy were used to enhance human productivity (industrialization), surpluses increased in both agriculture and industry. Larger and larger proportions of a population could live in cities. Economic forces were such that cities became the ideal places to locate factories and their workers.

Traditional Ecological Knowledge: The analysis of TEK systems shows that there is a component of local observational phenomena, a component of practice in the way people carry out their resource use activities, and further, a component of belief regarding how people fit into or relate to ecological systems. In short, traditional knowledge is a knowledge edge-practice-belief complex (Berkes, 1999). We have therefore developed a working definition of TEK as a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. TEK is an attribute of societies with historical continuity in resource use practice.

Review of Literature on Urbanization

Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of points of concentration and the increase in size of points of concentration (Oluwaola, 2007). It may occasionally or in some areas stop or actually recede, but the tendency is inherent in society for it to proceed until it is inhibited by adverse conditions.

According to UNCHS (2001) the process of urbanization is triggered off by several factors including:

These populations are rising through net migration: The causes of rural-urban migration varies but suffice it to say that the urban centers present a better alternative to human survival at least in the Third World than the rural areas. In the early stages of industrialization, many people migrate to the cities in search of better opportunities. For instance, Ekpenyong (1993) contends that cities grew purely out of economic activities. Manufacturing industry congregates in urban areas because of the economies of agglomeration. One such economy is the availability of basic infrastructure (electricity, water, sewage, telecommunications, etc) in Third World urban areas.

Natural population increase: Many studies reveal that majority of developing countries are currently in the intermediate stage of development (Oluwasola, 2007). Therefore, most large cities in developing countries are growing via natural increase as opposed to migration. Between 1960 and 1970, in 25 large cities in 20 developing countries, 37% of population growth was due to migration compared to 63% to natural increase (UN, 1993).

While the population of industrially developed countries is already largely urbanized, urbanization processes are acute in developing countries. According to UNHABITAT (2001), about 40% of the population of developing countries already lives in cities. It is expected that by 2020, the figure would have risen to 52%. Latin America and the Caribbean already have 75% of the people in the cities. By contrast, only one-third of the population of Africa and Asia live in urban

centres (Oluwasola, 2007). By 2015, 153 of the world's 358 cities with more than one million inhabitants will be in Asia. Of the 27 mega cities with more than 10 million inhabitants, 15 will be in Asia. Nigeria has not been left out of this global build up of people in cities.

But it is not simply the geographical spread of urban centres but also their rate of growth that has been spectacular in recent times. In 1950, the percentage of the total Nigeria population living in urban centres of more than 20,000 inhabitants was less than 15 per cent; by 1975, this proportion had risen to some 23.4 per cent. By the 2006 estimates, Nigeria has a population of 140 million (Oluwasola, 2007). The build up of people in Nigerian cities has continued to increase over time. The urban population has increased from 11% of the total population in 1952 to 35% in 1991. Currently, it is estimated that close to 46% of the 132 million Nigerians (approximating 60.7 million), are living in the urban centres. The rate of urbanization in Nigeria is 5.5% while the annual population growth is 3.0% (ibid).

What is perhaps more impressive about this continuing agglomeration of people into urban centres is the fact that increasingly most migrants move to the larger urban centres whose population have been increasing phenomenally. Lagos which, as the second largest city in the country after Ibadan in 1952, had a population of just over 250,000 had by 1963 outstripped Ibadan to have a population of over 1.5 million within its metropolitan area (World Bank, 1995). Today, metropolitan Lagos is close to, if not already a mega city of over 10 million people (Oluwasola, 2007). Because a high proportion of these people are migrants from the rural areas, urban centres in Nigeria show a more than average concentration of the young and economically active group both male and female in its population. These age groups are also those in their active reproductive stage of life. The result has been that cities have a significantly high proportion of children under the age of five. Given the relatively better medical facilities and better access to potable water supply in urban areas, it is easy to appreciate that child survival rates are much higher in urban than in rural areas of the country. Indeed, it is claimed (UNDP, 1997) that whereas 70 per cent of children in urban communities were delivered in a health facility, only 40 per cent of rural children were so favoured. The same bias with respect to opportunities for educational empowerment is noticeable with urban centres having and attracting the better educated members of communities whilst the rural areas suffer from the resultant negative selection. The implication of this is that the burden of urbanization falls on the receiving communities as they face the negative consequences of deforestation and modernization.

Loss of Traditional Knowledge: Previous Findings from Empirical Research

The awareness of the potential value of TEK, and of indigenous peoples' relationships with local environments for conservation efforts, is clearly expressed in major reports and conventions. For example, *Caring for the Earth* states of indigenous peoples: "Their cultures, economies, and identities are inextricably tied to their traditional lands and resources. Hunting, fishing, trapping, gathering or herding continue to be major sources of food, raw materials and income. Moreover, they provide native communities with a perception of themselves as distinct, confirming continuity with the past and unity with the natural world. Such activities reinforce spiritual values, an ethic of sharing, and a commitment to stewardship of the land, based on a perspective of many generations (Caring for the Earth, 2000)."

Empirical studies on the loss of traditional ecological knowledge have focused on how knowledge varies by demographic, social, and economic characteristics of subjects. The research has produced both consistent and conflicting results. Researchers have consistently found that knowledge of natural resources depends on demographic characteristics of informants, such as age, sex, kinship relations, ethnicity, and position in a social network (Atran et al., 2002; Ross,

2002), and on distance from cities or natural resources (Reyes-García et al., 2005). Other researchers have studied the impact of acculturation on traditional ecological knowledge and have found a consistent negative correlation between traditional ecological knowledge and modern skills associated with acculturation, such as schooling, academic skills, and fluency in the national language (Zent, 2001).

Researchers have also studied the effects of integration to the market on traditional ecological knowledge. Orthodox thinking in anthropology and in economics predicts that traditional ecological knowledge will vanish as economic development unfolds (Schultz, 1975), but recent empirical research suggests that traditional ecological knowledge need not always wane with modernization. In fact, the empirical literature on the effects of integration to the market on traditional ecological knowledge has produced conflicting and weak results. Some researchers find that integration into the market through the sale of crops and wage labor correlates with less knowledge of wildlife, but integration into the market through the sale of forest goods correlates with more knowledge of wildlife (Godoy et al., 1998). Other researchers find weak effects of individual market participation on traditional ecological knowledge. For example, Reyes-García and her colleagues (2005) found that, although there is a link between traditional ecological knowledge and proximity to towns, canonical indicators of market economies (e.g. cash) bore no significant correlation with traditional ecological knowledge. Others find no erosion of traditional ecological knowledge. For example, on a comparative study over 30 years, Zarger and Stepp (2004) found no change in ethnobotanical knowledge among Maya children in Chiapas despite significant socioeconomic changes in the region.

The loss of TEK and practices has an impact on the environment through changes in land-use and resource-use patterns that replace traditional systems. It is also associated with deterioration or loss of traditional values attached to lands and resources weakening the links of individuals to their homelands. More broadly, the loss and erosion of TEK also means missed opportunities to learn more on local environments from people who have managed them for a long time. TEK of the Karen communities in Thailand (Steinmetz, 1999) showed that local Karen people were able to identify 41 different vegetation communities and habitat types within the landscape they inhabited, they could provide valuable information on the relationships between wildlife populations and habitats. TEK provides a historical ecological dimension, which is not accessible to modern conservation biology.

In sum, previous empirical studies on the link between modernization, urbanization, the growth of capitalist industries and erosion of traditional ecological knowledge have produced conflicting and weak results. Later we argue that part of the answer to the puzzle may lie in the way researchers have defined and measured traditional ecological knowledge.

Theoretical Model

In this study, we proxy individual traditional ecological knowledge with two variables: theoretical ecological *knowledge* and self-reported ecological *skills*. We used the cultural consensus model to measure individual theoretical ethnobotanical knowledge (Reyes-García et al., 2005)

The cultural consensus model is based on the assumption that there is a culturally correct answer for every question. Whatever the cultural reality, it is the same for all informants and is defined as the answer given by most people (Romney and Weller, 1984). Therefore, culturally correct knowledge consists of agreement between informants.

Individual knowledge is measured as the proportion of questions that each person answered in a correct way, where correct refers to the most frequent response. The use of cultural consensus

to analyze data on traditional ecological knowledge has been used by several authors and is becoming a recognized method to measure variation in individual's traditional ecological knowledge (Rocha, 2005).

Study Area and Methodology

The study area is Rumuodomaya community, one of the communities that make up Obio-Akpor Local Government Area in Rivers State, Nigeria. Rumuodomaya is bounded to the north by Rumuokoro, to the south by Eliogbolo and Rukpakwulusi, to the east by Rukpokwu and to the west by Rumuaoholu respectively. The community is made up of four families who all speak the same language-Ikwerre. Its political, economic and social life is presently dictated by the wider capitalist social formation that has come to consume it in recent times. However, one can still find traces of traditional political life defined by a paramount ruler and his council of chiefs.

The method applied in this study is descriptive. Hence, the researchers depended on both primary and secondary sources for their data. The key informant interview (KII) formed the core of the primary source of data collection. The choice of KII for this study is simply based on the fact that previous studies (see Orlove and Brush, 1996; Agrawal, 2002) have shown that it is the best tool for gathering data concerning TEK. This is because traditional knowledge basically rests with older people and community leaders.

Our choice of KII for the study immediately defines the kind of sampling technique to apply. On this note, purposive sampling technique seemed the most appropriate for the study. Hence, 20 elders made up of family chiefs, community development chairmen, and elderly women took part in the interview over a period of three weeks.

The secondary data were derived from previous TEK studies conducted by a wide range of scholars. Thus, a thorough review of the works of previous scholars availed us the opportunity of spotting the gap in the literature, which this study hopes to fill.

Presentation and Analysis of Key Informant Data on Loss of TEK in Rumuodomaya

In this section, we present the data collected from key informants who participated in the interview session. The data presented are extant traditional ecological knowledge caused by rapid urbanization in Rumuodomaya community of Rivers State. The data are presented categorically to cover variables such as knowledge on traditional health, nutrition, resource conservation, and technology.

Table 1: Extinct Traditional Knowledge on Trees/Leaves and their Health Functions

S/ No	Local Herbs (Trees/Leaves)	English translation	Health Function
1	Idjiri Karaka leaves	Neem Leaves	Used for Malaria and Typhoid
2	Agparizi Leaves	No English translation	Used to cure chicken pox, treatment of children's umbilical cord and cough
3	Mbelekuleku Roots	No English translation	When boiled, it serves as treatment for malaria
4	Awolowo	No English translation	Used as first aid for fresh wounds in the farms
5	Nchi-Nchi Nunu	No English translation	Used to treat chronic stomach ache
6	Aurura	Lickers	Used to treat fractured bones
7	Daulin	Shea butter	Used for massaging body
8	Mmenime	Pepper fruit	The dry seeds are used to treat weak nerves

Source: Researchers fieldwork

Table 2: Extinct Traditional Ecological Knowledge on Nutrition

S/No	Local nutritional knowledge	English translation	Nutritional Value
1	Eruru	Palm maggot	Protein
2	Okpotoro	No English translation	Vitamin
3	Ede	Cocoyam	Carbohydrate
4	Nkpirinku	Palm fruit	Vitamin

Source: Researchers fieldwork

Table 3: Extinct Traditional Knowledge on Resource Conservation

S/No	Local conservation method	English translation	Application
1	Ndanda	Smoking/drying	Used basically to preserve food stuffs in the absence of refrigerator
2	Orbaa	Carved storage	Used to store yam and maize for next planting season
3	Ekworkani	Shifting cultivation	Often done within a period of 2-4 years due to the prevalence of land.

Source: Researchers fieldwork

Table 4: Extinct Traditional Technological Knowledge in Rumuodomaya

S/No	Commonly Crafted Items	English translation	Technical Function
1	Nketa	Basket	Used to store items and carry farm produce during period of harvesting
2	Okolo	Seasonal Tree	Presents an outstanding knowledge of seasons of the year. The tree turns red from green during Christmas period.
3	Ngaji Gbaka	Cooking spoon from wood	Used basically to prepare soup for the entire family
4	Apala	Axe handle from hard wood	Used to fit into sharp metals for hewing woods.
5	Igbishi/Worinke	Wooden mortar	Used for pounding yam, pepper etc.

Source: Researchers fieldwork

Table 1 above shows the findings of the study using KII knowledge of ethnobotanical skills as a share of total cultural knowledge as a dependent variable. We find that a decrease in the knowledge of ethnobotanical skills correlates with the level with which such knowledge is lost as a result of external factors such as urbanization. Thus in table 1 above, we discover that all skills associated with traditional ecological knowledge especially its ethnobotanical (traditional knowledge of herbs) dimension seem to be meeting extinction because of the expansion of Port Harcourt city and the demand for land (both for commercial/industrial and housing purposes). The table therefore relates the loss of such knowledge with the loss of traditional medical skills. This loss according to key informants who took part in the interview has great negative implications for individual health and health of the community at large. For instance, leaves (such as Neem leaves and others listed in table 1 above) used to serve as very strong medicines in there various forms for malaria and typhoid, while others like Aurura (leakers) and Mmenime (Pepper fruit) were used for massaging and treatment of weak nerves both for old and young people.

Table 2 above shows the same loss of traditional knowledge resulting from the expansion of Port Harcourt city. However, the table provides information on knowledge of nutrition derived from some traditional foods and forest products now extinct. We discovered through our interview of key informants that the decrease in the score of traditional nutritional knowledge derived from local foods and forest products is strongly linked to forces of urban growth such as deforestation. Thus, while the urban population continues to grow, more and more forested areas are cleared for residential, industrial and commercial purposes leading to the extinction of such plant species that community members depend on for their nutrients. Such forest products and food

reported by key informants to have met extinction include; eruru (palm maggot) which has high protein value, okpotoro (no English translation) which gives vitamin, ede (cocoa yam) which provides carbohydrate, and npirinku (Palm fruit) which provides vitamin (see table 2 above).

In Table 3, we present information concerning the methods of resource conservation in the study area prior to urbanization. We therefore found out that while the size of Port Harcourt city is increasing, it has negative consequences for traditional methods of resource conservation. This is simply due certain facts; first, the major economic activity of the people which was agriculture has been completely relegated to the background for a rent seeking economy. This led to the loss of agriculture related traditional conservation skills such as; Orbaa (Carved storage) which was used to conserve resources for next planting season and Ekworkani (shifting cultivation) which was used to protect soil nutrients. Secondly, the knowledge of drying and smoking (known as ndnada in Rumuodomaya) is also gradually eroding. All these they say have negative consequences for resource conservation in the community.

Table 4 above provides information on extinct traditional knowledge in technology as a result of urbanization in Rumuodomaya. The information presented in the table reveals some form of crafts hitherto present prior to urbanization in the area. Here it is firmly established that theoretical knowledge of one's ecology is strongly linked to traditional skills in technology. This is because key informants pointed out that because most of the trees that act as primary resource for crafting these traditional implements have all been lost to urbanization and therefore there is also a commensurate loss of the know-how or skills of crafting such implements overtime. Key informants maintained for instance that there is a corresponding loss of the knowledge to weave baskets as a result of the loss of *water canes and raffia palm*, so also is the loss of traditional knowledge related to the crafting of wooden spoons, wooden mortar, and axe handle. We therefore conclude that although we did not apply any statistical test to determine causality, the magnitude of the effect from urbanization to traditional ecological knowledge is quite enormous.

Discussion of Findings

Linking Urbanization to Loss of TEK in Rumuodomaya

Results of this paper advance our understanding of the nexus between urbanization and traditional ecological knowledge at several levels.

At the methodological level, we find that how one defines and measures ethnobotanical knowledge matters. We measured the rate of urban growth in Rumuodomaya and traditional ecological knowledge cum skills and found that the two variables are strongly linked. We also found that there is more loss in ethnobotanical skills (which is the actual crafting process) than ethnobotanical knowledge (which is the theoretical process). The variation in the loss of theoretical ethnobotanical knowledge than in ethnobotanical skills might explain why despite the fact that indigenes of Rumuodomaya have lost the skill of crafting local technology from their environment, they nevertheless still have strong theoretical knowledge of the ecological materials used in the crafting process. This result shows that urbanization is more potent in destroying traditional ecological knowledge associated with crafting skills more than the theoretical knowledge. This could be that as Rumuodomaya gradually becomes urbanized, and land and its associated rent continues to soar, local people tend to find local crafting less economically rewarding hence the art is dumped for better money making ventures within the new economic structures of the urban economy. This finding is in line with previous studies such as; Schultz (1975), Orlov and Brush (1996), Agrawal (2002), Oviedo, Gonzales and Maffi, (2005), all of whom have shown that economic development correlates with the loss of traditional ethnobotanical knowledge and skills.

The key informant interview produced stronger information for ethnobotanical skills than for theoretical ethnobotanical knowledge in part because skills contained more variation.

At the theoretical level, the information presented in this study advance our understanding of the relation between urbanization and individual retention of ethnobotanical knowledge. First, we found that prior to urbanization, as indigenes participate in hunting, gathering, farming, logging and fishing, their knowledge for ethnobotanical matters becomes highly vast and this relates to high ethnobotanical skills, but not with less theoretical ecological knowledge. The findings indicate that as rapid urbanization takes place there is a gross erosion of traditional ecological knowledge. Due to the weakness of results in previous research, the identification of the specific urbanization activities such as deforestation that brings about negative ethnobotanical knowledge is an important step in our understanding of the relation between urbanization and individual retention of ethnobotanical knowledge. However, this study does not allow inferring causality. Future studies should advance our understanding of how this relation operates by providing a convincing identification strategy.

One could argue that the findings indicate that urbanization erodes traditional ecological knowledge at a faster rate than industrialization since a community might encounter the latter without necessarily losing its traditional knowledge. We found that activities that take Rumuodumayan's to the forest and that keep them in their culture are linked in a positive way with traditional ecological knowledge and skills of the subject in all the variables (herbs, nutrition, conservation and technology) studied. The finding suggests that the process of urbanization does actually erode the knowledge of the people concerning their ecology.

Another important finding is that high traditional knowledge loss is occasioned by the loss of agriculture. For example, when we interviewed the key informants who took part in the study, we found that income from farm-based activities tend to have an increase in the ethnobotanical skills of subjects. This is due to the stringent fact that as more of the indigenes engage in agriculture, their knowledge of the uses of certain leaves, trees, tree barks, etc continues to expand. The finding suggest that changes from an agriculture based economy to a market and rent based economy occasioned by the growth of urbanization has negative effect on traditional ecological skills.

In sum we found that urbanization erodes traditional ecological knowledge. The finding has an important policy implication: urbanization and preservation of traditional ecological knowledge can only be simultaneously achieved *only if Urbanization* takes place while other activities that keep people in their habitat and their culture are allowed. The challenge lies now in finding a better way to design cities without undermining traditional knowledge.

Recommendations

Two distinct types of actions are required to address the problems that TEK, is currently facing as a result of urbanization:

A. Those, which prevent loss and erosion of knowledge. These correspond mainly to the interface between environmental management of indigenous and traditional peoples' lands and resources, and enable strengthening and revitalization of their cultures and institutions.

B. Those, which protect rights to knowledge and relate to the area of legal protection of intellectual property.

Urgent substantive work for preservation of TEK and for strengthening its transmission is needed, though the actual work to be carried out depends on patterns of evolution of family and social life. Specifically, attention needs to focus on the following areas:

1. Protection of lands and resources from external threats and maintaining livelihood security. For many, if not all, the indigenous people affected by loss and erosion of TEK the fundamental problem remains land-tenure and livelihood security. Especially in the context of the expansion of urban areas where inter-cultural connections are inevitable and happen mostly in asymmetric ways at the expense of weaker cultures. Securing the traditional lands and resources of the affected people is the first priority. This implies also helping them effectively in protecting those lands and resources from external threats and pressures.

2. Encouragement to community members for making practical use of TEK and their native languages.

3. Promotion of active community involvement in all actions directly or indirectly related to their present and future lives, and do it in a way that people get involved with their own views, perceptions, feelings, and knowledge.

4. Documentation of TEK, ideally done by the communities themselves is of utmost importance. This is needed for legal protection, registration and facilitation of transmission. The key condition for achieving this is the free and informed consent of the communities involved.

5. Wider application of TEK to new practices related to management of ecosystems, species, and resources, as well as to productive activities such as agriculture. Successful application of TEK within and outside the communities would significantly enhance its values and would show its potential to younger generations.

6. Integration of TEK with other knowledge and technical systems for management of habitats, ecosystems and resources. In conditions of cultural change, market expansion, and growing pressure over resources, TEK will require to be complemented by other systems. A combination of all approaches may provide the best option, particularly to younger generations, for keeping TEK alive and for incorporating it in their practices.

9. Preservation and revitalization of TEK will require in many cases new, "non-traditional" approaches and methods, like setting up databases or producing web-based information for young people. This makes training on TEK preservation increasingly important.

Conclusion

The research in the erosion of traditional ecological knowledge whether as a result of urbanization or other factors is a large intellectual enterprise for the academia especially in Latin America and other parts of Africa-Ghana for instance. Our research stands out as a ground breaker in this area of knowledge in Nigeria and calls for other scholars especially those in the science of Botany, Wildlife and other related fields to provide more empirically precise measurement to the loss of TEK in local communities.

We have shown in this study that the magnitude of the effect of urbanization on traditional ecological knowledge is quite enormous. Using variables such as traditional knowledge of herbs, nutrition, resource conservation and technology, we were able to collate some TEK now extinct from selected informants who were mostly community leaders and family chiefs. The paper concludes that the loss of traditional ecological knowledge is strongly linked to urban growth in the study area and suggests a proper record of TEK as communities encounter the forces of modernization in the future.

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