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Indigenous Australians Overcoming Vulnerability to Employability by Creating a Viable Labour Market for Local Challenges

By Dr. Cecil A. L. Pearson, Mrs. Sandra Daff & Mr. Klaus Helms

Curtin University, Australia

Abstract- Australian Indigenous people experience severe labour market disadvantage due to constraints embedded in technology, inclination to work, formal education, lack of job experience as well as geographic factors. Indigenous precarious employment grows in prominence when there is an absence of jobs and particularly in remote regions of Australia where intergenerational unemployment is the norm. In the remote Gove Peninsula of the Northern Territory of Australia many English illiterate and innumerate people, without previous employment, have overcome vulnerability to employment by engaging with an educational vocational scheme in a networking arrangement with government agencies and the resident mining corporation Rio Tinto. This paper voices the Indigenous work relevant accomplishments during the two and one half years after installment of the programme, that is grounded in the interests and sensitivity to cultural continuities of the local Yolngu people.

Keywords: *job vulnerability, indigenous employment, educational vocational training, unemployment.*

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Indigenous Australians Overcoming Vulnerability to Employability by Creating a Viable Labour Market for Local Challenges

Dr. Cecil A. L. Pearson ^α, Mrs. Sandra Daff ^σ & Mr. Klaus Helms ^ρ

Abstract- Australian Indigenous people experience severe labour market disadvantage due to constraints embedded in technology, inclination to work, formal education, lack of job experience as well as geographic factors. Indigenous precarious employment grows in prominence when there is an absence of jobs and particularly in remote regions of Australia where intergenerational unemployment is the norm. In the remote Gove Peninsula of the Northern Territory of Australia many English illiterate and innumerate people, without previous employment, have overcome vulnerability to employment by engaging with an educational vocational scheme in a networking arrangement with government agencies and the resident mining corporation Rio Tinto. This paper voices the Indigenous work relevant accomplishments during the two and one half years after installment of the programme, that is grounded in the interests and sensitivity to cultural continuities of the local Yolngu people.

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I. INTRODUCTION

A lineage of studies has detailed knowledge of reasons for Australian Indigenous low labour force participation. The Henderson Commission of Inquiry (1975), and subsequent investigations (Altman, 2009; Biddle, 2010; Borland & Hunter, 2000; Hunter, 2009; Stephens, 2010) have revealed there is an array of barriers faced by Indigenous Australians in their pursuit of employment. Embraced in this literature and other writings (Altman, 2006; Gilbert, 2002; Hunter and Gray, 2012; Johns, 2011; Tiplady and Barclay, 2007) are contentions the probability of Australian Indigenous people obtaining employment can be influenced by numerous social political, technical and structural factors including decision to participate in paid work, dealing with prejudice, lack of training and technology inability skill sets, an absence of jobs, proximity to the labour market and reluctance to travel, or strong cultural attachments interfering with traditional labour market requirements. Collectively, these and other issues

negatively contribute to Indigenous people finding employment or adversely affect job retention.

In particular, the role of education has been emphasised as having a causal effect on labour market outcomes. Pocock and colleagues (2011) reported a connection between employment, and literacy and numeracy to the extent lower literate workers are twice as likely to be employed in lesser paid jobs. In Australia Indigenous people are a minority group, who have for a long time been overly vulnerable to employment (Gray and Hunter, 2011; Taylor and Hunter, 1997) because of their consistent disengagement from the national education system (Gray and Hunter, 2002; Giddy, Lopez and Redman, 2009). The precariousness of employability for Indigenous people manifests when they live in rural or remote regions where there are insufficient jobs (Gray, Hunter and Lohoar, 2012).

Often acknowledged are consequences for incompatible balancing of Australian Indigenous aspirations with employment conditions of a wage economy. In regional communities Indigenous people are likely to be engaged in a fundamentally different lifestyle (Hunter & Gray, 2012; Jordan and Mavec, 2010) to urban Aboriginal people. Frequently, in remote regions of the nation living patterns are strongly attached to kinship obligations and familial networks within settings of collective benefits (Foley, 2006; Trudgen, 2000). Often the inhabitants are wedded to welfare, they practice hunter gatherer pursuits and engage in traditional ceremonial obligations (Altman, 2002; 2003; Madison, 2008; Muir, 2011; Pearson, 2006; Pearson and Daff, 2013a). These environments, that are considerably different to industrial work surroundings, are inclined to have high Indigenous unemployment (Hunter, 2009; Stephens, 2010). When alternative traditional lifestyles are available few Indigenous Australians are challenged to commit to regular employment careers antithetical to Aboriginal interests.

Faced with poor employment prospects the Yolngu Indigenous community on the remote Gove Peninsula of the Northern Territory (NT) of Australia created their own sustainable jobs. The Yolngu Elders engaged in a tripartite partnership with the resident global miner Rio Tinto and the Australian government to install a vocational educational training (VET) scheme to train local Indigenous people, who were generally

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illiterate and innumerate. The notion exploited by the Indigenous Elders was the trained graduates could become employed in a variety of 'green' type jobs, and non industrial work placements. The jobs were identified and appropriate learning and skilling was undertaken at the mining company training facilities and the Nhulunbuy Technical and Further Education (TAFE) centre. Yolngu Elders created a diversified 'green' industry thereby providing sustainable jobs for the

trained Indigenous men and women, who were able to build local infrastructure creating a range of work sites and a variety of marketable needed consumer goods. This paper describes the accomplishments and the anticipated future destiny of the regional Indigenous people as they build their lives and rebuild their communities. The location of this remote region and the sites nominated in the following pages is shown as Figure 1.

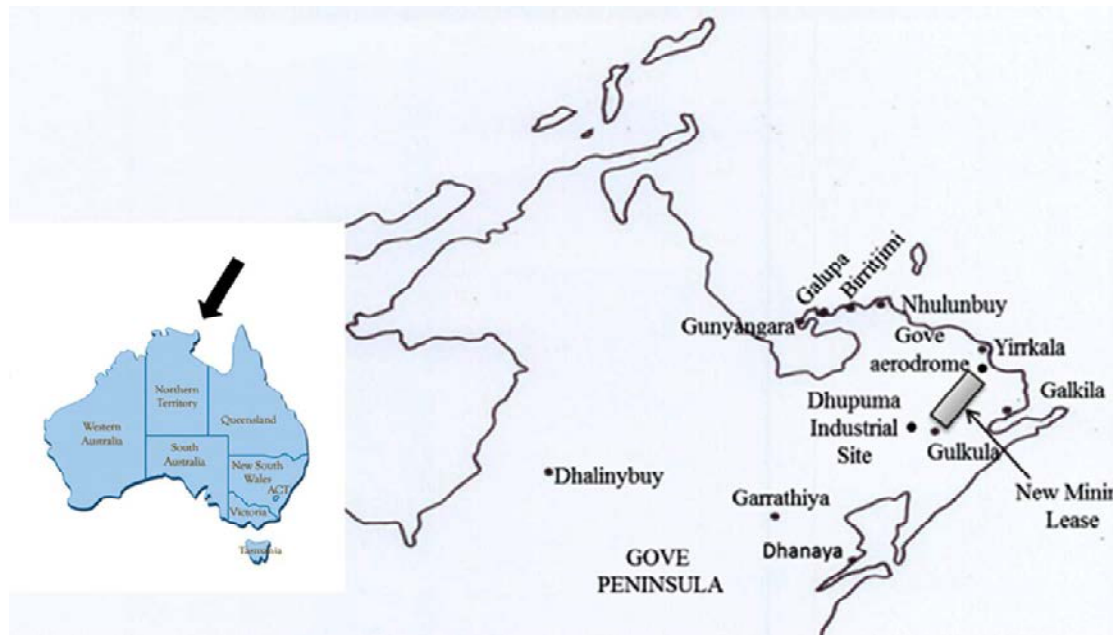


Figure 1: The Gove Peninsula and Indigenous Outland Centres

a) Indigenous issues and new directions

Relative to the wider population Australian Aboriginals have for many decades experienced poor mainstream employment prospects. Despite Australian government welfare to work reforms as well as social environmental and financial incentives such as the Community Development Employment Projects (CDEP) scheme (Altman, Gray and Levitus, 2005; Hunter, 2003) as policy efforts to increase the employment rate of Indigenous people, a lack of sustainable employment has persisted in the Indigenous marginalised communities, that comprises about 2.7% of the nation's population (Hunter, 2010; Biddle, Taylor and Yap, 2009). Labour market disadvantage manifests as lower incomes and higher unemployment rates acknowledged to underpin a range of socio economic indicators. The more dominant indices being poverty (Altman, 2007); poorer and unhygienic housing (Remote Housing NT, 2013); high risk to obesity, diabetics, liver and cardiovascular diseases (Closing the Gap, 2010; Rowley et al., 2000); chronic substance abuse in the form of alcohol consumption, volatile substance sniffing and recreational drugs (Midford et al., 2011; Wilson et al., 2010); suicides, lower life expectancy as well as greater

family violence and burgeoning incarceration rates (Katijin, 2011; McGuirk, 2011; Rowley et al., 2000;). Indigenous Australians are at a higher risk than the non Indigenous community, and in remote Aboriginal regions the levels are burdensome.

Numerous barriers to Australian Indigenous sustainable employment have been identified. Foremost is the role of education and relevant training for the modern world where the intensification of technological advancement obliges diversity in specialised skills and a belief in the dignity of work (Johns, 2011; Jordan and Mavec, 2010; Tiplady and Barclay, 2007). Yet often Indigenous people, and particularly those from regional and remote Australian centres, have low levels of English literacy and functional numeracy (Hughes, 2008). Moreover, few have responded favourably to government programmes requiring them to commute to jobs as they hold a preference for vestiges of their earlier rich cultural heritage and choose to live on their ancestral lands (Altman, 2002; Muir, 2011). Indigenous Australians are immersed in the Dreaming (Stanner, 1979), which describes the travels of the ancestral spirits; and the relationships between land, animals, and

people leading to protocols for behaviour (Altman, 2003; Voit and Drury, 1997). These strong connections foster customary responsibilities to ensure social and economic viability for land and sea management when undertaking primary forms of economic development and employment.

Although Indigenous Australians face many obstacles to securing mainstream jobs the greatest vulnerability for employment is when the people reside in locations where there are insufficient work opportunities. On the remote Gove Peninsula of the NT where there are few long term jobs, particularly with the recent mothballing of the Rio Tinto refinery the Yolngu Clans have increased the probability of employment through working partnerships to establish organisations for facilitating Yolngu culture and customary ways of caring for land and sea estates. This paper focusses on the job creation scheme that was installed in 2012 for the mostly unemployed illiterate and innumerate Indigenous men and women in the lower levels of the paternalistic clan structure.

b) Enabling Indigenous job creation

The Yolngu people have been progressively exposed to contemporary technology since the arrival of the missionaries. In 1935 the Methodist Church mission was established at Yirrkala, and the Yolngu clans began to congregate there for Christian religious instruction and material sustenance requiring these Indigenous people, whose forebears had been the first Australians 50,000 years earlier, to learn Western knowledge and use rudimentary technical equipment and work practices to undertake agriculture pursuits (McKenzie, 1976; Shepherdson, 1981). Later, in 1943 when a military aerodrome was built at the now Gove airport rich bauxite ore was used as gravel was unavailable, and some Yolngu men were involved in the war effort (Department of Defence, 1978; Thomson, 2006). After the war, during the 1960s, the mining town of Nhulunbuy (15 km from Yirrkala) was built as was the refinery and the minesite. Some Yolngu women and men worked for a short time using the contemporary technologies during these building operations (Cousins and Nieuwenhuysen, 1984). From the mid 1970s until 2011 only a handful of Indigenous Yolngu had acquired educational and vocational competencies enabling them to be employed in sustainable jobs in the mining operations at Nhulunbuy (Pearson and Daff, 2011; 2013b). But today the Yolngu people are being challenged to find a fine balance between tradition and modernity.

A sea change in improving the job prospects of Yolngu men and women occurred in 2011. On the 8th of June 2011 the Prime Minister of Australia, Julia Gillard, ratified the historic Land Use Agreement (LUA) with the Yolngu Traditional Land Owners (TLOs) at Yirrkala. The first mining lease had been undertaken in

the late 1960s under a colonial land licensing agreement that dispossessed and marginalised local Indigenous inhabitants giving the mining operator almost uninhibited access to the land (Crawley and Sinclair, 2003). But the 1993 Native Title legislation recognises Indigenous people have access to native title compelling international mining corporations to become major investors in the world of Australian Aboriginals (Brereton and Parmenter, 2008; Harvey and Brereton, 2005). While the LUAs have a financial component a common emerging feature is provision for training and employment (Barker, 2006; Hogan and Tedesco, 2003).

Within seven months of ratification of the LUA the first VET programme for local Yolngu people had commenced. A section of the agreement is devoted to a goal of increasing Aboriginal participation in work readiness training and career advancements. Specifically, the LUA stipulates the mining operator (Rio Tinto) will in consultation with the TLOs develop a regional employment and training strategy. By the 7th of November 2011 the TLO leaders had agreed to the membership of a Working Group, that had representatives of 1) the mining operator, 2) the Gumatj Clan, and 3) the Rirratjingu Clan. The Working Group met on the 1st December 2011 and identified:

- The types of 'green' jobs to be created,
- The VET curriculum for these jobs,
- The training institutions for delivery of the VET course,
- The work projects that would incorporate the learned skills, and
- The commencement date of the VET programme, which was the 30th January 2012.

The Nhulunbuy Indigenous VET programme has several attributes. A salient feature is the scheme name – *Ralpa*, which translated from the mother tongue means to get things done quickly. The *Ralpa* brand is now widely acknowledged in the local region. The participants also shaped the curriculum. Most of the trainees were wedded to the government income support system of welfare as they were unemployed, a few had in the past been intermittently participants of the CDEP scheme that provides short term part time work (Altman and Gray, 2005; Hunter, 2003), but a majority of the candidates were English illiterate, and indeed, almost all of the women preferred to speak in their mother tongue. When a sample of 49 applicants were tested with a national reading measure (Shearer, Cheshire and Apps, 1975, The Burt Reading Test, 1974) it was found their English reading age was 7.8 years. One disturbing finding of the mandatory medical examination was the high incidence of recreational drug (cannabis) use. The programme was sensitive to Indigenous aspirations of hunter gatherer pursuits, and strong spiritual and religious connections with ancestral lands so a work week was capped at four days allowing

time for these distinctive Aboriginal purposes and traditional activities. In a VET programme of eight weeks with the morning session focussing on job safety, work readiness, and skill acquisition of hand tools, coupled with the opportunity to practice these competencies in

the afternoon on projects supervised by Indigenous and non Indigenous trainers remarkable achievements were obtained. A total of 80% (78 of 97) of the trainees graduated and became employed in mainline jobs. This information is shown in Table 1.

Table 1 : Ralpa and Goyurr programmes vocational achievements

Ralpa #	Date commenced	Recruitment pool	Selected by Elders	Graduated employed
1	Feb 2012	15	15	12
2a	May 2012	21	16	14
2	May 2012	11	8	8
3	Sept 2012	21	12	10
4	Feb 2013	17	15	11
5	Sept 2013	29	16	11
6	Feb 2014	19	15	12
Totals		133	97	78

Explaining the values shown in Table 1 reveals how community engagement is connected to the Indigenous enterprise context. The number of Ralpa programmes was determined by the aggregate of forecasted job vacancies and the capacity of the delivery resources. A nominal two programmes a year with 15 participants in each programme was initially set, but enthusiasm by the Yolngu women to operate a community store and a coffee shop at Gunyangara, and a need for skilled workers saw an extension to the scheme during 2012. The women named their programme Goyurr meaning a journey. A recruitment pool is developed by considerable community engagement, that was compressed for the first Ralpa programme, but the extensive empathy and commitment to be involved in the inaugural programme is reflected in 12 of the 15 trainees graduating into sustainable jobs. Normally, there is widespread negotiation and consultation between the VET programme deliverers and the community the nomination of the potential participants of the Ralpa or Goyurr programmes. The expectation of some leakages by Indigenous people who had never intended to undertake a working career extended the recruitment pool during the first two years to 133 candidates.

Table 1 shows reasonably optimistic job number targets were set. Despite the ready availability of income support (welfare), accessibility of mining royalties, the common practice of kinship humbugging from family members, low English literacy in Indigenous communities transitioning from an oral culture, minimal or no previous work experience requiring a considerable mindset change, and a preference for a traditional hunter gatherer lifestyle in the short term many Yolngu men and women transitioned into meaningful work. The losses also attract comment. Some lost enthusiasm to join the VET programme, others failed the mandatory medical examination, while a few had indifferent dispositions during the interview process and the two day recruitment period prior to the commencement of

the VET programme so they were excused as "... cultural attitudes to work among some Indigenous Australians are incompatible with mainstream work practices" (Jordan and Mavec, 2010: 25). The 19 Yolngu who left during the VET programme were in two categories – involuntary and voluntary. Two Indigenous men were removed to serve custodial sentences, and six were dismissed for continually presenting unfit for work. One lady left for personal family reasons while others withdrew before the graduation ceremony. During the Ralpa programmes a great deal of community infrastructure has been built to provide work places for other graduates, particularly the women.

c) Building social structures, jobs and community

In the first decade of the 21st century the Gumatj Corporation began building Indigenous social entrepreneurship. Initially, the Gumatj Clan established a cattle station on their ancestral land at Garrathiya (land of the cycads) with 350 Braham cattle, some 100 km south, south east of Nhulunbuy. A need for timber planks for bridge tops, floor boards for house verandahs, and platforms for water tanks and other structural timbers attracted assistance from the Jack Thompson Foundation (the iconic Australian actor). The Foundation sent John Mofflin to Garrathiya to show Indigenous men how to fell NT stringy bark (eucalyptus terradonta) trees and mill the logs on the property with a Lucas Mill (Territory, 2008). These events were driven by an ambition of Galarwuy Yunipungu AM Elder statesman of the Gumatj Clan, who announced in a recent interview: "My vision was my people need to eat and one way was with fresh meat. Thus, the idea of the cattle station at Garrathiya.". To achieve this goal would require a greater herd size and fenced holding yards, accommodation for workers, and an abattoir for slaughtering the cattle. These projects and other community infrastructures have been accomplished in the productive employment of Indigenous Yolngu, including graduates of the Ralpa and Goyurr

programmes, through their involvement in training and ability to employ contemporary technology.

The accumulation of Gumatj Corporation assets accelerated after 2008. This intensification began with the Gumatj Corporation forming partnerships with Forestry Tasmania, the University of Tasmania, Department of Architecture, and the Fairbrother Group which is the largest construction company in Tasmania. Forestry Tasmania provided supervisory capacity for a small team of Yolngu men who felled selected NT stringy bark trees and milled the logs to structural building timber (Pearson and Helms, 2010a). The group worked in the savannah forest mid way between Dhanaya and Garrathiya. Two building supervisors from the Fairbrother Group gave instruction to a group of Yolngu men, who built a five room accommodation bunkhouse with 20 tonnes of the milled timber at the Garrathiya cattle station. This building was architecturally designed by the University of Tasmania, and was the first of this category in the NT (Arafura Times, 2009). During 2010 most of these men, with the same supervisors, built a large house on the shores of Port Bradshaw at Dhanya (Pearson and Helms, 2010b), and in this same year timber was transported to Gunyangara for air drying and when seasoned in the following year a small group of Yolngu men were supervised by a cabinet maker from Melbourne to make five boardroom tables (Pearson and Helms, 2011). Throughout 2010 and 2011 a number of timber based projects were undertaken (e.g., verandahs to houses, fencing of Indigenous houses, commencement of the building of a school) by Yolngu men. However, a relentless demand for Aboriginal community assets on the Gove Peninsula, that the Australian governments had not been able to provide, underscored a need for a larger Indigenous skilled workforce, which moulded the content of the 2011 LUA.

Installation of the Ralpa and Goyurr programmes facilitated an outburst in local Indigenous labour force participation. Beginning as working members of these VET schemes and after graduation secured an increasing Indigenous labour supply to enable the undertaking of productive work. Early in 2012 the Gunyangara community school was completed by the men (some painting was done by local women) prior to the commencement of the Goyurr programme enabling those women participants with children to put them in care before departing on the 7.30 am bus for the Nhulunbuy training centres. At Gulkula a one hectare industrial site, with bitumen and concrete hardstand from the defunct European Launcher Development Operations in the late 1960s (Pretty, nd), was secured when the Yolngu men erected security fencing with two, four metre wide gates in each corner. On this site a large shed was erected for stabling two Lucas Mills and two Mahoe saws, the latter for fine milling of timber for furniture construction. In April 2012 Yolngu men began

constructing a small abattoir at Garrathiya under periodic guidance and instruction from visiting officers of the NT Department of Resources. By the close of 2012 selected trees were being felled on the new gazetted mining lease and the logs were transported to the industrial site for slabbing to make garden furniture for sale to the Nhulunbuy non Indigenous population or the timber was milled for further construction projects.

A growing Indigenous trained labour force enabled greater intensification of job creation in 2013. Three projects were undertaken at Gunyangara within 200 metres (m) of the new school buildings. First, there was a community store and store room complex (30m x 20m); second a coffee shop (15m x 15m); and third, an arts show room (20m x 10m) adjoining the side of the furniture shop. All of these (mostly timber) buildings were in the precincts of the Gunyangara horticulture centre, that was operated by the local Indigenous women. While timber items of household furniture (e.g., small tables, boxes, cupboards) were made in the furniture shop by Indigenous men and women graduates of the Ralpa and Goyurr programmes a notable project was the manufacture of a number of different sized beds. In conjunction with Health Department representatives, who gave instruction to the Indigenous women in the use of cleaning and sanitising products, the beds enabled new mattresses to be placed above the floor to eliminate an endemic outbreak of scabies. Throughout 2013 extensive refurbishment of assets for the Garma Festival was undertaken at Gulkula. A new covered presentation complex (50m x 50m), two new toilets and ablution blocks (30m x 10m), a new coffee shop (10m x 10m), a covered dining area (50m x 40m), and a large elevated dais for the oval were completed., before the September ceremony. The main component of the structural elements of these facilities was NT stringy bark logs and milled timber prepared at the Dhupuma industrial site.

In the timeframe from mid 2012 to mid 2014 there were a number of non timber based job placements. The Indigenous women of the Goyurr programme had their course tailored for them to receive training in horticulture, retailing, culinary and baristaing as well as attention to health and cleanliness in food preparation particularly in butchering and filleting fish. Some six women were employed by the Marngarr Resource centre to operate the Gunyangara horticulture nursery, that supplied plants and shrubs to the general public, to the mining company for revegetating mined areas, and to the Nhulunbuy Corporation Limited for town parks and gardens. Four Indigenous women worked in the community store and a further three women managed the coffee shop and operated the equipment when serving customers, many who are non Indigenous. Recent notable additions to the Nhulunbuy Indigenous female workforce are two graduates who now work daily shifts in the district hospital (Pearson,

2014). When the boned out carcasses are delivered from Garrathiya four women work in the cutting room of the Gunyangara crocodile farm where under supervision of a qualified non Indigenous butcher meat cuts are prepared as well as sausages and mince products are made. Quantities of mince are delivered to the Nhulunbuy bakery for filling of pies shells, and when baked the pies are sold in the community store together with the meat products. Gunyangara is an Indigenous community of some 45 houses, to be expanded in 2014, with a transient population at times reaching 600 people providing these and future trained women with secure employment prospects.

A number of the men who completed the Ralpa programme are now employed in sustainable jobs within the precincts of Nhulunbuy. For example, seven men from the inaugural Ralpa programme have been continuously employed at the Dhupuma industrial site milling NT stringy bark logs, that have been cut from the nearby new mining lease by another independent group of Indigenous men (Arafura Times, 2014a). Five men and their supervisor comprise the team responsible for maintaining the grounds of the town flats and at various times the yards of the 800 houses owned by the resident mining company. Six men are employed by Deltareef, a national building corporation, that is contracted to maintain these town premises, and four others are in a team with Deltareef supervisors upgrading houses at Gunyangara and Yirrkala (Arafura Times, 2014b). Three Indigenous men obtained jobs in a private firm that undertakes horticultural activities for the schools, government facilities and some private home owners in Nhulunbuy. A further eight men, after graduating returned to their employer (e.g., Bunuwal Industrial, Dhimurru Land Management Aboriginal Corporation) with improved work skills. Four Indigenous men found employment with Sodexo the international catering and security corporation that services Gove House and Arnhem Village for the single person accommodation of mining personnel. Notably, these new jobs were occurring in a period when Australian job growth has slumped alarmingly (The West Australian, 2014).

d) Reflections

The Yolngu people of east Arnhem Land are engaged in a fundamentally different customary economy to the mainstream Australian society. In this extremely remote region the Indigenous people reside in communities with non viable labour markets, and, consequently, few are in sustainable jobs. Even the Yolngu artists, who live in dispersed homelands within 200 km of Nhulunbuy, and provide a cottage industry of artwork, sculpturing, weaving and jewellery (Brody, 2011) for the international market place, give preference for regular attendance at ceremonies, funerals, and rituals keeping them out of work activities for extended

periods. Within their hybrid economy there is widespread involvement with traditional hunter gatherer pursuits (Altman, 2002), that are further barriers to conventional patterns of working normally undertaken by employees in cosmopolitan centres. Further evidence of atypical employment of Aboriginals in regional Australia is the low employment rates in mining workforces (Brereton and Parmenter, 2008; Jordan and Mavec, 2010; Pearson and Daff, 2013a; b; Tiplady and Barelay, 2007). In spite of mining companies operating in remote regions of Australia where the Indigenous population is high their vocational representation is unfavourable.

The Yolngu clans have chosen to embed their new found work regimes mainly in 'green' jobs. Blanch (2008) writes the tropical zone of northern Australia has been conserved and sustainably managed by a culture of over 50,000 years, and today many of the Indigenous communities retain strong connections to the country. The unique kin based lifestyle of the people (Altman, 2003; Foley, 2006), who live on their ancestral lands for which they have strong religious attachment, is wedded to the Dreamtime (Muir, 2011; Suter, 2003) to link responsibilities for land management. The importance for the land was highlighted in a statement attributed to the prominent Elder Yolngu Galarwuy Yunupingu AM.

For Aboriginal people there is literally no life without the land. The land is where our ancestors came from in the Dreamtime, and it is where we shall return. The land binds our fathers, ourselves and our children together. If we lose our land, we have literally lost our lives and spirits, and no amount of social welfare or compensation can ever make it up to us. (Resource Indigenous Perspectives, 2007: 1).

Independently, David Collard, a leading Indigenous spokesperson for the Noongar people of the south west of Western Australia claimed Aboriginal people would rather choose to have green friendly jobs that heal the land rather than mining jobs that tear up the landscape (Macdonald, 2012). In support of this notion the Wiradjuri people of central New South Wales put substantial emphasis on traditional ecological knowledge. These announcements give broad concepts for meaning and substance why the primary form of economic development for Indigenous people in regional Australia is energised in vocational pursuits that preserve their extensive ecosystems.

The Ralpa and Goyurr programmes resonate with respect and acknowledgement of community aspirations. Considerable knowledge (Miller, 2005; Wallace et al, 2008; Young, Guenther and Boyle, 2007) identifies effective training schemes for Indigenous people are reliant on nurturing partnerships ensuring the VET delivery is culturally appropriate and develops work based learning approaches. A key starting point is the central importance of Indigenous authority (Johns, 2011) and this is achieved through the participation of Elders

and other community members, including family, in the recruitment and selection of candidates. Shared ownership of the learning relationships and partnership is realised in community processes leading to the nomination of potential candidates, who then enter a two day assessment period at the delivery centres. At the close of this time, in a formal setting, relevant managers and deliverers of the programme, meet with the Elders, who analyse the presented data (e.g., medical examination report, candidate attendance), and select the candidates for the course to start in the next week. Throughout the programme Indigenous family as well as community members, and also importantly the Elders, are actively involved in the observation of the VET course activities, they can be presenters of curriculum items, and can be supervisors of work projects. Hence, the teaching centres (e.g., TAFE) become part of the life of the community.

Indigenous forms of learning are extremely complex and present enormous challenges for the deliverers of the VET programmes. Answering the challenge leads to respectful ways of comparing Western and Indigenous methods of learning. Foremost is through exploring, observing and then replicating the processes used by the 'clever' members of the Indigenous community who are the controllers and repositories of Indigenous knowledge. Knowledge of traditional learning techniques can be systematically acquired by visiting remote outstations on invitations, by attending the Yirrkala Buka Larrngay Mulka Art Centre where skilled artists apply and teach the skills to less knowledgeable Indigenous people, or by examining the visual electronic records that are a legacy from past anthropologists (e.g., Dunlop, 1995). These actions reveal Indigenous learning takes place in day to day activities where skills are acquired mainly by vocal (stories), visual (observation), and practice (imitation). This holistic pedagogy is anchored in the Ralpa and Goyurr programme in a four stage procedure when the instructor 1) Demonstrates, 2) Explains, and 3) Describes; and then the candidates 4) Initiates and imitates the work behaviours with testing by the instructor. These learning stages replicate genealogical ties between the course participants and their ancestral heritage.

Literacy and numeracy is not an entrance barrier to a Ralpa or Goyurr programme. Indeed, most of the Indigenous women spoke in their mother tongue, and several of the men of the Ralpa programme were also English illiterate and innumerate. Nevertheless, a large number of these people are productive workers in their communities. Indigenous Australians are from an oral culture and they 'write' their culture in their artworks, which a 'reader' can interpret in the absence of the artist. The Ralpa and Goyurr class rooms and work sites are noisy places as Indigenous bilingual members translate for other members or even complete their

documentation so the team can advance. And while literacy and numeracy are necessary throughout the Ralpa and Goyurr programmes to develop expertise and acquire national accreditation during the selection process the Elders give scant concern for literacy and numeracy competencies. The Elder judgements are pragmatically aligned;

1. Will the applicant be able to do the course, and
2. On graduation will the person be able to do the offered job.

Sanctions can apply and candidates are aware of them. The Elder are aware the clan resides in a culture of social capital and there will always be networks of kinship blood lines to ensure the trainer/course deliverer is not the only expert.

II. CONCLUSION

The Ralpa and Goyurr programmes have extra ordinarily influenced the development of vocational aligned mindsets in the local Indigenous communities. In addition to the core of members, who have chosen a path of continuous employment, there are examples of envious 'outsiders' now returning to work after a period of involuntary or voluntary absence, and there are also other Yolngu, from more distant centres now voicing for an opportunity to join the scheme. A central theme of the Indigenous VET scheme is employment of strategies sensitively aligning cultural continuities and community development interests. In a relatively short time the Ralpa and Goyurr programmes have overcome the major barriers to Indigenous employment of low levels of English literacy, minimal work experience and locational disadvantage. Partnerships identifying jobs for building community projects is an innovative method for creating further vocational opportunities. Overall, this approach has advanced the development of community and individual confidence for vocational pathways and regional strategic growth.

To this point the paper has presented an optimistic perspective, but there is also a half glass empty matter for consideration. The Gove Peninsula has a potential market of some 8,000 people, one half being non Indigenous, and over time the growing Indigenous workforce delivered by the Ralpa and Goyurr programmes will be servicing this relatively static sized consumer group. Recognising a more extensive catchment will be advantageous the Gumatj Corporation has initiated negotiations with national corporations and Australian government departments to increase market potential including the acquisition of personnel with compatibility for industrial skills and work experience. Although the pilot Ralpa and Goyurr schemes are in a stage of infancy it does 'buy' time to overcome the chronic and enduring disadvantages experienced by Australian Indigenous people on the Gove Peninsula, who are developing their capacity to work in a context of intergenerational unemployment.

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Risks and Rights: The Challenges and Consequences of Development in Indian Coal Mining Sector

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Abstract- Mining has a significant impact on the economic, social and environmental fabric of adjoining areas. Although mining activities bring about economic development in the area, at the same time the land degradation causes ecological and socio-economic problems. Mining adversely affects the eco-system as a whole. It is important to conduct suitable assessment studies to learn the potential adverse impact of mining on flora and fauna. To overcome from the problems one should have knowledge about the various activities of environmental concern. As we have seen earlier time that every mine managers keep check list giving information on environmental controls, as envisaged in various mining lease conditions of the Government of India and Environment management plan. Frequent review of this information may enable identification of the site-specific environmental issues at the mine. Poor environmental performance may accelerate the demands for mere stringent regulatory conditions. Therefore, the task is to make continuous efforts towards environmental improvement by each mine authority. The present paper discusses on various risks involved around coal mines activities in India. It also deals with the rights of the people to live in clean environment.

Keywords: *mining induced displacement, vulnerability, legislation, environment, human rights.*

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Dr. Sribas Goswami

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Keywords: mining induced displacement, vulnerability, legislation, environment, human rights.

I. INTRODUCTION

Pt. Nehru, the first Prime Minister of India stressed the need of Environmental Impact Assessment of the projects and the management to avoid the imbalance of nature. The importance of the issue was reemphasized by Mrs. Indira Gandhi, another Prime Minister of India, at the United Nations Stockholm Conference on the Human Environment in 1972. Constitution of the National Committee on Environmental Planning and Coordination under the Department of Science and Technology in the same year was the first tangible step in this direction. The thermal power project at Delhi, fertilizer unit at Gujarat and hydro projects in Kerala were brought under the ambit of Environment Impact Assessment in the year 1978. The first comprehensive law "The Environment (Protection) Act 1986" brought out by the Government of India, empowered the Central Government to take all measures necessary to protect and improve the environment of the factories.

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Clean coal mining initiative has become essential in view of extensive damage to the environment and ecology with the surface mining and even with underground mining. The ash content of the inferior coal with the surface mining is increasing with the size of earth moving machinery when the bands are worked along with the coal. Mining of gassy coal seams and its combustion for power generation are the major sources of methane and carbon dioxide which causes pollution.

It was the Mines and Minerals (Regulation and Development) Amendment Act of January 1984 which had clear provisions for environmental protection related to mining activities. The Act specially addressed to damage of vegetation due to surface mining. The law provided "the manner in which rehabilitation of flora and other vegetation such as trees, shrubs and destroyed by reason of prospecting and mining operation shall be made in the same area or in any other area selected by the Central or State Government". The impact of deforestation was realized in the form of degradation of soil, flash flood and drought, destruction of wild life habitat, loss of flora, decrease in rain and rise in temperature of the region. So the risk of environmental damage was felt and expansion of coal industry was inevitable.

II. SOURCES OF DATA & METHODOLOGY

The methodology of the study includes collection of research material over the field study and observation methods. The present study is based on both Primary and Secondary data. Primary data are collected from a structured interview schedule with the officers of Coal India Ltd. and secondary data are collected from CMPDI records, journals of IICM (Indian Institute of Coal Management) and books related to coal mines. The field study was conducted from the Coal India Headquarters and various collieries.

a) *Environmental Management Planning In Coal Mining Sector for India*

The Environmental Management Planning to a great extent depends on socio-political and techno-economic considerations of any country. India with large population has its priorities in respect of employment, energy and environment. The coal mining being an

important component of this cycle has to grow with due care to environment and ecology. The planning hierarchy in developing countries showing various approaches is shown in following chart.

The domain of coal mining sector varies from underground to surface and the impact level marginal and slow in case of deep mining to devastating and total in case of surface mining. The underground mining provided a number of protective options to reduce the damage to the repairable level at the cost of coal to be left as natural support to the burden. The environmental management in case of surface mining was a synchronized exercise in view of large scale industry, which includes displacement of population, destruction of green cover, deforestation and environmental

damage. The dimension of damages though same in surface or subsurface is also dependent over the original environmental status of the region, quality of life and resource availability in the nation. The following aspects are taken into account in developed countries for the environmental management of the mining region.

- Coal Mining Details-Lease, Location and Space
- Base line Environmental Data for land, air, water
- Mining Option and Environmental Impact thereof
- Protective Measures for surface features, Air and Water
- Biodiversity and Societal Rehabilitation Schemes
- Environmental Management Rules, Acts and Norms

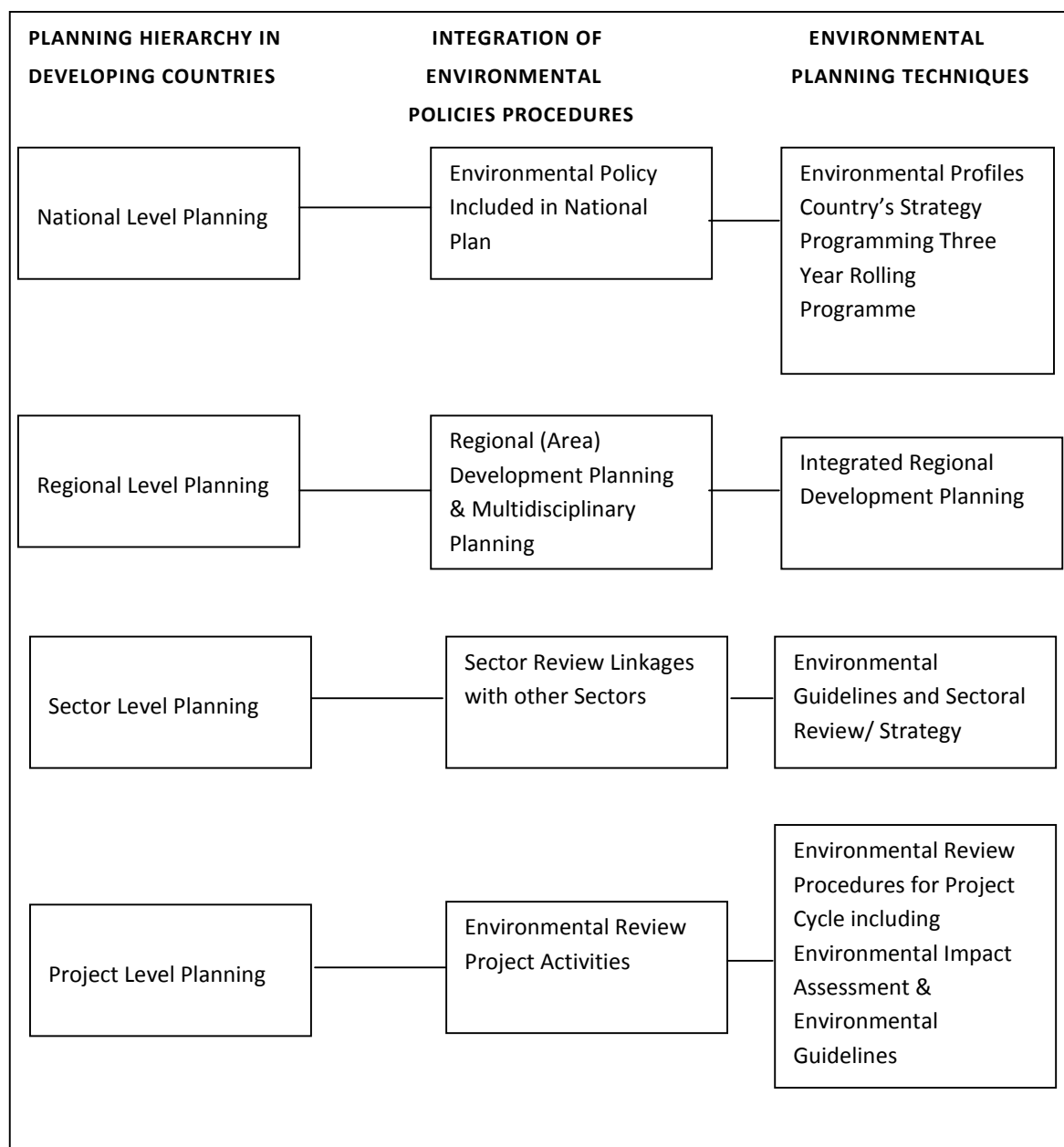


Figure 1 : Planning hierarchy in Coal Mining Sector in India

The objectives of the environmental management plans for the coal mining sector have accordingly been defined to match the expectation of the common mass. The economics of environmental management has to be balanced to the marketability of the proudest under the developing economy and its impact over the poorest of the poor people. In case of mining, the following environmental missions are identified.

1. Integration of environmental control measures with coal mining so that the operation is environmentally compatible and socially acceptable.
2. Adopt measures to keep the ecology of the mining field friendly to flora and fauna, maintaining economic viability of the mining sector.
3. Rehabilitation of the affected population in respect of their employment, shelter and social amenities.

Integration of environmental parameters in mining operations is statutory obligations under the Environment Protection acts made environmental safeguard mandatory for the mining industry. The Government further stipulates that the Environment Management Plan should be presented to an expert committee for appraisal and clearance.

The Ministry of Environment and Forest vide its amended notification of May 1996 for Environmental impact assessment of development projects stipulates that environmental clearance is essential for expansion, modernization of start of new projects. In the list of new projects requiring environmental clearance, mining projects with leases more than 5 hectares are also included in Schedule I. The projects includes in the schedule where pollution is likely to increase in existing load in respect of emission, liquid effluents and solid or solid or semi solid wastes.

b) Environment, Coal Mining and Society

Physical parameters of the environment and ecology of the mining belts are disturbed with the mine working and the impacts are manifested in the form of health and safety hazards of the miners. The impact in case of surface mining is devastating covering the land, water and air of the region much beyond the mine boundary while the underground mining affected mainly the underground workers and the population over the lease is least affected till surface subsidence or fire occurred due to unscientific mining. A number of committees are constituted after independence to streamline the underground mining activities in the interest of conservation and safety of the workers and the workings, land and environmental disturbance of the region. The safety of the miners against the environmental hazards has taken care of under the rules and its impact over the residents in case of surface subsidence is compensated for land, house / building and other social amenities. The forest cover within and around the mining area though not directly damaged till

the stage of depillaring or long wall caving slowly thin down with cutting of the valuable trees for the new settlers, timber for mine support and as a fuel by the poor tribal population.

The subsided land can be restored with mining of expenditure towards leveling, filling of cracks and extending irrigation facilities for some time but the miner have no interest to restore the land and the common men have no right to do so due to some legal difficulties. The coal mining involves use of heavy earth moving machines; large scale waste rock stripping, handling and transport. It has direct impact over the mine workers, invariably covered under the welfare scheme of the industry. The land owners (land looser) of the mining region are compensated due to mining induced displacement for land price and employment as per norms. The price of the land are paid to them is hardly enough to establish themselves elsewhere as the land holders and the whole families are converted to social parasite. The tribal settlers thriving on forest produce, cattle rearing or as laborer in the farms has become destitute as they have practically no holding of their own to be compensated in legal terms. They are just displaced from their habitat with "very liberal compensation towards housing space." The dust, smoke and noise produced by heavy earth moving machinery, heavy drilling and blasting of the burden crossing the core mining sector and buffer zone of the other hand disturbs the nature's bounty. They are even depriving of pure drinking water and clean air essential for their survival.

The land is transformed to barren dumps and has lost its fertility and capacity of self sustenance. The barren dumps have become eye shore amidst the scenic spots of the forest for decades. The leaches from the dump have made the water polluted in terms of acidity, hardness and particulate matter. Diversion of the surface water sources disturbs the drainage pattern and its availability. The disturbance of the aquifers and lowering of the water table causes slow death of the plants, erosion of the soil and loss of the biomass. The mining activities disturb the ecology and environment with the development of every block, leaving a trail of destruction over the dwellers, biodiversity, fields and forest cover behind. The reclamation process in case of underground mining is very simple and techno-economically viable while, in case of surface mining, the damages bring far reaching and devastating consequences unless concerted efforts are taken towards Environmental Management.

The policy of environmental management is based on global commitment and national priorities defined under different acts and notifications. The mine working has to be planned in a way to keep the environment and ecology of the region least disturbed and the land fertility and water regime has reclaimed as normal as it was before the start of the mining.

Environmental clearance has to be obtained from the competent authority in case the mining lease is more than the permitted limit. This is also essential for the modernization or extension of the old projects or start old projects or start of new projects because the local community is very much affected by regular mining activities. Here every Coal India should introduce the Corporate Social Responsibility scheme to ameliorate the local community.

III. COAL MINING ACTS IN INDIA

a) *Underground Mining Acts*

Environment of underground coal mines have been known to be hazardous with the frequent occurrence of roof fall, gas and coal dust explosion, spontaneous heating and fire in coal seams water inundation, poor lighting and a number of occupational disease. The first mines Safety Rule came into force on March 22, 1901 and with a number of modifications, the Coal Mines Regulation came into existence in 1957. This was found to be necessary in the background of high casualty in the coal mines. The gas and coal dust explosions posed serious threat to the miners in addition to serious health hazards due to mining environment; the domain was covered in totality through different notifications and revisions in acts and rules over the years with material difference in underground coal mining environment.

b) *Regulations, Acts and notifications*

The Coal Mines Regulation 1957, amended till date has given emphasis over the following parameters relevant to the safety of the mine and mine environment.
Reg. 116 Classification of seams according to gassiness;

Coal seams classified into different degrees as per gassiness

Precautionary measures against inflammable gases

Reg. 118 Underground precautions against fire

Reg. 119 Precaution against spontaneous heating

Reg. 121 Precaution against Carbon monoxide

Reg. 123 Precaution against coal dust

Accumulation of dust and explosion

Precaution of air borne dust

Reg. 124 Precaution against irruption of gas

Reg. 126 Danger from surface water

Reg. 127 Danger from underground inundation

Reg. 136 (A) Velocity of air current

The problems of gas explosion, spontaneous heating, heat and humidity were controlled underground by improved ventilation circuit and air velocity. The recommended air velocity for different places of activity is summarized in the following table.

Precautionary measures for safe environment have been suggested in the Regulation or Acts and through different notifications and circulars. In majority of cases, the liability of a major disaster in a mine is its

inherent proneness and hence each mine is suggested to be examined critically for its environment, ecology, hazards and disasters. The source of hazards like electrical appliances and other equipment's are regulated by stringent statutory act for their safety and usage the clean coal winning and transport technology is suggested to keep the particulate pollutants within the permitted limit.

c) *Surface Mining Acts and Norms*

The surface mining and its impact over environment and ecology are quite different from those of the underground mining because of its locale, geometrical dimension and level of activities. Irrespective of the method and level of mechanization, the damage to environment and ecology with the surface mining is devastating. The land availability for the surface mining has been a herculean task for most of the projects mainly because of the non availability of land for compensatory forestation, no progress in the creation of the land band by the State Governments, abnormal demand for employment and payment towards compensation and rehabilitation benefits by the land owners. The poor reclamation of the waste rock dumps, and no guarantee for restoration of land to the owners even on long term do not ensure their sustenance. The reclamation of land to its premising status is of utmost importance while planning a surface mine but the efforts are too little in this direction. The other casualties with the surface mining are the green cover, forest and biodiversity. With the use of the waste rock and coal, the atmospheric pollution is the second hazard associated with the surface mining. The disturbance of hydraulic regime including loss of ground water, damage of aquifer and pollution of water sources are the other dimensions of the surface mining.

d) *National Policies and Programme in India*

The Coal Mining Regulation 1957 amended up to 1975 has practically no statutes controlling the impact of surface mining as the mines are a few and small and damage to the environment is insignificant because after the Supreme Court intervention against the disturbance of the fragile ecology of Doon Valley. The 42 Amendment of our constitution provides legal foundation for environmental protection. Under the amendment, the responsibility of the protection and improvement of the forest lands, rivers and wild life is vested to general public along with the Government. Some of the acts covering air, water, forest land and hazardous wastes enforced by the government are as follows:

1. Indian Forest Act 1927
2. Wild Life (Prevention) Act, 1972.
3. Water (Prevention and Control of Pollution) Cess Act 1974.
4. Water (Prevention and Control of Pollution) Cess Act 1977.

5. Forest(Conservation) Act, 1986
6. Air (Prevention and Control and Pollution) Act, 1981.
7. Environment (Prevention) Act,1986
8. Hazardous Wastes (Management and Handling) Rules, 1889
9. Wild Life (Protection) Act-Amendment, 1991
10. Public Liability (Insurance) Act, 1991

The provisions of the acts include the aspects of damage to the environment due to all the industrial activities like river valley projects, thermal power projects and mining projects. In addition, a number of provisions are made under the Mines and Minerals (Regulation and Development) Act 1957, Mineral Concession Rule 1960 and Mineral Conservation Development Rules 1958. These rules and acts are amended time to time to take care of different dimensions of environment, especially relevant to mining. Clause 5; 31 to 41 of Mineral Conservation and Development Rules 1988 covered the base line data on environment and scheme of prospecting.

A notification under Environment Panning Act and Rules has imposed restriction over mining in wild life sanctuaries, national parks and adjoining to national monument, areas of the cultural heritage and fragile ecology. The environmental clearance from the Ministry of Environment and Forest was just an administrative formality till January 1994, but it was made essential on the light of environment impact assessment of development projects amended in May, 1994. Now new mining project has to seek the following permits from different authorities before it is approved for implementation.

1. Consent form the State Pollution Control Board for water and air pollution separately under the concerned Act.
2. Site clearance and Environment clearance under EP Act
3. Forest clearance under Forest Act and Rules if it was within the forest area.
4. Clearance for mining in the restricted area notified under EP Acts

The surface coal mining project authorities are required to submit different reports and returns under declared policies of the Government of India related to mining, forest and environment. It is mandatory to declare reclamation and protective measures as stipulated under notional policy and acts, resource allocation including managerial structure for compliance and check list for environmental auditing.

e) Environmental Legislations related to Mining in India

During sixties the environmental problems did not receive adequate attentions from the people of India even in developing countries. In most industrialized countries, environmental problems posed a threat to quality of land, water and air, but the responses of the Government were in general and weak. The laws of

general nature regulating pollution and degradation of water and air were enforced in many countries since long, but these weak and general laws were insufficient to control the damage caused by industries like mining which was distinct and unique in creation of the environmental problems.

Situation in global environment front took a dramatic turn after United National Conference of Environment was organized in Stockholm, Sweden in 1972. Subsequent to the conference many countries established government departments to look after the job of protection of environment. Subsequently Brundtland report on World Commission on Environment and development presented in 1987 and second World Environment Conference in Brazil (Rio de Janeiro) in 1989 intensified the interest in environmental matters. From seventies till today environmental legislation in industrialized countries has developed significantly.

In the field of environmental legislation in India has tried to follow the footsteps of developed countries. In consonance with the world trend, environmental problems are now receiving lot of attention in India also. But it would not be correct to say that in earlier days, the Government was totally devoid of environmental concern. Even before the passage of specific environmental protection act during the last two decades, there were many Central and State Enactments which were having direct and indirect bearing on protection of environment. These include Forest Act, the Factories Act, and the Motor Vehicles Act, the Insecticides act, the Criminal Procedure Code, the Indian Penal Code and the police Act.

The country's first Legislation having direct environmental bearing shore Nuisance Act was passed in 1953. The Bengal Smoke Nuisance Act was promulgated in 1905 followed by similar acts passed in Bombay in 1912, a number of acts on paste control, land utilization and land erosion and reclamation of waste land were passed even before India gained its independence in 1947.

After Indian Independence, a number of acts which have some direct or indirect hearing on environmental degradation and protection have been passed by central and state legislatures. Notably among the state enactments are Orissa River Pollution and Prevention Act, 1953 and Maharashtra Water Pollution Act, 1968. Among the central enactments, Radiation Protection Act of 1972 may be mentioned. But all these enactments are rarely enforced because of lack of appreciation and initiative which have been definitely contributed by people's apathy towards the environmental issues.

After the first global conference on Environment organized by United Nations in 1972 which was attended among others by late Prime Minister Indira Gandhi, the Indian policy planners became conscious of

the environmental issues and this became evident when Indian Constitution was amended to incorporate environmental protection in Directive Principles of constitution. The article 48 (a) of the Directive Principle of the Constitution states that it is the duty of State to protect and preserve the natural environment in general and the forests and wild life in particular. Article 51 (a) in the fundamental duties enjoin the individual to preserve and promote the natural environment including the forests, wild life, lakes, rivers etc. Incorporation of the provisions of environmental protection in the constitution have indirectly encourage public spirited citizens to take help of these provisions as well as some of the earlier acts mentioned above to move the court on behalf of the society to get appropriate relief.

The Indian Courts have taken these public interest litigations regarding environment very seriously and have tried to protect the right of the society to have pollution free environment. But the absence of specific standards and Guidelines has been an impediment for the court as well as the Government and therefore the Legislature has passed a number of specific legislations regarding the environmental protection.

f) Water Prevention and Pollution Control Act

The specific environmental laws started coming into operation, much later in India. The 'Water Prevention and Pollution Control Act' came into operation in 1974, and subsequently; was amended in 1988. As per these acts, pollution boards in the states and the Central Pollution Control Board was constituted to take care of the pollution of water. The act has given the state pollution control boards power of entry and inspection in an industrial establishment. Also the boards are empowered to lay down standards of effluents which may be permitted to discharge effluent to water sources.

It is made necessary that persons establishing an Industry, operation or process must have to get prior consent of the board if the operation, industry or process discharges sewerage or effluents into a stream or well. The board is empowered to impose penalty in case of contravention of the different provisions of the acts. The 'Water Prevention and Control of Pollution Rules, 1975' was framed to give specific guidelines regarding the constitution of the Boards and its different offices and related matters.

g) Air Prevention and Pollution Control Act

The 'Air Prevention and Pollution Control Act' was passed in 1981. By this act, persons who are willing to establish any industry in air pollution control area, has been enjoined not to discharge emission of pollutants in excess of the standard laid down by the State Board. Prior permission has been made necessary for starting any industry or operation. Central and State Pollution Control Boards are entrusted to inspect and collection of samples as in case of water act is vested with.

h) Environment Protection Act

A comprehensive act entitled "Environment Protection Act" was promulgated in 1986. The act widened the scope of environmental protection activities of the Central and State Boards. All sorts of environmental pollution in excess of standards laid down were prohibited at that time. With the establishment of environmental laboratories a detailed guidelines regarding pollutants and different industries have been framed. Environmental audit has also made mandatory as per number of other acts and rules which is related directly on environmental protection.

Under the provisions of the Act, expansion or modernization of any existing industry or new projects cannot be undertaken in any part of India unless they have been accorded environmental clearance by the Central Government or by the State Government concerned, as the case may be, in accordance with specified procedure any project located within 10 km of the boundary of a reserved forest or a designated ecologically sensitive area or within 20 km of a national park or a sanctuary requires environmental clearance from the central Government.

i) Mines and Minerals Regulation and Development (MMRD) Act

The principal act was made in 1957 and was amended in 1972 and was further amended in January 1987. The Government by this act has assumed power to prevent a licensee or lease holder from damaging environment. The mining plan is required to be submitted along with environmental management plan. In the event of grant of mining lease, the leaseholders are under obligation to conduct mining operations in accordance with approved mining plan. The Government has assumed power to direct the industry regarding the rehabilitation of a particular flora and other vegetation, trees and shrubs destroyed during the process of prospecting and mining.

j) Mineral Conservation and Development Rules, 1988

The Mineral Conservation and Development Rules 1988 are administered by the Indian Bureau of Mines, a department of the Central Government under the Ministry of mines. As per the rules every mining operations in any area has to be in accordance with the mining plan and there is provision of review of approved mining plan at interval of 5 year from the date of commencement if mining operations. Every mine operator is required to take all possible precautions for protection of environment and control of pollution while conducting prospecting, mining, beneficiation of metallurgical operation in the area. It is ensured that the air, water and noise pollution levels are within the permissible limits. The rule says that limits of all pollutants including noise would be notified by the concerned authorities under the provisions of relevant statute from time to time.

k) *Forest Conservation Act, 1980*

The Forest conservation Act, 1980 is administered by the Union Ministry of Environment & Forests. The legislation is enacted to check deforestation. The act stipulates that no use of forest land for any non-forest purpose including mining will be permitted without the prior approval of the central Government. Consequently a forestation is one of the important conditions while approving proposals for diversion of forest land for non-forest purpose. Compensatory a forestation is to be done over equivalent area of non-forest land must be utilized for a project. With the passage of various Environmental Legislation the environment protection in mining area may definitely get a boost. The Mining conservation and Development Rules specifically keep coal mining out of its purview, but there is no doubt that basic laws on water and air pollution and comprehensive environmental protection acts are general in nature, and may be useful in minimizing environmental damages in coal mining areas.

Mining industry creates some special environmental problems which are unique in nature. The damage to land by open casting and subsidence, blasting vibration and lowering of ground water table due to continuous pumping out of mine water are some of the environmental problems which are not created by any other industry.

l) *Specific Environmental Legislation on Surface Mining in India*

Surface mining of open casting today represents one of the worst forms of environmental degradation among all forms and varieties of industrial activities. With ever increasing power of varieties surface mining machineries the scars left are wider and deeper. Because of the immediate cost factor involved coal industry of every country shows preference for this form of mining. India currently gets around 70 percent of its production from surface mining only. Even coalfields of West Bengal which is barely practicing surface mining before nationalization presently gets over 60 percent of its production from open casting¹. Against the above background the following aspects concerning surface mining deserve some thoughts. Before 1977, coal companies were operating in an unregulated free market. The result was serious environmental degradation accompanied by a lowered quality of life for those citizens living on the country's coal mining regions. The ability of coal mining regions to attract new businesses and industry was severely curtailed. Finally, in the sixties, citizens of the nation's coal regions organized an attempt to force the federal legislature to develop and implement a regulatory programme for

minimizing such harm. India produces nearly 70 percent of its total annual production of nearly 240m.t of coal by surface mining only. As per the existing statute and related executive provisions' Environmental Management Plan (EMP) is needed before a mining lease is granted. Environmental Impact Assessment (EIA) Report is also necessary in most of the cases. Reclamation is mandatory and the method should be spelt out in EMP. But even with all these, the situation is not such that Government may effectively control surface mining activities and ensures environmental protection with existing statutory situations.

m) *Agitation of local community against Open Cast Coal Mining in Eastern Coalfields Ltd.*

The agitation against starting the Sonepur Bazari opencast project in ECL financed by the World Bank delayed the starting of the project by few years. This has surprised many Indian mining engineers who are in general not conversant with the world mining situation. The environmental problems created by open casting have been the cause of many public agitations in India at a large scale and the authorities have to introduce a system where local citizens have a dominant say in this matter.

The importance of public opinion is increasing day by day. The mining legislation insists that open casting proposal go to a public enquiry and Environmental Impact Analysis (EIA) report would have to be put up before the enquiry. The policy planners in India should take timely action to safeguard local community's environmental interest by formulating suitable legislative procedure pertaining to surface mining before the coalfield communities themselves take an imitational course.

Displacement or up-root of settled people is a common as well as hanging problem in any coal mining area and obviously treated as an age-old problem of coal mining area. Raniganj also faces all the related issues due to coal mining activities involving environmental as well as socio-economic degradation. Resettlement is a term used to describe the movement of individuals or groups from one location to other, although the term can refer to voluntary or involuntary human migration, it is often a euphemism for forced migration due to any such activities. The increasing demand for Coal requires an expansion and speeding up of coal exploration, production and processing in the country. A great ongoing 'social challenge' for the coal industry is the problem of Mining-Induced Displacement and Resettlement in the present study area. Eastern Coalfield Limited (ECL) is taking special care to provide generous package of compensation to project affected persons. But the difficulty lies in the fact that not only do the people lose their houses, but they are also deprived of the land and natural resources that constituted their economic survival base. The natural resources are non-

¹ See M. Areeparampil, "Displacement Due to Mining in Jharkhand", Economic and Political Weekly, vol. 31, no. 24, pp. 1524-1528.

formal sources of income which are rarely recognized or documented, and hence rarely compensated for. So, lots of environmental and social problems are generated due to such activities knowingly or un-knowingly. Other concerns due to mining-induced displacement and resettlement are some of the demographic, socioeconomic and cultural problems including the changes in population dynamics, health impacts, addictions, economic disparity and frustration. All these are affecting not only economic, but social, moral and cultural degradation, which are reframing the existing lifestyle in holistic manner. Therefore, displacement of villages along with their long standing economic, social, religious, and cultural activities is inevitable. When coal occurs in land held traditionally by indigenous people, mining gives rise to question of social justice. Displacement has an undermining influence on social bonds and cultural roots of the entire community, thus leads to Social problems.

n) Lack of Specific and Definitive Legal Provisions to Protect Environment

There is no specific standard to minimize environmental damage, to protect public health and safety and preserve agricultural, to protect public health and safety and preserve agricultural productivity. It is true that an EMP is to be submitted before mining permission is granted but due to absence of specific standards pertaining to reclamation and other aspects, EMP may become subjective and very frequently a project may be approved on the basis of a sketch by EMP. Under such situation the effective intervention by Judiciary, if needed, may be taken care of. It would have been much more convenient for the judges, for setting out necessary standards of pollution.

o) Enforceability – The Supreme Court of India

Environmental legislation in India has not been effective at the early stage due to lack of enforcement by regulatory bodies but the Indian judiciary have all along taken abiding interest in environmental matters. The recent decisions of Supreme Court in a number of cases closing a number of factories have shaken the regulatory authorities out of their indifferent attitude. But in matter of surface mining the greatest difficulty is that environmental damage would not vanish even if Government closes surface mining operation under section 5 of Environmental protection Act of 1986. This is especially true about land reclamation and therefore some sort of performance bond must be made mandatory before allowing surface mining in an area. For instance in USA prior to enactment of SMCRA many coal companies abandoned mining operations without reclaiming the mined land. Ultimately USA congress had to introduce a scheme by which the coal companies would have to provide bonds which would allow the regulatory authority to reclaim the land if the company which carried out the mining operations is financially

unable or refuses to complete reclamation. In India such a scheme of 'performance bond' is very much necessary especially when private operators are being allowed entry in coal and other mining sectors.

p) Citizens Participation to Protect Environment

In the whole process of Environmental approval of a project in India, the Citizens, who are the central figure in the whole issue of environmental management have got very little role to play. The perusal of evolution of environmental legislation related to mining of countries like U.K. and USA would indicate that ultimately the legislation have to offer a prime place to the citizens likely to be affected in the whole scheme of environmental protection. If there are objections by the interested parties, then a public enquiry is to be held. For example there have been a large number of cases in Coalfield Communities Campaign (CCC) of UK has been able to move the Government of impose severe restriction on opencast operations and sometimes to scrape the opencast projects. The SMCRA of USA also incorporates citizen's participation in the whole process of decision making². The public enquiry before a project is sanctioned is a part of the French scheme also. It is high time that the country like India formulates specific, definitive and stringent laws to deal with the environmental problem created by mining and such legislation should offer a major role to the coalfield communities which are likely to be affected by the project.

q) Plantation on Mine Spoils in Indian Coalfield

Mining industry traditionally has a very poor image regarding degradation of the environment. Surface mining is particularly vulnerable to this charge as very nature of this activity requires complete removal of the vegetation and excavation of the strata which makes great alteration in the topography of the area. Mining also causes land damage mainly by subsidence. Underground and surface mining are both result in the formation of spoil heaps and construction of tailings dams.

In the general view restoration means returning the land to what it was before mining i.e. forest back to forest or agriculture back to agriculture and recreating the original topography. The dictionary definition of reclamation is "the recovery of wasteland, desert, etc by ditching filling or irrigating". But the generally accepted definition of reclamation in the mining context is "any treatment which is not restoration but brings land back into some beneficial use such as forestry, recreational area, agriculture, etc. after it has been degraded by

² J. Nehru called large dams 'temples of modern India' in the sense that he was affirming a commitment to modernization and socialism in post-Independence India. On the broad context of development-induced displacement in India see: S. Somayaji, S. Talwar (eds.), Development-induced Displacement, Rehabilitation and Resettlement in India: Current issues and challenges, Routledge, New York, 2011.

some operation such as mining and waste dumping". Some people consider the objective of reclamation as to help the natural process by which a disturbed parcel of land stabilizes both physically and biologically. The defecation of mined land reclamation then becomes "the process if artificially initiating and accelerating the natural continuous trend toward recovery or stabilization of a disturbed area"

r) Reclamation of Large External Overburden Dumps Created on Plain Ground

A majority of the opencast coal projects being planned these days have external O.B. dumps accommodating 30 to 50 percent of the total O.B. material to be excavated. Such dumps are planned in lifts of 15 to 30m to reach 60 or 90m height and individual dumps may occupy an area of 10 to 100 ha³. The higher the dump height, the less will be the land area needed for creation of the dumps. But dump height is limited by the bearing capacity of the soil and rock layer at its base, and form consideration of increased cost of transport of O.B. material, greater problems of erosion, and risk of slope failure with increasing height of dump. A large and high external O.B dump should be reclaimed as reclaimed as early as possible, even in parts, as active dumping goes on at some other part of the dump.

Ideally the dumps should be re-handled and the void created by mining be filled with this material to generate a landform having the "Approximate Original Contour" of the area. This American concept is hardly applicable in India as it would greatly push up the cost of our coal (and other minerals or make many of the deposits unworkable). The next preferred method would be to re grade the dumps to have gentle slopes matching the landform of the region which would make the dumps visually less intrusive. This would cost less than taking back O.B. material to the excavation but still the cost will be very high. As a compromise, the overall slope in planned to have a gradient of 1 in 2 or approximately 270 but within the sides, the material is dumped to roll down at its natural angle of repose which is generally of the order of 380 for coal mine overburden but then slightly graded to give a slope of say 350 within the benches. The haul road provides a break for the flowing water and any O.B. material coming down the dump slopes. The ramp should have drain at its inner edge and a slight slope toward the core of dump along the transverse section to permit easy collection of seepage water.

This water should be guided down along proper drains of the dump slope and not allowed to cascade

down uncontrolled which then forms erosion gullies. If the area is rich in top soil, the whole of the O.B. dump may be covered with top soil, of say, 30cm thickness. Generally so much top soil is not available and in such case, pits of about 0.2 m³ in size should be dug at points on 2m X 2m grid and filled with top soil⁴.

All strata do not have the same weathering characteristic. If during placement of overburden on the dump, care is taken to place easily weather able rocks on the top part, the reclamation effort would be assisted. The successful examples of external O.B. dump renegotiation come from places with a fair degree of soil layer in mining or weather able rock as in Jharia, West Bokaro, and Kenda etc. Water management on O.B. dumps is crucial to prevent erosion to place well as for success in re vegetation effort. The dump top has to be compacted and there should be some clayey impervious material as otherwise water would not be retained on these reservoirs. The vegetation should be selected considering the climate of the area and the need of nature of the O.B. dumps Depending on the amount of top soil available in the area and the need of community, the external O.B. dump can be converted into a dense forest, wild life habitat, pasture land or recreational area. The very nature of opencast mining requires the mineral to be excavation and removal of overburden material. Thus an initial external dump is created in all cases. In case of large opencast mines, after the mineral deposit is mined over a sufficient area, space may become available for in-pit dumping to be done only when the bottom most seams is worked out. Thus, the volume of overburden material which has to be dumped outside depends upon the type of the deposit being mined. The land area required for accommodating the external overburden dump depends on the volume of O.B material and the height of the dump.

In-Pit Overburden Dumps and environment in Coal Mining Area

An effort would be made in all mining projects to start in-pit dumping as early as possible. The beneficial effect is two-fold. The size of the external O.B. dump reduces and the excavation itself gets filled up and provides an opportunity to restore the land to its original topography and land use.

The overburden strata increased in volume 10 to 15 percent on breakage. However, with passage of time the O.B. dumps settles and subsides. If during initial placement of O.B. material in the pit, a level near about that of the ground level is maintained, with settlement of the dump, a depression will be formed. This will cause formation of water pools and give rise to problems of seepage and instability of dumps. At the same time the formation of water pools and gives rise to problems of seepage and instability of dumps. At the

³ Source: Fernandes, Walter (2006). "Mines, Mining and Displacement in India" [in] Singh, Gurdeep, Laurence, David and Kauntala Lahiri-Dutt (eds.). (2006). Managing the Social and Environmental Consequences of Coal Mining in India, The Indian School of Mines University, Dhanbad, pp. 333-344.

⁴ See CMPDI Report -2012

same time the original drainage pattern of the land gets disturbed. Hence it is better to make the internal dump height some 1 to 2m higher than the ground level higher than the ground level which after settlement may still keep it a few cm higher than GL (Ground level). In shovel-dumper method of mining it is easy to keep the order of broken strata in the dump same as in the original ground by suitably directing the loaded dumpers. In dragline mining, however the order of strata gets reversed. This may lead to some problem if a toxic layer is present in the overburden at depth which will come near the surface.

If the mining area has a thick alluvial cover with rich top soil, it would be possible to make the in pit dump into agricultural land by spreading of the top soil. For a few years, the land may have lower productivity and may need help in the way of fertilizer application. However, cultivation of leguminous plants may enrich the soil over the dumps so that the land regains its productivity.

In most mining areas however a thick layer of top soil is not available. A forestation has been the most popular method of reclamation in such cases. Because of the poor nutritional status and water retention capacity of fresh dumps, only hardy species have the chance of survival. A quick growth of vegetation would reduce erosion from the dump and improve the nutritional status of the soil. A mixed forest of locally useful species should be preferred although some of the exotic varieties like Eucalyptus or Acacia auriculiformis can withstand very severe drought conditions. Some of the indigenous drought resistant plants are Shisham (*Dalbergia sissoo*), Neem (*Azadirachta indica*), Babul (*Acacia nilotica*), Choukundi (*Cassia siamea*), and Amaltas (*C. fistula*), Ber (*Zizyphus Jujuba*), Karanj (*Derris indica*), Black siris (*Albizia lebbek*), White siris (*A. procera*) and Bakain (*Melia azedarach*). Different

kinds of bamboo (*Dendroclamassp.*) have great economic potential and in the same time these have strong soil binding capacity. On dump slopes Sisal (*Agave sisalana* and *A. mexicana*) plants are very effective in binding the soil. In some areas of RCF and JCF goat's foot creeper has been used very effectively in reducing erosion of dump slopes and at foot of the dumps.

In majority of large coal mining projects, 50 to 70 percent of the overburden only is placed in the excavated ground at the last stage of quarry, a large void remains unfilled. In India where the mined land has to be brought back to the approximate original contour (AOC) this soil is filled by re-handling of spoil from earlier dump at considerable cost. Some typical US methods are to employ (a) tractor dozers to push the material (b) a dragline on the spoil side of the pit and (c) a dragline on the high wall side with additional hoist and drag rope and track type pipe-layer to back-fill the material. In India, the AOC concept is not followed and the last part of the quarry gradually gets filled with water up to the restored water table. Water reservoirs formed this way in many of the earlier shallow opencast mines are used by local villagers. Water does not accumulate where the dip side deposit is worked by underground methods and it is connected to the quarry through connecting galleries or a permeable barrier. For water reservoirs to be useful for the community, the banks must be gently sloped and grassed. Large water bodies permit many uses depending upon the need of the community – for storage of irrigation water, as water sports and recreation ground. In Parasea colliery (RCF), tank has been created from opencast mining, the bank sloped, afforested and the villagers are so happy that the company gets their cooperation in getting fresh land for quarrying.

Table No. 1 : Plant Species Planted in the Jharia and Raniganj Coalfield

S.N.	Botanical name	Average height of plant (cm)	
		After 8 months (Aug. 01-Mar, 02)	After 13 month March, 02-Aug, 02)
1.	<i>Acacia auriculiformis</i>	53.8	106
2.	<i>Azadirachta indica</i>	48	138
3.	<i>Alstonia scholaris</i>	35	98
4.	<i>Derris indica</i>	65	95
5.	<i>Dalbergia sissoo</i>	52	134
6.	<i>Eucalyptus sp.</i>	110	180
7.	<i>Leucaena leucocephala</i>	120	148
8.	<i>Melia azadarech</i>	60	121
9.	<i>Gamlena arborea</i>	53	100
10.	<i>Termelia arjuna</i>	53	75

Sources: CMPDI Survey Report, 2012.

The survival rate of the species was 85%. The volume of each pit was 0.24 m³ and filled up with

overburden material mixed with some quantities of weathered spoil from the top layers.

s) *Control of Growth of Fire Stick Weeds as a Preventive Measure against Spread of Mine fire*

Mainly two weeds *Eupatorium Odoratum* and *Ocimum Gratissimum* are found in Indian coalfields act as fire stick during summer. During the survey, it has been found that, on acidic spoil (pH- 4.5-5.5)⁵, they spread very fast, but once the pH value rises to 6.6.5, these plants are replaced by other plant community like –*Xanthium*, *Lantana*, *Cassia*, *Scoparia*, *Croton*, *Tephrosia* etc. Hence by pH correction of the spoil, the spread of these fire stick weeds could be controlled.

t) *Sustainable Development of Coalfield of Raniganj and Jharia*

Coal and minerals are wasting asset and every mine has a limited life span. The lifespan may be sufficiently big for an individual but for an area or a province it is not. A number of mines of Eastern Coalfields Ltd. and BCCL have been closed down in recent years. The closure of some more collieries are imminent. Over the last twenty years the number of people employed in collieries of Raniganj and Jharia has dwindled whereas the production remained stagnant. A number of factories in the coal belt and its fringe have closed or are sick. The agricultural labors are becoming surplus because of land loss and land degradation but they have no alternative occupation to adopt either in mining or in other engineering industry.

The above facts underscore the necessity of developing a conscious and rationale strategy for sustainable development of coalfield areas of Raniganj and Jharia. Before trying to outline such strategy it would be worthwhile to trace the history of past development and to examine how and why it has deviated from a desirable model of sustainable development.

IV. WAY TOWARDS SUSTAINABLE DEVELOPMENT OF COAL MINING

The non-sustainable nature of development in the coalfield areas of Raniganj and Jharia need to be reversed. Both the government authorities and local people should come forward to make a sustainable development of this region.

a) *Giving Agriculture and Related Activities a Boost*

The first step towards sustainable development in the coalfield would be to develop agriculture and related activities side by side with mining and other industrial activities. More than 50 percent of the coalfield is essentially rural though rural and mining activities are

interwoven in a common fabric. The presence of mining and other activities would provide market for agricultural, poultry and dairy products just at next door. This would provide greatest help in sustaining agricultural activities.

b) *Use of partially Degraded Undermined Land*

There is vast stretch of undermined land under the ownership of Eastern coalfield Ltd. and BCCL. Much of this land is partially degraded but with very little additional effort may sustain agricultural activities. The land now remains unutilized as the coal company feels that they may need the land again for mining and it may be difficult for the company to undermine the land once agricultural activities are started on the land though legally the ownership of the land may be retained by them. Similarly there are a large number of unutilized ponds and tanks also under the company ownership.

An arrangement may be made whereby the land, ponds and tanks which would not be needed in the coming five years may be given in lease to 'Zilla Parishad' or to a specially created organization of the State Government. This may be possible through an agreement between the coal company and the concerned 'Zilla Parishad' with the State and Central Government providing the guarantee for the faithful execution of the terms of the agreement.

c) *A forestation Programme*

As per the recent practice, every mining project is to be cleared by the Department of Environment before its implementation. The project report submitted by the industry gives a blueprint of the proposed environmental protection measures to be taken-up by the company. A forestation is a common part of environmental protection, almost in every project.

The environmental protection measures including a forestation may create a large number of jobs within a project and for such type of jobs, people with agricultural background is more suitable. It is, therefore, suggested that after the blueprint of a forestation has been drawn-up, the work may be given to the adjoining village Panchayats (Local Self Government) on a contract basis. The payment to be made by the coal industry would depend on the number of trees and plants surviving. Moreover, by involving local community in such programme, the chance of its success would be brighter.

d) *Bridging Communication Gap between various agencies*

The author has observed a communication gap between State Government, Coal industry and local population. The local population rightly feels that their concerns as regards for depletion of ground water level, land degradation, Subsidence and blasting vibration are not shared by the industry. Voicing of these concerns are taken as 'Motivated propaganda of mischievous elements'. On the other hand, the industry feels that

⁵ See T.E. Downing, J. Moles, I. McIntosh Ian and C. Garcia-Downing, *Indigenous Peoples and Mining: Strategies and Tactics for Encounters*, International Institute for Environment and Development (IIED), London, 2002; T.E. Downing, *Avoiding New Poverty: Mining-Induced Displacement and Resettlement*, International Institute for Environment and Development (IIED), London, 2002.

their limitations while operating in the competitive surroundings are not appreciated by the State Government and local population. It is necessary that a mechanism of interaction should be developed so that communication gap is bridged up and untoward friction does not lead to hampering of production of any mining unit.

e) Establishing Commercial cum Industrial Complexes for Entrepreneurs

There is considerable scope of establishing some industrial estate to fulfill the needs of mining projects and their employees. These may actually be linked to some of the big mining projects. Mining projects require lot of small and medium items and diverse service which may not be too sophisticated in nature. A survey may be made to assess the needs of mining projects of items and services which may be supplied by local entrepreneurs. Such services and facilities may be located in the commercial-cum-industrial complexes.

f) Cess and Royalty on Coal

Payment of cess and royalty by the coal company to the State-Government is dictated by the constitution and relevant laws. These payments are necessary both for infrastructure and general development undertaken by the State Government. But the structure of cess and royalty shall have to be so designed that coal from collieries in West Bengal does not become more costly compared to the similar grades of coal produced in other States. The factor has assumed special significance with imported coal getting into country's market in coastal areas of some States.

The whole problem should be viewed not on strict angle of law and statute but from the view point of development of coal industry in the state in which both the State Government and the coal company have mutual interest.

From the above discussion it is clear that for a sustainable development we have to take necessary steps in an instigated way.

The Rio Conference (1992) has made world population globally conscious of its responsibilities for the protection of not only their local environment, but to make it globally safe. The basic concept of "development has been that meets the needs of the present generation without compromising the ability of future generations to meet their needs". In this connection one may make again a reference to Brundetland report that said, "for non renewable resources, like fossil fuels and minerals, their use reduces the stock available for future generations". But it does not mean that such resources should not be used.. With minerals and fossil fuels, the rate of depletion and emphasis on recycling and economy of use should be calibrated to ensure that the resources do not run out, before acceptable substitutes are

found". Thus in case of minerals, more deposits must be found out, to maintain sustainable development for the present and future.

V. CONCLUDING REMARKS

Mining is an extractive industry, which, by withdrawing the raw materials, creates anthropogenic land forms such as mine pits, soil tips and subsided lands and is general leads to land degradation. The most remarkable environmental changes in Raniganj and Jharia coal belts have been the removal of the tropical deciduous forest cover and changes in the surface run off and ground water levels. However, the greatest environmental impact of mining has been on the land itself. Mining has degraded the land not only by denuding it of its forest cover, and choking up the natural drainage lines, but has also destroyed the agricultural potential of this region.

The human dimensions of these physical impacts have been marginalization of the poorer tribal and scheduled caste groups from the mainstream, formal economy, displacement of peasantry and the growth of small scale, informal, illegal coal mining under local initiative. A degraded environment has fore closed alternative employment opportunities especially in the forestry and agricultural sector, leading the poorer people to criminal activities. This is so because environmental degradation has affected especially the common property resources such as land and water on which depend the subsistence and well-being of the poorer groups.

The extraction of coal by open cast and underground methods have created various anthropogenic landforms such as mine pits, spoil tips, overburden dumps, and subsided lands. The old abandoned quarries are usually 10-15 meter in depth and often contain water, which is of no use to the local communities due to its poor quality. The spoil dumps associated with recently abandoned quarries are usually unstable in nature, of great heights and much steeper slopes. A number of rain water gullies have formed along their side slopes and bring down the materials during the rainy reason. The rocky materials weather rather quickly in such dumps and several people have died due to rock fall while trying to extract coal or other material from them.

Several minor Drainage channels have been diverted from their original courses to facilitate the extraction of coal by opencast method. These are Nirsala, Mandman, Ghanashyam etc. In some cases the overburden dumps of the open cast collieries extend almost up to the channels of the drainage lines. In Pahargora, for example, a part of the Nunia nala (Stream) has been nearly blocked by the old spoil dumps.

Mining destabilizes the rock strata and, therefore, subsidence of surface land is inherently associated with it. More subsidence not only affects the area lying vertically above it but the surrounding areas as well. Indiscriminate and unplanned mining, leaving very small sized pillars and lack of knowledge or carelessness in the techniques of sand stowing had characterized the private mining operations in Raniganj and Jharia coal mining region. As a result, there are many old, abandoned and practically unapproachable mines, laying in either water logged or dry conditions in many part of the coal belt. In case of water logged mines, working of lower seams produce cracks which drain out the water into lower levels. This makes the ground even more prone to subsidence.

The air borne coal dust generated during different mining activities has been the main cause of health problem causing lung cancer to the miners and exposed over long period to the polluted environment. The studies conducted by CMRS in collaboration with Rajendra Medical College in 2004, Showed that 10.8% of all the miners and 12% of the underground workers suffering from pneumoconiosis in Raniganj and Jharia coal belt.

The Concentrated mining of coal underground in and around Raniganj and Jharia towns has transferred the underground pollutants to surface atmosphere. The mine exhaust through main ventilators and the return air ways added the gaseous and particulate pollutants to the surface atmosphere. Weathering of the coal and rock mass leaches from the dumps and noise menace from blast wave and movement of surface handling plants polluted the surface environment to variable degrees. The non mining activities like burning of coal in open stock, active fires and road transport of the coal have added a new dimension to the atmospheric pollution of the Raniganj and Jharia coal mining region.

Mining below the surface destabilizes the ground, while the process of mining particularly blasting causes vibration of the surface structures and noise generation. The transfer of the raw coal, its beneficiation and handling generates coal dust, while open burning of coal for steam or other usage release gaseous discharge to the surface atmosphere. The movements of coal from the pit head to the loading, or consumption points in open trucks or open wagons also add coal dust to the environment all along the routes. The air absorbing moisture from the underground workings often reduces the suspended particulate matter but the fumes of explosives, methane, SO_2 , and Oxides of carbon were added to the general body of air. The concentration of these hostile gases often creates negative impact over the surface and the population nearby. With the latest realization about the impact of these green house gasses over the ozone layer has drawn the attention of the global community and efforts

were on to drain methane and put it use as a fuel. The bio - diversity and the local people are also disturbed by the mining activities though they were mostly underground.

The toxicity of trace elements and complexities of biological and chemical interaction and its impact on health makes the study of trace element in the environment very relevant to the healthy living of the population. Most of these elements were present in the soil or rock mass but their concentration increased in the mining areas because of large scale lithosphere disturbance. The metals released with different mining and associated activities get suspended in atmosphere and get easy access to human body. In Raniganj and Jharia coalfield it has been observed that due to significant concentration of iron, lead, Zinc, Copper etc. creates havoc negative impacts over the plants and human life as well.

The hydrological cycle starting from the ocean to sky and ultimately precipitation to the earth is no exception for the Raniganj and Jharia coalfield where the rain, natural moisture and surface to sub surface water sustain biodiversity of the region. The infiltrated water is charged to the coal measure aquifers and is retained by the aquifuge. Depending upon the thickness, porosity, permeability of the rock mass, the capacity of the aquifers varied extensively over Damodar valley coalfields, The coal seams known to be impervious restricted the cross infiltration when different layers charged along the exposure served as the confined aquifers. The extraction of coal followed disturbance of the aquifers and lowering of the water table. In this process mineral leaching occurs, affecting the underwater quality. The water pollution problems in Raniganj and Jharia mining areas may be broadly classified into the following four major heads:

- Acid mine drainage due to sulfur content.
- Deoxygenation and Eutrophication of coal.
- Hardness of water due to lachets and,
- Heavy metal pollution, oil, tan and grease mixing in water.

The depillaring or long wall mining over critical area caused surface subsidence, cracks and fissure and lowering of water table. Soil erosion is prominent in case of thick seam working under shallow cover due of surface water sources starved the trees- sal, mahua, palas/ Bija, Kendu and Bhelwa etc. The surface cover slowly reduced to shrubs and bushes growing profusely in the rainy seasons and drying in winters. Bantuisi become the most common bush of the coal fields capable to sustain the particulate pollution because of the nature of the leaf. Forest as a result disappeared from Jharia and Raniganj coalfields even in the areas little under the influence of direct mining.

Opencast mining in the Raniganj and Jharia region has created deep depression and massive flat-

topped overburden dumps of sandstone and carbonaceous shale. These rocky materials have very little organic matter and need to undergo special treatment before they can be reclaimed and re-vegetated. Open cast mines have now become the largest agent for destroying and dereliction of land in Raniganj and Jharia coal belt. According to CMPDIL report (2012) approximately 55.5 Sq. Km. of land has become abandoned due to active surface and underground mining the land excavated in such mines is lost forever to the local community, stagnant waters of exhausted depressions either become a source of malaria or the water quickly dries up in summer and have little resource value. The dumps are regular death traps for local children who haunt the sites in search of leftover coal. The opencast mines have led to alternations in geomorphological, hydrological and biotic processes both at the local and the regional level, leading to the disruption in ecosystem development.

Large scale immigration is a common feature of all mining regions of the world. The sudden boost up of the economy of the Raniganj and Jharia coal belt too has attracted people from far away states of India like Madhya Pradesh, Haryana, Punjab, Orissa etc. Many of the male mining workers leave their families behind, establish temporary alliances with local women during their tenure and often retire to their homes. This outsider, temporary migrants have a superficial attitude to the environmental problems of the region. For them, the region's importance is in its coal resources which they are to exploit. They have no attachment to, and hence no concern for the land and environment of the region.

Environmental rehabilitation is one of the key process through which the environmental conditions could be modified in Raniganj and Jharia coal field region. The key to the success is preservation with the improvement of vegetation cover. Preservation of the top soil and its timely reuse are also the key points to achieve fast environmental rehabilitation. It is concluded by saying that rehabilitation of the mined-out areas needs care at all the stages for an encouraging result. Once convinced of the good results of the efforts the operational people will involve whole heartedly and the success of the rehabilitation can be ensured.

Remote sensing has been applied in respect of several resource themes; especially in coal mining areas this technique can be applied. In assessing the environmental damages in space and time caused by mining operations, a systematic survey and mapping is required. This is where remote sensing technique by its very favourable characteristics provides means of study for overall identification of problems and applying environmental protection measures.

Environmental Impact Assessment (EIA) is a concept that evolved in search for ways to render development and protection of the environment. In order to predict and assess the impacts associated with a

proposed action, it is necessary to describe the environmental setting in which the proposed action takes place. This gives the baseline information against which prediction and assessment can be made. Here author tries to mention about the environment which has been degraded by coal mining. Now a day's environmental assessment is widely used to study the impact which is still continuing in the particular area by particular activity. Increasing demand for environmental quality, protection of scenery, clear air and water, minimization of noise congestion and open space for active outdoor recreation have all taken with key importance. An impact can be defined as any change in physical, chemical, biological, cultural and socio-economic environmental system that can be attributed to human activities.

Raniganj and Jharia coal mining region plays an important role in countries overall development. This region has well developed transport and communication and rich in mineral resources. This famous coal bearing region has got very well scope for large industrial development along with other developments of agriculture, livestock, forest, water and other minerals. An integrated approach is very necessary for a sustainable development in this region.

It is thus clear that coal mining leads to environmental damage, while economic development and self-reliance call for the increased mining activities of the available mineral resources. Though there is no alternative to the site of mining operations, options as to the location and technology of processing, adaptation of eco-friendly coal mining process and a forestation in the mining site etc. can really minimize that damage to the environment.

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Territori, the Italian Web Portal of Cadastres and Historical Cartography

By Mauro Tosti Croce & Saverio Piali

Abstract- Territori is the Italian web portal of cadastres and historical cartography realized during 2011 by the company Hyperborea on assignment of the “Direzione Generale per gli Archivi”. Territori belongs to the National Archival System (SAN) that aims at offering a unique point of access to Italian archival sources: Territori is one of the sub-portal of the SAN. Territori represents a single access point to the documentation preserved in all the Italian State Archives that joined in the project. Every Italian State Archive that realized filing, cataloguing and digitization project of their maps and cadastral sources can join in Territori, improving the global documentation managed by the portal and following its promotion and valorization aims.

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Territori, the Italian Web Portal of Cadastres and Historical Cartography

Mauro Tosti Croce ^a & Saverio Piali ^o

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I. TERRITORI: THE PROJECT

Territori (www.territori.san.beniculturali.it) is the Italian web portal of cadastres and historical cartography: an online "space" dedicated to the web publication and valorization of cartographic and cadastral documentation preserved by Italian state archives and by other cultural institutes and administrative bodies.

Since the 90s the cartographic and cadastral documentation was one of the first to be managed through digitization processes, with the aim of being preserved for a long time and of answering to lots of requests by people. As time passed lots of institutes developed several projects based on different archival approaches, descriptive levels and tools used. Territori is a "federation" of these preexisting projects: every project keeps its individuality and peculiarity, but at the same time it is related to the other projects, with the aim of providing a better valorization. Territori web portal is a part of the wider Italian National Archival System project, that provides a unique point of access on the web to the archival sources of Italy: Territori represents one of the sub-portals of the Italian National Archival System.

Territori was planned and realized by the company Hyperborea during 2011 on assignment of the DGA ("Direzione generale per gli Archivi", the Italian general management for the archives). Hyperborea was born in 1995 and it is specialized in the application of Information and communication technologies to the cultural heritage sector.

Hyperborea developed Territori on the basis of the features of the other web portal that belongs to the National Archival Web Portal. The communication structure, the articulation of the several sections, the

informative architecture and the browsing mechanism were planned to be uniformed to these of the other web sub-portals, while the several functionalities were suited to the peculiarities, contents and features of the subject.

Territori represents a single access point to the cartographic and cadastral documentation preserved in all the Italian State Archives that joined or will join in the project. The first project partners were Milan State Archive and Trieste State Archive that made their data and images available for the realization of a first release of the portal. Initially, the web portal Territori allowed the consultation of the "Catasto Teresiano" of Milan State Archive and of the "Catasto Franceschino" of Trieste State Archive. The example of the first institute was followed by Genoa State Archive and Venice State Archive that made the Genoa "Historical Cartographic" and the "Censo Stabile" of the Regno Lombardo Veneto available.

The last release of Territori was published online in the 2012 and the link was inserted within the Italian National Archival System website, in the area dedicated to the "Portaletematici" that also includes the web portal "Archivid'impresa" and "Archividellamoda".

In the June 2013 the La Spezia State Archive decided to join to Territori: during the 2013 the cartographic and cadastral documentation of the Archive will increase the whole heritage managed by Territori. Every other Italian State Archive, cultural institutes or administrative bodies that realized filing, cataloguing and digitization project of their maps and cadastral sources can join in Territori, improving the global documentation managed by the portal and following the promotion and valorization aims of the project.

II. EVENTS AND PUBLIC PRESENTATIONS ABOUT TERRITORI

Territori was born in the 2011 and it was presented to the national and international archival community, thanks to the relevance of the subject and to the strategic importance of the project.

The first release of the portal was presented the 7th of November 2011 in Trieste, in occasion of the 21st International Archival Day, the international conference organized every year by Trieste State Archive. In this occasion the features and the functionalities of the portal were illustrated in relation of first data and images made

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available by Trieste State Archive and Milan State Archive.

Another public occasion for the presentation of Territori was during the event “I poliarchivistici e le reti informative” organized by two Italian institutions, MIBAC (“Ministero per i beni e le attività culturali”, the Ministry of Cultural Heritage and Activities) and DGA (“Direzione generale per gli archivi”), from the 15th to the 17th December 2011.

At last the 25th of March 2013 in the “Archivio Centrale dello Stato” of Rome there was an official event exclusively dedicated to Territori. The event was organized by DGA (“Direzione generale per gli archivi”) in collaboration with Hyperborea and it represented an occasion to talk about how Territori was born, how it is made, the subscriptions of other projects, the proposals of improvement, the suggestions of semantic web. A part of the event was dedicated to debate about Italian projects related to the historical cartography and cadastral documentation that will be integrated in Territori in the future.

III. THE FEATURES OF TERRITORI

Territori is based on DIVENIRE a platform developed by Hyperborea during 2009 on assignment of Venice State Archive and planned for the online publication and consultation of archival series and high resolution digital reproductions.

The peculiarity of Territori is the ability to offer not only the description of the cadastral and cartographic documents, but also the related high resolution digital reproductions, in order to allow the consultation of the maps with full details. This feature makes the portal an attraction both for the scientific research about a territory and for non-specialist users.

The cadastral and cartographic heritage represents an interesting source for the scientific research and it is also attractive for the consultation of maps by non-specialist users.

a) *The sections of the portal Territori*

Territori is made of several sections, each one offers every user lots of ways to interact with data, information and cultural heritage in general.

b) *The homepage*

The homepage of Territori web portal is divided in three main parts. The upper part contains the navigation bar with the links to the sections of the portal: the “menu” is always present during the navigation into the pages except when the user has access to the system of a specific Preservation Institute; in this case the user will find the consultation modality of the DIVENIRE and will interact with the interface of the system.

The central part of the homepage is divided in two groups of boxes. The first one is formed by six boxes that represent the link to the pages of the global section “Accedi alle mappe” (Trovare archivi, Soggetti Produttori, Fonti, Timeline, Accesso geografico e Ricerca). The boxes are shortcuts and allow the user to have direct access to the preferred content avoiding the standard route through the navigation bar.

The lower part of the homepage contains the “Gallery” a slideshow of images (of the thumbnail) of the best document digital reproductions. Clicking on every image the user can have access to the images visualization system made available by specific DIVENIRE system to which belong the digital reproduction of a document or a map.



Figure 1 : Territori homepage

c) *The archives that joined in the project: the section "Trovarchivi"*

The section "Trovarchivi" allows the user to visualize the institutes that joined in the project. The section presents both the interactive map with the

geographical localization of the institute and the list of the institutes with the links for the direct access to the consultation system of the several heritages. In this way the user has an immediate vision of all the partners that are contributing to the portal with their documentation.



Figure 2 : Trovarchivisection of Territori

IV. THE SECTIONS "SOGGETTIPRODUTTORI" AND "FONTI"

The sections "Soggettiproductori" and "Fonti" provide an overview of both the institute or the people that produced the documentation shown by Territori during the time, and the detailed description of the various sources of the documentation. Today the sources available on Territori are: "Cartografia Storica di Genova", "Catasto della Venezia Giulia", "Catasto Franceschino", "Catasto Teresiano", "Censo Stabile del Regno Lombardo Veneto", "Fondo dell'Archivio Piani", "Nuovo Catasto Terreni", "Nuovo Censo Lombardo". Every source can be browsed through an interactive interface based on both the tools provided by Territori and the tools that belong to each State Archive. The user has three ways to have access to the source. He can browse all the documentation of the source, consulting the archival description of every archival unit and visualizing the high resolution image. The user can make a full text research in the source, finding a preferred item already known. He can also make a detailed research setting different parameters to filter the results.

V. TIMELINE AND GEOGRAPHICAL ACCESS

The "Timeline" is an innovative tool that can show the cultural heritage in relation to the time during which the documentation was produced. In the Territori portal the timeline was thought and developed to show the archival series and the sources in relation to their temporal collocation.

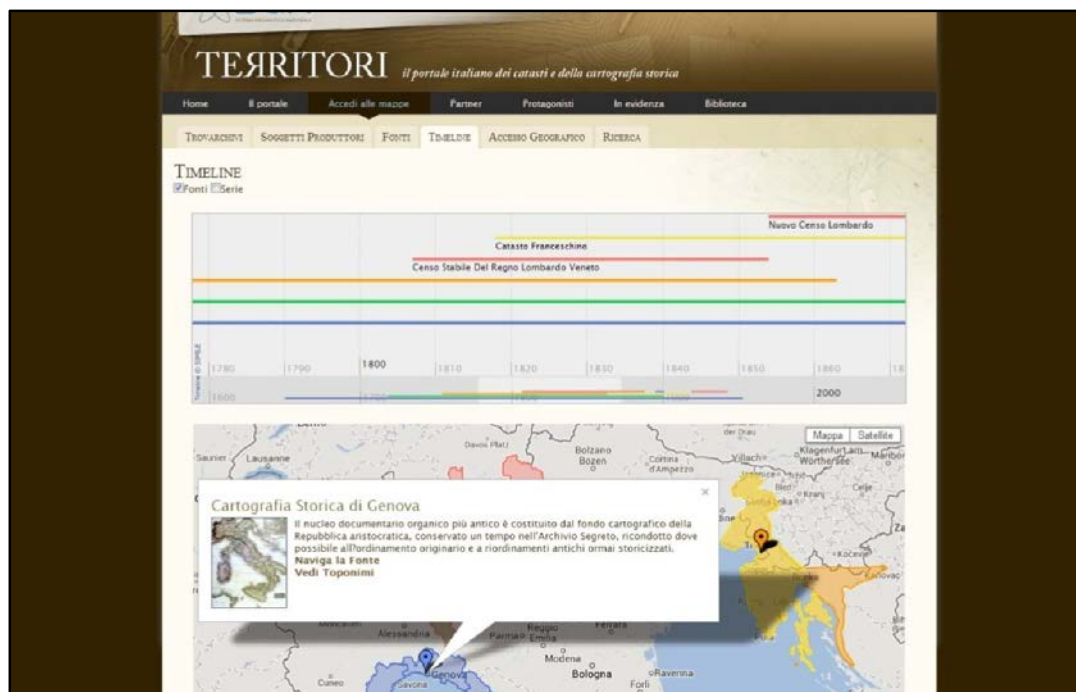


Figure 3 : The timeline of Territori

On the timeline the archival series are represented as lines that move from two chronological points. The timeline can be browsed to find the year of interest and visualize which documentation was produced in a specific period. Every cultural item shown in the timeline is connected to the geographical area in which it was produced, thanks to an integrated visualization tool; clicking on every item a pop-up window provides an overview of the full description of the source.

Territori also offers the georeferencing of the toponyms related to the managed documentation: this is the functionality of the "Accessogeografico" section. An interactive map, based on a cluster system, shows all the "density area" where there are lots of clustered toponyms. Clicking on each toponym a pop-up window shows the related sources and all the documents that belong to it, offering the user the possibility to browse the archival description and to visualize the high resolution digital reproduction.



Figure 4 : The geographical access in Territori

VI. THE RESEARCHES IN THE HERITAGE OF TERRITORI

The “Ricerca” section of the Territori web portal allows the use of a search engine that allows the user to make different typologies of operations: a general research, a research for people, a research for toponyms and a research for maps typology.

Through the “General research” it is possible to make researches on the whole digital resources available in the portal, independently from belonging source and from preservation institute where there are the related documents. The “General research” was planned following the “Google-like” style, allowing the user to write the preferred term in a form.

The “Research for people” and the “Toponym research” operate on the base of the same functionality, offering the user the possibility to select a letter from the alphabet and consulting all the results (people and toponyms) that start for the selected letter. Clicking on every result it is possible to obtain all the additional researches, the belonging source and the preservation institute.

The “research for maps typology” allows the user to have a global and immediate vision of the different typologies of material that belong to the heritage managed by Territori: for every typology there is the number of units, the origin and the source.

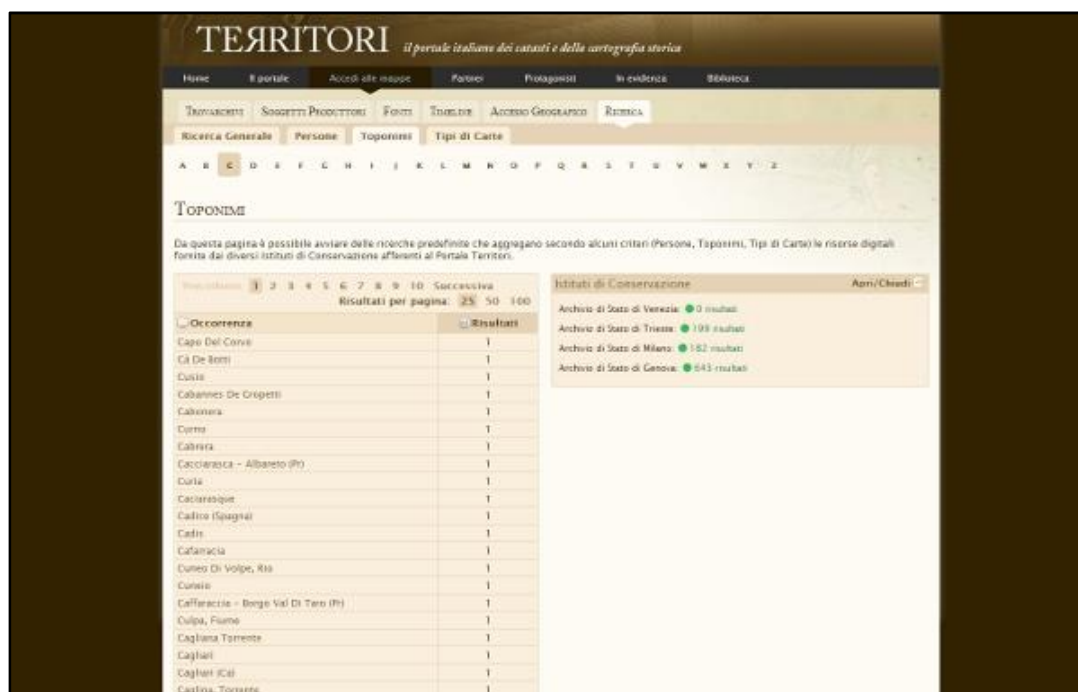


Figure 5 : The researches in Territori

a) The other contents of Territori: the sections “Protagonisti”, “In evidenza” and “Biblioteca”

Territori has lots of sections that manage contents useful to integrate information and data that the user learns with the consultation modalities of the archival domain. These contents provide context elements and general knowledge useful to focus the aims of the portal also by non-specialist user.

The “Protagonisti” section present the description of all the characters of historical relevance named in the documentation managed by the portal. The section represent a way to arouse interest in the users who, starting from an easy textual content, can consult the archival material trying to find information and details about the character they read.

The section “In evidenza”, based on editorial content, is thought to communicate information about events, news, appointments related both to the Territori

portal and to all the State Archives and other institutes that joined or will join in the portal. It is an integrated communication modality to keep Territori users always updated on all that happens around the portal and the “archival life” of the partner of the project.

The section “Biblioteca” presents all the bibliographic sources related to the subject, lots of these resources are related to the OPAC SBN, in order to locate the libraries that preserve the researched texts and to have access to the file of the library.



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Niger Delta Development in a Corruption Ridden Society: Importance of Insurgency

By Adu & Funmilayo Modupe

Ekiti State University, Nigeria

Abstract- A society where insurgency becomes relevant to achieve a political objective is on its way to crisis. Crisis abounds in Africa. There is a need for socio-political reordering to assist Nigeria in development and force government to look into matters before it is too late. The origin of militia insurgency was the need to force government to intervene in the degenerated socio-political situation in the different parts of the country. Militia groups situated within the Niger delta region having existed for sometime re-engineered into a more active survivalist and well focused cartel going into a bit of extremity. This forced government to rise to the need of the Niger Delta and the amnesty situation yielded the right result in the establishment of the ministry of the Niger delta, an educational sponsorship of ex –militants and a need for the current constitutional review,. This paper discussed suggested avenues to assist government in early intervention and prevent civil society intervention through militia formation to move the country forward.

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Niger Delta Development in a Corruption Ridden Society: Importance of Insurgency

Adu ^α & Funmilayo Modupe ^σ

Abstract- A society where insurgency becomes relevant to achieve a political objective is on its way to crisis. Crisis abounds in Africa. There is a need for socio-political reordering to assist Nigeria in development and force government to look into matters before it is too late. The origin of militia insurgency was the need to force government to intervene in the degenerated socio-political situation in the different parts of the country. Militia groups situated within the Niger delta region having existed for sometime re-engineered into a more active survivalist and well focused cartel going into a bit of extremity. This forced government to rise to the need of the Niger Delta and the amnesty situation yielded the right result in the establishment of the ministry of the Niger delta, an educational sponsorship of ex –militants and a need for the current constitutional review,. This paper discussed suggested avenues to assist government in early intervention and prevent civil society intervention through militia formation to move the country forward.

1. INTRODUCTION

Nigeria at forty-nine battle with problems of corruption and under development, one important aspect of which is the Niger Delta crisis. Solution to the crisis in the Niger Delta lies in leadership and followership re-orientation. Faces of corruption are presented in negligence, decaying infrastructure, backwardness and under development. The Nigerian state is essentially authoritarian, violent and predatory in character. The followership is negligent, irresponsible and unpatriotic. These are essential information to solution finding. The issue of management is of priority to solving the crisis in the Niger delta. Management in this sense, range from political management, resource management, civil society management, management of development and its sustainability, multinational interventional management etc; a re-invention of both the leadership and the citizenship. Akpedeye (2009:47) reiterated the common saying “people get the type of leadership they deserve” “The leadership of a country is not different from or at variance with the people of the country”. In line with this he emphasized,

The Nation’s bane, to put it bluntly, a corrupt selfish, indolent and irresponsible leadership... Trapped in the morass of a callous, self-demeaning ruling class, Nigeria has become a nightmare for its citizens and an international embarrassment Tell Oct. 12,2009:45)

It is essential therefore to have a re-orientation. The current rebranding is a good effort if property managed with a mindset for genuine National repentance and re-orientation. Formation of militias is two faced: an attempt to find alternative solutions to socio political problems and a group to force government to intervene in the degenerated socio-political milieu.

At independence, there was openness, accountability, and selfless, purposeful, incorruptible, visionary and result-oriented leadership. Our immortalized founding fathers and nationalists made indelible marks on the Nigerian historical landscape. The above words immortalized their tall dreams and citizenship expectations in the reminiscences of the golden years immediately following independence. The rude awakening into the era of problem started with the crisis of the mid (1960’s) sixties, which culminated into the civil war. The post war rebuilding heralded the oil boom and sudden wealth created a new era of leadership and followership that has not enjoyed peace. Peace in the dimensions of the political, economic, social and environmental arena. The Niger delta being particularly affected because it is the goose that lay the golden eggs.

The crisis in Sudan, of over twenty-five years of civil war and despondence is a lesson for Nigeria to pick from, but have we learnt through the experiences of others? In the Niger Delta the need for insurgency cannot be totally dumped on the lap of the Niger Delta youths and civil society: As noted above it is a joint problem of leadership and citizenship both at the National and state levels. Corruption, an engraved and endemic societal disease in the country is the reason for under-development. Under development and object poverty would naturally result into crisis and state collapse (the situation which led to Niger Delta militancy and porosity of weapons of war) It was obvious that Nigeria was at the brink of another civil war and if we are not careful the amnesty might be a gap, albeit a stop gap that would end up in a state of collapse and ultimately war. It is therefore important to find the way forward in socio-political reordering.

There is need for governmental intervention through constitutional renewal, reorganized socio-political structuring, that address the genuine needs of the citizenry, Niger delta infrastructural development and maintenance, citizenship empowerment, orientation

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and education, development of opportunities and human resources, and offer of valued life to repentant militants amidst others. Militancy is a sign of state failure. This paper evaluated the socio political milieu that degenerated into the crisis, the historical albatross of lack of constitutional development and the Niger Delta peculiar circumstances, governmental interventions in the ensuing years, the breakdown of law and order and the way forward. The paper is thus divided into the crisis of Niger Delta development. The political history of Nigeria; the military factor and militancy; the history of militia intervention in politics in Nigeria, records of protest and human right abuse, records of government intervention, the way forward and conclusion.

II. THE CRISIS OF NIGER DELTA DEVELOPMENT

Nigeria has experienced decades of underdevelopment and the Niger Delta has particularly experienced a chronic phase because of the side effect of drilling and oil exploration. From the late 1980's, the region occupying an area of 75,000 sq km; has been bedeviled by communal unrest, crime and violent conflicts, so much so that international interventions through NGOs, international organizations and civil society (amongst others) has yielded nothing or unappreciable result. The crisis of development in the Delta involves political, economic, social, environmental and security.

The existing situation in Middle East countries such as, Saudi Arabia, Kuwait, Qatar, UAE (Dubai) etc is enviable in the green revolution of desert land, physical and infrastructural development. Such problems as neglect, environmental degradation from oil pollution, absence of physical development and destruction of the eco-system with atmospheric pollutions from emitted gases (resulting from poor management of the oil industry) is the take of woe in the Niger Delta. Ekpebu (2008:5-6) emphasized that the history of neglect and other acts of oppression and suppression which have led to the current undesirable state of affairs in the sub region is as a result, first and foremost, of neglect and suppression by the former Eastern region of its minority nationalities, cross river, Akwa Ibom, Rivers, Bayelsa and the Southern Cameroon.

The problem of western states and neglect of the western part of the Niger Delta and Bendel which informed the agitation for the creation of state in response to the exigencies of the crisis of the civil war. The Edo and Delta states were lumped together into the Mid-west state, which was later renamed Bendel. The Rivers and South East states were created in 1967 to undermine the capacity of the secession survival. But this did not wake up the federal government to the need for development.

Development refers to the efforts and results of transformation of the physical and social environment within which man operates for the purpose of enhancing their standard of living (Anikpo 1996:6).

Okaba (2009:2a) recorded that the Niger Delta is Africa's and the world's third largest mangrove forest. One of the world's most expansive fresh water swamps in western and central Africa and Nigeria's major concentration of high biodiversity. The Niger Delta is home to about 30 million people, diversified into ethnic tribes of Ijaw, Isoko, Ishan, Ilaje, Ibibio, Anag, Efik Ekpeye, Ikwere, Edo, Ogoin, Ogbia Engeni Ukwani etc (ibid: 29).

Crude oil was first discovered in Oloibiri in the now Bayelsa State of Nigeria. Nigeria's exports amount to eighty percent of foreign exchange earnings. At peak recently, Nigeria's production hovered around 2.15 million barrels per day. Poor corporate relations with indigenous communities, vandalism of oil infrastructure, terrible ecological damage and security problems are the regions experience. The country's economic survival is currently anchored upon oil exploitation. Okaba laid emphasis on the fact that oil dependence facilitates the terrible linkage between skewed economic performance, poverty, injustice and conflict (Okaba, Petrodollar 2008:29) the World Bank and IMF report that:

countries that are resource poor, grew four times more rapidly than resource rich countries between 1970 and 2004 despite the fact that they had half their savings. The greater the dependence on oil and mineral resources, the worst the growth performance (Gary et al 2003:18).

It is no surprise therefore that, poverty, injustice and conflict abound in the region. Faces of underdevelopment are evident in infrastructural decay, poverty, illiteracy and the destruction of the eco-systems.

III. THE POLITICAL HISTORY OF NIGERIA, THE MILITARY FACTOR AND MILITARISATION

The nature and character of the Nigerian state promote militia formation. The character of the Nigerian state is a by-product of colonial and military rule. The 1984-85 Berlin conference started the process of annexing discrete and diverse nationalities without the people's consent. The forced contraption, necessitated a continued recourse to their individual ethnic groups which they believe protected and guaranteed individual rights, privileges and advancement.

Lord Lugard amalgamated the two sections of the North and South in an uneven marriage in 1914. This created a major obstacle to constitutional development. This also resulted into incessant ethnicism and separatedness, which intensified military interventions and years of military domination of governance. The program that resulted from the second coup in 1966 led

to the secession of the east and the civil war. The period following also witnessed 1975, 1984 and 1993 coups. Abdusallam returned the nation to civil rule in 1999. Military intervention in the politics of the state opened the Pandora box of ethnic rivalry, political instability, and abuse of human right.

The military retarded democracy, elevated corruption and created antagonism with the civil society. The military also, in the attempt to perpetuate power deterred the normal and legal processes of constitutional development and implementation through draconian laws, called decrees. Military decrees supercede the constitution and are an aberration to practical democracy (Omotoso: 2006).

The taste of power continued to prevent the country from test running and perfecting democratic practices. Military rule also introduced the idea of force in the attainment of political objective. Access to power, maintenance of power and achievement of political objectives were believed to be possible through the use of force.

The Nigerian civil society thus got imbibed into the idea that political objectives needed the intervention of force for attainment. The civil war of 1967 to 1970 also involved the civil society, some of which never got enrolled in the Nigerian army after the civil war. These groups still possess the experiences and necessary wherewithal to reorder, coordinate and organize groupings of civil society into militants and para-military groups. The colonial rule, which terminated in 1960 was authoritarian in practice. Nigeria has been under military rule for twenty-nine years. The preponderance of militaristic legacies implicated on authoritarian tendency of the twenty years of elected civilian administration (1960-1966) (1979-1983, 1999-2009). The result is authoritarian leadership and followership, militarization of political life (witnessed in nation wide rigging and election violence). Disdain for democratic rules, accountability, constitutionalism, and the rule of law (each of the democratic leadership retrogressed into irreversible authoritarianism).

Agbaje (2003:6) recorded that, civilians are on record as having played very active roles in the planning and execution of crises that bred brinkmanship. Chris Anyanwu aptly describes the political climate that resulted into the formation of ethnic militias.

One of the many legacies of June 12, is the height of discomfort over the disequilibrium in our body politic. At no time in our history has this awareness been more acute than now. The Ogonis are crying over "neglect". The northern minorities feel left out. The west feel "robbed". The core North feels it has only held the title but real power has been elsewhere. The East says it has always been oppressed and "marginalized". These reechoing words in our national language are supportive of a deeply seated problem that must be addressed

before any form of democracy or in fact any form of social peace can be achieved. More and more these days, Nigerians are showing signs of unease with the land... and of the geo-political arrangement they have... At the roof of all these is the growing feeling of injustice. (in Agbaje 2003)

The increasing legitimization of ethnic demands, the scale of inter ethnic conflicts, explosion of civil conflicts and wars with ethnic undertones deepens the need to understudy the relevant conditions for the peace of Nigeria. Peace in the Niger delta is an important aspect of the Nigerian peace. This is implicative of the strategic and economic importance of the Niger delta to the Nigerian state.

IV. THE HISTORY OF MILITI INTERVENTION IN POLITICS IN NIGERIA

Militant ethnic nationalism in post independent Nigeria featured in the late 1980's through the early 1990's. The politics of intense and violent acrimony in ethnic politics expressed through ethnic militia formation did not start with independence. Ethnicism (however) started since the colonial uneven amalgamation of 1914. Agbaje (2003:1) noted that "the phenomenon of ethnic militia has become such a defining characteristic of the Nigerian state since the mid 1990". National crises always-necessitated fusion, such instances as political crisis, religious riots, cultural affinities in foreign or distant environments, trade unionisms, resource sharing and control, provided the background to the emergence of ethnic militias from the 1990's

Agbaje further emphasized that authoritarianism breeds disdain for the security and rights of the dominated, be they groups or individuals (Ibid 2003). A vision into the history of Nigeria from the previous stretch back era of colonial authoritarian rule, through the post colonial experience of the coups, military rule and civil war reveal the uneasy growth of the civil society in disdain of autocracy and desire for survival and freedom. Scholarly ideas support the view that national crises and ethnic resource survival provide the background to the emergence of the contemporary forms of ethnic militias in Nigeria. Agbaje in line with others emphasized that (Adigun 2003:1) (Abegunde, 2006:175-6) (Omotoso 2006:89-100).

...the struggle for national resources had been prominent in the fourth republic... the struggle over public office and resource sharing has always involved the call upon ethnic sentiments and the instigation of ethnic (that is ethnic peoples) by the elites for militant action(s). This has led to the formation of many ethnic militias as standing armies for respective groups (Agbaje:Ibid)

Omotoso also emphasized that, "the emergence of ethnic militias was a result of the manipulation of ethnic by the governing elite all over the

country (Omotoso:91). Further in his argument he reintegrated,

The failure of the Nigerian state to be fair and just to all groups has given rise to ethnicity as a potent weapon of agitation ethnic groups or sub State identities are gradually assuming the fulcrum of groups rights and citizenship claims..... to success fully protect their collective and particularistic interests, these groups are now adopting various measures and techniques which include violence to achieve their aims and to draw attention to their areas and the problems confronting them (Omotoso:90)

Ajumobi (2003:10) also emphasized that,

In Nigeria, primordial identities of ethnic, communal and religious formations have taken the centre stage in social and political interaction. Ethnic socio-political organizations... are perhaps the most palpable on the political turf... these groups have penetrating networks and profound influence... The corollary to these groups, especially at the youth level, is the ethnic militias (ibid).

Briggs (2004:278) agree with this and posit that the sudden growth of ethnic militias in Nigeria is borne out of cumulative frustrations which metamorphosed into anger and then aggression (Briggs: 278). In the particular case of the Yoruba ethnic group, the formation of ethnic militia was resultant of the determination of the marginalized and oppressed ethnic group to protect and defend themselves against the domination of the northern elements, particularly those in the military. Subsequent to the annulment of June 12, 1993 presidential elections that was adjudged by international observers as free and fair; other factors are long years of military dictatorship which ensured the exclusion of other tribes (ethnic groups) from power, deprivation of certain ethnic minority groups of commensurate benefits from the resources extracted from their environments, the belief of the Igbos that they are singled out for retribution over the secession and civil wars of 1967-70, establishment of local government and political power sharing.

Omotoso insisted; (ibid) "the enthronement of democratic rule (on may 1999) provided a fertile ground to vent pent up anger" This period witnessed various ethnic conflicts and the proliferation of ethnic militia groups, with the aim of fighting for and defending ethnic rights. The practice of the politics of exclusion by the ruling elite Agbaje (ibid) believes, emphasized the divisive rule of the elite, which in turn encouraged the formation of ethnic militias. To buttress this he noted.

the rise and resilience of the traditions of political brinkmanship, involving treats and counter threats of breakdown of rule induced and system supportive behaviour in contexts etched by the tendency of the political elite to prefer fission to fusion, coming apart rather than sticking together at

moments of great national crisis... provided the background to the emergence of contemporary forms of ethnic militias in several emerging national crises in Nigeria.

Several emerging groups included, Oodua "Peoples" Congress (OPC) in the west, Arewa Peoples' Congress (APC) in the North, Bakassi Boys (in the East) Egbesu Boys (Ijaw) a militant wing of the Ijaw Youth Movement (IYC) and the Movement for Actualization of the Sovereign State of Biafra (MASSOB). The Oodua Peoples Congress (OPC) was founded in 1994, (while Abiola was incarcerated) Faseun, the founder believed" the essence was to defend the rights of Yoruba people worldwide (Newswatch 2000:6) (Tell November 21). Chief Gani Adams (factional leader) also insisted "the major objectives of OPC are to ensure self determination and total restructuring of the Nigerian state into a true federal state, among others (2000:100). This has implications for the Faseun statement. Other factors according to the leaders were structural in balances, the military and repressive decrees, destructive constitutional structure, conscious debasement of ethnic nationalities, ethnic cleansing, insecurity of life and property and the degenerated educational system (ibid 97-100) Omotoso noted that the Gani Adams faction of the OPC was more militant, confrontational and violent. The Yoruba ethnic group saw it as a messiah because of its vigilante services, in assisting the people against robbery and providing an alternative to the ineffectiveness of the state security service.

In the Eastern part of Nigeria, the alleged Marginalization and oppression in access to political participation and power, rooted in the Biafra secession and civil wars of 1967, alleged conspiracy between the Hausa/Fulani and Yoruba ethnic groups; criminal neglect of the area in infrastructural development amongst others led to the creation of MASSOB The Movement for the Actualization of the Sovereign State of Biafra, by Chief Ralf Nwazurike, to secure a sovereign state for the Igbos. It is a local ethnic militia group, which has variedly engaged in clashes with law enforcement agencies. It designed a separate flag, currency and other national symbols, Chief Nwazurike was arrested and charged for treason and felony to prevent national distintegration and protect the security and stability of the state. (Adeyemo 2005:22)

The Bakassi boys was created by the Aba traders to protect them from the menace of the underworld. A self help organization with a private army to emphasise the failure of the state and law enforcement agents. It was later recognized by the Anambra state government, which incorporated it into the state security network. It gradually became an instrument for settlement of political scores and went underground for public outcry.

The Egbesu Boys of Africa (EBA) a militant wing of the Ijaw youth movement to oppose the exploitation

of mineral resources in Niger delta without corresponding benefit called for total resource control. Pocket of riots and demonstrations with oil companies and house arrests have also taken place at village and community levels to address this issue. The Arewa peoples' congress (APC) was formed in the north, in response to the allegation and activities of the OPC in the South-west. Its activities are to counter perceived violence, and threat to the Hausa/Fulani's within Yoruba land and elsewhere. Omotoso lent credence to the failure of state and leadership.

The sporadic rise in militia activities across the country could be traced to the criminal neglect of Nigerians by the leadership, the marginalization and oppression of one group by another and outright exploitation of so many people by a few privileged individuals.

Babawale (in Adigun 2003:1) further noted "the Nigerian people generally relate to the Nigerian state as an uncaring and illegitimate institution" loyalties are therefore unnationalistic. Political strength, and economic viability intensity the desire for models and avenues for actualization. An aggregated minority ethnic member of the Nigerian state are neglected, oppressed marginalized and denied access to political power. Inequality however breed frustration and suspicion and the result is crisis. The fear of the military maintained the gunpowder silence until the need for solution forced them to resort to violence especially in the democratic era. Omotoso (ibid) argued that the need for force led to the formation of ethnic militias; unemployed youths and frustrated civil society members, provided with the financial where withal and protected by disgruntled politicians and the wealthy seeking for power form the militias others seek access to power through this militias with the faith that it will provide what the state could not provide. Their credibility and total commitment lend credence to their usefulness. Militant ethnic nationalism thus saw the light of day in the Niger Delta Crisis. The Niger Delta people articulated their demands in documents such as the "Ogoni Bill of Right", the "Kaiama Declaration", the "Ogbia Declaration" and the "Ikwerre Rescue Charter". The Niger Delta People's Volunteer Force is an agglomeration of various youth groups committed to self-actualization and economic emancipation of the Niger delta region. The demand for total resources control, hostage taking, and Company distortions were regularly recorded and the joint police military patrol failed to stop their activities. Another group, the Movement for the Emancipation of the Niger Delta (MEND) merged with NDPUF intensifying the security situation in the Niger Delta and the peace of the country.

V. RECORDS OF PROTEST AND HUMAN RIGHT ABUSE IN THE NIGER DELTA

The NDPUF commenting on the arrest of their leader Asari Dokubo noted that, the adoption of peace and dialogue had failed. According to the group,

the elders told us that peace and dialogue are the best options to get results. We listened to them and handed over our guns, and look at what they have done to us. We now know that only violence can get result... (NDPUF militant cited in Agbo :27)

The MEND leader Cynthia Whyte commenting on state refusal to release Dokubo also threatened,

by now, they would have realized that the time for talk is over. Now it is time for bang, bang! We will hit them and smoke them out from every part of our fatherland. We will not spare them. Our rivers will be reddened with their blood... (Cited in Agbo:29)

The sleepless nights resultant of the activities of riots, demonstrations, hostage taking and militia violence has resorted to Amnesty and the creation of a ministry of the Niger delta. Hopefully, there will be a positive record of development in the oil-producing delta. Before this achievements could be recorded however a lot of protests and human right violations were recorded. It is necessary to capture some of this as imperative of the necessity for militancy. The relevance of militancy can only be evaluated when we chronicle the years of protest and human right violations resulting from the activities of the oil companies in the Niger delta.

The composition of the delta region was the first bases for agitation. The conceal of identity of Niger delta minorities led to the demand for a separate state out of the Eastern region. (see Ikiddah 2002 :277, Agbese 2002 :128). The Rivers chiefs and people's conference (RCPC) in 1950 visited the colonial office in London but the result was unsatisfactory. The formation of political party was the second effort, the Niger delta congress (NDC) was found in the 1959 general election congress. In 1966 Isaac Boro launched the fight for the Niger delta republic (Akinwumi 2004, Ikporukpo 2002). The born revolt failed but succeeded in awakening the ethnic consciousness of the minorities of the Niger delta and resulted in the establishment of civil society groups eg. Ijaw Youth Council. It marked the beginning of the Niger delta struggle for autonomy, resource control and development.

The creation of the 12 state structure in 1962 resulted in minority support of the federal government against the Biafra. The death of Boro however alienated the Deltans from the federal government and movement for the minority rights began at the level of the civil society. Some were community based, youth associations, pan ethnic and issue oriented, ken Saro wiwa's MOSOP and the Ogoni Uprising. The leaders of MOSOP and the Ogoni traditional rulers presented the

Ogoni Bill of rights to the federal government of Babangidda (1990). It demanded political participation and resource control amongst others and self-determination. Within the MOSOP was the National Youth Council of Ogoni People (NYCOP) and the Ethnic Minority rights organization of Africa (FMIROAF).

The aggressive media propaganda and onslaught of MOSOP against the oil company and federal government alliance led to repression through the promulgation of a decree that later resulted in the killing of the Ogoni Nine. The Ijaw Youth Movement and Kaiama Declaration in 1998 to fight against marginalisation, neglect, underdevelopment, militarisation and repression of minorities.

It demanded compensation, development, resource control, national conference and federal restructuring (Ikelegbe 2001 a, 122 2001 b:46). Its famous kaiama declaration of 11th December 1998 was decisive. They demanded the stoppage of oil exploration. It called for the convocation of a sovereign national conference (SNC) democratically constituted to address issues. The IYC militant youth wing known as Egbesu Boys of Africa became violent in the attempt to close down oil facilities. It started to kidnap and killed twelve policemen at Odi in 1999, this resulted into the Odi massacre.

The rise of militia groups with violent orientation was the trend in the 1990's. The Egbesu Boys, Niger Delta Peoples Volunteer Force (NDPUF) the Movement for the Emancipation of the Niger Delta (MEND), NDPUF was established in 1998 by Asari Dokubo to assist development of the delta and remove environmental insecurity and marginalisation. It engages in seizure of oil facilities, kidnapping and violent confrontations. MEND's demand is emancipation from colonialism by state oil company conspiracy. Engaged in hostage taking and ransom, their media coverage arouse National and international attention to solution finding.

Proliferation of militia movement enacted violent responses from the state. State attacks elicited harassment, death, physical assault, extortion, rape and brutalization of the citizens, the epic of which was the Odi massacre. Over two thousand people were killed, many injured, and several others displaced. There has been loss of property and psychological embarrassment. State disposition to ethnic militias in the delta is to force to submission instead of amicable resolution but when force failed there was resort to "bargain" and the result was the just concluded amnesty. Success of the amnesty however is dependent on management.

There was the creation of the ministry of the Niger delta to oversee the areas development. The current scenario is the handing over of the repentant militants to the defence ministry. There is the fear of tough handling and a breakdown of negotiated peace. The defence minister Godwin Abbe, is to head the

amnesty implementation committee. Abbe has suggested constructive engagement of the militants. Except the Para militia group be integrated into the Nigerian army (this too is dangerous considering the Sudan experienced) there is public opinion Abbe's decision might not be the best to find a way to demilitarize and reintegrate the ex militia men into the civil society. The R.R. as Abbe referred to the rehabilitation and reintegration need to be handed over to a joint ministry of defence and civil society groups for proper handling. National reconciliation must take cognizance of the post Biafran settlements and take note of the negative aspects of peace building (for reconstruction).

A disgruntled ex militia might be the necessary seed to germinate into a civil war or another militancy. MEND raised an Aaron team (Tell 2009:29) to negotiate with government but the defence minister had a negative disposition to this. Our recommended opinion however seek the intervention of such groups in attending to issues because a revisit of militia intervention is a dangerous precipice.

VI. RECORDS OF GOVERNMENT INTERVENTION IN THE NIGER DELTA

Nigeria's 2.3 million barrel per day, ranks her as the sub Sahara's largest exporter of oil, accounting for Eighty five percent of the government revenue (Okaba 2008:26). More than 95% of export earning and approximately 40% of GDP. Okaba noted that underdevelopment in the delta overwhelmingly proclaims the paradox of plenty and the high level of poverty (ibid:26). He further stressed that, "as petrodollar fail to keep pace with demands and expectations, oil based governments, increasingly rely on repression to keep themselves in power and sustain the supply of oil. Thus a greater percentage of state revenue go into militarisation and conflict (mis)management".

Nigerian institutional responses include OMPADEC and the Niger Delta development commission (NDDC). The implementation of the 13 percent constitutional provision for derivation for developmental projects. The oil companies also improved on social responsibility, investing in community development projects such as schools, road construction, and rehabilitation. Federal government priority to Niger Delta development has generated a lot of frustrations. As recorded earlier, government efforts since independence have not led to significant improvements. There was the establishment of the Oil Mineral Producing Areas Development Commission (OMPADEC). The 1999 constitution also provides that at least thirteen percent of the revenue derived from natural resources should be paid to the states where it is produced. This was delayed till January 2000 before the

federal government began making payments. Though some arrears were paid, the implementation was not satisfactory and the states demanded resource control.

By August 1999, as constitutionally demanded the government established the thirty -eight member revenue mobilization, allocation and fiscal commission, to negotiate a new formula for revenue sharing. The committee's recommendation was suspended and a new committee was set up in April 2002. This was the federal account allocation committee, to find a political solution to the resource control issue. In July 2002, the President signed an executive order providing for the federal government to take fifty six percent, state and local government to take twenty percent respectively. In an attempt to defuse the demand for full control the government established the Niger Delta Development Commission (NDDC). The NDDC was charged with the task to

...Conceive, plan and implement, in accordance, with set rules and regulations, projects and programmes for the sustainable development of the Niger Delta area, in the field of transportation, including roads, jetties and water ways, health, education, employment, industrialization, agriculture, fisheries, housing, and urban development, water supply, electricity and telecommunications (NDDC Act, Section 7(1)(b)).

Despite beginning operations by 2001, the commission became moribund due to unceasing complains of lack of funds by government and oil companies. Recently, the government, through the National Petroleum Investment and Management Service (NAPIMS), set up an oil industry development committee to monitor and rationalize oil company development projects. Mobile police army and navy were widely deployed throughout the area.

The Nigerian Police Force in collaboration with NNPC, established a "task force" on pipeline vandalization. In August 2001, Delta State government banned militant groups blamed for disruption of oil activities in the state. Most vandalization decrees violate international human right laws e.g. the petroleum production and distribution (anti sabotage) act of 1975. The criminal justice (miscellaneous provisions) Act of 1975 is also another. In November 2001, a special security committee on oil producing areas was set up to look into vandalization, disruption and kidnapping, extortion and a general state of insecurity. The committee was to:

1. Identify lapses in the protection of oil installations including causes and sources of facility vandalisation and sabotage.
2. Recommend appropriate measures to enhance oil installations"
3. Appraise the negative impact of youth and community agitations

4. Recommend measures to reduce youth restiveness, communal agitations, and other incidents of sabotage of pipelines in oil communities (source Nigeria vol. 1, No 7 (A))

The committee noted the disruptions had reduced production and that disruptions originated from armed youths in host communities. They insisted that another major threat was from the activities of a "cartel or mafia" composed of highly placed and powerful individuals within the society (who run a network of agents to steal crude oil and finished product from pipelines). It was noted that the root causes of insecurity in the areas had to do with neglect, frustration, and the sense of abandonment. Thus they believe militarization and security approach could not bring enduring peace. It recommended development of infrastructures such as roads, housing, electricity, water, employment generation and economic empowerment of the people of the area (Ibid). It noted, these would ensure the effective enforcement of law and order.

The committee proposed an upward review of derivation component of payment to states to minimum of 50%. Repel of land laws prohibiting the oil companies from hiring "ghost worker". It recommended the creation of a centrally controlled integrated oil producing area security and safety system", noting this would ensure the effective enforcement of law and order. All recommendations did not pass the paper stage. It is no surprise that the situation in the Niger Delta gradually degenerated into militancy.

VII. THE WAY FORWARD

There is a need for socio-political reordering to assist Nigeria in development and force government to look into matters before it is too late. Crises abound in Africa, the twenty years Sudanese war was resultant of deprivations in resources sharing. Gabon ranks high in world poverty rating spending a high ratio of national income on importation of food and consumer goods. Angola the second largest oil exporter in the continent was engaged in war with UNITA for years and still engaged in conflict with rebel forces in the oil rich enclave of cabinda. Nigeria has for the up tenth time resolved the Niger Delta crisis with promises embedded in the amnesty and creation of the ministry of the Niger Delta to oversee development. The Nigeria peculiar problem is in the execution stage of government intervention. The origin of militia insurgency was the need to force government to intervene in the degenerate socio political situation in the different parts of the country. Militia groups situated within the Niger Delta region having existed for some time reengineered into a more active, result oriented and well focused group going into a bit of extremity to force government to rise to the need of the Niger Delta (White in Agbo:29) the leader of MEND reiterated,

by now, they would have realized that. The time for talk is over we will hit them and smoke them out ... our rivers will be redeemed with their blood.

This extreme situation is a sign of failure of the state. The essence of government is to protect and provide security and other paraphernalia of development for its citizens. Nigeria is one of the internationally acclaimed poor state-Okaba (2005) described it as a classical example of the paradox of plenty with seventy percent living on less than one dollar per day, forty percent lack of sanitation and safe water, eighty two percent lack of access to regular power supply and forty six percent infant mortality rate (Ibid 2005b 62-63). Infrastructural decay is experienced in decades of neglect of roads, transport, housing, education energy and water. Governmental negligence is also epitomized in the general societal moral decadence. The deterioration in the standard of living can only be measured in the abject poverty recorded in Oloibiri, the first oil well in Nigeria and beyond.

Further deterioration of living conditions are recorded in state oppression, repression and militarization within and around the oil industry with high environmental abuses, intensifying mass poverty and general insecurity. The revolutionary struggles in the Niger Delta region against state led economic exploitation and socio political marginalization could however have been avoided. State capacity or performance, which Coleman (1971 in Abraham 2000:276) argued should be integrative, adaptive and innovative in response, is reserved in the governing elite. The wisdom of the elite however is resided in the structure of the state itself. A corrupt society can only produce a corrupt government and a collapsed governing structure. A collapsed governing structure cannot hold the system together nor respond to the needs and desires of the people. Government response to participatory and distributive demands can only be effective when there is an accountable, unselfish and sacrificial attitude. The kleptocratic nature of the state is a major stop- watch of accountability. (The record of Abacha governments looting of the country's oil wealth is relevant here) the excess income accrued from oil over the years by successive governments are not also hundred percent accounted for. Governmental interventions are usually more suppressive than responsive to solution finding. Kleptocratmania is also a good feature of the local governing structure in different parts of Nigeria. Accountability is irrelevant in our moral code of conduct and the watch- dog of government and society, the Nigerian constitution, is an illegal child of colonialism and military autocracy. Scholarly arguments buttress the point that power cliques have appropriated the state machinery (Abraham 2008, Omotoso, Abegunde, 2006).

Bureaucratic rationality also impedes the success of landable developmental and interventionist

programmes. Bureaucracy can be described as the giant devil and stopwatch of governmental achievement. The failures of the river basins and the Niger Delta River basin in particular can be attributed to bureaucratic interventions. Government monitoring and interventions can prevent bureaucratic bottlenecks. Governmental attitude in intervention without monitoring is method to silence the voice of opposition without resolving the real crisis.

The first phase of the federal government sixty-day amnesty programme for interested Niger Delta militants ended on October 4, 2009, but is this truly an embrace of peace? The large quantity of sophisticated arms and ammunitions surrendered by Niger Delta militants in the amnesty programme shows the alarming level and the grave implications for the country (Agbo 2009:20). If the rehabilitation and reintegration is properly handled, then Nigeria would have brokered peace on the road to Niger Delta development. Failure of post amnesty integration could lead to future problems. There is the likelihood of ex militants becoming political thugs and armies for inter tribal conflicts. Niger Delta militants were fingered as part of mercenaries in the failed Equatorial Guinea Coup. The handing over of rehabilitation to the defence ministry may not address the humane, social and civilian concerns. Issues of equity and justice do not require military solution but political solution following the increased confidence, consequent upon the success of the amnesty. The militants would expect the authorities to implement the report of the Ledum mittee committee-vocational training for repentant militants and massive infrastructural development in the Niger Delta.

VIII. CONCLUSION

The topic posits alternative options and choices available for resolution to the Niger Delta developmental crisis beyond militia formation. Leadership and followership reorientation, an address of the country's management, socio economic, political, institutional and civil society managements is of priority. There is need for socio political re-ordering and governmental interventions through constitutional renewal, re-organised structures that address the genuine needs of the citizenry, Niger Delta infrastructural development and maintenance, development of opportunities and human resources and an offer of valued life to repentant militants.

It is pertinent to address the inherent contractions of relations between state, oil company, and civil society. The prospect for peace, stability and development in the country is embedded in the asymmetrical power relations between the oil and the environment. To Omotola, revenue allocation predicated upon fairness, equity and social justice (2008) is the first option in solution finding. In spite of the worst scenario, there is hope in pockets of existing Nigerians within and

in the Diaspora who are sacrificially ready to take the bull by the horns and we need to search them out and put them in the right positions of leadership.

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Categorical Necessity and Utility of Stereotyping and Totemic Thinking: Analyzing and Reviewing the Stereotype Epa Theory, Social Perception Accuracy, and Female Hurricanes

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Abstract- Surprisingly, research scientists, scholars or lay people in the United States or elsewhere tend to see stereotypes as negative and inaccurate. Because stereotypes are regarded as taboos, we are usually told not to use them at all. Further, little research has been done on the relationship between stereotyping and totemic thinking. However, in order to survive and function well through millions of years, our ancestors and modern human beings unconsciously and consciously use stereotypes and totems almost every second of the day, which is consistent with Darwin's evolutionary science. This article addresses three aspects of the categorical necessity and utility of stereotypes and totems. First, I will address what totemic thinking is and how totems are related to stereotypes theoretically through evolution. Second, I will analyze and review Jussim's (2012) book on social perception and social reality, which tells us how modern social psychology fails to acknowledge the overwhelming evidence of stereotype accuracy research. Finally, I will critically examine a recent scientific article about gender stereotypes and female hurricanes by Jung, Shavitt, Viswanathan, and Hilbe (2014) in the Proceedings of the National Academy of Sciences (PNAS) of the United States of America.

Keywords: *stereotype necessity and utility, totemic thinking, social perception accuracy, evolution.*

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Abstract- Surprisingly, research scientists, scholars or lay people in the United States or elsewhere tend to see stereotypes as negative and inaccurate. Because stereotypes are regarded as taboos, we are usually told not to use them at all. Further, little research has been done on the relationship between stereotyping and totemic thinking. However, in order to survive and function well through millions of years, our ancestors and modern human beings unconsciously and consciously use stereotypes and totems almost every second of the day, which is consistent with Darwin's evolutionary science. This article addresses three aspects of the categorical necessity and utility of stereotypes and totems. First, I will address what totemic thinking is and how totems are related to stereotypes theoretically through evolution. Second, I will analyze and review Jussim's (2012) book on social perception and social reality, which tells us how modern social psychology fails to acknowledge the overwhelming evidence of stereotype accuracy research. Finally, I will critically examine a recent scientific article about gender stereotypes and female hurricanes by Jung, Shavitt, Viswanathan, and Hilbe (2014) in the Proceedings of the National Academy of Sciences (PNAS) of the United States of America. In brief, to function well or even survive, human beings have to count on categorical thinking (including stereotypes and totems) evolutionarily.

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I. INTRODUCTION

“I took it for granted that the mind forms categories...People put things and other people into mental boxes, give each box a name, and thereafter treat the contents of a box the same.” --- Pinker (1997, p. 306)

Stereotypes and stereotype accuracy are taboos today. When we talk about the validity and accuracy of stereotypical thinking, we need be to very careful because we may be easily accused of racism, sexism, ageism, classism, ableism, and numerous other types of “ism.” Although, as human beings, we should be humanitarian and humanistic toward each other and oppose any form of social injustice (such as unfair discrimination, unjust racism, or unjust sexism etc.), the

truth is that we cannot function or even survive without stereotyping, totemic thinking, or other categorical information in our daily life as a human species. We use stereotypes, totems, or other ways to categorize both the human and physical world almost every moment. Thus, this article aims to address three major issues. First, I will address what totemic thinking is and how totems are related to stereotypes theoretically, which is essential to understanding how categorical thinking helps us to survive and function better. Second, I will review and analyze Jussim's (2012) book on stereotype accuracy, which tells us how modern social psychology fails to acknowledge the importance of stereotype accuracy research. Finally, I will critically examine a recent scientific article about gender stereotypes and female hurricanes by Jung, Shavitt, Viswanathan, and Hilbe (2014) in the Proceedings of the National Academy of Sciences (PNAS) of the United States of America.

II. EVOLUTION, STEREOTYPES, TOTEMS, AND THE EPA THEORY

In 1859, Charles Darwin described his observations of several animals as follows, “Cats with blue eyes are invariably deaf...Hairless dogs have imperfect teeth; long-haired and coarse-haired animals are apt to have, as is asserted, long or many horns; pigeons with feathered feet have skin between their outer toes; pigeons with short beaks have small feet, and those with long beaks large feet” (Darwin, 1859/2006, p. 456). These are just examples of categorical thinking that Darwin used to describe animals in evolutionary science at that time.

Judging from today's criteria, did Darwin use stereotypes (or categories) to describe the animal world? Absolutely he did. His observations were accurate stereotypes of animals. These observations are no different from the observations we usually hear stereotypically: White men cannot jump; East Asians (e.g., Chinese) have slanted eyes (Lee, 2011); and young women with blonde hair are dumb (Kanazawa, 2012; Miller & Kanazawa, 2007). These often-spoken stereotypes are negative and perhaps accurate

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observations of human beings, which may have a biological, psychological and evolutionary complexity behind each of them. Though some researchers on stereotypes address the evolutionary basis of stereotype accuracy (see Barkow, Cosmides & Tooby, 1992; Baron, 1995; Fox, 1992; Kanazawa, 2007; Lee, Jussim & McCauley, 1995; Ottati & Lee, 1995; Miller & Kanazawa, 2007; Neuberg & Sng, 2013; Pinker, 1997, 2002, 2011), a cautionary note is in order. Even when we say White men cannot jump, it does not mean they cannot jump at all. Relatively, those White men whose ancestors were from Europe may not jump as well as those Black men whose ancestors were from Africa.

There are several more clarifications. First, stereotypes involve a comparison or reference group (e.g., black and white, female and male). Second, when we talk about stereotypes, it is not a zero-sum game but a matter of degree. Third, if accurate and still used, certain stereotypes may be related to biological, psychological, evolutionary and many other factors. Finally, as part of categories, stereotypes are functional (see Allport, 1957; Fiske & Taylor, 2013; Pinker, 1999, 2002). This is because categories are useful when they mesh with the way the world works. As Pinker (1997) put it,

Fortunately for us, the world's objects are not even sprinkled throughout the rows and columns of the inventory list defined by the properties we notice. The world's inventory is lumpy. Creatures with cotton-tails tend to have long ears and live in woodland clearings; creatures with fins tend to have scales and live in the water. Other than in the children's books with split pages for assembling do-it-yourself chimeras, there are no finned cotton-tails or floppy-eared fish. Mental boxes work because things come in clusters that fit the boxes. (p. 308)

From the clarifications above, we come to realize that stereotypes are more complicated than many scholars or lay people have thought.

Research on stereotypes and categorical beliefs is rooted in classic work in psychological

perception and cognition, which is based on reality (Jussim, 2012; Lee et al., 1995; Lee, Ottati, Lin & Chan, 2014). James (1890/1980) conceived of beliefs as based in reality, and beliefs imply every degree of assurance, including the highest possible certainty and conviction (p. 913). Lippmann (1922/1965) first described stereotypes explicitly as "pictures in our heads" (p. 3), and they may "contain much that is profoundly and importantly true" (p. 80). Philosophically and psychologically (e.g., Campbell, 1967, Popper, 1979), for example, groups could be regarded as World 1; the thinking or mental processing of those groups could be seen as World 2. Though not always accurate, our stereotypic perceptions or human beliefs could be referred to as World 3. Based on Worlds 1 and 2, World 3 is probably the outcome of our physical and social reality.

In social psychology, research on stereotypes and stereotyping is complicated but fruitful (e.g., Fiske, 1998; Jussim, 2012; Lee, Jussim & McCauley, 1995, 2013; Lee, McCauley & Jussim, 2013; Nelson, 2009; Pinker, 1997, 2002; Ryan, 2002; Schneider, 2004). However, due to the scope and nature of this article, I will only focus on the cubic EPA theory of stereotypes and stereotyping (Lee, 2011; Lee, Bumgarner, Widner & Luo, 2007; Lee, Jussim, & McCauley, 1995, 2013; Lee, Ottati, Lin, & Chan, 2014; Lee, Vue, Seklecki, & Ma, 2007) to understand the complexity and challenge in relation to totems and other categories. In this EPA theory, three dimensions of stereotypes are identified in Figure 1 (see Figure 1). "E" represents evaluation or valence (ranging from positive to negative emotion). "P" represents potency or latency of activation or knowledge (ranging from automatic activation to little or no activation). "A" represents accuracy (ranging from accurate to inaccurate). Evaluation (positive-negative), Potency (active-inactive), and Accuracy (accurate-inaccurate) are not dichotomous, but continuous dimensions (McCauley, Stitt, & Segal, 1980; Osgood, 1952, 1979).

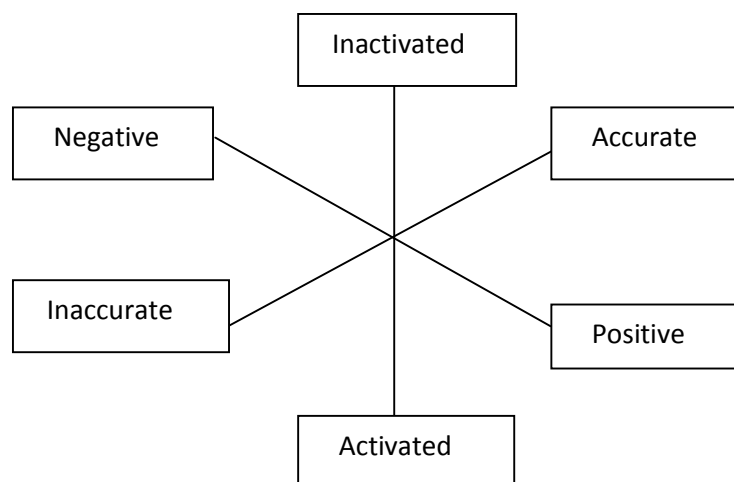


Figure 1 : Cubic EPA Model of Stereotypes (i.e., shown as corners of a cube)

The impact of any stereotype or human categorical belief (including totems or religions) is determined by its combination of evaluation (or valence), potency (knowledge), and accuracy. Assume that an individual is a Christian. S/he might think that the categorical belief in Christianity is more positive for a devout Christian (who may have a positive emotion for Jesus) than a non-Christian individual (i.e., evaluation). S/he may know much more about the Bible and retrieve more information about the Bible than the non-Christian person (i.e., potency). The accuracy is cultural and spiritual correspondence between what s/he believes

and what s/he experiences in reality (i.e., experiential accuracy or truth), or accuracy may indicate that Christians read or use the Bible more often than non-Christians (i.e., behavioral accuracy—see Funder, 1987; Jussim, 2005; Lee & Jussim, 2010; Lee et al., 1995; Kenny, 1994; Oakes, Haslam, & Turner, 1994; Pinker, 2002; Triandis, 2009; Triandis & Vassilisou, 1967).

If the above chart (see Figure 1) on the EPA theory is indirect, we can better visualize stereotypes when we break it down into two dimensions (evaluation and accuracy) in Figure 2 (see Figure 2) as follows.

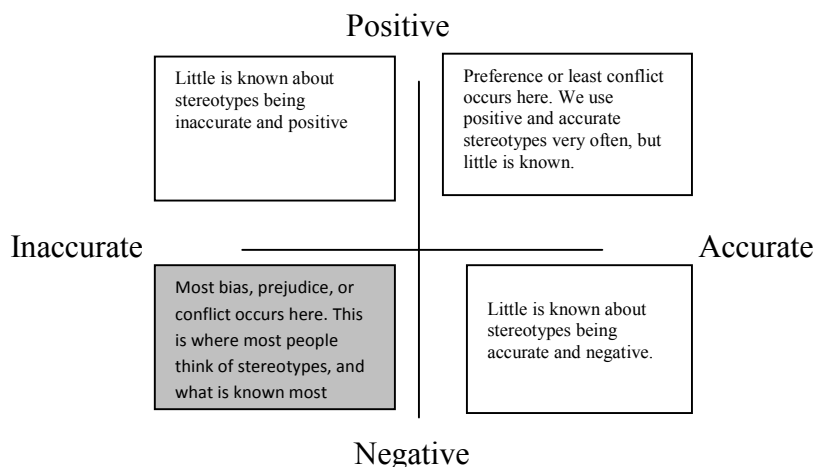


Figure 2: Valence (or Evaluation) and Accuracy of Stereotypes

Whenever we think about stereotypes, we typically mean the bottom-left quadrant—i.e., inaccurate and negative stereotypes. However, according to Lee, Jussim & McCauley (1995, p. 17; Lee, 2011), social scientists need to understand mental representations of social groups in the other three quadrants, which is essential. This is because stereotypes are not necessarily negative or inaccurate (i.e., prejudice). Prejudice is not equal to stereotyping but just a small portion of negative and inaccurate stereotypes. Positive and accurate perceptions about individuals in certain groups or categories could help us to understand and appreciate human differences socially, culturally, and/or biologically (Lee, 1996; Lee et al., 1995). Even negative but accurate perception of certain individuals may help us to deal with some social problems more realistically and effectively rather than denying real social problems. For example, how much do we understand stereotypes being positive and accurate (see the upper-right quadrant) and being accurate and negative (see the bottom-right quadrant)?

Regardless of valence or evaluation (i.e., the level of positive or negative emotion), we have to depend on categorical stereotypes. Our decisions and judgments have to be made "with finite time and resources," (Pinker, 2002, p. 148), and they may have high costs for certain kinds of errors. We therefore must use some common traits or properties to make some decisions or judgments about people or things—i.e.,

based on our conscious or unconscious categorical stereotypes.

From a perspective of Darwinian evolutionary science, human beings cannot function efficiently or hardly survive without categorical thinking and beliefs, including our daily stereotypes and totems, given limited lifetime, limited resources, much uncertainty and/or great danger facing us as humans. Unfortunately, little attention has paid to the accuracy, valence (or evaluative emotion) and knowledge (or potency) simultaneously of these categories (Lee, 2011; Lee, Jussim, & McCauley, 1995, 2013; Lee, McCauley & Jussim, 2013) from an evolutionary perspective. If stereotypes involve perceptions of certain social categories (Eiser & Stroebe, 1972; Pinker, 1997, 1999, 2002; Tajfel, 1981), evolutionarily, totems might be the earliest categorical representations of animals, plants, and inanimate objects in essence (Descola, 2013; Durkheim, 1915/2008; Freud, 1913/1950; Lee, 2010, 2014; Levi-Strauss, 1962, 1966; Palmer, Steadman, Cassidy, & Coe, 2008; Pedersen, 2001; Wundt, 1912/1916). Totems are perhaps the origins of our categorical thinking including stereotypes, our names, and religions or spiritual beliefs (see Lee, 2014).

As an essence of human categorical representations, much interdisciplinary research has been done on totems and totemism for 150 years (McLennan, 1869, 1870; Morgan, 1877/1974; also see Boas, 1916; Durkheim, 1915/2008; Frazer, 1910; Freud,

1913/1950; Goldenweiser, 1910; Jones, 2005; Lang, 1905; Lee, 2010, 2013; Levi-Strauss, 1966; Wundt, 1912/1916). Originally, a totem was seen as a belief regarding certain categorical things (e.g., animals, plants, or objects) that are commonly and sacredly shared and worshipped by a group of people (family, clan, tribe), specifically including primary “features of the relations between human beings and the classes of animals, plants or inanimate objects which constitutes the essence of totemism” (Rivers, 1909, p. 156). Today a totem or totemism may also be a link from the natural world (e.g., animals, plants, or objects) to the human world (e.g., humans themselves, social divisions or categories/kinships), though it may have a religious nature when people of certain groups show respect to their totems (i.e., positive affiliation or evaluative emotion about the natural world). For example, according to Levy-Strauss (1962, 1966), totems are the fundamental ways human beings categorize the physical world in order to survive and function. More recently, Bateson (2002) described totemism as “much more like an incorporation or marriage of ideas about the world with ideas of self” (p. 131).

In relation to stereotypes, totems are common and important not only because they are elements of religious life (Durkheim, 1915/2008), but also because today they are the expressions of the marriage between the natural world and human world, including the self. Can we function well without totemic classifications? Perhaps we cannot. Totems linking the natural world with the human world help us to categorize animals, plants, objects/things, and humans cognitively. Totems and stereotypes serve the same categorizing function. Examples include but are not limited to: a sport team’s mascot, the family name, the flag or symbol, a Christian’s God, a society’s icon, or other common features of any group (e.g., a family, clan, tribe, nation, company, institution, club, and/or any other types of group or organization).

Further, if social representations aim to “make something unfamiliar, or unfamiliarity itself, familiar” (Moscovici, 1984, p. 24; Moscovici, 1973, 1988) via anchoring and classifying ideas or things in relation to everyday categories (p. 29), then totems are excellent examples to make something unfamiliar familiar. If one of the primary functions of stereotypes is to categorize individuals of groups based on certain properties or identities (Lee et al., 1995; Pinker, 1999, 2002; Tajfel, 1981), then stereotypes, totems and other cultural beliefs are the outcomes of human categorizations and representations (Moscovici, 1984, 1988). Therefore stereotypes (or stereotyping), totems (or totemic thinking) or other categories are much needed if we human beings continue to function or even to survive as individuals and as a species.

Do we see totems every day in our modern life? Absolutely we do. For example, in addition to our names

and religions as traditional totemic vestiges, a natural flag is no different from a totem or a totem pole (see Durkheim, 1915/2008; Lee, McCauley & Jussim, 2013). How is it related to the EPA theory of stereotypes? As we can see in Figure 3 (American Flag Eagle: Pictures & Images, 2014), this flag with an eagle is more positive to Americans than to non-Americans (i.e., evaluation)—see Figure 3. Emotionally, many Americans may feel angry or upset when this flag is being burnt by non-Americans (e.g., those people in the countries of the Middle East).



Figure 3 : American Flag with a Bald Eagle (cited from American Flag Eagle: Pictures & Images, 2014).

With regard to potency, Americans can immediately recognize the American flag more easily or effortlessly when seeing it than when they see the national flag of other countries (e.g., China or Russia). It is related to accuracy when an individual says that the American flag has stars and stripes with red, white, and blue colors and that it is a star-spangled banner. It is inaccurate if s/he says the American flag has a yellow color with a moon on it. Thus, a national flag is a totem that, as analyzed above, is consistent with the EPA theory categorically.

In summary, consistent with Darwinian evolutionary science, we cannot function or survive without categorical thinking including stereotypes and totems as a human species. The EPA theory can be applied to stereotypes and totems as categories. We also attach our emotion or valence to those categories (Evaluation), and they are also stored in our memories (Potency). Both are valid and accurate categorical entities that help us to understand the human and physical world (Accuracy) so that we can survive and function well, which is necessary and useful.

Stereotype Accuracy over Inaccuracy: Reviewing and Analyzing Jussim’s (2012) Book on Social Perception and Social Reality.

In the history of psychology, especially social and personality psychology, no one has done a better job than Lee Jussim who recently published a book on social perception accuracy and social reality (Jussim,

2012). It is a milestone not only for scientists, pundits, and other scholars but also for lay persons.

Are we really irrational and heuristically biased in our decisions, social judgments, and perceptions? Are our stereotypes inaccurate and false? Are self-fulfilling prophecies as powerful as those scholars reported? Mainstream psychology tends to agree. But since the systematically scientific publication on accuracy by Lee, Jussim, and McCauley (1995), Jussim (2012) has reviewed and analyzed much more studies on stereotype accuracy and provided "No's" to all those questions. Further, he examined the condition in which people do not use stereotypes and still make accurate judgments and perceptions (i.e., when individual information is available) and the condition in which people indeed use stereotypes and still have accurate perception (i.e., when no information, no useful information, or ambiguous information is provided). Like the yin-yang perspective, biases and accuracy occur simultaneously right alongside one another, but research evidence reviewed by Jussim (2012) showed that bias is generally small compared to accuracy. Although people are not perfectly rational and unbiased, they are frequently pretty darn good. Thus Jussim's research seems to raise a scientifically strong voice against those mainstream social psychologists or other pundits who have a deep-seated "social psychological bias in favor of bias" (Jussim, 2012, p. 423).

Further, Jussim's writing is courageously ingenious and uniquely critical and insightful. For example, according to Jussim (2012) science is never pure but value-laden. In a sense, this is similar to Kuhn's view that science is socially constructed and culturally received (see Kuhn, 1962; Voosen, 2014). Jussim (2012) stated that certain scientists' agenda or motivation may affect how and why they present scientific data and how and why they include inaccuracy or bias-oriented researchers as in-group members while marginalizing research findings of stereotype accuracy--i.e., "intellectual imperialism" referring to "the occasional tendency in intellectual/scholarly circles to attempt not only to promote one's favorite theory, perspective, or methodology, but also to denigrate, dismiss, and in effect, quash alternative theories, perspectives, or methodologies" (Jussim, 2012, p. 148).

Stereotypes and stereotyping are negatively or inaccurately sensitive words as recognized by Nobel Prize Winner D. Kahneman (2011) and most scientists or lay persons in today's society. Though acknowledging stereotyping as "neutral," Kahneman (2011) put stereotypes connotatively in a negative and inaccurate way. Much different from Kahneman's research and other mainstream psychology, Jussim (2012) boldly and ingeniously addressed that research on stereotype accuracy (or even talking about stereotype accuracy) does NOT enhance racism, sexism, ageism, classism or

other social injustice. In fact, it helps us to appreciate diversity and multiculturalism and solve real social problems between groups with differences, which may be consistent with other classical research on stereotype accuracy (Lee, 1996; Lee & Jussim, 2009).

However this does not mean there is no malicious racism, sexism, ageism, classism, or other social injustice that may be related to inaccurate stereotypes. As acknowledged by Jussim (2012), not all stereotypes are accurate, and those that are inaccurate may be the most damaging, especially those politically manufactured ones which are intentionally designed to despoil the reputation of particular groups.

A cautionary note is in order here. Jussim is very candid and honorable when presenting a list of its limitations (see Jussim, 2012, pp. 390-391). For example, though Jussim did a superb job in reviewing almost all major studies on stereotypes and self-fulfilling prophecies, his coverage was primarily limited to personality and social psychology. It would be much nicer to also include stereotype accuracy studies perhaps from other fields. Also Jussim claimed that prejudice and discrimination are quite important and can be very destructive. It would be more scientific to state that socially unjust prejudice or discrimination is terribly destructive. In addition to categorical stereotypes, human beings do have categorical prejudice and do need categorical discrimination in order to function and survive as discussed above. For instance, some Asians have prejudice toward cheese while certain Europeans may have negative attitudes toward tofu. As far as I know, many Asians (including myself) have lactose intolerance when they eat much dairy food. Thus it is normal and unavoidable to have prejudice (Lee, 1996). Also, we do use discrimination daily, from manuscript screening, personnel selection, mating, dating, to reading books or articles. All this shows an observed range of discriminative human behaviors (Lee et al., 1995; 2013; Pinker, 1997, 1999, 2002, 2011). As a step toward rational ordering and thinking, human categorization or classification (e.g., totems, stereotypes, and discrimination) has helped humans to function well and survive efficiently for millions of years (Levy-Strauss, 1962, 1966).

In summary, while mainstream social psychology ignores accuracy research, Jussim (2012) has documented a tremendous amount of research evidence of stereotype accuracy over inaccuracy since the earlier publication by Lee, Jussim and McCauley (1995). Learning about this book and his other research on social perception accuracy is like taking a wonderful vacation--a great intellectual and scholarly vacation for the minds of all people, not only for scientists --e.g., any psychology students, faculty, researchers and other scientists or pundits, but also for professionals, practitioners, policy-makers, and lay persons.

Categories of knowledge mismatched—Examining Jung et al. (2014)'s PNAS article on female hurricanes.

Recently Jung, Shavitt, Viswanathan and Hilbe (2014) published an article titled "Female hurricanes are deadlier than male hurricanes" in the Proceedings of National Academy of Sciences (PNAS) of the United States of America. They reported six experiments. This research is very interesting, and the authors brought up a very good point--female names of hurricanes made people act less quickly (e.g., delay to evacuate) and thus there were more deaths, which is probably related to gender-expectation, sexism, or implicit gender bias.

Given the findings and statistical data by Jung et al. (2014), the conclusion about gender-related stereotypes that caused more death is far from definitive or premature. There are so many other confounding variables involved than the gender expectations or stereotypes that may cause people to lower perceived risks or to be less prepared (also see Bower, 2014). There was no way to measure the seriousness and rapidity of each hurricane. There are some severe flaws with this research as can be seen below.

First of all, the researchers (see Jung et al., 2014) only examined the hurricanes in the USA (1950-2012). Why did they not examine the hurricanes in the past 100 or 150 years? Why did they not examine the hurricanes beyond the USA (i.e., worldwide data)? If other countries do not use gender-related names (say using animals or plants etc.) for hurricanes, does this mean that people can increase their perceptions of risk and be better prepared? Their research could not provide us with natural meteorological data outside the USA or the American data in the past 100 or 150 years. The sixty-year data with gender names cannot be conclusive statistically. Perhaps the death rate of American hurricanes might have nothing to do with sexism or implicit bias.

Second, those six experiments by Jung et al. (2004) have several limitations. First, if hurricanes are part of Mother Nature, to what extent did their participants (Ps) in those experiments understand this? In other words, how positive and negative were their Ps toward hurricanes? The authors have never examined this. Assume that all their Ps are negative (say $M = 1.1$) toward hurricanes on a seven-point scale from 1 (negative) to 7 (positive). How about their positivity and negativity toward those human names? In fact, in their Table S3, the authors stated in their notation, "Overall, perceived masculinity-femininity of the names was not correlated with attractiveness" or "with intellectual competence." In other words, their Ps were very neutral toward both male and female names (with a mean of approximately 3 or 4). This shows that Ps showed no sexism or implicit bias in terms of the preference for male or female names unless there was a social desirability or political correctness among the Ps.

Third, conceptually, natural disasters (e.g., hurricanes) are not equal to actual human beings. Giving any human male or female names may lead some people to an association with gender stereotypes or expectations. To a certain extent, it may be correct. Let us focus on the relationship between stereotypes and totemic psychology (see Lee, 2014; Lee, McCauley, & Jussim, 2013). Let us forget male or female names. Hypothetically, we will run an experiment on Hurricane Pigeon (that is peaceful) and Hurricane Tiger (that is aggressive). Chances are we may get the same results. Thus it is not gender but the fear that might make people act faster psychologically. In fact, their Experiments 5 and 6 measured female warmth and male aggressiveness, but their interpretation did not touch human fear, which may have nothing to do with gender (also see Bower, 2014).

Fourth, numerous studies in psychology and evolutionary science showed the accuracy of gender stereotypes that males are more aggressive than females, who are more caring (see Eagly & Wood, 2012; Jussim, 2012; Kanazawa, 2012; Lee, Jussim, & McCauley, 1995, 2013; Lee, McCauley, & Jussim, 2013; Miller & Kanazawa 2007; Pinker, 2002). For example, according to Sarah B. Hrdy's (2009) evolutionary research, the mothers of the majority of primates were found to care for their children and fathers were found to engage in fierce contests or competitions with other males:

To put men in perspective, step back for a moment and consider paternal behavior in broad comparative perspective, across all 5,400 or so species of mammals in the world. In the majority of them, fathers do remarkably little beyond stake out territories, compete with other males, mate with females. With outlandish auditory and visual displays which often entail specially evolved weaponry, bellowing, barking, or roaring, males engage in fierce contests to rout their competitors. Then 'Slam, bam and thank you ma'am' and the inseminator is off. Male caretaking is found in only a fraction of mammals. (Hrdy, 2009, p. 159)

If males are basically more aggressive while females are warmer and more caring, this accurate categorical thinking or stereotype has a biological and evolutionary basis. Based on our EPA theory as described above (evaluation-potency-accuracy--see Lee, McCauley & Jussim, 2013), accuracy and positive emotion (or evaluation) of ethnic or gender stereotypes may be more related to evolution as can be seen in Hrdy's work (2009) and may also be related to cultural or gender role or identity rather than racism or sexism (also see Lee & Duanas, 1995). It is very unfortunate to mismatch positive gender role (e.g., warmth or caring of females) with the negative fearful natural disaster (e.g., to name a hurricane Alexandra).

Finally, there is a very important point that is worth mentioning. Cognitively and evolutionarily, we

cannot function without totems as much as we cannot function without stereotypes, which can help us to survive and function well (Lee, 2014). As discussed above, both stereotypes and totems are based on categories (see Lee, McCauley & Jussim, 2013; Lee, 2014). Much research has shown that a totem is a connection between ourselves as humans and nature itself (see Durkheim, 1915/2008; Freud, 1913/1950; Levi-Strauss, 1962; Wundt, 1916). One of the totemic perspectives is nominalistic theory (see Lee, 2014). We need to differentiate among human beings by using animal or plant names for ourselves, and our last name is still the vestige of totems (e.g., Rose or Rosemary, Wolf, Eagle, Rice). In the meanwhile, there are so many hurricanes, and thus we need to differentiate them by giving each a name categorically. Therefore Jung et al. (2014) picked up a right question but perhaps gave a wrong answer when overstating the influence of gender bias. In all fairness, it might be better to avoid giving hurricanes human names (either male or female). Instead, we may use fearful animals or thorny plants to name hurricanes in order to arouse human fear and reduce death. In brief, Jung et al.'s (2014) recent report might have nothing to do with sexism or implicit bias, but negative damage-related category of hurricanes should NOT be associated with the positive caring/warm category of females. It is better not to use gender to name a hurricane if we want to respect and protect life.

III. CONCLUSION

If "categories have stereotyped feathers: traits that everyone associates with the category" (Pinker, 1999, p. 274), totems are the earliest representations of categorical thinking (i.e., totemic mind, see Lee, 2014). Human beings cannot function well or even survive without categorical thinking including stereotypes or totems. This article first focuses on the EPA theory that is used to analyze stereotypes and totems as valid/accurate and evaluative categories that are stored in our mind (or in our memory as a potency). Also Jussim's (2012) recent work on social perception accuracy demonstrated much more evidence of stereotype accuracy than inaccuracy in social psychology, which has been unfortunately marginalized by mainstream psychology. Finally, I critically examined the recent research by Jung et al. (2014) and found the names of female hurricanes may have nothing to do with sexism or implicit bias. Inaccuracy or invalidity may occur when categories are mismatched. However, research on stereotype accuracy is politically and scientifically no easy task. Our EPA theory is a unique contribution to science and the academic field. As time goes, more and more scientists and lay people may agree that we cannot survive or function without categorical thinking (including stereotypes and totems), which is consistent with evolutionary science.

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Accommodation Reforms and Its Effects on Students: A Focus on Kwame Nkrumah University of Science and Technology from 1960 To 2013

By Samuel Adu-Gyamfi, Edward Brenya & Eileen E. L. Lamptey

University of Science and Technology, Ghana

Abstract- This article focuses on how accommodation reforms have impacted the lives of students in Kwame Nkrumah University of Science and Technology. Attention has been paid to history of the various residency and non-residency policies since the inception of the university. The study re-hushes the fact that the prevailing conditions in 1960 are vastly different from 2013. It studies how these policies have evolved since 1960 as well as their impact on students over the years. The article concludes among other things that the university should build more halls or hostels at a subsidized amount. They could do this by entering into partnership with firms, groups and organizations.

Keywords: *kwame nkrumah university of science and technology, halls, university education, accommodation, hostel.*

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Accommodation Reforms and Its Effects on Students: A Focus on Kwame Nkrumah University of Science and Technology from 1960 To 2013

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Abstract- This article focuses on how accommodation reforms have impacted the lives of students in Kwame Nkrumah University of Science and Technology. Attention has been paid to history of the various residency and non-residency policies since the inception of the university. The study re-hushes the fact that the prevailing conditions in 1960 are vastly different from 2013. It studies how these policies have evolved since 1960 as well as their impact on students over the years. The article concludes among other things that the university should build more halls or hostels at a subsidized amount. They could do this by entering into partnership with firms, groups and organizations.

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I. INTRODUCTION

University education is a form of higher learning or tertiary education. Tertiary education follows secondary education. It refers to non-compulsory education provided via a specialist institution, usually labelled as a college, polytechnic, technikon¹ or university. According to Campbell and Rozsnyai's definition, tertiary education is any education entered after successful completion of secondary education, which may include vocational post-secondary education (leading to a certificate) and higher education (leading to a degree), even though the designation is often used synonymously with higher education². The World Bank (2011) stated that, tertiary education broadly refers to all post-secondary education, including but not limited to universities. Universities are clearly a key part of all tertiary systems, but the diverse and growing set of

public and private tertiary institution in every country – colleges, technical training institutes, community colleges, nursing schools, research laboratories, centres of excellence, distance learning centres, and many more – forms a network of institutions that support the production of the higher-order capacity necessary for development³. Tertiary education according to the Ghana Vision 2020 has an overall aim which is to revitalise and expand the tertiary education sub-sector in consonance with national manpower needs. This requires revamping, recapitalisation and expansion of tertiary education facilities⁴.

Tertiary education in Ghana was introduced by the British in 1948 by the establishment of the University College of Gold Coast based on the recommendation of the Asquith Commission on higher education in British colonies⁵. The Asquith Commission was formally known as the Royal Commission on Oxford and Cambridge Universities. It was established on the 4th of November, 1919 with former Prime Minister Herbert Asquith as its head, Gerald Balfour as vice-chairman, Lord Ernle and representatives of the Privy Council as its members to evaluate the value of having two legislative bodies in the University. The Commission submitted a report in 1922 which became known as the Asquith report.⁶ It was later contracted in 1943 to investigate Higher education, recommended among other things the setting up of University Colleges in association with the University of

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¹ Technikon is a noun of South African origin which is an institution offering technical and vocational education at tertiary level

² C. Campbell & C. Rozsnyai, "Quality Assurance and the Development of Course Programmes" http://www.Qualityresearchinternational.com/glossary/tertiary_education.htm. accessed from www.knust.edu.edu.gh/oer/pages/index(October 2013)

³ World Bank, "Tertiary education (Higher Education)", <http://webworldbank.org>. Accessed, 26th August, 2012 quoted from <http://www.qualityresearchinternational.com/glossary/tertiaryeducation.htm>. Accessed from www.knust.edu.edu.gh/oer/pages/index(October 2013)

⁴ Government of Ghana-National Development Plan Commission, "Development Programme for the Plan Period, Education sub-programme 4: Tertiary Education", Ghana – Vision 2020, The 1st medium term Development Plan 1997-2000, Accra, Ghana, July 1997,93

⁵ Oxford University Archives, 'A history of Congregation and Convocation Asquith Commission- 1919-1922'. www.oua.ox.ac.uk/enquiries/congandconvfour.html Prest John, 'The Asquith Commission, 1919-1922' www.oxford scholarship.com/view

⁶ The report from the Commission recommended providing additional powers to resident teachers and university administrators.

London, hence, its involvement in the development of tertiary education in the Gold Coast.

The University College of Gold Coast was first associated with the University of London. The purpose for the establishment was to provide for and promote education, learning and research. Over a period after independence the University College of Gold Coast became the University of Ghana, Legon.⁷ Tertiary education continued to spread; universities were established in Kumasi and Cape Coast. The Kwame Nkrumah University of Science and Technology was first established as University of Science and Technology after it replaced the Kumasi College of Technology in 1951. Over the period various departments were formed and others moved to other schools like University of Ghana, Legon and Winneba Training College. Others were also moved from places like the Korle Bu Teaching Hospital to the university. The school attained an independent University status after the University Commission was established to give advice on transforming it into an independent university in Ghana. The Kumasi College of Technology became a full-fledged university and was renamed Kwame Nkrumah University of Science and Technology (KNUST) by an Act of Parliament of 22nd August, 1961.

Accommodation according to the Oxford Advance Learner's dictionary is a noun which means a place to live, work or stays in rented, temporary or furnished accommodation.⁸ It also means somewhere to live or stay, often also providing food or other services. The research seeks to define accommodation as a place to live which is rented over a period of time during the pursuing of a degree in the university as well as some of the services enjoyed during this time. The research seeks to establish the type of accommodation or landed property provided for students as accommodation and their services as well as the policies that influence their stay in these landed properties.

In Ghana, governments like that of the Convention Peoples Party (CPP) undertook certain measures to ensure the development of universities in the country. A policy on admission into tertiary institutions was enacted in 1962 to practically admit all students who obtained the minimum entry requirements.⁹ Also in the Ghana – Vision 2020 one of its objectives in relation to the tertiary education is to provide greater access to tertiary education for qualified candidates.

In the provision of tertiary education, accommodation facilities are provided because of its central location and the need to provide other services for a holistic training. Halls of residence have been built to accommodate students especially undergraduates. In KNUST for instance there are six traditional halls which provide accommodation for students. The halls of residence were built between the years 1959 and 1969. The halls are Queen Elizabeth II, Unity, Independence, Republic, University and Africa Hall.¹⁰ Queen Elizabeth II, a mixed hall was officially opened in November 1959 by the Duke of Edinburgh. It has a capacity of 294 rooms. It has a current population of about 1000 students. Unity Hall, all male hall welcomed its first batch of students on 16th October, 1968 and has 448 rooms with an additional 36 flats. It houses a number of 1952 students. Independence Hall, the first permanent residence was opened in February 1959. It has 198 rooms in the main hall and 96 rooms in the Annex. Its population is 1003 students. Republic Hall named to commemorate the Republic status of Ghana was opened in 1961. It is a mixed hall with 198 rooms in the Main hall and 96 rooms in the Annex. The number of students currently in the hall numbers 1180. University Hall is an all-male hall with a capacity of 198 rooms and an additional 95 rooms in the Annex. It was built to commemorate the Kumasi College of Technology gaining a university status on the 22nd of August, 1961. It also has a population of 1000 and more students. The all-female hall, Africa hall has 192 rooms and opened to students on 14th October, 1967. It currently has a population ranging from 800 to 900 female students. The total number of students in the traditional halls currently stands at 7817 instead of its original capacity of 1815. The capacity of these halls has been the same since its establishment and was aimed at accommodating one student per room, however due to increase in the admission of students this has moved from one in a room to a current population of four per room and even the conversion of some spaces like offices and study rooms in the halls as well as the provision of extra rooms known as flats to accommodate most students.

Admission of students continues over the years and the intake of students also increases yearly. The university at the onset provided accommodation for all students admitted as well as continuing students but over the period due to increase in the number of students as against an increase in the housing facilities, the university now provides accommodation for first year undergraduate students in the halls of residence. Over a period of time there has been the emergence of private hostels in and around the university campus. This has

⁷ University of Ghana, "About University of Ghana, Brief Description on the university" www.ug.edu.gh/index, (October, 2013)

⁸ A. S. Hornby, *Oxford Advanced Learner's Dictionary*, 6th Edition, ed. Sally Wehmeier, Phonetics Editor, Michael Ashby (Oxford University Press) p.7

⁹ Ebenezer Gammah Abaitey, "Graduate Student Hostel, UST, Kumasi", (M.A dissertation, KNUST, 1998), www.knust.edu.gh/oer (accessed, April, 2013)

¹⁰ Kwame Nkrumah University of Science and Technology, Students, Housing and Accommodation, 'Hall of Residence', www.knust.edu.gh/students/housing/halls, (September, 2013.)

led to a series of questions as to why the University authorities are not providing more halls of residence for all students but just first year students in the Undergraduate programmes of study. There is an increase in the demand for accommodation by students as the halls of residence cannot accommodate a population of 41,462 (number of students as at 2012/2013 congregation statistics) students currently in the university. This has brought about series of problems in finding accommodation or residence especially for undergraduates of the University. There are problems or challenges faced by students with regards to providing or finding accommodation, an example being that affordable accommodation within walking distance is unavailable and has led to the rise of 'perching'¹¹ which is non-resident students living in the halls illegally.¹²

Reform has been defined as the improvement or amendment of what is wrong, corrupt, and unsatisfactory. It could also mean the amendment of conduct, belief, etc. also to change to a better state, form, etc. to improve by alteration, substitution, abolition, etc. it could also mean to improve an existing institution, law, practice by alteration or correction of abuses. Also an improvement or change for the better, especially as a result of correction of legal or political abuses or malpractices.¹³ The fundamental aspects of reform is to alter or effect changes in already existing laws, practices or policies to the welfare of the stakeholders or the people being bonded by these laws. This research is focused on underlying some of these reforms with respect to accommodation that have taken place over the period.

This research therefore seeks to know the reforms that the University authorities have put in place to resolve the accommodation problems and how these reforms have affected students over the years. The central issue is premised on continuity and change focusing on the transitions of accommodation issues in the Kwame Nkrumah University of Science and technology from the 1960s to present.

a) *The Problem and objectives*

The recommendation of the University Rationalization Programme¹⁴ based on the increase in

admission of students has not been met with equal increase in accommodation facilities.¹⁵

The university community in Ghana has been able to create accommodation for its student through the provision housing referred to as halls on their various campuses. In recent times private individuals have also built or created a host of hostel facilities while others have turned their private homes into accommodation for students. The presence of these facilities and more being created to meet the rise in demands of students must not leave room for accommodation problems. However, there is still the practice of students residing with colleagues in their rooms or apartments. This practice breaches the policy of a maximum of four students in a room. Other students are left with no option than to come for lectures from their respective homes or reside or squat in unacceptable places like study rooms, common rooms, television room and non-residential facilities. The non-residential facility on campus was put in place for non-resident students to take their rest between lectures and have private studies before they leave for their various residences. However, some students live in these facilities for the academic year. Accommodation has become a major concern to students as they have to relocate residence or renew their residence contract with residence owners.

There is an increase in the struggle for acquiring accommodation or place of residence for most students over the past years. People have researched into the topic in the fields of the emergence of private hostels to help solve the issue. However, these problems give us the opportunity to restudy the policies in relation to the provision of residence for students and how they have been reformed over the years as well as the impact of these policies on students on campus.

The study therefore focuses on accommodation reforms and its effects on students. The other objectives include a critical examination of the policies pertaining to the provision of accommodation for students and an examination of the problems encountered by students in relation to the provision of accommodation. The others include the assessment of the factors that have led to changes or reforms in these policies in relation to accommodation and to look at how best these policies can be implemented to benefit the students of the University.

b) *Methodological Issues and Research Questions*

In the course of the research statistical data was collected from the various halls of residence on KNUST campus indicating the number of rooms available and the accommodation that has been granted to students over the years. Analysis was made to assess the

¹¹ Perching is a practice where students reside with other students without paying accommodation fees. The presence of these students is illegal and increases the supposed number of students per room.

¹² Ebenezer Gammah Abaitey, "Graduate Student Hostel, UST, Kumasi", (M.A dissertation, KNUST, 1998), www.knust.edu.gh/oer (April, 2013)

¹³ Meaning of reform, www.freedictionary.comwww.knust.edu/oer/pages/index. (October, 2013)

¹⁴ It was based on the recommendations of the University Rationalization Committee which was established to give a report on tertiary education in Ghana in 1991. It also formulated the policy framework for the tertiary education sector between 1986 and 1988.

¹⁵ Ebenezer Gammah Abaitey, "Graduate Student Hostel, UST, Kumasi", (M.A dissertation, KNUST, 1998), www.knust.edu.gh/oer (April, 2013)

changes in terms of the increase and decrease of the number of students admitted over the years into these halls of residence.

Information on hostels that are recognized and those not recognized by the Dean of Students office was obtained. This was done through an enquiry which was accessed from the university's official website. Also a compilation of the names of some hostels in and around KNUST campus was done, details in relation to their purpose of establishment, achievements and challenges were collected through interviews with some selected hostel managers and owners.

Information on the number of students that have been admitted during the period was accessed from the Quality Assurance and Planning Unit office. The number of students admitted into the halls was accessed from the various hall tutors offices. This was used to assess the percentage of students who gain access to the traditional halls as against the total number admitted each year over the period.

Questionnaires were administered to students from the various colleges and this comprised of students from the various level of study that is from first year to final year. The questionnaires were used to gain information on the challenges students face in acquiring accommodation, its effects on them, their satisfaction in relation to their present residency and their knowledge on housing and accommodation policies as well as their recommendations on how these challenges or problems could be solved.

Interviews were conducted with some lecturers who double as alumni of the university to gain information on the accommodation situation during their time, the benefits and challenges they faced with regard to accommodation and also their views on the current situation. Also these interviews help to highlight the changes that have occurred over time.

Interviews were also conducted with some selected alumni who were not lecturers to also gain information on their accessibility to accommodation facilities during their time of pursuing their undergraduate degree. Some of these interviews were done via the telephone.

An interview with some selected halls of residence administrators was conducted to know the measures that were taken to enforce or implement the policies promulgated, for example the policy of admitting four students as against the three or two students per room. Also the challenges that they face and measures put in place to curb or solve these problems. Data on the type of students that were admitted in the various halls over the past years was collected. Analysis was made on the shift from admitting all students in the halls to just freshmen undergraduates based on the percentage of freshmen and continuing students in the halls of residence. Analysis was made to

look at the percentage of students each hall admits after admission has been granted to undergraduate students.

Some challenges faced were having access to the people to be interviewed due to their schedules; however, meeting days were set to conduct the interview. Also most of the hostel owners have delegated the administration to managers or caretakers who have little or no knowledge on the basis for establishing the hostels, the time these hostels were established and developments that have taken place since its establishment. Interviews were conducted with the owners of these private hostels through the telephone while with others during their random visits to the hostels.

II. QUESTIONS

The following questions were formulated to serve as a guide in the writing of this paper:

What are the means by which the University provides accommodation for its students?

What policy or act initiated the provision of accommodation for students?

How many students were first admitted into these halls of residence and what is the current population now?

How many policies have been promulgated with regard to accommodation and factors that led to their reformation?

What is the capacity in terms of rooms and facilities for these buildings and what developments have been made to enhance them?

Who is responsible for the promulgation or formulation of policies with regard to accommodation?

What are the factors that led to the establishment of private hostels in and around campus? What are the challenges being faced by students with regard to accessing accommodation facilities?

a) *Why this Article?*

This article seeks to address the policies that have been made over the years with regard to accommodation and how these reforms have affected students. This is because of the increase in hostel 'hunts' by students, dissatisfaction with the system by students and also the increase in the building of hostels and inhabitants of the towns around the university converting their private homes to accommodate students.

It is to help in the restructuring of the housing and accommodation policies to help reduce the adverse effects on students by analysing the situation on the ground and making recommendations as to how the university authorities, companies and private individuals can take advantage and bring about a transformation in the provision of accommodation to help students who are most affected.

b) *History of Tertiary Institutions in Ghana*

Tertiary education in Ghana was introduced by the British in 1948 by the establishment of the University College of Gold Coast based on the recommendation of the Royal Commission on Oxford and Cambridge Universities (Asquith Commission). This was possible when the commission was contracted in 1943 to investigate Higher education. In their report it was recommended among other things the setting up of University Colleges in association with the University of London, hence, its involvement in the development of tertiary education in the Gold Coast.

The University College of Gold Coast was first associated with the University of London. The purpose for the establishment was to provide for and promote education, learning and research. Over a period after independence the University College of Gold Coast became the University of Ghana, Legon.¹⁶ Tertiary education continued to spread; universities were established in Kumasi and Cape Coast.

The Kwame Nkrumah University of Science and Technology was first established as University of Science and Technology after it replaced the Kumasi College of Technology which was established in 1951. The University of Science and Technology was established by a Government Ordinance on 6th October, 1961. The Kumasi College of Technology officially opened on 22nd January, 1952 with two hundred (200) Teacher training students from Achimota College in Accra. The Kumasi College started with the School of Engineering and Department of Commerce in October 1952. The school originally prepared students for professional qualifications until 1955 when it embarked on courses leading to the University of London, Bachelor of Engineering External Degree Examinations. Other programs to be offered were a two-year course in Pharmacy leading to the award of Pharmacy Board Certificate and a course which lasted from some terms to three years in the field of Agriculture. These courses in Pharmacy and Department of Agriculture started in 1953. A department like Department of General Studies was instituted to train students in the Arts and Science to help in the instruction of Arts and Science courses in the various departments. In the year 1957, the School of Architecture, Town Planning and Building was inaugurated and the first batch of students were admitted in January, 1958. It was later decided to transform the institution into a purely Science and Technology institution. The Teacher Training College was transferred to the Winneba Training College, Winneba in January 1958. However, the School of Arts was not transferred. In 1959, the Commerce Department was transferred to Achimota to form the nucleus of

present Business School of the University of Ghana, Legon.

The government of Ghana in 1960 appointed a University Commission to advise it on the future development of University education in Ghana. The aim was to transform the University College of Ghana and the Kumasi College of Technology into independent universities in Ghana. Upon the report by the Commission both became full-fledged universities. The Kumasi College of Technology became Kwame Nkrumah University of Science and Technology by an Act of Parliament passed on the 22nd of August 1961. There have been changes in the name. The 24th February, 1966 Revolution and its aftermath saw the change in name to University of Science and Technology (UST). The Revolution was to overthrow the government of Dr. Kwame Nkrumah. This revolution was executed by the National Liberation Council (NLC) which was led by Lt. General Joseph Arthur Ankrah.¹⁷ The University was renamed by an Act of Parliament, Act 559 of 1998. The name changed to Kwame Nkrumah University of Science and Technology.

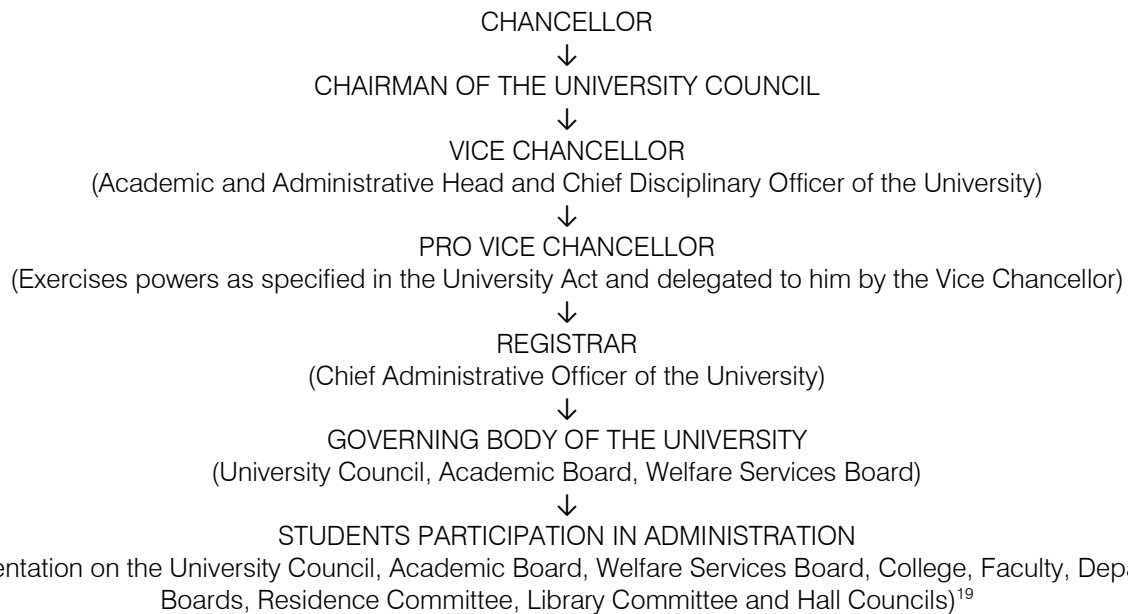
The University's structure is currently decentralized and this system is known as the Collegiate system. This came into being on 29th November, 2004. This system was needed due to the difficulties being faced by the University authorities with regard to coordinating the various faculties and the ever growing number of students in the institution. On the 5th April, 2005 the first set of Provosts were inducted into office. The Colleges are College of Art and Social Sciences, College of Engineering, College of Agriculture and Natural Resources, College of Science, College of Health Sciences and College of Architecture and Planning.¹⁸

The University Administrative Structure is in seven (7) phases. The Principal Officers of the University as stated in the Statutes are the Chancellor, Chairman of the University Council and the Vice Chancellor. The structure is as follows:

¹⁶ University of Ghana, "About University of Ghana, Brief Description on the University", www.ug.edu.gh/index, (February, 2014).

¹⁷ Ghana Web, Political History of Ghana, Political highlights, www.ghanaweb.com/GhanaHomePage/republic/polit_hist.php, (April, 2014)

¹⁸ *Kwame Nkrumah University of Science and Technology, Students' Guide*, ed, Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 1-2.



c) *Historical Study of Accommodation Facilities in KNUST*¹⁹

A prominent feature of a University is the presence of residential facilities for its staff and students. The residence for students is usually called Hall of residence. The Kumasi College of Technology becoming a full-fledge university had to create halls of residence to accommodate its students. Kwame Nkrumah University of Science and Technology has six traditional halls of residence. This section will highlight on the development of these hall facilities as well as other services that were provided over the years.

i. *Independence Hall*

The first hall to be built was the INDEPENDENCE HALL, hence the name the Premier hall. It was built in 1959, about seven years after the establishment of the Kumasi College of Technology in 1952. It was during this period that the College was turned into a purely Science and Technology institution due to its expansion. The hall was an all male hall. The hall was officially opened in February 1959. It was named Independence Hall to commemorate the attainment of Ghana's independence on 6th March, 1957. The hall had 294 rooms. It was divided into the main and annex buildings. The annex has a total of eight (8) floors and the main seven (7) floors currently (2010/2011 Basic Statistics). The rooms were occupied by a student. However with time the numbers varied and increased. Other facilities included a Senior Common room, Junior Common room where students could

purchase items such as drinks and spend their leisure time. There was also a sports room where students could play table tennis. The hall also had a dining hall where food was supplied to students with the use of coupons through government funding. Overtime there was the introduction of kitchenettes when the provision of food by the government stopped in the late 1980s. There has however been an increase in the number of toilet facilities and showers in the hall. Statistics from the Basic statistics book published by the Universities Planning Unit on Residential facilities between the 1999/2000 and 2010/2011 academic years show the increase from 44 to 58 toilet facilities and from 51 to 77 numbers of showers provided by the Hall administration. However the number of kitchenette has reduced from 1 to nil. The number of floors during this same period has increased from 13 to 15 floors. The number of rooms however has been constant.²⁰ The hall admitted its first female occupants in 1991. This development was possible because of the increase in the number of female students patronizing tertiary education therefore the all female hall and the only mixed hall before this time could not accommodate the increasing number. The students in the hall are popularly called Spartans and their motto is Honour and Integrity. The hall currently has a population of 1003 students with the highest number of students in a room being four (4) with the same existing structures.

¹⁹ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), p 5-6.

²⁰ Quality Assurance and Planning Unit, *Kwame Nkrumah University of Science and Technology Basic Statistics, 32nd Congregation - 45th congregation*, (University Printing Press, KNUST, 20th February, 1999 - June, 2011)



A Pictorial View of Independence Hall



Logo

III. A PICTORIAL VIEW OF INDEPENDENCE HALL LOGO

a) Queen Elizabeth Hall

The second Hall of Residence to be built was the QUEEN ELIZABETH II HALL. It was officially opened by the Duke of Edinburgh in November, 1959. The Queen visited the Hall in 1961 during a state visit to Ghana. The hall was the first mixed hall to be built.²¹ The hall had 294 rooms, kitchenettes, dining hall, sports room, Junior Common Room and a Senior Common Room. It has a Main section and an Annex. There were a total of 13 floors for the Main and Annex; however, it increased to a total of 14 and 15 floors over the years. Also the number of rooms has seen a variation that is from a total of 294, 300 and 309. The hall currently has ordinary rooms and flats. The hall currently has a market, an internet café, a volley ball pitch and a common television room. The provision of food by government to students through the kitchen staff has ceased like all other halls. The dining hall is currently used to sell varieties of food to students, used for General meetings, group and individual studies as well as social events. The total number of students in a room has increased from one in a room to four in a room as well as a special room known as the Studio which accommodates a total number of 8 students. These Studios started in the 2012/2013 academic year due to the increase in the number of students as against the number of rooms. However there has also been an increase in the number of toilet facilities and showers. There are a number of Poly tanks in the hall to provide students with water as well as a stand-by generator. The total number of male students in the hall always outnumbers the total number of female students with the exception of the year 1999/2000 that the female students outnumbered the male students. The Basic

Statistics of the University from the 1999/2000 academic year to 2010/2011 reflects this statement. The table below shows the statistics for the period stated above.²²

²¹ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 31.

²² Quality Assurance and Planning Unit, *Kwame Nkrumah University of Science and Technology Basic Statistics, 32nd Congregation - 45th congregation*, (University Printing Press, KNUST, 20th February, 1999 - June, 2011)

Table: 2.1

Year	Male Students	Female Students	Total
1999/2000	231	376	607
2000/2001	357	189	546
2002/2003	523	242	765
2003/2004	766	343	1142
2004/2005	657	549	1206
2005/2006	706	534	1240
2006/2007	772	612	1384
2007/2008	684	488	1172
2008/2009	678	501	1179
2009/2010	724	461	1185
2010/2011	667	476	1143

The students in Queen Elizabeth II hall are referred to as Royals and their motto is Strive for the best.



A Pictorial View of Queens Hall



Logo

IV. A PICTORIAL VIEW OF QUEENS HALL LOGO

a) Republic Hall

The next hall to be constructed in the Institution was the REPUBLIC HALL. The Hall of residence was constructed in the year 1960 when the country, Ghana attained its Republic status. The country became an independent nation in 1957, however, the Queen of England had a hand in its administration until it gained full autonomy from the British government to become a Republic on 1st July, 1960. It was officially opened in 1961 as an all male hall until 1991 like the Independence hall, it admitted the first batch of female students.²³ The hall has a main and an annex. The hall currently has a total of 25 floors though it began with 13 floors both Annex and Main. In the year 2004 to 2006 it had a total of 11 floors and in the year 2006 to 2010 it had a total of 19 floors. The Hall also housed the Student Representative Council (SRC) Executives till the Student Representative Council built its own hostel in the early 2000s however; it still has the administrative offices of the SRC. The total number of rooms in the hall has varied over the period that is 294, 305, 308 and 304. The numbers have also increased over time from a total of

754 in the 1999/2000 academic year to 1180 in the 2013/2014 academic year.²⁴ A similar story applies from the total number of students in a room increasing to 4 from 1. The hall currently has 1 kitchenette. Also has a Dining Hall, Salon, Barbering Shop, Photo Studio, Junior Common Room, Senior Common Room, Shops, Market, Internet café and a Common television room. The hall has in front of it a statue of a cockerel which represents the symbol of the Convention Peoples Party (CPP), the political party headed by Dr. Kwame Nkrumah who under his leadership gained the Republic status for the nation. The hall is currently noted for its Hall week celebration which draws students from tertiary institutions across the country. The hall also has a Basketball court which is used to organize tournaments within the hall week. The hall currently has 75 toilet facilities and 86 showers for students. It also has flats. The hall has a chapel and study rooms like all the other halls in the University. Students in Republic Hall are known officially as Mongols but popularly called 'Akuko Repu'. They are referred to as Mongols because it was the first state to gain a republican status in the 13th century. Their motto is 'Mongols Set the Pace'.

²³ Kwame Nkrumah University of Science and Technology, Students' Guide, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 30

²⁴ Quality Assurance and Planning Unit, Kwame Nkrumah University of Science and Technology Basic Statistics, 32nd Congregation - 45th congregation (University Printing Press, KNUST, 20th February, 1999 - June, 2011)



Front View Of Republic Hall



Logo

b) University Hall

The first Hall of residence to be built after the Kumasi College of Technology became a full-fledged University, Kwame Nkrumah University of Science and Technology was the UNIVERSITY HALL. The hall gained its name due to the above reason that is to commemorate the attainment of University status. The hall is an all male hall and has been as such since it was built. It had a total of 198 rooms in the Main hall and 95 in the annex.²⁵ The hall is popularly known as Katanga and its members Katangees. Facilities in the hall include Games room, a Gym, Chapel, Internet Cafe, a Mini market, Communication centre, Barbering Salon, a Kitchen that serves food and a Dining Hall. It also has a very lively Junior Common Room as well as a Senior Common Room. It has one (1) kitchenette. The hall aside its administration and executives also has a Traditional Council with its head known as the 'Odeefuo'. The number of rooms in the hall has seen a continuous variation from 293, 334, 326, 330, 294 and 284. The hall has also seen progressive increase in the number of facilities in terms of toilet facilities and showers. The last statistics shows an increase from 45 to 51 toilets.²⁶ Its members are called Fellows and their motto is 'Rest not'. They have a statue in front of the hall named 'Sir John' who is seen studying from books. The members believe they are Intellectuals.

²⁵ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 31

²⁶ Quality Assurance and Planning Unit, *Kwame Nkrumah University of Science and Technology Basic Statistics, 32nd Congregation - 45th congregation* (University Printing Press, KNUST, 20th February, 1999 - June, 2011).



A Pictorial View Of Katanga



Logo

c) *Africa Hall*

The next hall to be constructed was an all female hall named AFRICA HALL. Its architecture is two buildings that are linked together on the ground floor which has the Porter's lodge and some Senior members' offices as well as the Senior Common Room. It has a total of 192 rooms that is 96 rooms on each block. The floors are 16 in number and named after African countries like Morocco, Sudan, and Tunisia among others with the exception of countries like Ghana and Nigeria. The hall admitted its first batch of female students on 14th October, 1967. The hall has facilities like a modern internet cafe, Mini basket ball court, Games room, Chapel, Salon, a well managed kitchen that serves food, a modern mini- market which started running officially in the 2011/2012 academic year. The Africa Hall Junior Common Room stocks all categories of goods, it served as a major supply of items for students for a long period before the modern market started operating. The hall is also known as the 'Dome' and its members are 'Domites'. Also majority of the female senior members are assigned to it as Fellows.²⁷ Their motto is Woman of Substance. The hall accommodates the smallest number of students among the halls of residence. Its administration is headed by the Hall Warden unlike the other halls that have Hall Masters instead. Also other facilities include a Laundry service, Gift shop and a Photo studio which is highly patronized.

²⁷ Kwame Nkrumah University of Science and Technology, Students, Housing and Accommodation, 'Hall of Residence', www.knust.edu.gh/students/housing/halls, (February,2014)



A Pictorial View of Africa Hall



Logo

d) *Unity Hall*

The last Traditional hall to be constructed was the largest of them all and unofficially called the twin towers. It however has a total of 24 rooms on each of the 16 floors. The original number of rooms was 448 however another total number of 36 flats have been added to its capacity. It accommodates majority of the male students as it is an all male hall. It was built with facilities like a Games room, Junior Common Room, Chapel, Study Room and Senior Common Room. It however has two market centers, an electricity generating plant and a television room. It used to be the only hall in the early 1980s that had a working elevator. The hall welcomed its first students on 16th October, 1968.²⁷ The hall has a total number of about 1900 students. The male students in the hall as well as alumni of the hall are known as Continentals. Other facilities include a modern internet cafe, Communication and business centre, Basket ball court, Boutique, Gift Shop, Barbering Salon, kitchen that serves food and a well stocked Super market. Continentals also boast of the only hall with a radio station that is the Continental Radio 96.1fm. The motto of the hall is Unity is Strength. The name of this hall is UNITY HALL.

²⁸ Kwame Nkrumah University Of Science And Technology, Students, Housing And Accommodation, 'Hall Of Residence', www.knust.edu.gh/Students/Housing/Halls, (February,2014)



A Pictorial View of Unity Hall



Logo

The traditional halls have existed for over forty years and have accommodated students of the University since 1960 to date. Over 400,000 students have passed through the walls of these halls and still counting.

e) *The Emergence of Private Hostels*

The emergence of hostels has seen various phases. Hostels have been constructed both on campus and its surrounding towns, Bomso, Kotei, Ayeduase, Ayigya, Ayeduase New Site and Kentinkrono. The hostels constructed on campus are managed by Ghana Universities Staff Superannuation Scheme (GUSSS).²⁹ The hostels off campus are owned by private individuals as well as a joint ownership between the University Authorities and some companies in the country.

Hostels started springing up in the late 1990s. There was an increase in the number of students and the total number of one in a room had changed to a maximum of two or three people. This brought about discomfort and dissatisfaction among students. Private individuals including staff of the University took advantage of the situation and started building hostels to accommodate students and provide better services than the traditional halls did. The rooms were bigger in size, shorter distance to the Central Classroom Block as well as other academic facilities and self-contained rooms are some of its added advantages.

The hostels on campus provide accommodation for Post graduate students, Ghanaian undergraduate students as well as International Students. Most of these hostels are located around the University hall while the last to be built is between Africa Hall and Unity Hall. Most of these hostels were opened in the early 2000s. Most students prefer these hostels due to its closeness to other residential facilities as well as the faculty area and the Commercial area.

The rooms are similar to flats where two rooms share a common bathroom and toilet or it is a self contained room. These GUSSS hostels have names like Old Brunei, New Brunei, Baby Brunei and Hall Seven. Hall Seven for example was started by the University authorities to complement the existing six traditional halls during the leadership of Prof. Andam, however, GUSSS took over and completed it and was opened to students to inhabit in the 2010/2011 academic year. These hostels on campus accommodate a total of over 1000 students. The rooms accommodate a total of one to four students per room. The GUSSS hostels since the second semester of the 2013/2014 academic year have been named after some traditional leaders of the Asante Kingdom like Otumfuo Osei Agyeman Prempeh II hall, Nana Afia Kobi Serwaa Ampem II hall and the third being named the Chancellors hall. Other hostels on campus include Shaba hostel behind the University Hall, Tek Credit Hostel and the Otumfuo Osei Tutu II hostel (SRC Hostel).

The SRC hostel became a reality after Mr. Andy Osei Okrah after winning the SRC elections in 1999, implemented the policy of providing a hostel for students to help address the accommodation problems of the University. The SRC hostel has seen various phases through the various administrations from Mr. Okrah, through to the Philemon Laar administration. The 700 bed SRC hostel was inaugurated in April, 2012 by the Asantehene Otumfuo Osei Tutu II with the support of the Vice Chancellor, Professor W. O. Ellis, Mr. Okrah as well as other dignitaries.³⁰ The hostel is run by the SRC executives under the Supervision of the Office of the Dean of Students. The hostel has facilities like a Salon, Barbering Salon and Shops which sell items to the inhabitants of the hostel.

Hostels off campus are currently more than two hundred (200) in number. Also some private homes have been turned into residence for students. Some of

²⁹ Kwame Nkrumah University of Science and Technology, Students, Housing and Accommodation, 'Hall of Residence', www.knust.edu.gh/students/housing/halls, (February, 2014)

³⁰ Kwame Asare Boadu, "KNUST-SRC 700-bed hostel inaugurated," *Daily Graphic*, Thursday, April 19th, 2012, p. 48.

these private homes also have the owners as well as other tenants staying with students. This kind of accommodation pattern is termed as 'homestay'. These homestays are not considered or regarded under the Office of the Dean of Students.

The beginning of private hostels off campus dates back to the late 1990s. The hostels were constructed by private individuals and this includes staff of the University as well. The earliest hostels to be constructed include Shalom Kibutz, Westend Hostels, Nana Adoma, Jenest, Ghana Hostels (Gaza), Evandy, Frontline, Splendor and Nyberg.³¹

Ghana Hostels also known as Gaza was established in the year 2002 at Kentinkrono. This was through collaboration between the University authorities and Social Security and National Insurance Trust (SSNIT). The hostel is currently managed by Ghana Hostels Limited. The hostel has four courts and each has a total of 36 rooms. The courts have flats and each flat has a total of three rooms, two washrooms and a kitchen. The hostel started with a maximum of four in a room but currently has a total of two or one in a room. A major challenge faced by most students inhabiting this hostel is the proximity to the main campus and other facilities. Another development that has taken place is the addition of another hostel, Sun City to the already existing one to help accommodate more students.³²

Evandy hostel is one of the well known hostels in the Bomso area. It was established in the year 2004. The hostel started with a total of 208 rooms however there are 223 rooms currently. The hostel has facilities like Typhoon, a night club and Freddy's kitchen. The hostel started with a total number of four students per room but due to the issue of privacy the numbers have reduced to 3, 2 and 1. Also the hostel was never full as some of the rooms were not inhabited however due to the high demand, most of the rooms are inhabited and some students have to be turned down. The hostel has a badminton court, table tennis, a general television room, kitchenettes and study rooms. The hostel has challenges with electricity supply due to the major energy crises as they have to buy fuel to power the stand-by generator frequently as well as internal security problems. The current owner of the hostel is Mr. William Addo and the Manager is Mr. Prince Agyemang. The management in its aim of maintaining the hostel has a permanent staff of a Plumber, Electrician and Carpenter.³³

Another hostel found in the Ayeduase New Site area is Fosua Homes. The owner of the hostel is Mr. Fosuaba Mensah Banahene. The hostel was built in July, 2009. The hostel has facilities like a gymnasium, electricity generating plant, dug-out well, common

television room, common study room, spacious car park and a shuttle. The rooms are self contained that is with a kitchen, toilet and bathroom. The total number it first accommodated was 160 students but the current number is 125 students. The hostel management has opened a snack shop for students especially at night. The main aim was to help solve the accommodation problems in KNUST.³⁴

Efforts to help solve accommodation problems have also been initiated by groups such as religious denominations and alumni of the University. The Kumasi Diocese of the Methodist Church of Ghana cut sod for the construction of a hostel to be known as the Wesleyan Hostel which was to be funded from a ₵20 billion development fund to support on going development projects in the church. The sod cutting was done by the then Presiding Bishop, The Most Rev. Dr. Robert Aboagye Mensah in March, 2006.³⁵ The initiative was continued and this was made known during a farewell service at the Bantama Ebenezer Methodist Church that the ₵14 billion cedi hostel project is on course. This was in October, 2006. This was made known by the Right Rev. Nuh Ben Abubekr, Bishop of the Kumasi Diocese of the Methodist Church.³⁶ The project however could not be completed by the Methodist Church because Rt. Rev. Abubekr was transferred and the new Bishop, Most Rev. Prof. Emmanuel Kwaku Asante who took over was promoted to Presiding Bishop of the Methodist Church of Ghana within a period of one year in office. His successor Rt. Rev. Prof. Osei Sarfo-Kantanka also could not complete the project because of lack of funds and a shift from this project to other projects currently being undertaken by the church.³⁷

Another initiative was by the Anglican Diocese. This initiative was motivated by a statement made by Vice Chancellor Prof. K. A. Andam that the total number of students has increased from 1,106 in 1965 to 21,243 in 2005. Also the existing halls can accommodate only 7,496 leaving the remaining 13,747 to live outside campus. The sod cutting was done on Saturday 12th August, 2006 by the Asokore Mamponghe, Nana Boakye Debrah on a 4.5-acre of land. The first phase of the project is to accommodate a total of 400 students at an estimated cost of ₵12 billion and the long term plan was to utilize the remaining land to construct more structures to accommodate a total of 1500 students.³⁸ The Anglican Bishop of Kumasi, Rt. Rev. Daniel Yinkah

³¹ Alex Akelleh, conversation with author, February 2014.

³² Phillip Odoi, conversation with author, March 2014

³³ Prince Agyemang, conversation with author, March 2014

³⁴ Fosua Homes Manager. Conversation with Abena Sarpong, March 2014.

³⁵ "Work on Wesleyan Hostel at KNUST," *The Pioneer*, Friday March 24, 2006, p. 5

³⁶ Ghana News Agency, "Kumasi Methodist Diocese Construct Hostel at KNUST," *The Pioneer*, October 3, 2006, p6

³⁷ Rev. Kwarteng, conversation with Enock Takyi-Sam, April 2014.

³⁸ Enoch Darfah Frimpong, "Anglican Diocese builds hostel for KNUST," *Daily Graphic*, Monday August 14, 2006, pg. 24.

Sarfo was present at the sod cutting and also at its inauguration in January, 2008. The first phase cost was GH¢570,000. The hostel project was financed through special levies, contributions by members and other development partners of the church. Also present at the ceremony was Former Deputy Ashanti Regional Minister, Mr. Osei Assibey Antwi.³⁹

The National President of the KNUST Alumni Association, Prof. S. O. Asiamah announced a ₵10.5 billion hostel initiative by the Association when the National Executive accompanied Vice Chancellor, Prof. Kwasi Kwarfo Adarkwa as part of a nationwide visit to the Tema Charter. The project was to accommodate the increasing population of the University. This initiative was made known to the general public in June 2007.⁴⁰

The other initiative was by the Presbyterian/Methodist Students Union of KNUST. The aim was to ease the accommodation problem facing students of the University. Mr. Elsie Kitcher then Chairman of the Union disclosed this to the public in October, 2006.⁴¹ The initiative was on course with the acquisition of the land. They had support from Vice Chancellor, Prof. K. K. Adarkwa. The project was however never realized due to lack of funds and mainly because of a split between the Presbyterian students and Methodist students in 2008.

Other hostels affiliated to KNUST include Adom bi, George Empire, R&B, C&D, American House, Asansika, Abundant Grace, Outlook, Orizon, Pelikan Manor, Providence House, Jalex, B. O. Executive, P III, De-Lisa, White House, Amen, Shepherdsville Residence, Peniel, Canam, No Weapon, Banivillas, Dr. Sarfo, Dakens, Franco, Long Island, Hydes, Morning Star, Standard, Showers of Blessing, Adwoa Achiaa, Charity, Eden, Pinamang, Yvonna, Millenium, Beacon, By His Grace, Thy Kingdom Come, P&G, Wilkado, Sagacity, Royal Gate, Georgia, Jita, Jital, Crystal Rose and Pink Hostels., Evandy, Day Break⁴²

f) Accommodation Policies

The establishment of halls of residence was to provide a place for students to stay during the years of pursuing a degree. The halls were initially occupied by one student per room. The total number of students during the early years the College of Technology attained University status that was between the 1961/62 academic year was 706 students. This period had seen the development of three traditional halls which provides

a total of 882 rooms hence each student could occupy a single room. The end of 1968 saw the completion of the sixth traditional hall of the University. This therefore made the total of rooms 1815. The total number of students during the 1968/69 academic year was 1559. The total number of students remained lesser than the total number of rooms with figures like 1455, 1344, 1529 and 1749 from the 1969/70 academic year to the 1972/73 academic year. The total number of students began to increase as against the total number of rooms in the Halls of residence from the 1973/74 academic year with a total of 1885 students.⁴³ The policy with regard to one in a room had to change to two in a room and one in a room. Preference was given to final year students hence they stayed alone in their rooms. The increase in the number of students led to the increase in the number of students per room. The accommodation policy at that time was to accommodate all students in the halls of residence till the late 1990s.

Another benefit enjoyed during this period was the Hall tutorial system. Tutors were to provide counseling sessions for students as well as see to their general welfare. Tutors had the chance to meet students one-on-one to discuss their general wellbeing. Tutorial parties or coffee sessions were held by Tutors for students with the responsibility and entertainment allowances given to them. However this benefit is not being enjoyed because of the increased number of students as against the tutors and the low patronage of this service by students.⁴⁴ This benefit could be related to the current Hall general meeting organized at least twice in the semester to address issues bothering students in the hall and a chance to meet the Hall tutors for words of encouragement.

Another benefit which came with the Residential services was the provision of meals for students. This provision however changed after the 1989 Tertiary education reforms.⁴⁵ Meals were not provided to students any longer by using the coupons given for a three course meal by the Dining hall staff. The provision of this service started deteriorating from the early 1980s. The quantity of food as well as its quality reduced. In some cases meals were not served to students till it was finally stopped in 1989.⁴⁶ This was replaced by private catering services till date on campus. Students had to feed themselves after the Reforms of 1989.

The introduction of the Non-Residence policy came about in the late 1990s. This led to the development of a new office, the Office of the Dean of

³⁹ John K. Essel, "Church provides hostel for KNUST," *Daily Graphic*, Thursday January 31, 2008, pg. 40

⁴⁰ Mary Essiam, "KNUST Alumni initiate hostel for students," *Daily Graphic*, Friday June 29, 2007, pg. 11

⁴¹ Nana Yaw Barimah, "Old Students of KNUST to construct hostel facility," *Daily Graphic*, Monday October 23, 2006, pg. 26

⁴² Kwame Nkrumah University of Science and Technology, Housing and Accommodation, 'Hostels for Students – List of Hostels approved by the Office of the Dean of Students for 2013/2014 Academic year', www.knust.edu.gh/students/housing/hostels, April, 2014.

⁴³ Quality Assurance and Planning Unit, *Kwame Nkrumah University of Science and Technology Basic Statistics, 26th Congregation*, (University Printing Press, KNUST, 25th July, 1992.)

⁴⁴ K. Yebo-Okrah, 'Administration of Student Services at University of Science and Technology', *Journal of the University of Science and Technology (JUST)* – vol. 16 no 1&2 (Feb/June, 1996), pg. 5.

⁴⁵ Ibid, p5.

⁴⁶ Ludwig Anang Hesse, conversation with author, February 2014

Students. It was in order to sustain the Hall Tutorial system for students living in hostels off campus. The Office of the Dean of students was formed to solve the problems facing the provision of student services. The office was to take charge of all student affairs. This include Sports section, Guidance and Counseling Unit, Student Chaplaincy, Residence life, Liaison with the Student Representative Council, Student Clubs and Associations.⁴⁷ The Office of the Dean of students was established in 1998. The activities the office are organized under these sections which include Counseling Unit, International Student Affairs (ISA), Student Housing and Residence life, Student Conduct and Discipline, Student Support Services and Student Health Services. The mission of the Office is to assist students in understanding University policies and procedures, providing opportunities for involvement in decision making, developing and enhancing leadership qualities and through advocacy for students resolving conflicts.⁴⁸ The Office of the Dean of Student acts as the 'in loco parentis'.⁴⁹

Reforms in accommodation policy with the introduction of hostels include In-out-out-in policy and currently the In-out-out-out policy. These policies however exclude Hall executive and sportsmen and women of the various halls. Exception has also been given to the Cadet Corps and executives of the Inter Hall Christian Fellowship (IHCF). The In-out-out-in policy meant that students in the first and fourth year were granted admission into the halls. The In-out-out-out meant that only Freshmen undergraduates were allowed to stay in the Halls of Residence.

The current accommodation policy took effect from the 2013/2014 academic year. The policy is that all students admitted to Programmes of Study at the University shall be required to make their own Residential arrangements with the University's Halls of Residence and Hostels. Priority of place in these Residential Facilities shall be given to only undergraduate freshmen. Freshmen with admission to the University are required to apply to their respective affiliated halls of residence for consideration for on-campus residential accommodation.⁵⁰ The choosing of the halls was done online. Students had to choose their preferred lanes or floors in the hall of choice. The

system gave students feedback as to whether the floor was full or there was still vacancy.

Accommodation policies has seen reforms from all students being accommodated in the halls of residence with a variation of a total number of students per room to the Non Residential policy which led to the construction of three Non Residential facilities for students to rest and learn in between classes to the In-out-out-in policy and finally to the In-out-out-out policy.

g) Administration of Accommodation Facilities

The Halls of Residence are managed under the Hall Council. It consists of Senior and Junior members. The Executive head is the Hall Master/ Hall Warden (Africa Hall only) and is assisted by the Senior Tutor.⁵¹ There is also the Hall Bursar and other supporting staff like the Principal Administrative officer, Finance officers, Chief Porter and Porters. The hall Council has a makeup of the Hall Master/Warden, Senior Tutor, two student representatives, four Senior members representing Fellows of the Hall and the Hall Bursar who represents staff in the Hall.⁵² The Hall Council is responsible for hall policy in relation to general University policy for the administration of the Halls of Residence. The Hall authorities determine the number of students in a room. The Hall authorities of the various Halls constitute the Committee of Hall Administrators. The Committee formulates common policies for all the Halls.⁵³

Private accommodation facilities are managed by their various owners. However the Office of the Dean of Students with the Ghana Tourism Authority, Ghana National Fire Service and the Ghana Police Services work hand in hand to inspect these facilities. Hostels that meet the standard or criteria are considered under the Office of the Dean of Students as hostels fit for students to patronize. These hostels have to fill a form to meet the requirements which include water, electricity, and sanitation, number of security personnel, porters and extra facilities. The hostels are currently categorized as Executive, Standard or Basic according to the Ghana Tourism Authority Regulation 31(2). The hostel managers work with the Office of the Dean of Students and the SRC executive to negotiate prices as well as other issues pertaining to the welfare of non-resident students of the University.⁵⁴

The provision of accommodation facilities have been regulated by reforms in the accommodation policy

⁴⁷ K. Yebo-Okrah, 'Administration of Student Services at University of Science and Technology', *Journal of the University of Science and Technology* (, 'JUST') – vol. 16 no 1&2 (Feb/June, 1996), pg. 7.

⁴⁸ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 7

⁴⁹ K. Yebo-Okrah, 'Administration of Student Services at University of Science and Technology', *Journal of the University of Science and Technology (JUST)* –vol. 16 no 1&2 (Feb/June, 1996), pg. 6.

⁵⁰ Kwame Nkrumah University of Science and Technology, Housing and Accommodation, 'Admissions Policy on Housing', www.knust.edu.gh/students/housing/hostels, February 2014.

⁵¹ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 30

⁵² K. Yebo-Okrah, 'Administration of Student Services at University of Science and Technology', *Journal of the University of Science and Technology (JUST)* – vol. 16 no 1&2 (Feb/June, 1996), pg. 5.

⁵³ Kwame Nkrumah University of Science and Technology, *Students' Guide*, Ed. Dean of Students, KNUST, (University Printing Press, KNUST, Revised and Reprinted June 2013), pg. 30

⁵⁴ Alex Akelleh, communication with author, February 2014.

of the University. The introduction of Non residential facilities has helped to solve the issue of accommodation problems. The increasing number of students has relatively led to the increasing number of hostel facilities and the variation or reforms in the policies with regard to accommodation in Kwame Nkrumah University of Science and Technology.

V. BASIC STATISTICS OF KNUST

The Basic statistics of the 26th and 45th Congregation of KNUST shows the total number of student enrolment from the 1961/62 academic year to the 2010/2011 academic year. The statistics shows that the total number of students increases after every academic year despite the number of people that graduate in the previous year. There is however a turn of this event in the year 1966/67 where the number decreased from 1440 students in the previous year to 1299 students. The numbers started to increase but after a period of two years there was another decrease that is 1455 students in 1969/70 and 1344 students in 1970/71. Ever since the increase from 1344 in 1970/71 academic year to a total of 1529 students in 1971/72 academic year the total number of students have increased at varying rates. The margins are between a total of about 20 students difference (1980/82 to 1981/82 academic year) and a total of about 2000 students in recent years. The years dated 1961 to 1964 showed a population of less than 1000 students. 1964/55 academic year to 1999/2000 academic year registered a total number of students in the thousands that is 1106 to 9501 respectively. Ten thousands students were recorded from the year 2000/2001 to present that is 10333 to 41462 students (2012/2013 academic year).⁵⁵

Student Accommodation by Gender, Halls and Hostels was first published in the 32nd Congregation Basic Statistics book of the University. It was within this period that most of the students of the university had become Non-resident. The statistics below shows the total number of students accommodated in the halls and those that are non-resident.

⁵⁵ Quality Assurance and Planning Unit, *Kwame Nkrumah University of Science and Technology Basic Statistics - 47th Congregation*, (University Printing Press, KNUST, June 2013).

Table : 3.1

Academic Year	Number Of Students In The Hall (%)	Non-Resident Students (%)
1999/2000	3987 (44%)	4990 (56%)
2000/2001	3739 (36%)	6594 (64%)
2002/2003	5509 (42%)	7520 (58%)
2003/2004	6777 (50.5%)	6654 (49.5%)
2004/2005	7453 (46%)	8863 (54%)
2005/2006	9858 (49%)	10107 (51%)
2006/2007	10357 (46%)	12207 (54%)
2007/2008	11173 (47%)	12693 (53%)
2008/2009	11618 (49%)	12036 (51%)
2009/2010	11011 (46%)	13105 (54%)
2010/2011	7256 (32%)	15360 (68%)

This table shows that over the years the number of students that live outside the halls of residence have increased. The new reform of the accommodation policy now makes this number swell. Most of the students off campus or non – resident have to find their own accommodation for each academic year over the rest of their three year or five year stay of their undergraduate degree program. The only help offered them by the Office of the Dean of Students is to publish a list of approved private hostels in which students can stay in, however these facilities alone cannot accommodate the total number of students who become non-resident.

Another sector the Basic Statistics of KNUST has been able to capture is the total number of students, the number of rooms, toilets, showers and kitchenettes in the various halls over the same period. The number of students accommodated in the various

halls increase or decrease depending on the year, however this intake has not been able to solve the issue of accommodation problems facing students. This is because the difference in the addition of facilities in relation to additional rooms is insignificant. The total number of rooms in Africa hall has been a total of 192 rooms since it was built till now. Queen Elizabeth hall has seen an increase from 294, 300 and 309. Republic hall has seen an increase varying from 294, 304, 305 and 308. Independence hall like Africa hall has a total of 294 rooms. University hall has seen an increase in the total of rooms from 293, 326, 330, 334 and a reduction to 284 in the 2010/11 academic year. Unity hall has a total of 448 rooms but 36 flats were added to it to help solve the accommodation problem. The table below shows the total number of students accommodated in the various halls over the period.

Table: 3.2

Year	Africa Hall	Unity Hall	University Hall	Queen Elizabeth li Hall	Independence Hall	Republic Hall
1999/2000	425	871	575	607	609	754
2000/2001	430	803	462	546	563	584
2002/2003	569	1514	779	765	930	922
2003/2004	610	1734	836	1142	1072	1133
2004/2005	700	1694	1199	1206	1128	1203
2005/2006	741	2011	1216	1240	1144	1180
2006/2007	679	1811	1216	1384	1155	1120
2007/2008	704	1925	1240	1172	1139	1208
2008/2009	750	1800	1120	1179	1176	1208
2009/2010	704	1930	1176	1185	1176	1208
2010/2011	722	1890	1136	1143	1176	1189

The total number of students admitted in the hall depends on the decision made by the various hall councils. The decrease in the number of students in the 2000/2001 academic year can be attributed to the fact that most students at this time were not satisfied with the increase in the number of students in a room to three and four. This led to a demonstration around this period about their displeasure of this reform. It was also during this time that hostels like GUSSS hostel, Westend and Shalom Kibutz had been built to accommodate these students. Most students moved to these hostels

because the rooms were larger and more spacious and they offered services the traditional halls did not offer. The increase in the total number of students was due to the policy of a maximum of four students in a room. This brought about a change in the type of beds used from single beds to bunk beds in order to cater for the needs of all four students. There was also an increase in the number of toilet facilities and showers in the various halls. Over the years the various halls added an extra number of these to help reduce the pressure on these facilities due to increased number of students.

The introduction of private hostels on campus and outside campus helped to solve the issue of the excess students admitted by the school but the halls could not accommodate.

a) *Private Hostel Facilities*

The introduction of the non - resident policy has led to the development of private individuals and firms. These hostels came about in order to help solve the issue of accommodation in KNUST. The change in policy which was the increased in the number of students sharing a room to four brought about dissatisfaction among students. This is basically because the room space was inadequate for three people to add an extra person to make it four. The hostels provided larger rooms though the number was a total of four people per room. Also these hostels were self contained as they had in-built washrooms as against a number of students sharing a limited number of bathroom cubicles leading to queues during the rush hours to lectures as well as the poor management of these facilities and the unsatisfactory flow of water to these washrooms.

The advantage most of these hostels have is the issue of their high maintenance culture as compared to the halls. Most of the hostels have added a significant number of rooms or built extra structures or additional hostels to accommodate the increasing numbers. Ghana Hostels Limited for example built an additional hostel, Sun City to help compliment the existing four courts which had 36 rooms each. Also, Evandy hostel has added more rooms. West end hostel for example currently has a total of five blocks as compared to the original ones known as the old blocks. The supply of utilities like water and electricity is very satisfactory as compared to that of the traditional halls.

Most students like to have space and privacy. This has led to most of the private hostels admitting one, two or three people in a room. Most students prefer these rooms hence the demand for it has led to the managers of these hostels providing such rooms. The number of students that were admitted to four in a room when the first group of hostels started has changed these rooms to suit the smaller numbers. The total number of students in hostels has reduced because of the smaller number of students in a room. There are a number of hostels that still offer the service of four in a room but these rooms are not many or they are large enough to satisfy the student's desire for privacy and space. The satisfaction provided by these private hostels despite the increase in the number of students as against the number of hall facilities has led to a shift of students patronizing them and most students would not like to stay in the hall for more than a year as stipulated in the policy of In-out-out-out.

b) *Accommodation reform before 2000*

Accommodation services before the year 2000 was satisfactory. The halls provided food for its students which reduced the burden of students having to feed themselves from their own pocket. This service however started degrading. The quality of food provided was reduced basically because funds to keep the service running were not available. The quantity and the constant provision of meals for students started to decrease. The service kept on deteriorating till it was finally stopped in 1989. This reform has brought about a number of private catering services as well as food vendors that provide food for students. It becomes difficult to get food items when school reopens in the first week and some weeks after vacation when most continuing students have gone home. The prices of these meals keep on increasing hence draining the pockets of students and putting pressure on parents. Students who would also like to cook will have to walk long distances to major markets for fresh and less expensive foodstuffs. Also due to the fire policy of the school with regard to the halls, students are to use electric cooker for cooking since gas stoves are not allowed for fear of fire outbreak. This has a negative effect on students especially when there are electricity fluctuations or black outs. This means students will have to buy food with their meagre amount of money and the food would not be sufficient to satisfy them.

There is also the problem of water supply to the washrooms in the various halls and the issue of poor sanitation. The halls with towers or Annex did not have their elevators working efficiently or stopped working over the period. There was also the issue of excessive noise making in the halls especially the male halls.

Before the late 1990s all students were accommodated in the halls. There was the initial number of one in a room but after the early 1970s the number increased and most of the first to third year students stayed two in a room but the fourth years had the privilege to stay one in a room. This arrangement was not much of a problem as the size of the room was enough for such numbers. Students never complained about the number of students in the room. Educational facilities like the Library and commercial facilities like the Junior Common Room that had in stock items were approximately closer to students.

Students had the advantage of having all their course mates located at the various halls. This made access to information and academic assistance from friends easier. Transportation was not an issue because all the facilities were on campus and the means to the place was walking which was seen as a means of exercise and to form acquaintances or interact with friends on issues relating to academics and social matters.

The period between 1990 and 2000 also saw a new turn of events. The policy with regard to the maximum number of students in a room from two to

three came with a lot of agitation from students. Most students did not like the reform because of the size of the room. This means that the same space that an individual or two people used to share had to be shared by three people and even later four. Most of the students protested against this reform. The authorities however did not add any new hall to the existing ones. They added a few rooms that still could not satisfy the students. Students during this period faced difficulties in obtaining accommodation in their hall of affiliation. Some of the students were fortunate to stay in the hall throughout their undergraduate program. Others however, did not stay in a permanent hall but moved from one hall to the other. Others also had to find accommodation with relatives or stay in newly built hostels at a more expensive price than that of the hall.

This arrangement was due to the fact that there were not enough rooms to accommodate the students that were admitted.

The period before 2000 witnessed the construction of the Non-residential facility. This facility was to be used by students to learn and rest in between lecture hours. The facility has a reading area, television room, bathroom, toilets and lockers. Students had to book these lockers were they could keep their books as well as other personal items. The non- residential facility has been of help to many students in KNUST. The facility serves mostly as a study area and it opens 24 hours during examination periods. The facility also houses offices of some of the Associations in the University like the Graduate Students Association of Ghana (GRASAG) and Ghana National Association of Teachers on Campus (GNATOC).

c) *Effects of Accommodation Reform*

The analysis below is based on the response from the distribution of questionnaires to students in Kwame Nkrumah University of Science and Technology. These respondents are Undergraduates in their first to fourth year. They are also affiliates of the various traditional halls.

d) *Independence Hall*

A total of sixteen students from this hall as affiliates answered the questionnaires. There were four students each in the 1st and 2nd year. Two students were in 3rd year and six were in their 4th year of University education. Fourteen out of the sixteen had stayed in the hall for a period of one year. One had stayed in the hall for two years whiles one did not stay in the hall. A majority of the students that is a total of 8 were moderately satisfied with the electricity supply. 4 were slightly dissatisfied, 2 were very satisfied 1 was extremely satisfied and another 1 was not satisfied at all. Majority of the students were satisfied with the water supply in the hall whereas 3 were not satisfied. The provision of Internet services was a balance because, half was satisfied and the other half were not. Cleaning

services are satisfactory. This is because a total of 13 students were satisfied with the cleaning services while 3 were slightly dissatisfied. This shows that provision of utilities as well as other services in the hall that makes it comfortable is satisfactory. The proximity of the hall to educational facilities is satisfactory. However its closeness to commercial activities is not satisfactory to the students in the hall. The accessibility of transportation is satisfactory than dissatisfactory. Students are not satisfied at all with regards to the size of the room, ventilation in the room, population of the room, level of privacy, area for cooking, area for storing personal items, the number of people sharing washroom facilities and regular and reliable water supply to the washrooms. Students are highly dissatisfied with the management of the hall especially the maintenance culture on the building and other facilities in the hall. The response to complaints and the availability of management to receive complaints is also not satisfactory. Students are satisfied with proximity to lecture halls but not with the level of noise, sanitation and incidence of crime and burglary. Students are not satisfied with the services provided in the halls and as such majority of them would not like to stay in the hall for more than a year. The only reason why some stay is because of proximity to lecture halls and the low prices charged as compared to the hostels.

e) *Queen Elizabeth II Hall*

A total of eleven students who were affiliates of Queens Hall responded to the questionnaires. Four students each were in 2nd and 4th year. One student represented 3rd year and 2 students for 1st year. Out of the eleven only one had stayed in the hall for 2 years whereas the remaining 10 students had stayed in the hall for a period of one year. Students in the hall were not satisfied with the services provided within the hall with regard to electricity and water supply as well as internet access and cleaning services. Only 3 students were very satisfied with electricity supply. The remaining satisfaction variables that is Water supply, Internet/Wi-Fi access and Cleaning services had one student being satisfied with each of the variables stated. Students were extremely dissatisfied with the cleaning services in the hall. The situation however takes a reverse turn with regards to the level of satisfaction when it comes to proximity of the hall to commercial and educational facilities. 2 students for each of the variables are not satisfied at all. A majority happen to be satisfied. The issue of accessibility to transportation has a total of 4 students being slightly dissatisfied, another 4 being moderately satisfied, 2 were very satisfied and 1 student was extremely satisfied. The table below shows the number of students that are satisfied with the various housing satisfaction variables according to their level of satisfaction.

Table: 3.3

	Accommodation	Not at all	Slightly dissatisfied	Moderately satisfied	Very satisfied	Extremely satisfied
I	Size of room	7	1	1	2	0
li	Ventilation in the room	6	1	3	1	0
lii	Population of the room	4	4	2	1	0
lv	Level of privacy within the room	4	4	3	0	0
V	Area for cooking	4	3	3	1	0
Vi	Area for storing personal items	5	2	4	0	0
Vii	Number of people sharing washroom facilities	8	0	2	0	1
Viii	Regular and reliable water supply to the washrooms	4	3	3	0	1

The table above shows that majority of the students in Queens hall are not satisfied with the size of the room, ventilation in the room and the number of people that share the washroom. Also the students have little satisfaction with regard to these housing variables as the figures recorded have a maximum value of 2 and the lowest value of 0. Students are moderately satisfied with the management culture of the hall. A majority are dissatisfied with regard to availability of management for complaints as well as their response to it. Students affiliated to Queens hall are moderately satisfied with the level of crime and burglary in the hall as well as its proximity to lecture halls. Most of them are not satisfied with the noise level and a slight margin of 1 student makes the sanitation issue not satisfactory. The Queen Elizabeth II hall has most of its affiliates not being satisfied in general about the services provided by the hall, accommodation facilities, management and environment. The only satisfaction derived is with regard to its proximity to educational and commercial activities.

f) Republic Hall

Nine students from Republic Hall responded after the questionnaires were distributed. The majority of the students were in 3rd year. They were five in number. Three students were in 4th year and 1 student was from 2nd year. There was no student to represent the 1st years. Six out of eleven students were very satisfied with electricity supply in the hall. There is a balance with regard to the supply of water. Three students are moderately satisfied. There is another three towing the line of dissatisfaction and another 3 that are satisfied. $\frac{3}{11}$ of the student respondents are not at all satisfied with internet access. The remaining 3 respondents are slightly dissatisfied and moderately satisfied. The issue of cleaning services offered in the hall is dissatisfactory. Eight out of nine students are towing dissatisfaction. Again the nine respondents are also not satisfied with the proximity or closeness of the hall to commercial and educational facilities as well as accessibility of transportation. The same dissatisfaction level with regard to the facilities of the hall is repeated in Republic hall. Students are not satisfied at all with respect to size of the room, ventilation in the room, population of the

room, area of cooking, number of people sharing the bathroom and regular and reliable water supply to the washrooms. There is however a greater amount of satisfaction with regard to the level of privacy as well as the area for storing personal items. Again students are not satisfied especially with regard to availability of management for complaints followed by the maintenance culture of the hall and management response to complaints in the order decreasing dissatisfaction. The level of noise in the hall is a variable that is most dissatisfactory with a total of 5 students choosing 'not at all.' Students are also not satisfied with the proximity of the hall to lecture halls and incidence of crime and burglary. These two variables have the same value from respondents. Sanitation is also another area of dissatisfaction; however a value of 2 was recorded by some students to be very satisfied with it. The satisfaction level with regard to Republic hall cannot be clearly determined as the number of respondents was low and the values for the satisfaction level had close margins.

g) University Hall

Seven students responded from University hall. There were three students each from 3rd and 4th year and 1 student in 1st year. Six of them had stayed in the hall for a year whereas one student had stayed in the hall for two years. Respondents were very satisfied with electricity supply in the hall. Water supply, internet access and cleaning services did not have positive response. This means that they were dissatisfied with these services especially internet access. They were also satisfied with the halls closeness to educational facilities. Their satisfaction level was negative with regard to closeness to commercial facilities and accessibility of transportation. All seven students with regard to satisfaction with accommodation were largely dissatisfied especially with regards to regular and reliable water supply to the washrooms. They were also dissatisfied with the management of the hall facilities. They were largely dissatisfied with the management culture on the building and other facilities in the hall of residence. Most of the students were dissatisfied with the level of noise made in the hall. They were also

dissatisfied with sanitation, incidence of crime and burglary and proximity to lecture halls. The number of respondents was small however a clear distinction in the satisfactory level was attained.

h) Africa Hall

A total number of fourteen affiliates responded to the questionnaires. Five students each are in 3rd and 4th year. There were 3 students in first year and 1 in 2nd year. Eleven (11) students have stayed in the hall for one academic year, one has stayed in the hall for two years and the remaining two never stayed in the hall. The female students affiliated to the hall are dissatisfied with services provided especially internet access (13 students), cleaning services (12 students), water supply (12 students) and electricity supply (11 students). They were also not satisfied especially with regard to closeness to educational facilities. Accessibility of transportation is not much of a problem. This is because just a margin of 1 student was recorded, hence a greater number dissatisfied with this variable. The affiliates were not satisfied at all with the size of the room, level of privacy, area of cooking and area for storing personal items. These variables recorded a grater number of dissatisfaction as compared to the other variables under accommodation. The students were also dissatisfied with management especially with regards to management culture. Students were not satisfied with their environment especially with regard to level of noise and sanitation. The analysis from the data collected from the affiliates of the hall shows clearly that they are not satisfied with the services provided within and outside the hall, management and the environment.

i) Unity Hall

Six final years, five 3rd years, two 2nd years and two first years making a total of fifteen (15) students responded as affiliates of Unity hall. Thirteen of these respondents had stayed in the hall for a year whereas two (2) had stayed in the hall for two years. A larger number of students from this group were satisfied with the supply of electricity. This can be attributed to the stand-by generator. They were however not satisfied with water supply, internet access and cleaning services. The satisfaction levels for the variables, closeness to educational and commercial facilities as well as accessibility of transportation was positive. A turn of events occur with majority being dissatisfied when it comes to the variables regarding size of room, ventilation, population, level of privacy, area for cooking, area for storing personal items, number of people sharing washrooms and regular and reliable water supply to the washrooms (The supply of water to the washrooms has been since the 1970s). Management has not been able to satisfy the needs of students in the hall. The issue of sanitation, level of noise, incidence of crime and burglary and proximity to lecture halls are no exception to the level of dissatisfaction among students affiliated to the hall.

j) General Overview

The total number of respondents after the distribution of the questionnaires was seventy-two (72). The respondents were affiliated to the various traditional halls of residence on campus. Below is a pie chart which shows a distribution of the respondents according to the halls of residence. Independence hall had the highest number of respondents, 16 students which is represented by 22% on the chart. Unity hall had a total of 15 students (21%), Africa hall a total number of 14 respondents (19%), Queen Elizabeth II hall had 15% which represents 11 respondents. Republic hall and University hall had 9 and 7 respondents respectively. The former represents 13% of the total and the latter represents 10% of the total number of respondents.



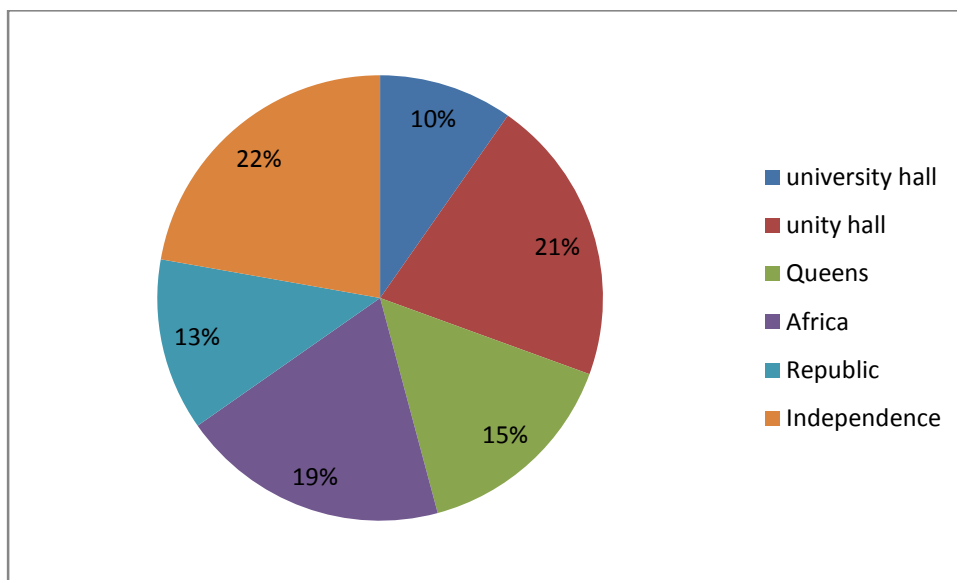


Figure 4.0 : Distribution of respondents according to halls of residence

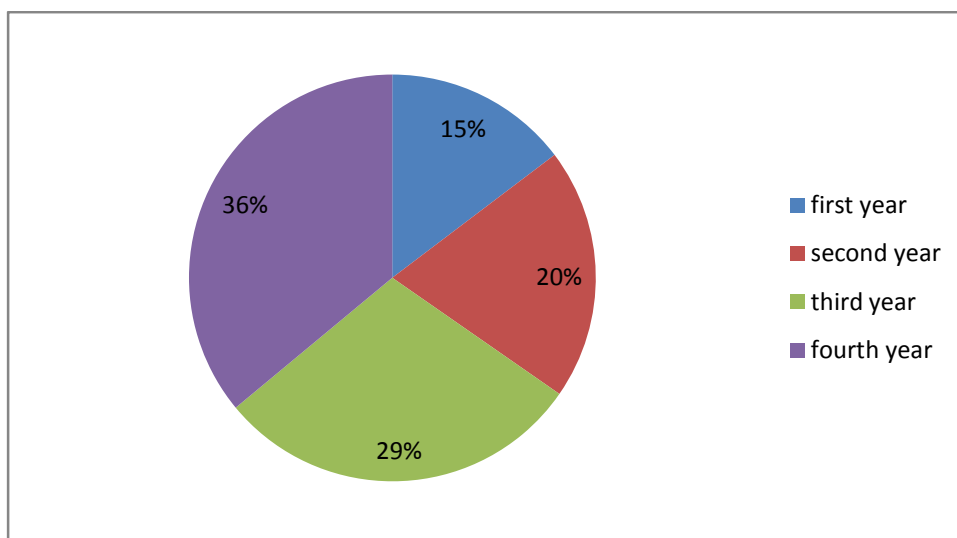


Figure 4.1 : Distribution of students according to year of study

The pie chart above shows the distribution in percentages of student respondents according to the year of study. The students were undergraduates, a majority of them being in their fourth year. Out of a total of Seventy-two (72) students, Twenty-seven were in final year, Twenty-one in third year, Twelve each for second and first year Undergraduate. The percentages for these values are 36%, 29%, 20% and 19% respectively.

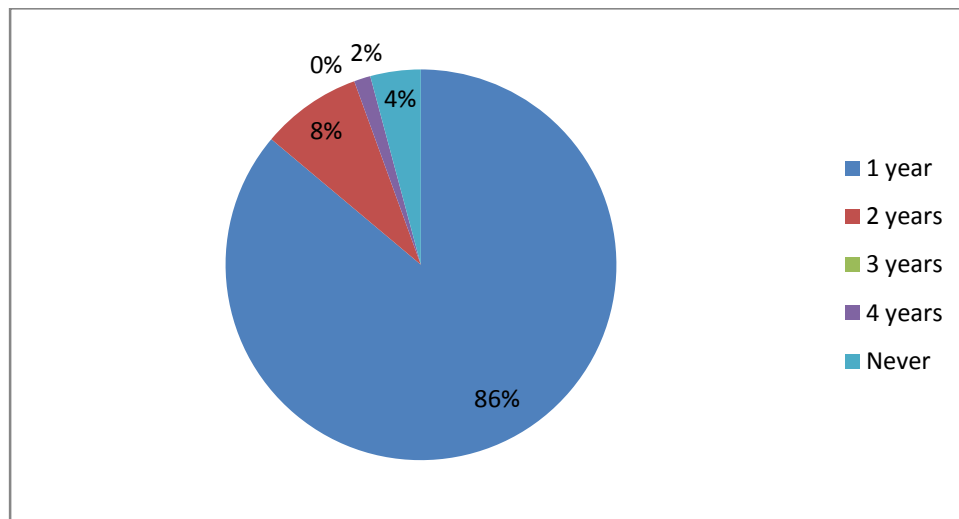


Figure 3.2 : Distribution of students according to the number of years they stayed in the halls.

The distribution above shows the number of years these respondents stayed in the various traditional halls of residence. Majority of the respondents which is a total of Sixty-two (62) students have stayed in the hall for a period of one year which is represented by 86% on the pie chart. Six (6) of the respondents have stayed in the hall for two (2) years, 8% of the total number. None of the respondents had stayed in the hall for a period of three years however one (1) respondent had stayed in the hall for four years, 2% of the total. Three of the respondents however have never stayed in the hall before and this is represented by 4%.

The various charts below show a distribution of the satisfactory level of students with regard to the

various variables of housing satisfaction. The variables were grouped under five (5) broad categories. These categories include Services within the Hall, Services outside the Hall, accommodation, Management and Environment/Social aspect. The charts will be discussed according to the various categories. The charts represent a collation of the various halls under the satisfactory keys:

1. Not at all,
2. Slightly dissatisfied,
3. Moderately satisfied,
4. Very satisfied and
5. Extremely satisfied.

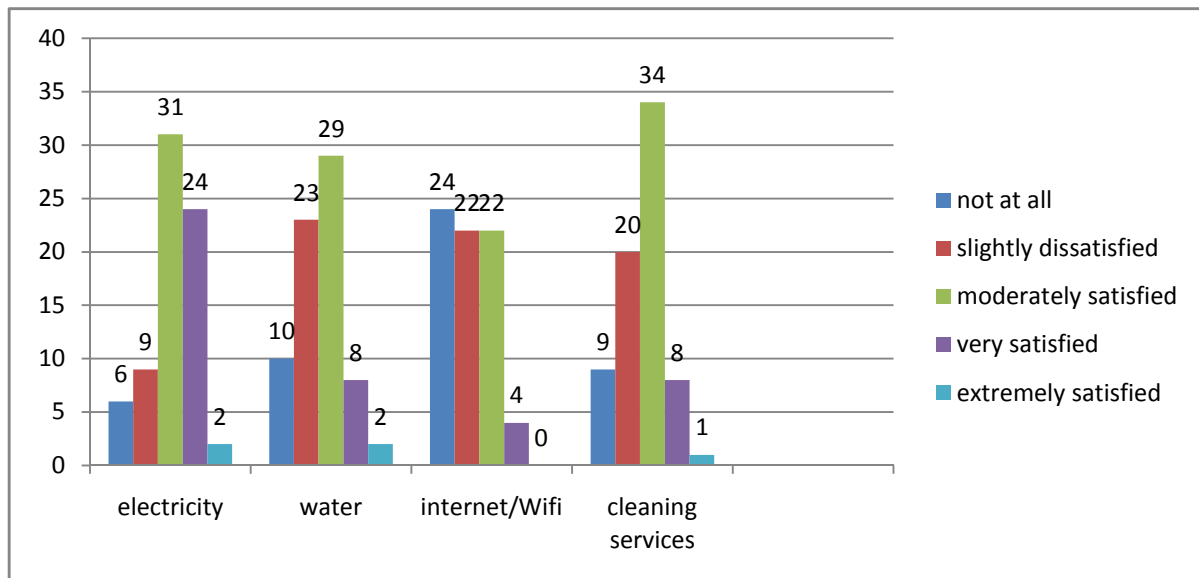


Figure 3.3 : Distribution for services within the halls of residence.

The variables with regard to services in the hall were Electricity supply, Water supply, Internet/Wi-Fi access and cleaning services. Electricity supply has the highest value of 31 students being moderately satisfied,

24 students very satisfied, 9 students slightly dissatisfied, 6 students not satisfied at all and a minimum of 2 students extremely satisfied. This distribution shows that electricity supply to the various

halls of residence is satisfactory to its residence as higher values were recorded in the satisfied variables as compared to the variables which indicate dissatisfaction. Water supply to the various halls of residence is not satisfactory. This is because higher values were recorded for the levels, slightly dissatisfied and not at all as against the levels very satisfied and extremely satisfied. Respondents were extremely dissatisfied with Internet/Wi-Fi access in the various halls. A value of 24 was recorded for not at all and this was the highest value. Twenty-two students were recorded under both slightly dissatisfied and moderately satisfied. None of the respondents was extremely satisfied with internet access in the hall; however a total of 4 students were very satisfied. This value is very insignificant as compared to the values for the other

levels of satisfaction. Most of the students were moderately satisfied with the cleaning services. A total of 34 students were moderately satisfied. 20 students were slightly dissatisfied, 9 students were not satisfied at all while 8 students were very satisfied and 1 student was extremely satisfied with the cleaning services offered in the various halls of residence. Cleaning services in general is not satisfactory as higher values were recorded for the variables indicating dissatisfaction. The services provided in the halls of residence are satisfactory in general as greater values were recorded for the moderately satisfied level. On the other hand the supply of electricity is more satisfactory than water supply, internet access and cleaning services. Students are greatly dissatisfied with internet access in the halls.

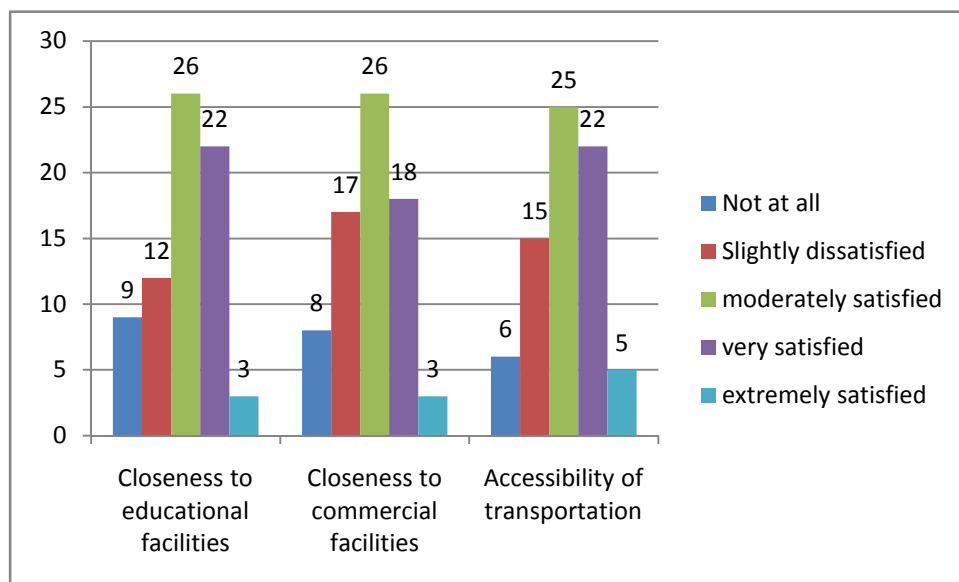


Figure 3.4 : Distribution for services outside the hall.

The distribution for services outside the hall was represented by closeness to educational facilities, closeness to commercial facilities and accessibility of transportation. Majority of the respondents were moderately satisfied with the various variables. Closeness to educational and commercial facilities had the same value of twenty-six recorded for moderately satisfied while accessibility of transportation registered a value of twenty-five for moderately satisfied. The distribution records greater values for very satisfied as compared to slightly dissatisfied and not at all. The highest value of five (5) was recorded for extremely satisfied under accessibility of transportation. Dissatisfaction on a large scale was recorded under slightly dissatisfied with regard to closeness to commercial facilities. The greatest value for not at all which was nine (9) was registered under closeness to educational facilities. Respondents were on a larger base satisfied with services outside the hall when compared to services within the halls of residence.

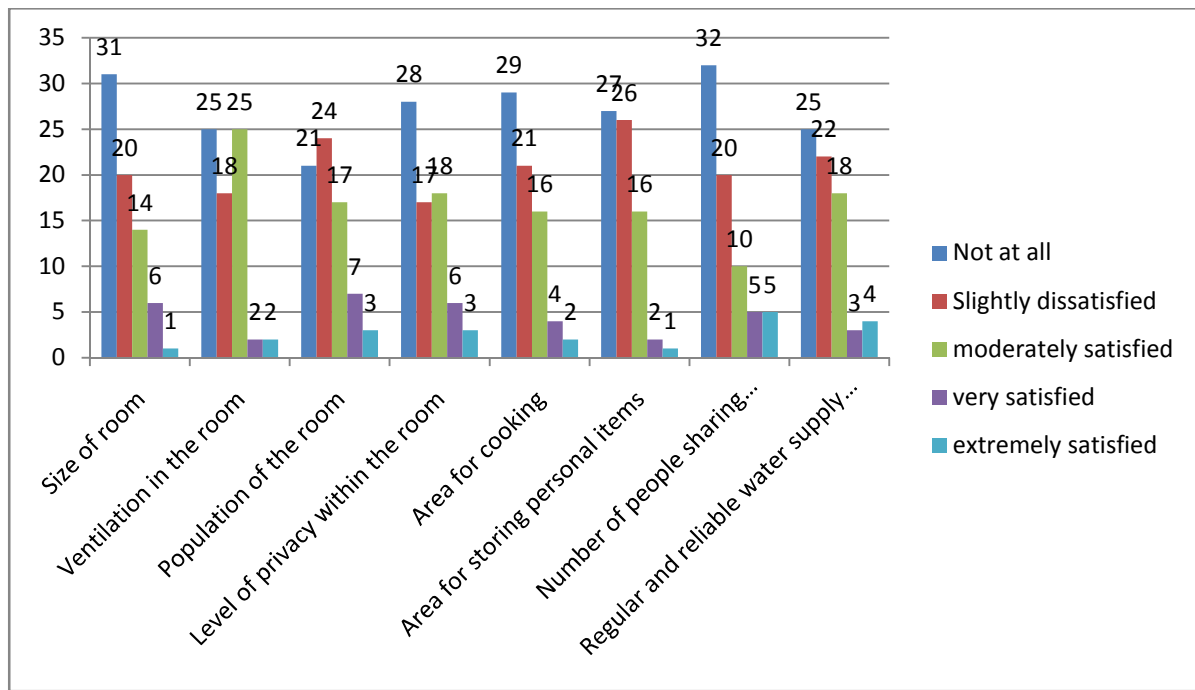


Figure 4.5 : Distribution for Accommodation housing variable

The variables under the broad category Accommodation include size of room, ventilation in the room, population of the room, level of privacy within the room, area for cooking, area for storing personal items, number of students sharing washroom facilities and regular and reliable supply of water to the washrooms. The variables above have majority of the students responding not at all for the satisfaction level. Respondents are largely dissatisfied with the number of students sharing washroom facilities that is a total of 32 out of the 72 respondents. The next variable students are not satisfied at all with is the size of the room, 31 students out of 72 students are not satisfied at all. Twenty-nine students were not satisfied at all with the area for cooking, twenty-eight students were also not satisfied at all with the level of privacy within the room

and twenty-seven students were also not satisfied at all with the area for storing personal items. Also twenty-five students selected not at all for the variable, regular and reliable water supply to the washrooms. However, the total number of students slightly dissatisfied was more than the students not satisfied at all with the population of the room, the values were 24 and 21 respectively. The same value of twenty-five was recorded for the levels moderately satisfied and not at all for the variable ventilation in the room. The values recorded for the levels very satisfied and extremely satisfied were less than ten (10) for the various variables. The distribution for accommodation shows that students are largely dissatisfied with the facilities in the halls of residence. This analysis can be attributed to the reason why 86% of the respondents stayed in the hall for one year.

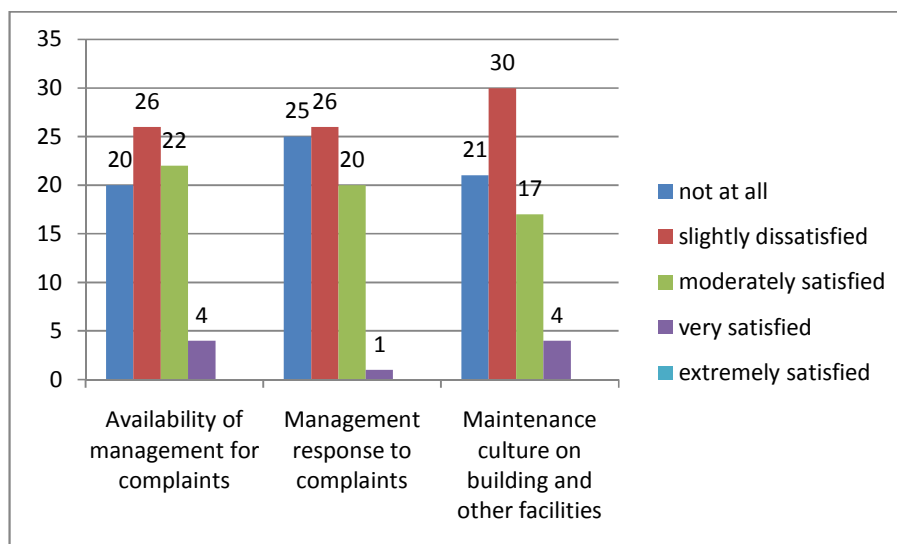


Figure 4.6 : Distribution for Management variable

Availability of management for complaints, management response to complaints and maintenance culture on building and other facilities were the various variables under Management. Students are largely dissatisfied with the management of the various halls especially with regard to the maintenance culture practiced in the halls. Thirty (30) out of seventy-two (72) respondents were slightly dissatisfied. This is the highest value recorded under any satisfaction level in this category. Management response to complaints is very dissatisfactory. It had one student being very

satisfied while majority of the respondents' satisfaction fell between not at all, slightly dissatisfied and moderately satisfied. Respondents were also dissatisfied with availability of management for complaints. Majority of the respondents were slightly dissatisfied with this variable. None of the respondents were extremely satisfied with management as zero (0) value was recorded for all three variables. This category recorded the highest values for respondents being dissatisfied after the collation of data from the questionnaires.

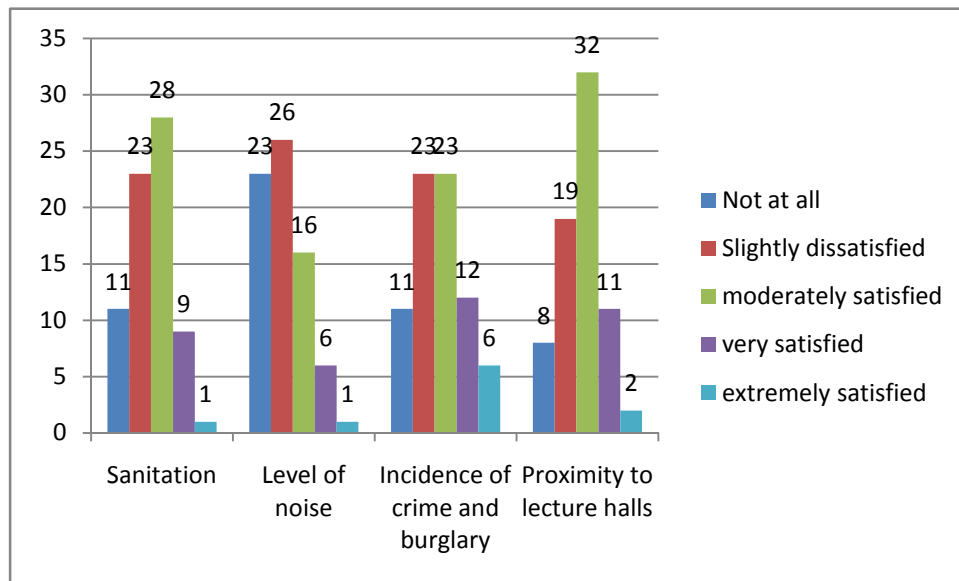


Figure 3.7 : Distribution for Environment /social aspect housing variable

The distribution above shows that respondents were largely moderately satisfied with the proximity of halls of residence to lecture halls. The highest value of thirty-two respondents was recorded. The variable incidence of crime and burglary recorded an equal value of twenty-three respondents for the levels slightly dissatisfied and moderately satisfied. This variable however has a greater number of students being satisfied. This conclusion was arrived at due to the values recorded for very satisfied and extremely satisfied being greater than the value for not at all. Students are extremely dissatisfied with the level of noise in the various halls. A total of the values recorded for not at all and slightly dissatisfied is forty-nine. This value is greater than the total values for moderately satisfied, very satisfied and extremely satisfied. In terms of sanitation most of the respondents were moderately satisfied. The next highest value was recorded under those who were slightly dissatisfied with sanitation, next was 11 students under not at all, nine students were very satisfied and one student was extremely satisfied. These values show that sanitation in the various halls is not satisfactory according to the respondents.

The seventy-two (72) students in their response to their satisfaction with the various halls indicated that

accommodation facilities and management in the halls was highly unsatisfactory. Students were satisfied with services outside the hall. Services within the hall and environment/social aspect had some of the students satisfied while others were not satisfied with the variables.

k) Challenges

There are challenges that students face with regards to accessing private hostels due to the Non-resident policy. These challenges include:

Students have to go through a stressful ordeal when accessing private hostels. This is because a lot of students are also seeking accommodation hence one has to walk for long hours and enquire from various hostel managers if there are rooms available.

A major challenge facing most students is the exorbitant prices students have to pay to secure rooms in their hostel of choice. Currently prices are estimated from at least ₵700 to ₵2500. Another challenge is the issue of protocol lists being attended to before the ordinary student. In order to get accommodation has to go to the extent of paying the porter an extra amount of money to secure a room. The proximity of some of these hostels to lecture halls is another challenge student's

face. The hostels often closer to the lecture halls become full on time hence students have to accept the hostels far from campus and this adds an additional cost for transportation to educational and commercial facilities.

There is also the challenge of security. The inhabitants of the hostels off campus are often attacked by thieves and armed robbers. This puts a strain on movement especially in the evening for fear of being attacked by these men. There are also issues of people being hypnotized and their belongings or assets are taken away by these unscrupulous men.

Students are sometimes disappointed by some hostel managers. This is because their rooms are sometimes given out to people despite the fact that they have paid their monies already. Also some of the managers fail to admit students in their hostel in order to extort huge sums of money from them.

Another challenge related to accommodation is inadequate supply of services as well as inadequate facilities to satisfy students. Students often have to provide electricity and gas for themselves before the hostel managers do their duty of providing them with these services. There is also the issue of water supply in some hostels especially when the lights are out because electricity is needed to pump the water to the various rooms.

Reforms in Accommodation policies have various effects on students. Students have the opportunity to live in hostels that have better services than the halls however accessing these hostels become an issue due to cost, security, provision of services and facilities as well as the behaviour of some hostel managers. The reforms in accommodation have been met with various agitations but the authorities seem to do little about it. The accessibility of accommodation facilities on a scale of 1 to 10 will be rated 4. This is as a result of students dissatisfaction with the services provided by both halls and hostels in KNUST.

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Sex, Drugs, and Country Music? A Content Analysis of Substance Use, Sex, Violence, and Weapons in Country Music

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MP3 recordings of the top 30 rated country music songs during 2001–2010 were reviewed independently by investigators for health-risk behaviors, including references to substance use, sex, violence, and weapons. Of 300 songs analyzed, 100 (33%) had at least one reference to substance use, sex, violence, or weapons. Thirty-six (12%) songs contained references to sex, 11 (4%) to violence, and 7 (2%) to weapons. References to substance use and sex occur frequently in country music. Parents, clinicians, and educators should be aware of music to which children listen and its potential behavioral effects. The country music industry should consider the consequences of lyrics that could negatively influence adolescent behavior.

Keywords: country music, music, mass media, adolescents, sexual activity, alcohol use, tobacco, weapons, violence.

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SEX, DRUGS, AND COUNTRY MUSIC: A CONTENT ANALYSIS OF SUBSTANCE USE, SEX, VIOLENCE, AND WEAPONS IN COUNTRY MUSIC

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MP3 recordings of the top 30 rated country music songs during 2001–2010 were reviewed independently by investigators for health-risk behaviors, including references to substance use, sex, violence, and weapons. Of 300 songs analyzed, 100 (33%) had at least one reference to substance use, sex, violence, or weapons. Thirty-six (12%) songs contained references to sex, 11 (4%) to violence, and 7 (2%) to weapons. References to substance use and sex occur frequently in country music. Parents, clinicians, and educators should be aware of music to which children listen and its potential behavioral effects. The country music industry should consider the consequences of lyrics that could negatively influence adolescent behavior.

Keywords: country music, music, mass media, adolescents, sexual activity, alcohol use, tobacco, weapons, violence.

I. INTRODUCTION

Exposure to health-risk behaviors portrayed in popular media has been associated with health-risk behaviors in children and adolescents (American Academy of Pediatrics & Committee on Public Education, 1999; American Academy of Pediatrics & Council on Communications and Media, 2009a, 2009b; Strasburger, American Academy of Pediatrics, & Council on Communications Media, 2010). Examples of these associations include: (1) exposure to tobacco and alcohol use through the media and smoking and drinking initiation in adolescents (Dalton M. A. et al., 2009; Dalton et al., 2003; Robinson, Chen, & Killen, 1998; Sargent et al., 2005; Sargent et al., 2004; Thompson & Gunther, 2007; Wills, Sargent, Gibbons,

Gerrard, & Stoolmiller, 2009), (2) exposure to marijuana references in popular music and marijuana use in urban ninth-grade students (Primack, Douglas, & Kraemer, 2010), (3) exposure to depictions of degrading sexual activity through music and sexual activity in adolescents (Martino et al., 2006; Primack, Douglas, Fine, & Dalton, 2009), and (4) exposure to violence in the media and aggressive behaviors in adolescents (American Academy of Pediatrics & Council on Communications and Media, 2009b). While limited data are available linking exposure to health-risk behaviors portrayed in music lyrics to certain adolescent health-risk behaviors (i.e., alcohol use and violence), the Social Learning Theory supports the association of exposure to music lyrics portraying health-risk behaviors in an appealing and familiar manner, and health-risk behaviors in adolescents (Glanz K, Rimer BK, & Lewis FM, 2002; Primack, Dalton, Carroll, Agarwal, & Fine, 2008). Hence, it is important to understand the prevalence and nature of health-risk behaviors in the popular media to which adolescents are exposed.

The opportunity for adolescent exposure to health-risk behaviors through music media is pronounced. Adolescents aged 15 to 18 years listen to an estimated 3.0 hours of music per day and the increasing use of personal listening devices lessens the ability for parents to monitor the music to which their children are listening (Rideout V, Roberts D, & Foehr U, 2010). Over 75% of children aged 8 to 18 years own a MP3 player and nearly two-thirds of time spent listening to music is spent using a cell phone, MP3 player, or computer (Rideout V et al., 2010). Furthermore, only 26% of children report having rules about types of music choices and 10% about how much time is spent listening to music (Rideout V et al., 2010).

The popularity of country music with an estimated audience size of 98 million US residents (Country Music Association, 2012), combined with easier access to music and lyrics through modern technology has resulted in adolescents having more opportunities for exposure to country music than in the past. Compared with other music genres (e.g., rap, hip-hop, rock) (Christenson, Roberts, & Bjork, 2012; Gruber, Thau, Hill, Fisher, & Grube, 2005; Herd, 2005; Knoblach-

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Westerwick S, Musto P, & Shaw K, 2008; Sloane, Wilson, & Imlach Gunasekara, 2013), country music has been studied less extensively for the presence of health-risk behaviors (Martino et al., 2006; Primack, Dalton, et al., 2008; Primack, Gold, Schwarz, & Dalton, 2008; Roberts D, Henricksen L, & Christenson P, 1999). Thus, it is important to understand better the lyrical content of country music and its potential effects on child and adolescent health. Two previous studies analyzed the written lyrical content of the 279 most popular songs in 2005, including 61 country music songs, and showed that approximately 40% of the country music songs analyzed had references to substance use and nearly one-third to sex (Primack, Dalton, et al., 2008; Primack, Gold, et al., 2008). However, a content analysis of 212 top-rated country music songs from 1996 and 1997 found that only 14 percent of country music songs had substance use references (Roberts D et al., 1999). An analysis of 111 country music videos in 1994 showed that 10.8% portrayed violence and 6.3% referred to weapon carrying (DuRant et al., 1997).

The purpose of this study was to analyze the most popular country music songs from 2001 to 2010 for references to health-risk behaviors, including substance use, sex, violence, and use of weapons. We hypothesized that references to health-risk behaviors were frequent and consistently present in popular country music songs from 2001 to 2010.

II. METHODS

Bob Kingsley's Country Top 40 (<http://www.ct40.com/>) was used to identify the 30 highest rated country music songs for each year from 2001 to 2010. Country Top 40 is a weekly syndicated radio show that plays the week's top rated music songs based on radio station airplay in 180 US and Canadian radio markets (Wikipedia, 2012a, 2012b). This study did not use human subjects; therefore, the study was not subjected to human subjects review.

a) Coding procedures

A six-person team was trained in observation methods that included instructions for detecting references to substance use, sex, violence, and weapons. For each of the 300 songs, four initial investigators (KG, RH, AS, and a non-author) listened independently to MP3 recordings and used a standardized data collection instrument to record multiple elements relating to substance use, sex, violence, and weapons as previously described (Primack, Dalton, et al., 2008; Primack, Gold, et al., 2008). MP3 recordings were used for this analysis to garner undergraduate student (KG, RH, AS) interest in the epidemiology process and to simulate typical adolescent exposure to music lyrics. Investigators could listen to each song an unlimited number of times to collect the data. Observations were counted if ≥ 3

investigators noted the reference. If just two investigators noted a specific reference, the song was then reviewed independently and in a blinded manner by the two remaining investigators (RT, JL). The reference in question was then counted if both of the second-level reviewers noted the reference; otherwise, the reference was not counted. Only the four initial investigators counted the number of references to health-risk behaviors; the number of references was not confirmed by the two remaining investigators.

b) Measures and analysis

Descriptive information for each song was recorded and included the singer, singer's sex (male, female, or both if duo or group), song title, song length, year song appeared on the chart, and chart ranking.

We coded any reference to explicit substance use (i.e., alcohol, tobacco, marijuana, and other illicit drugs), figurative substance use (i.e., not explicit substance use or substance use mentioned in form of a simile), places associated with substance use (e.g., "honky tonk", bar, etc.), and "wallpaper" reference to substance use (i.e., substance mentioned in the background but not explicit or figurative substance use) (Table 1) (Primack, Dalton, et al., 2008). For each song with explicit substance use, we recorded the number of references for alcohol, tobacco, marijuana, and other illicit drugs (Primack, Dalton, et al., 2008). For songs with substance use in the chorus, we recorded each mention of substance use as a separate reference (Primack, Dalton, et al., 2008). The number of references we reported for each substance was determined by taking the average number of references noted by those observers who reported references to explicit substance use (Primack, Dalton, et al., 2008). Investigators also noted any reference to sex, including any innuendos (Table 1).

Songs were coded as having no references to violence, references to threats of or actual bodily harm, or references to threats of or actual loss of life because of violence (DuRant et al., 1997). Songs were coded as having no references to weapons, references to one weapon, or references to either two or more weapons or to at least one weapon used in a violent act (DuRant et al., 1997).

A review of written lyrics for only those songs originally detected as having references to substance use, sex, and/or weapons was conducted by two observers (RT and a non-author). When there was disagreement, the song was discussed to achieve consensus. Songs were coded as having the presence of either substance use-related positive, negative, or neutral consequences for the song's character. Songs were coded as having risky sexual activity if the lyrics described a casual or promiscuous sexual encounter, the sexual reference was associated with substance use, or at least one person mentioned was objectified.

Additionally, songs were coded as having degrading sexual activity if all of the following criteria were met: a) at least one person mentioned had a large sexual appetite, b) at least one person mentioned was objectified, and c) sexual value was placed on a person solely for physical characteristics (Primack, Gold, et al., 2008). Songs were coded as having references to weapons being used in legal activities (e.g., hunting) or illegal activities (e.g., murder).

Kappa values were calculated to assess interobserver reliability (King J, 2004). Fischer's exact or X² analysis was used to assess for differences between proportions and a two-sample t test to compare means. Statistics were calculated using OpenEpi (Dean AG, Sullivan KM, & Soe MM).

III. RESULTS

The four initial observers observed 300 songs, totaling 19 hours and 21 minutes. The average song length was 3.9 minutes. The kappa values for interrater agreement between each reference category were 0.80 for explicit substance use, 0.30 for figurative substance use, 0.71 for places associated with substance use, 0.72 for "wallpaper" reference to substance use, 0.39 for sex, 0.35 for violence, and 0.24 for weapons. The second level reviewers reviewed 44 (15%) of the 300 songs.

One-hundred (33%) songs had at least one reference to substance use, sex, violence, and/or weapons use. Additionally, song titles also contained references to health-risk behaviors (alcohol = 8, sex = 1, and weapons = 1). The percentage of songs per year with references to health-risk behaviors ranged from 17% to 43% (Figure 1). Songs with references to health-risk behaviors had a mean chart ranking of 13.9 compared with 16.3 for songs without ($p = .02$).

a) Substance use

Seventy (23%) songs had at least one substance use (i.e., explicit, figurative, places, or "wallpaper") reference (Table 2). Of these, 64 had references to explicit substance use, 11 to figurative substance use, 17 to places associated with substance use, and two with "wallpaper" references. Overall, 13.4 alcohol use references occurred per hour of song-music. Among those songs with explicit substance use references, there were means of 3.7 references per song and 57.5 references per hour of song-music. Additionally, 0.7 tobacco references per hour of song-music were observed. Two songs were noted to have references to substances other than alcohol, tobacco, or marijuana. No songs were observed to have marijuana references. Songs with substance use references were more likely to have positive consequences ($n=47$, 67%) associated with substance use compared with negative consequences ($n=17$, 21%).

b) Sex

Twelve percent of the songs analyzed had sexual references (Table 2). The percentage of songs with sexual references by year ranged from 3% to 23%. Songs with sexual references were more likely to contain references to substance use (47%) compared with songs without sexual references (20%) (odds ratio [OR] = 3.6, 95% confidence interval [CI] = 1.7–7.3). Twenty-three (64%) of the songs with sexual references (8% of all songs analyzed) had references to risky sexual activity and 4 (11%) to degrading sexual activity.

c) Violence and weapons

References to violence and weapons were not common. Eleven (4%) songs had references to violence; of these, 2 had references to threats of or actual loss of life to violence, and 9 had threats of or actual bodily harm. Five songs had references to both violence and substance use. Seven (2%) songs had references to weapons use. Of these, 3 had references to either two or more weapons or to at least one weapon being used in a violent act, and 4 had references to one weapon. Two songs had references to both weapons use and substance use. Six (86%) of the songs with references to weapons referred to legal use of weapons. Only 1 of the 300 songs analyzed referred to illegal use of weapons.

d) Artist characteristics

Eighty-nine artists had songs in this analysis. Duets comprised of two solo artists were counted as a unique artist and separate from each solo artist. The median number of songs per artist was 2 (range: 1–21). Two-hundred forty-six (82%) songs were performed by male vocalists, 41 (14%) by female, and 13 (4%) by both male and female. Male artists were more likely to have songs with references to substance use, sex, violence, and/or weapons use compared with female artists (OR = 3.3, 95% CI = 1.3–8.2). There were no significant differences when comparing male and female artists for each health-risk behavior individually. Songs performed by the three artists with the most songs in this analysis ($n=52$, 17.3%) were more likely to have references to substance use, sex, violence, and/or weapons use compared with songs performed by other artists (OR = 2.6, 95% CI = 1.4–4.8).

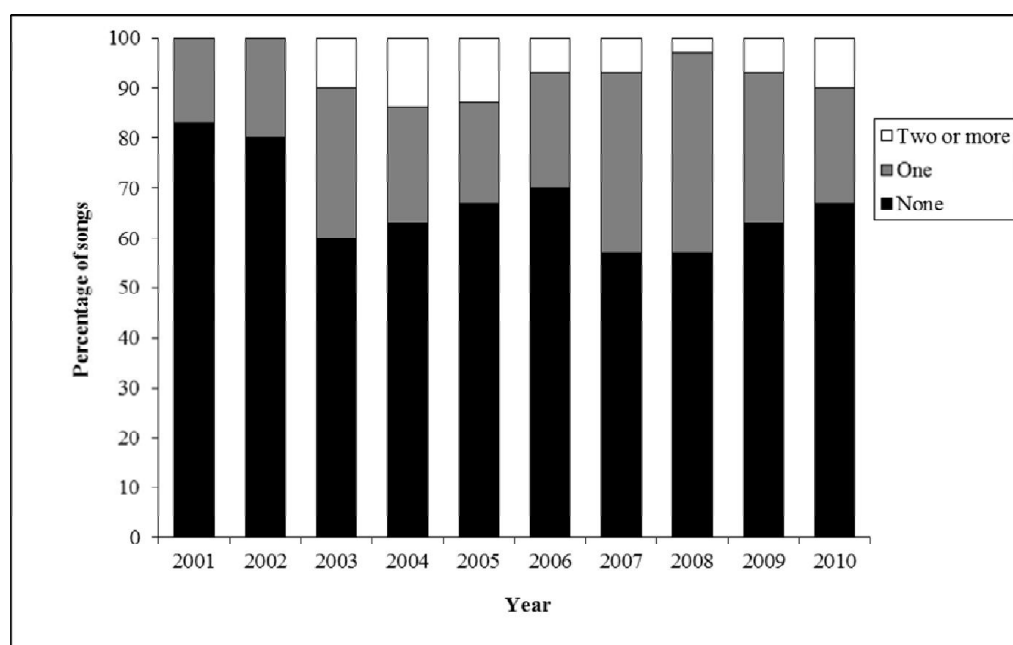


Fig.1 : Percentage of songs with references to none, one, or two or more different categories of health risk behaviors (i.e., substance use, sex, violence, or weapons use) in popular country music ^a

^aThe top 30 rated country music songs as rated by Bob Kingsley's Country Top 40 (<http://www.ct40.com/>).

IV. DISCUSSION

In this study, we evaluated the proportion of top-rated country music songs from 2001 to 2010 with references to health-risk behaviors. Notwithstanding abundant evidence showing an association between exposure to health-risk behaviors through popular media and health-risk behaviors in adolescents (American Academy of Pediatrics & Committee on Public Education, 1999; American Academy of Pediatrics & Council on Communications and Media, 2009a, 2009b; Dalton M. A. et al., 2009; Dalton et al., 2003; Martino et al., 2006; Primack et al., 2009; Primack et al., 2010; Robinson et al., 1998; Sargent et al., 2005; Sargent et al., 2004; Strasburger et al., 2010; Thompson & Gunther, 2007; Wills et al., 2009), one-third of the top-rated country music songs in this analysis had references to substance use, sex, violence, and/or weapons use. This has theoretically important implications for adolescents who prefer country music because adolescents typically listen to a small range of music genres (Rideout V, Roberts D, & Foehr U, 2005). Alcohol use is among the leading causes of morbidity in adolescents and a serious public health problem (Hingson, Heeren, Winter, & Wechsler, 2005; Mulye et al., 2009). Nearly 40% of all adolescents in grades 9 to 12 are current drinkers and approximately 22% are binge drinkers (Eaton et al., 2012). Consequently, it is important to understand the underlying factors contributing to adolescent drinking. Exposure of adolescents to alcohol use in the movies has been associated with onset of drinking in adolescents (Wills et

al., 2009). Increased viewing of television and music videos was also associated with drinking in adolescents (Robinson et al., 1998). While a single pilot study showed exposure to music lyrics with alcohol references was associated with increased alcohol sales among adults in a bar setting (Engels, Slettenhaar, ter Bogt, & Scholte, 2011), the impact on adolescent behavior following exposure to alcohol use portrayed in music lyrics is less understood and in need of further research. In our study, over 13 references to alcohol occurred per hour of song-music, and the majority of songs with substance use references were associated with positive consequences. Furthermore, 23% of the songs analyzed had references to substance use compared with only 14% of the top-rated country music songs in 1996 and 1997 (Roberts D et al., 1999), suggesting references to substance use are not decreasing in frequency over time. This is in contrast with movies where the percentage of tobacco use incidents depicted in top-grossing movies decreased 56% from 2005 to 2010 (Centers for Disease Control and Prevention, 2011).

In the present study, 12% of all songs analyzed had sexual references. The use of subtle and sexually suggestive innuendos (Table 1) in country music made it particularly difficult to detect sexual references in this study. The subtleness of many of these references might account for the low interobserver rating (Bryington AA, Palmer DJ, & Watkins MW, 2004) for sexual references. Previous studies have demonstrated the association between exposure to degrading sex in musical lyrics and initiation of sexual activity in adolescents (Martino et al., 2006; Primack et al., 2009).

However, these same studies did not find a statistically significant association between exposure to non-degrading sex in musical lyrics and adolescent sexual activity. Only 11% of songs in this analysis had references to degrading sex; however, country music has previously been associated with lyrics depicting degrading sex. An analysis of 61 country music songs from 2005 found that nearly one-third of songs with references to sex had degrading sexual references (Primack, Dalton, et al., 2008). However, 64% of the songs with sexual references in this analysis had references to risky sexual activity. Considering the public health importance of early adolescent sexual activity, further study is required to determine if exposure to non-degrading sexual lyrics, including those with risky sexual activity, is associated with sexual activity in adolescents. In this study nearly one-half of the songs that contained sexual references also had references to substance use, and songs with sexual references were more likely to contain references to substance use compared with songs without sexual references. This is especially troubling as the use of alcohol has been associated with date or acquaintance rape (Rickert, Wiemann, & Vaughan, 2005). Further investigation is warranted to study the impact on adolescent behavior resulting from exposure to musical lyrics containing references to both substance use and sex (Primack, Gold, et al., 2008).

Only 4% of the songs analyzed had references to violence and 2% to weapons use. The frequency of these references is less than for a previous analysis of 111 country music videos in 1994 (DuRant et al., 1997). Additionally, 6 of the 7 songs with weapons use portrayed legal use of weapons.

Artist characteristics appear to be associated with the presence of references to health-risk behaviors in their songs. Male artists were more likely than female artists to have references to health-risk behaviors. In addition, the three artists with the most songs in this analysis, accounting for over 17% of the songs analyzed, had a higher proportion of songs with references to health-risk behaviors compared with all the other artists combined. A song's chart ranking is associated with the frequency of radio airplay (Wikipedia, 2012a, 2012b). A more popular song reaches a larger radio audience a greater number of times, translating to an increase in song-hours. Among all songs studied, the mean chart ranking was significantly higher for those with at least one reference to a health-risk behavior compared with songs without a reference. Based on this analysis, it is unknown whether the use of references to health-risk behaviors contributes to a song's or artist's popularity. Additionally, when adolescents are exposed to songs with references to health-risk behaviors, it is unclear how the artist's sex or popularity influences behavior independent of the reference used. In 1989, the American Academy of Pediatrics (AAP) published

recommendations that the music video industry should show self-restraint regarding depictions in the videos they produce (American Academy of Pediatrics & Committee on Communications, 1989). The AAP later published recommendations that music performers should serve as positive role models (American Academy of Pediatrics & Council on Communications and Media, 2009a). Even though the AAP has long recognized the negative influences the media can have on adolescent behavior and has advocated for more responsible musical content, the proportion of top rated country music songs with references to substance use, sex, violence, and/or weapons did not decline during this study and actually increased in years 2007 to 2010 compared with years 2001 to 2002. It is evident that continued and intensive advocacy towards the country music industry is needed to reduce the frequency of references to health-risk behaviors with the intention of lessening the possibility for negative impact on adolescent behavior.

This study had several limitations. First, while observers were trained in ways to detect references to substance use, sex, violence, and weapons use, it was not possible to provide a comprehensive list of obscure, slang, or brand-related terms and phrases. This might have led to an underreporting of health-risk behaviors in this analysis. Second, the number of individual references to substance use was not confirmed through an analysis of written lyrics. Had we performed a separate analysis of written lyrics for this purpose, the number of individual references noted through listening could have been confirmed and a higher number of references to substance use might have been detected. Third, the interobserver reliability for sex, violence, and weapons use was low. However, because a second-level review by two blinded and independent observers was required for all songs with references noted by only two initial observers, the specificity for the references detected was likely high. Finally, these findings might not be generalizable to all country music songs as this analysis was limited to the 30 top rated country music songs from each year. It is possible that less popular songs had either a lower or a higher proportion of songs with references to health-risk behaviors.

V. CONCLUSION

In summary, references to substance use and sex occurred commonly in popular country music from 2001 to 2010. The average adolescent aged 15 to 18 years listening to top-rated country music is exposed daily to at least 40 alcohol references. Additional research is warranted to determine the impact on adolescent health that is associated with exposure to health-risk behaviors portrayed in the lyrics of country music and other music genres. Parents, healthcare providers, public health practitioners, and school

officials should be aware of the music to which children are listening (American Academy of Pediatrics & Council on Communications and Media, 2009a). Local healthcare providers and public health practitioners should work with their local school systems to incorporate media education into their curricula (American Academy of Pediatrics & Committee on Public Education, 1999). When possible, efforts should be undertaken to limit the exposure of adolescents to music with lyrics that portray health-risk behaviors, particularly alcohol use (Institute of Medicine, 2004), in an appealing way. Furthermore, country music artists should serve as role models for adolescents (American Academy of Pediatrics & Council on Communications and Media, 2009a) and the country music industry should consider the consequences of lyrics that could negatively influence adolescent behavior.

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Table 1 : Examples of references to substance use, sex, violence, and weapons use, by reference type, in popular country music^{a,b}

Reference type	Example Lyrics ^b
<i>Substance use</i>	
Explicit use	"I'm a thoroughbred, that's what she said/In the back of my truck bed/As I was gettin' buzzed on suds /Out on some back country road"
Figurative use	"Ask directions from a genie in a bottle of Jim Beam /And she lies to you, that's when you'll learn the truth"
Places	"This old man and me were at the bar and we/We're havin' us some beers and swappin' I don't cares"
Wallpaper	"It's always on five in Margaritaville , come to think of it"
<i>Sex</i>	
Degrading	"Here you come knockin' on my door/Baby, tell me what you got on your mind/. . . Yeah, you're lookin' right, lookin' good /. . . Everything is waiting inside for you/ You know I got it, come and get it /. . . I got the money if you got the honey "
Non-degrading	"I miss the power of your kiss when we made love /But baby most of all/I miss my friend"
Risky	"Right now, she's probably saying, 'I'm drunk'/And he's a thinking that he's gonna get lucky "
<i>Violence</i>	
Threats of, or actual bodily harm	"Write a love song that makes you cry/Then turn right around, knock some jerk to the ground /'Cause he copped a feel as you walked by"
Threats of, or actual loss of life	"Take all the rope in Texas and find a tall oak tree/ Round up all of them bad boys, hang them high in the street /For all the people to see"
<i>Weapons use</i>	
Presence of weapon	"Now, y'all run along and have some fun/I'll see you when you get back/Bet I'll be up all night/Still cleaning this gun "
Weapon used in violent act	"I dug my key into the side/Of his pretty little souped-up 4 wheel drive/ Carved my name into his leather seat/I took a Louisville Slugger to both head lights/ Slashed a hole in all 4 tires"

^aThe top 30 rated country music songs as rated by Bob Kingsley's Country Top 40 (<http://www.ct40.com/>).^bLyrics accessed from <http://www.songlyrics.com>**Table 2 :** Number and proportion of songs with references to health-risk behaviors in popular country music^a

Year	Songs Analyzed	Reference category				
		Substance (%)	Use	Sex (%)	Violence (%)	Weapons use (%)
2001	30	3 (10)		2 (7)	0 (0)	0 (0)
2002	30	3 (10)		1 (3)	1 (3)	1 (3)
2003	30	5 (17)		5 (17)	5 (17)	1 (3)
2004	30	8 (27)		5 (17)	1 (3)	1 (3)
2005	30	9 (30)		3 (10)	3 (10)	0 (0)
2006	30	9 (30)		2 (7)	0 (0)	0 (0)
2007	30	9 (30)		4 (13)	1 (3)	2 (7)
2008	30	9 (30)		3 (10)	0 (0)	2 (7)
2009	30	9 (30)		4 (13)	0 (0)	0 (0)
2010	30	6 (20)		7 (23)	0 (0)	0 (0)
Total	300	70 (23)		36 (12)	11 (4)	7 (2)

^aThe top 30 rated country music songs as rated by Bob Kingsley's Country Top 40 (<http://www.ct40.com/>).

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