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DISCOVERING THOUGHTS AND INVENTING FUTURE

HIGHLIGHTS

Potential Impacts of Climate

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Structural Ambiguity Interpretation

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Chicago Symphony Orchestra

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Structural Ambiguity Interpretation: A Case Study of Arab Learners of English

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Abstract - The aim of this paper is to investigate how Arabic native speakers (non-native speakers of English) interpret English ambiguous sentences. It has been recognized that Arabic native speakers encounter problems with English sentences which involve structural ambiguity. Sixty subjects participated in the experiment. All were university students specialized in English. The subjects were given ambiguous sentences contain prepositional phrases, relative clauses, etc. For instance, prepositional phrases like 'the girl hit the boy with the book' in which the prepositional phrase (PP) can be attached either to the verb phrase (VP) or to the preceding noun phrase (NP). It has been recognized that the students face difficulty in interpreting ambiguous structure and generally take the general meaning which can be understood from the sequence of words.

Keywords : Ambiguity, Arabic, translation, structural ambiguity, lexical ambiguity.

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Structural Ambiguity Interpretation: A Case Study of Arab Learners of English

Mohammad I. Khawalda ^α & Emad M. Al-Saidat ^σ

Abstract - The aim of this paper is to investigate how Arabic native speakers (non-native speakers of English) interpret English ambiguous sentences. It has been recognized that Arabic native speakers encounter problems with English sentences which involve structural ambiguity. Sixty subjects participated in the experiment. All were university students specialized in English. The subjects were given ambiguous sentences contain prepositional phrases, relative clauses, etc. For instance, prepositional phrases like 'the girl hit the boy with the book' in which the prepositional phrase (PP) can be attached either to the verb phrase (VP) or to the preceding noun phrase (NP). It has been recognized that the students face difficulty in interpreting ambiguous structure and generally take the general meaning which can be understood from the sequence of words.

Keywords : *Ambiguity, Arabic, translation, structural ambiguity, lexical ambiguity.*

1. INTRODUCTION

Ambiguity is, strictly speaking, used to describe a word, phrase, or sentence when it has more than one interpretation. Generally, two types of ambiguity are distinguished, lexical and structural ambiguity. Lexical ambiguity, which is so common, indicates that the word itself has more than one meaning. The word 'hard', for example, can mean 'not soft' or 'difficult'. Structural ambiguity, on the other hand, occurs when a phrase or a sentence has more than one underlying structure, such as the phrases 'English history teacher', 'short men and women', 'The girl hit the boy with a book', etc. These ambiguities are said to be structural because each such phrase can be represented in two structurally different ways, e.g., '[English history] teacher' and 'English [history teacher]'. Indeed, the existence of such ambiguities provides strong evidence for a level of underlying syntactic structure. Consider the structurally ambiguous sentence 'The chicken is ready to eat' which could be used to describe either a hungry chicken or a broiled chicken. It is arguable that the operative reading depends on whether or not the implicit subject of the infinitive clause 'to eat' is tied anaphorically to the subject 'the chicken' of the main clause (see Quirk, et al., 1985 and Radford, 2008, among others).

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In certain cases it is not clear whether we have a case of structural ambiguity. For example 'Jane likes her new dress and so does Emily'. This can be used to say either 'Jane likes Jane's new dress and Emily likes Emily's new dress' or 'Jane likes Jane's new dress and Emily likes Jane's new dress'. In the above case, ambiguity is not clear or even one might say that there is no ambiguity at all and the clause 'so does Emily' can be read unequivocally as saying in the context that Emily does the same thing that Jane does, and although there are two alternatives to explain the clause 'so does Emily', these alternatives are not fixed semantically. Hence the ambiguity is merely apparent and better described as semantic underdetermination.

Although ambiguity is fundamentally a property of linguistic expressions, people are also said to be ambiguous on occasion in how they use language. This can occur if, even when their words are unambiguous, their words do not make what they mean uniquely determinable. Strictly speaking, however, ambiguity is a semantic phenomenon, involving linguistic meaning rather than speaker meaning (see Sturt et al., 2003 among others). Generally when one uses ambiguous words or sentences, one does not consciously entertain their unintended meanings, although there is psycholinguistic evidence that when one hears ambiguous words one momentarily accesses and then rules out their irrelevant senses. When people use ambiguous language, generally its ambiguity is not intended.

One of the most significant problems in processing natural language is the problem of ambiguity. Most ambiguities escape our notice because we are very good at resolving them using context and our knowledge of the world. Many works (as we will see below) have been carried out either to check how people paraphrase ambiguous sentences or to find out the reasons behind the way we understand these sentences. However, most of the previous works emphasis one type of ambiguous sentences, for instance, sentences with prepositional phrases, with wh-clauses, etc.

Our work here is distinguished from the previous works in that it deals with different types of ambiguous sentences (7 types according to the source of ambiguity). Moreover, it tackles the interpretation of ambiguous sentences by non-native speakers.

II. REVIEW OF LITERATURE

Natural languages are vastly ambiguous, and our apparently effortless ability to account for this phenomenon is one of the central problems of modern cognitive science (Sturta, et. al., 2003). However, each language has its peculiarity to express ambiguity. It seems that it is not necessary for the native speakers to be aware of all the possible interpretations associated with the sentence. (Gibson and Pearlmutter, 1998) point out that sentence comprehension involves integration of multiple different cues to interpretation, including morphological, syntactic, semantic, discourse-level and probabilistic ones. If it is not easy for the native speakers to account for all the possible readings of certain sentences, the situation will be more complicated for the non-native speakers. It should be pointed out that some studies (Clahsen and Felser, 2006) indicate that learners' ability to use sentence-internal semantic cues to interpretation may be similar to native speakers'. They add that non-native speakers might be able to compensate for their grammatical processing problems by making efficient use of non-grammatical cues to interpretation. Guo et al. (2008) points out that L2 learners apply non-grammatical cues (i.e. semantic cues) more than native speakers do. A survey of different types of structural ambiguity shows that there are many sources of ambiguity. For instance, structural ambiguity could result from ellipsis, usage of adverbial clauses, prepositional phrases, etc. All the types which we will review below were included in our test for our subjects (Arabic native speakers) to find out how do they interpret them.

In the case of ellipsis, the problem is that sometimes we cannot decide whether the remaining NP is a subject or an object, for instance, a sentence like 'She loves me more than you' is ambiguous and has two interpretations which can be paraphrased as 'She loves me more than she loves you', in which 'you' is an object, and 'She loves me more than you love me', in which 'you' is a subject (Radford, 2008: 13). He adds

"it is important to emphasize that this grammatical knowledge of how to form and interpret expressions in your native language is tacit (i.e. subconscious) rather than explicit (i.e. conscious): so, it's no good asking a native speaker of English a question such as 'How do you form negative sentences in English?' since human beings have no conscious awareness of the processes involved in speaking and understanding their native language. To introduce a technical term devised by Chomsky, we can say that native speakers have grammatical competence in their native" (ibid.).

The usage of adverbial clauses in complex sentences could cause ambiguity. The adverbial could be attached to the main verb or the embedded verb. For instance, 'I told him to leave before you came'. The

adverbial clause 'before you came' can be attached to the main verb 'told' to have the meaning that the time of telling was 'before you came' or it can be attached to the embedded verb leave to have the meaning that leaving 'should be before you came'. Generally, it has been found out that adverbs are preferentially attached to the lower verb (Kimball, 1973 and Altmann, et al. 1998). For example, in the following sentence, the preference is for the adverb 'miserably' to modify 'failed' rather than 'said': 'John said that he failed miserably'.

Another source of syntactic ambiguity is where whole phrases, typically prepositional phrases (PPs) can attach themselves, normally in a constituent-final position, to constituents of almost any syntactic category - sentences, verb phrases, noun phrases, etc. For instance, 'She hit the boy with the book'. 'with the book' can be attached to the NP (the boy) to mean 'the boy who has a book' or it can be attached to the verb 'hit' to mean that 'the book' is the instrument by which the boy was hit. The two interpretations can be represented respectively in (a & b).

- a) NP VP [NP PP]
- b) NP [VP [NP] [PP]]

This type of ambiguity has received much attention in the literature. Rayner, et al. (1983) examine sentences such as the above and find that there is initial preference for the verb phrase attachment. That is, the subjects attach the prepositional phrase with the verb rather than the NP ('the boy'). Since that time, a number of studies have pointed out that the interpretation of sentences which include PP can be modified by some factors such as the type of verb involved (Konieczny, Hemforth, Scheepers, & Strube, 1997; Spivey-Knowlton & Sedivy, 1995) and the argument status of the prepositional phrase (Schuetze & Gibson, 1999) or the choice of preposition (Katsika, 2009).

Jurafsky (1996), for instance, discusses how the type of the verb affects prepositional phrase attachment preferences. The PP in a sentence like 'They discuss the dogs on the beach' can attach either to the noun phrase or the verb phrase. The situation is different if the verb discuss is replaced by the verb 'keep' as in 'they keep the dogs on the beach'. In this case the sentence has one and only one interpretation. Quirk, et al.(1985:518) points out that the occurrence of PP final position in sentences like 'Did you drive the car near the police station?' causes more than one interpretations. For instance, the PP 'near the police station' could be interpreted as either 'directional' (towards the police station) or 'positional' (which describes the car).

Pan and Felser (2011) investigate the resolution of prepositional phrase (PP) ambiguities in sentences such as 'The policeman watched the spy with binoculars'. The PP 'with binoculars' can either be interpreted as modifying the verb (watched) to be 'The policeman [VP watched [NP the spy] [PP with

binoculars]]' or the post verbal noun phrase (the spy) as in 'The policeman [VP watched [NP the spy [PP with binoculars]]]'. The study shows that when sentences such as the one above presented in isolation, native speakers of English tend to prefer the VP modification over the NP modification reading. That is, grammatical constraints (Crocker, 1996; Phillips, 1996) and other factors may affect the attachment preference of PP. For instance, the PP in a sentence like 'Bill glanced at the customer with strong suspicion' is attached to the verb, whereas the PP in 'Bill glanced at the customer with ripped jeans' is attached to the preceding NP.

Wh-relative clause has its role in structural ambiguity. The main structure is usually assumed to be NP-PP-RC (relative clause), where NP dominates PP, and RC. The RC could be immediately dominated either by the first NP, or by the second NP (which is embedded inside the PP). In some sentences, it is not clear where to attach the relative clause. According to Cuetos and Mitchell (1988), English native speakers prefer to attach the relative clause to the closest NP although the relative clause could modify either of the two noun phrases. For instance, 'The driver of the manager who lived there died.' The relative clause 'who lived there' is attached to the manager rather than the driver. That is, 'it is the manager who lived there' not the driver. That is, the structure in (c) is more frequent than the structure in (d).

- c) [NP ... [PP [NP ... RC]]]
 d) [NP... [PP NP] RC],

Some other scholars (Gilboy, et al., 1995 and Traxler et al., 1998) state that WH- preference appears to vary according to various factors, such as the type of the preposition used in the complex noun phrase.

Whenever there is more than one possibility for how a sentence can be read, difficulty arises. Much of this is because we don't know how a person sorts out the differences between ambiguous statements. Consider the following:

- e) 'I saw the river walking over the bridge today.'
 f) 'I saw my friend walking over the bridge today.'

In the first sentence, it's obvious to us that the speaker is walking over the bridge, and saw the river as he passed over it. In the second sentence, it's probable that both the speaker and his friend were walking across the bridge and they saw each other in passing. But it's also possible that the speaker was riding in a car across the bridge and saw his friend walking across. Or perhaps the friend was in a car while the speaker was walking. All three are valid conclusions one could draw from reading the second sentence. If they wanted to know exactly what happened and remove all ambiguity, the reader of the sentence would ask the speaker to clarify exactly who was walking where. But there is no ambiguity in the first sentence at all. The reading that

'the river is walking over the bridge' is of course eliminated since rivers cannot walk. The sentence is truly unambiguous. However, in the second sentence, both characters are equally likely to be walking, so there is valid ambiguity there.

Mitchell et al. (1995) investigate how his participants understand ambiguous sentences. They support the claim that there is a purely configurational, non-lexical component to disambiguation preferences. They apply sentence completion experiment like 'The satirist ridiculed the lawyer of the firm who...' and the participants had to complete the sentences. He finds out that in addition to low attachment preference, the subjects tend to attach the relative clause to a particular configurational position, rather than to use the relative clause to modify a particular lexical item.

Negation can be a source of ambiguity. Generally, ambiguity arises as a result of what is called in grammar the scope of negation (Bresnan, 2003:30-31). For instance, in a sentence like 'all of you won't pass', either we negate the verb 'pass' to mean 'no passing'. In this case, the sentence has the interpretation 'no one will pass (all of you will fail)'. Or we negate 'all' to arrive at the interpretation that 'not all of you will pass (some will pass and some will fail)'. (see Quirk, et.al., 1985). Radford (2008: 171) points to this type of ambiguity and states that a sentence like 'everyone hasn't finished the assignment yet' is ambiguous according to scope of negation. If the scope of 'not' is not the subject 'everyone' the sentence has the reading 'everyone is in the position of not having finished the assignment yet', and if the scope of 'not' is 'everyone', the sentence will have the reading 'not everyone is yet in the position of having finished the assignment'.

Ambiguity resolution involves syntactic and non-syntactic factors, such as lexical, semantic plausibility and even non linguistic factors. According to the Tuning Hypothesis, these non-syntactic factors play a role in later processes (Frazier, 1987). Lexical semantic and all other factors must be taken into consideration to complete the process of ambiguity resolution.

III. SUBJECTS AND METHODOLOGY

Sixty Arabic native speakers participated in the experiment. All were university students majoring in English. They were given 18 ambiguous sentences. Sentences include different sources of ambiguity such as, prepositional phrases, adverbial clauses, ellipsis, etc. The subjects were asked to translate the sentences. Unlike most of previous studies, the authors prefer to use translation to find out how the subjects interpret the English ambiguous sentences for two reasons, the first is to avoid any problem which could result from how to express the meaning in English. The second, each reading of the English ambiguous sentences has a

different translation in Arabic. Accordingly, we know exactly how the Arabic native speakers interpret English ambiguous sentences. For instance, the English sentence 'she hit the boy with the book' has two different translations in Arabic:

g) Albintu Dharabit alwalada bilkitaab

'The girl hit the boy by the book.'

h) Albintu Dharabit alwalada allathii yahmil lkitaab.

'The girl hit the boy who has the book.'

Accordingly, the first translation in (g) means that the book is the instrument used by the girl. The usage of the prefix {bi-} in Arabic means that the book is the instrument by which the boy was hit. That is, the PP is connected with the verb. Whereas, the second interpretation in (h) indicates that the prepositional phrase describes the NP (the boy). So, each of the possible readings of the sentence has a different translation. The sentences in which the Arabic translation could be ambiguous were avoided.

The sentences can be classified as follows:

a) *Sentences with coordinated clauses or noun phrases.*

1. He said lies and hurt his friends.
2. Bill and Mary got married.
3. Don't eat fish and meat.

b) *Sentences with adverbial phrases or clauses.*

4. I told him to run again.
5. He said I met her last week.
6. He said he saw her when she left.

c) *Sentences with prepositional phrases in which the PP could be connected to the noun or the verb.*

7. He saw the man with the binoculars.
8. The girl hit the boy with the book.
9. I want the music book on the table.

d) *Sentences with non-finite clause in which the subject of the non-finite clause is not clear.*

10. He killed the cat crossing the street.
11. The horse is ready to ride.

e) *Negative sentences.*

12. All of you won't pass.
13. I didn't close the door because he left.

f) *Sentences with relative clauses.*

14. The driver of my sister who lived there died.
15. The mother of my friend who bought the house left.
16. The box of toys which I bought is expensive.

g) *Sentences with ellipsis in the second clause.*

17. She loves her dog more than her husband.
18. I know a richer man than John.

as one entity or two entities with ellipsis. For instance, the sentence 'he told lies and hurt his friends' could mean that 'he told lies and as a result of his lies he hurt his friends', That is he did one thing. The second interpretation is that he did two things, 'he told lies' and 'he hurt his friends'. All our subjects (60 participants) understood the sentence according to the second interpretation in which he did two things. The first interpretation is not available for our subjects.

The second sentence in the first group means either 'Bill and Mary married each other' or 'Bill married another girl (not Mary) and Mary married someone else.' All the subjects took the first interpretation and understand the sentence as 'Bill and Mary married each other.' Ellipsis has no room in the interpretation of the sentences.

The source of ambiguity in the third sentence is similar to the first two sentences. The sentence means either 'not to eat fish and meat at the same time' or 'eating fish is forbidden, moreover, eating meat is forbidden.' Most of our subjects (54 or 90%) followed the first interpretation in which 'eating fish and meat with each other is forbidden'. The rest (6 subjects or 10%) gave ambiguous Arabic sentences. It seems that our participants translate the English 'and' into Arabic 'wa' which has the same syntactic and semantic behavior as 'and'. However, the Arabic word which means at the same time is 'ma9' (with) which was used by most of the subjects.

Accordingly, in their interpretations, our subjects took 'and' as a coordinator to connect what is before to what is after. Ellipsis was ignored by our subjects. So, when we say 'Bill and Mary got married', they coordinated the two NPs without thinking of the possibility of ellipsis and the sentence could mean 'Bill got married and Mary got married'.

The source of ambiguity in the second group is the usage of the adverb which could be attached to the main verb or the embedded verb. For instance, the first sentence of this group 'I told him to run again' means either 'I told him again' or 'to run again'. All the subjects (60 subjects) preferred the second reading in which 'again' is attached to the verb 'run'. None of the subjects attached 'again' to the verb 'told'. 'last week' in the second sentence of this group could be interpreted either the time of saying or the time of meeting. 58 subjects took 'last week' as the time of meeting whereas two subjects understood 'last week' to be the time of saying. The adverbial clause 'when she left' in (6) can be taken to describe 'the time of saying' or 'the time of seeing'. All the subjects interpreted the adverbial clause as 'the time of seeing'. As can be noted, our subjects preferred to attach the final adverb to the closest verb or the embedded verb. Our results here go on line with many previous studies (Kimball, 1973 and Altmann, et al. 1998) which indicate that the subjects prefer to attach the adverbial clause to the lower verb.

IV. RESULTS AND DISCUSSION

In the first group of sentences, ambiguity results from whether we look at the coordinated clauses or NPs

The presence of the prepositional phrase in a final position is the source of ambiguity in the third group. The reading of the sentence depends on where we attach the prepositional phrase. For instance, in the first sentence 'he saw the man with the binoculars', the prepositional phrase 'with the binoculars' can be attached to the NP 'the man' to mean 'the man who has binoculars', and it can be attached to the verb 'saw' to mean the way by which 'he saw the man'. Fifty one subjects attached the prepositional phrase to the verb. Two subjects attached the prepositional phrase to the NP 'the man'. The other subjects (7) gave literal translation to the preposition 'with'. They translated it erroneously into the Arabic preposition 'ma9', so their sentences are not clear. All the subjects attached the prepositional phrase 'with the book' in (8) to the verb 'hit'. That is, they interpreted the book as the instrument by which the girl hit the boy. In the third sentence (9), 46 subjects attached the prepositional phrase 'on the table' to the verb 'want'. The rest (16 subjects) attached it to the NP 'the book'. So, to attach the prepositional phrase to the main verb is the preferable reading for our subjects. The results of our subjects (non-native speakers of English) match previous studies (Pan and Felser, 2011 among others) in which it is preferable to attach the prepositional phrase to the verb. Other factors which could affect the attachment of the PP like the type of the verb are ignored in our study.

The occurrence of the non-finite clause without a subject is the source of ambiguity in the fourth group. In the first sentence (10), 6 subjects selected the main subject (he) to be the subject of the non-finite clause 'crossing the street'. In this case, the sentence has the following reading 'he killed the cat while he was crossing the street'. Fifty four subjects preferred the 'cat' to be the subject of the non-finite clause 'while the cat was crossing the street' or 'the cat which was crossing the street'.

The non-finite clause in the second sentence (11) is a to-infinitive clause. The subject of this clause could be 'the horse' or 'someone'. All the subjects preferred the 'someone' to be the subject of this clause. Accordingly, the reading of the sentence goes like this 'the horse is ready for someone to ride'.

Accordingly, the first NP was preferred by our subjects to be the subject of the non-finite clause.

In the fifth group, negation is the source of ambiguity. That is, what do we negate in the sentence. For instance, in the first sentence (12), the scope of negation could be 'pass', that is, we negate 'passing'. Accordingly, the sentence means 'no body will pass'. The scope of negation could be 'all'; in this case, the sentence could be interpreted as 'not all of you will pass (some of you)'. All of our subjects preferred the first reading in which 'passing' is negated (no passing). Again, the negative particle in the second sentence (13) could be interpreted to negate the verb 'close' or to

negate the reason 'because he left'. In this case, the sentence is interpreted as follows: 'the reason for not closing the door is not because he left but because...' That is there is another reason for not closing the door. All the subject selected the first reading which is 'not closing the door' and the reason for that is 'his leaving'. For our subjects, the preferable reading is to take 'not' as a negative particle for the verb which directly follows it.

The sentences in (group 6) include relative clauses. This relative clause could be attached to one of the NPs in the sentence. One of these NPs is masculine the other one is feminine since in Arabic there is a difference between masculine and feminine relative words (i.e. 'allathi' masculine and 'allati' feminan). The relative clause 'who lived there' in (14) can be attached to 'the driver' or to 'my sister'. All the subjects attached the relative clause to 'the driver'. None of our subjects attached the relative clause to the NP 'my sister'. In the second sentence (15), 'who bought the house' could be attached to the 'mother' or to the 'friend'. Most of our subjects (53) attached it to 'the mother' whereas seven subjects attached it to 'my friend'.

The subjects preferred to attach the relative clause to the first NP rather than the closest one. It seems that there is a strong association between relative clauses and prepositional phrases. In both cases, the subjects preferred not to attach them to the closest NP. Our results contradict with what is mentioned by some scholars (Cuetos and Mitchell, 1988). They state that their subjects prefer the attachment of the RC to the lower NP, where as our subjects prefer to attach the RC to the higher NP. It seems that the subjects are affected by Arabic. The usage of prepositional phrase as NP is absent in Arabic. For instance, 'the driver of my sister' is equivalent to 'sa'q ukhti' (diver sister) and in such case the 'the driver' is the topic and the predicate talks about or describe it.

The last group of sentences (group 7) exhibits ellipsis in the second clause which results in leaving an NP which could be interpreted as an object or subject. For example, in the sentence (17), 'she likes her dog more than her friend.' 'Her friend' could be a subject for the elliptic clause to have the following interpretation: 'she likes her dog more than her friend [likes her dog]'. A gain, 'her friend' could be the object, 'she likes her dog more than [she likes] her friend'. The second example of ellipsis is the sentence 'Bill knows a richer man than John' which has two meanings, that 'Bill knows a man who is richer than John' and that 'Bill knows a man who is richer than any man John knows'. In both sentences, our subjects interpreted the NPs (her friend in the first and John in the second as objects). They were not aware of the possibility of the interpretation of these NPs as subjects. That is, the first sentence was understood by our subjects as 'she likes her dog more than [she likes] her friend' whereas the

second sentence is understood to mean 'Bill knows a man who is richer than John'.

V. CONCLUSION

The above discussion shows that our participants who are not native speakers of English exhibited difficulty in processing all the given types of ambiguous sentences. Unlike previous studies, we applied sentence translation approach to find out the preferable reading of ambiguous sentences. The use of Arabic translation of the ambiguous English sentences allows us to know exactly how our participants understand these sentences. Except in the case of relative clauses, high attachment was preferred by our subjects unlike some previous studies about native speakers, our results are consistent with most of the previous studies about ambiguous sentences and the preferable reading. Prepositional phrases were attached to the verb rather than the lower NP. It seems that in their interpretations, our subjects paraphrased the sentences according to the string of words which is taken as the main clue. This is why in the case of negation the scope of negation is the verb. The same thing is applied when the sentences exhibit ellipsis in the second clause; they took the remaining NP as an object. Adverbial clauses were preferable to be attached to the embedded verb.

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Thoughts on Constructing Online Education Course of Constitution in China

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Abstract - As a compulsory course of law specialty in China's online higher diploma education, online education course of constitution has the features that meet the necessity of distance education in the Internet age as well as the basic requirements of constitutional course teaching to be a vital way to perfect the constitutional course teaching. The springing up of various network media technology and the lower demands for the software and hardware in learning the course provides the indispensable components for the realization of constitutional online education course. The design of teaching technique environment, teaching structure, teaching contents and the evaluation of teaching quality is the elemental path for constructing constitutional online education course.

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I. DEFINITION OF ONLINE EDUCATION COURSE OF CONSTITUTION

a) Concept

As a specialized course of China's online higher diploma education, online education course of constitution refers to the distance education activity in law major utilizing internet to teach constitutional curriculum. "Online higher diploma education is a new type to transmit and learn knowledge by taking advantage of modern network based on WEB technology in the Internet age, which develops two-way interactive teaching activity through internet technology, satellite communication technology, multi-media technology, video technique and other modern teaching methods and, by network technologies it processes and prepares the teaching contents to realize distance transmission and management." [1] As one of the specialties in China's online higher diploma education, the law specialty enjoys great popularity among the students and the public due to its open education character which provides more convenience and has been established in most of the 68 colleges and universities which are available for recruiting students of online higher diploma education in China currently. [2] Constitution, as a required course in law major, is quite generally set in the online education teaching plan.

b) Features

First of all, resource sharing. By Internet the related teaching resource of constitution could be co-shared to form a cross-regional and distributed teaching resource network which broadens the function of traditional course teaching of constitution with its special two-way and even multi-way exchange, and thus improves the covering scope and time efficiency of course teaching effect and lets the course teaching of constitution break through the limit of traditional course teaching. Besides, internet also provides abundant special teaching resources for online education course of constitution, especially the quality course project which publicizes the course resources through internet. The national quality course project on constitution is as follows: Constitution of China by Han Dayuan from Renmin University of China in 2004, Constitution by Liu Maolin from Zhongnan University of Economics and Law in 2007, Constitution by Lin Laifan from Zhejiang University in 2008 and Constitution by Jiao Hongchang from China University of Political Science and Law in 2009. [3]

Secondly, openness for student sources. Unlike the traditional class teaching which is bound to the registered university and college students, the students sources for constitutional online education course are open. It sets much lower threshold for the students who want to fulfill their professional background in law major and improve their vocational skills. Taking the enrollment targets and terms of Southwest University on online education for an example: any on-the-job employees and waiting-for-job persons above 18 years old (including) are allowed to apply without limitation for the specialty. Application for special course starting from high school level must have a diploma of general high school, secondary technical school, secondary normal school or vocational high school recognized by the country; application for undergraduate course starting from the junior college level must have the college diploma of national education series recognized by the country. These conditions are shared by the other 67 colleges and universities. Since lower recruiting threshold enables more people to share high-class education resources via online education course, thus they could acquire more opportunities and development space.

Lastly, the novelty of teaching. The constitutional online education course highlights two-

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way and multi-way interactivity and openness which enable the teacher and student, student and student to make all-around exchange by internet. The teacher could make statistics and analysis on the question types, numbers and times, etc of the students by computer to understand the doubtful points and difficult points in the students' studying process so as to instruct the students more targetedly and make the students learn the constitution courses in any time at any place upon any schedule. "Teaching method is the collective name for the various tactics that teachers and students adopt in the teaching activities aiming at achieving the established teaching goals." [4] Multimedia web-based education method even overthrows the teacher-student positioning in the traditional class teaching, which transfers the simple subject-object relationship and the contents and means for the entire teaching activity are not all dominated by the teachers any longer, making it easier for the teacher and student to form a new relationship of learning together and progressing together. The former Soviet Union educationist Babansky pointed out, "one of the most important as well as most difficult problem in the optimization procedure of teaching method is to select the different teaching ways and combine them in such a way that gains the best teaching effect in a limited time under such conditions." [5] Characterized by e-mail, BBS and other instant messaging services, constitutional online education course is the result of utilizing various teaching methods rationally and comprehensively to realize better teaching effect in a more open time and field setting.

II. NECESSITY AND FEASIBILITY FOR CONSTRUCTING ONLINE EDUCATION COURSE OF CONSTITUTION

a) *Necessity*

Construction of constitutional online education course does not exist merely as an indispensable component of online education and teaching plan in law major, but should also highlight the pragmatic, applicable and interactive reform orientation of constitutional course, so as to be a critical approach to perfect constitution lecturing. Constitution is the core course of law major, which plays a basic role in the whole law discipline system. "Whether one knows constitution decides one's potential to be a modern jurist, where lies the fundamental difference between China's traditional jurisprudence and China's modern jurisprudence. The cornerstone or premise of western modern law science lies in its constitutional government theory characterized by power's separation and counterbalance and its jurisprudence theory of legalism." [6] This course takes the lecturing of basic principles of constitution, state theory and citizen theory as its core contents aimed to make students be familiar

with the clauses and texts of constitution and relevant regulations, and requires the students to connect constitution theory with constitutional government practice to positively obey, perform and protect constitution.

However, the abovementioned basic requirements are not well met by the traditional constitution course teaching due to the following reasons. The students are lacking in practice in constitution of China; especially, the external environment for practical application in constitution theory is rather insufficient because of unrealized "judicialization of constitution" or the missing in the application of "constitution as private law" and other reasons; and the deficiency in result-oriented, applicability and interactivity of current constitution course teaching takes the bigger part. More emphasis is put on the theoretical depth, international contrast and new academic viewpoints; instead the students' comprehension and realistic needs are thus overlooked. In addition, though the soil for constitutional government practice is deficient, that does not mean the deficiency in individual case or related material which was well verified by the selection activity of "Top 10 Constitutional Cases" organized by the research association of constitutional law of China. So could such case study and analysis go beyond academic research or high-stage master and doctor degree's study and penetrate into the constitutional teaching of lower degree for undergraduate and junior college stage? Additionally, the current teaching model still maintains the traditional tripartite "teacher-teaching material-class" type in which the teacher dominates by lecturing and the student's study subject position is neglected so as to cause the less participation of them in the class discussion. Thus the students are passive in learning, and they could not thoroughly master the constitution theory or the rules for constitutional government practice, which directly depresses and blots out their productive thinking so that they won't be able to analyze or extrapolate the cases and instances systematically. "carrying out online teaching and learning will release the students from time and space limit to receive quality jurisprudence education, and their hope for knowledge updating and life-long study would be possible." [7] Consequently it is necessary to perfect constitutional course teaching through the construction of constitutional online education course with means of internet technology on its openness, instantaneity and interactivity.

b) *Feasibility*

The rising of various network media technologies makes it possible for highlighting the pragmatic, applicable and interactive teaching of constitutional course. First of all, the e-mail technique. E-mail has been widely popularized in the internet age, whose text and attachment function could be used by

the teacher to send various related files of teaching including teaching instruction, teaching texts etc, and the student could receive it non-real-timely. E-mail realizes non-real-time different venues information exchange between teachers and students and among students themselves. The list function of e-mail also makes it possible for all the students and the teachers to join in. the student could receive all the related subject study materials periodically from the teacher or classmates simply by subscribing the special topic e-mail list of constitutional online education course. Next, the bulletin board system (BBS) technology. The popularity of BBS realizes networking storage of the materials published by the teacher and the students, the students could arrange their time to participate in the study and discussion in different scenes, while the teachers extend the time for regular class teaching, exchanging and discussing and are able to make in-depth thinking for the questions and comments of the students. BBS also makes it possible for discussion and exchange of special topics such as constitutional supervision issue and electoral system issue in the constitutional online education course. Then the teacher could analyze the students' study attitude and grasping degree on relevant knowledge according to their post-replying speed, post quantity and quality. Through posting a topic and replying a topic, the teacher and the student could make deep research in the theme discussed and finish ask & answer on curriculum knowledge. Even better the teacher may hold symposiums or academic exchange meetings to deepen the student's understanding on relevant knowledge points especially the most disputable issues or the cutting-edge academic problems. Lastly, instant messaging service (CHAT). The popularization of all kinds of CHAT tools provides a more real-time and targeted communication approach for the teacher and student in constitutional online education course, among which, chatting room, QQ group and other group instant chatting tools especially supply a convenient exchange platform for the practical, applicable and interactive teaching. In such a CHAT platform, the teacher and students could not only exchange by writing text, they could also interact real-timely with words and body gestures by means of voice and video technology so that they are free to develop further discussion and analysis outside the teaching materials and textbooks concerning the constitutional government focus problems and hot cases and events in the practical field; they are even capable of building network virtual moot court or virtual law clinic to let the students acquire more direct and concrete constitutional government practice knowledge.

Furthermore, the demands for the essential software and hardware of constitutional online education course learning are not high, which further emphasizes the openness of the course. Taking the online education

in Southwest University for an example: the common software used by the students includes machine examination simulation exercise, RTX set-up software, JRE, Flash Player 8.0 ActiveX Control, RealPlay 10.5, Winzip 8.1, Windows Player 9.0 formal version, Video Detective v4.13 formal version, WhatyView formal version, Interwise formal version, CAJViewer 6.0 formal version, among all of which, CAJViewer 6.0 formal version is the largest with a volume no more than 36MB, WhatyView formal version the smallest with a volume of merely 92.3KB. The hardware environment for all of the software could be supported by any of Windows 98, Windows ME, Windows 2000 and Windows XP. These requirements for software and hardware could be effortlessly met by the students in the current internet age so that the popularity of distance education is virtually possible in technology. Therefore, through the jurisprudence education reform attempt like constitutional online education course, the law education objective could again turn back to cultivate the students' legal thinking ability and practice competence so as to explore the new mode for applied legal personnel training under the background of internet era.

III. DESIGN IDEA FOR ONLINE EDUCATION COURSE OF CONSTITUTION

a) *The design of teaching technological environment.*

The teaching technique environment could adopt VTEL video meeting system, computer internet distance teaching and live broadcasting of satellite video in overall design to play real-time or non-real-time teaching activity in the online education course. The students could go to different teaching stations in all the regions to receive the video, study and take an exam, while the teaching stations may take the uniform teaching plan, syllabus and teaching materials of the school in which the students get registered and give the universal examination as per the same marking standard. Meanwhile, the students may use the online courseware, e-mail and BBS supplied on the teaching website to complete their learning, discussing and problem-solving.

The key point in the whole teaching technique environment design is the design of network study system of the school's teaching website, by which a complete system tracking and recording could be realized on each student's personal data, learning process and stage status, and thus a study recommendation could be customized for each student. Taking the constitutional online course in Southwest University for an example, whose online study system mainly consists of two main interfaces of study system and course study. After logging in, the student could enter the main interface of the course study of constitution through "on-going course" in the main

interface of study system, and the interface includes personal information area, learning plan area, course announcement area, course navigation area, course assignment notice area and course BBS area. In the personal information area, the student could have access to check and reply the messages received from teachers or classmates, as well as looking over one's own register information such as communication address, working unit etc, modifying partly one's information and one's logging-in password in the study system or just log out. In the study plan area, current study time calendar and current month study plan are displayed. In the curriculum announcement area, the related announcements of current constitution course are demonstrated. In the curriculum navigation area, all the sub-systems connected with constitution course could be smartly guided to. In the course assignment notice area, the prompt message for all the homework of the constitution course is presented. In the BBS area of curriculum, the hot posts for constitution course exchange are shown.

Compared with the traditional class teaching courseware, teaching video recording and homework assignment, the online course teaching of constitution should put more emphasis on the application of network media technology. By inserting visualized teaching flash plug-in linking of constitutional cases and events in the teaching courseware webpage, teaching video webpage and homework system webpage, one clicks the linking and the flash plug-in will run automatically in popup window form and other forms. The plug-in flash could be divided into six parts according to specific contents, that is, cases list, self-test exercise collection, relevant reference linking, relevant laws and regulations linking, relevant database resources linking and instant messenger service linking for teacher-student exchange. By such audio-visual angle as flash plug-ins to demonstrate the knowledge would train, consolidate and test the grasping degree of the student for the knowledge acquired, and accordingly they could easily approach the authority study resources websites to get the most advanced constitution knowledge; at the same time, the theoretical lecturing and practical teaching would, by such means, connect closely with and complement each other.

b) The design of teaching structure.

Online education teaching structure of constitution course covers image, sound, text, animation demonstration and lecture note etc, which make the student feel like taking lessons in a virtually truthful college classroom. For example, in Southwest University, teaching structure of constitution's online course includes online courseware, video explanation and homework assignment.

Online courseware is the basic phase in implementing online teaching, which is composed of

syllabus, lecture notes and simulation tests. And the syllabus is further divided into four parts, i.e. nature and task of the course, basic requirements for course teaching, course teaching structure, teaching material and major references of the course. The 12 chapters in 3 units of the lecture notes are separately Unit 1 for Constitution Principle (Chapter 1 The introduction, Chapter 2 The basic theories of constitution and Chapter 3 the history of constitution); Unit 2 for Citizen Theory (Chapter 4 The basic rights and responsibilities of a citizen and Chapter 5 the autonomous mass organizations at grass-root level; Unit 3 for State Theory (Chapter 6 State nature, Chapter 7 Form of government, Chapter 8 State structure, Chapter 9 Economic system, Chapter 10 Cultural system, Chapter 11 State institutions and Chapter 12 State symbol). The simulation tests are mostly the judicial examination papers on constitution over the years and their answers and explanation for the answers. As the core content of performing online teaching, video instruction could be cut into 12 tutoring sessions based on teaching notes. Composed of 10 single choice questions, 10 multi-choice questions and 8 expounding questions, the homework assignment is the main method to ensure online teaching quality, and is assigned in six times through the homework system completed in three months. And teachers could synchronously and timely check and make feedback to the works submitted by the students.

As to the specific teaching structure design of each chapter, the plate of basics explanation and the plate of cases and events analysis could be divided generally, in which the former contains 5 parts of introduction, learning contents, questions for thinking, relevant resources linking and discussion & exchange, and the latter includes 8 parts of introduction, cases presentation, constitution questions, teacher commenting, related knowledge linking, questions for thinking, relevant resources linking and discussion & exchange. The introduction part further contains study requirements, study key points and study difficult points. The design for studying contents could be arranged based on the traditional teaching notes by inserting minor cases and events, relevant law clauses, words from celebrity, representative pictures and videos, forms and knowledge structure chart to make the contents interesting and three-dimensional. And the discussion & exchange could be designed into five parts, that is, title, reading materials, topic, objective & requirement and discussing process.

c) The design of teaching content.

Online education and teaching contents design of constitution curriculum shall pay attention to the extension and popularity of the theoretic knowledge. This curriculum is usually set in the lower grade, for it would be difficult for the students who are new to the

law major to understand the special obscure terms and the speculative theoretic disputes of different factions. Great emphases shall be put on lecturing basics of dominant ideology and based on this the theoretical edge-cutting knowledge in academic research could be introduced properly striving to “simplify the complicated constitutional government theory rather than obscure it”. In the selection of key teaching points, more attention shall be attached to constitution implementation in constitution principle session. The key to realizing constitutional government in China doesn't lie in the creation of constitution itself, but the application and implementation of it. As one of law enforcements, constitutional enforcement is the actual operation and implementation of constitutional codes and principles in real society, which reflects the true working state after constitution was formulated and is the most fundamental form for constitution to adjust specific social relationship with its direct value goal pointing to orderly law relation state, i.e. constitution order expected by constitutional government subject. Practically carrying out constitution is the premise and base to realize constitutional government and rule of law in China, so the students shall not linger their understanding on the literal texts, that is, the obligatory written constitution, but care more about the existing realistic constitution and the ideological constitution in between, forming the value of constitution order in the analyzing process of constitution.

As far as the balance of teaching structure of state theory and citizen theory is concerned, both shall be emphasized. Citizen theory shall be arranged as Unit 2 following Unit 1 “Constitution principles” and followed by Unit 3 “State theory”, in which the basic rights of a citizen shall be placed extra emphasis and also stress that such citizenship shall progress with time and accord with the world. Besides, the citizen rights idea shall be taught throughout the whole curriculum. For example, in teaching the function and power of state organs and mutual relationship, the idea that all modern state power should be restricted shall be associated with. Because power as the production of rights, its justification also comes from rights. As the power grantee, the state institution is only the performer of state power; therefore the citizen rights shall not be interfered illegally by any state organs, organizations or individuals, nor will the rights be deprived illegally. All the state power must exist and work under the premise of being helpful to guarantee the citizen rights. Stressing citizen theory in constitution teaching is useful for developing the students' law ruling sense to actually ensure citizen rights and prevent the abuse of state power. “Through studying constitution, the students shall realize that protection of individual interests and realization of individual freedom is guaranteed by setting up legal rights.” [8]

As to joining theoretical teaching with judicial

examination, the answers will be as follows. Although constitution does not take up mega percentage in judicial exam, yet it's still very critical. In the process of theoretical teaching, the constitution section in judicial examination syllabus over the years shall be read carefully, especially in combination with the clauses covered in the judicial examination papers, based on constitution code and legislative law and aided by electoral law, organization law of villagers committee and other relevant provisions and clauses modified currently to emphasize the memorization and understanding of key articles and at the same time highlight the introduction of judicial examination papers and the answering process and thoughts analysis in the case study teaching. In the assessment design for the course, students could be guided to analyze the repeated points and its frequency on constitution in the examination papers so as to take them into consideration for important selection design of teaching point.

d) The design of teaching quality evaluation.

Monitoring the student's constitution learning process strictly and effectively is the key link in improving the teaching quality of constitution online education and completing teaching quality evaluation, which is charged by the special institution of the school's online education and the distributed teaching stations to promote the students to independently fulfill all the study task regulated in the teaching plan and elevate their study capability and knowledge attainments.

Firstly, it's necessary to perfect the monitoring and organizational system of the student's study process which includes the specialized online education teaching affairs management department in the colleges and universities developing online higher diploma education and the students' affairs management department in the teaching stations of different places. Consequently the concrete work is done by the professional teachers in charge of teaching administration of the colleges and the instructors of the teaching stations. The teachers are required to have certain network media technology knowledge besides the basic occupational skills to instruct the students' study in using related network teaching resources. So the departments and teachers are responsible for making all-around supervision throughout the process on whether the constitution curriculum study is made in accordance with the teaching plan, whether all the teaching activities have been done under the requirement of course syllabus, and the independent appraisal on the constitution curriculum learning effects and the lecturing results of the teachers.

The second is to quantitatively manage the students' study process. This activity could be done with the students' log-in times, log-in duration and the mouse-clicking status and other elements in self-

directed study. Their study effectiveness could be judged through analyzing the student's study record by the relevant study data statistics. The more detailed the data is, the more effective management could be done by the teachers. By surveying the different judging factors in the students' autonomic study, the teachers could timely relate to their study process, single out the problems and take corresponding solutions. However, such check and supervision shall be taken in a regular manner rather than as a formality. Cutting in through both the students and the teachers, both the students' completion status of constitution curriculum study plan and the teacher's instruction and review status shall be checked, and detailed situation feedback report shall be submitted to them.

The last is to intensify the monitoring function of examination. Through the unified exam in every teaching station, comprehensive analysis and test on the students' constitution knowledge acquired shall be made systematically. During the exam, we should adhere strictly to the examination disciplines to guarantee the student's real testing scores and let them realize the problems existing in their independent study and then adjust their study methods or skills to finally improve study efficiency and quality. The testing papers shall also embody the training objective of constitution online education course by taking the degree of constitution knowledge the students acquire and the ability to utilize the curriculum knowledge as the essential starting point, while the test question design shall enhance cultivating the students' study ability, overall ability to apply knowledge and their innovative ability.

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Mainstreaming Peace and Security in the Niger Delta: Resource Control, Ethnic Nationalism and Conflict Cessation in a Turbulent System

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Abstract - As a metaphor of collective resistance to the "politically motivated assault by the majority nationalities on the economic rights of minority communities", resource control expresses the exponential challenge to the "politics of dispossession" of oil producing communities in the federation of Nigeria. The Nigerian federal system, as incisively articulated in the protest literature, embody the tyranny of the majority over hapless minority formations whose struggle for relevance constitute in generational terms a challenge to the "coercive presence" of the majority. The phenomenological exploration of this theme of hegemony in the Nigerian federalism has found multiple expressions in the works of Saro-Wiwa, Okonta and Douglas, Otite, Osaghae, Agbese and Suberu).

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Mainstreaming Peace and Security in the Niger Delta: Resource Control, Ethnic Nationalism and Conflict Cessation in a Turbulent System

Professor Celestine Bassey ° & Dr. Felix Akpan °

"The contest between state and nation is an ancient one, and for a simple reason – the interests of state and nation seldom coincide. On the contrary, we find that both are constantly at loggerheads with each other. Do not be fooled by appearance, exceptions or political punditry".

Wole Soyinka (2009)

I. PREAMBLE

As a metaphor of collective resistance to the "politically motivated assault by the majority nationalities on the economic rights of minority communities", resource control expresses the exponential challenge to the "politics of dispossession" of oil producing communities in the federation of Nigeria. The Nigerian federal system, as incisively articulated in the protest literature, embody the tyranny of the majority over hapless minority formations whose struggle for relevance constitute in generational terms a challenge to the "coercive presence" of the majority. The phenomenological exploration of this theme of hegemony in the Nigerian federalism has found multiple expressions in the works of Saro-Wiwa, Okonta and Douglas, Otite, Osaghae, Agbese and Suberu). The latent expressiveness of Nigerian federalism and the intractability of structural and distributive issues like fiscal federalism have created the "terrain for violent and often mutually destructive confrontations between contending social forces representing the state and vectors of civil society. Thus, the Nigerian state, in Gramscian terms, lacks the "organic relations between political society and civil society" which characterizes the "integral state" where hegemony implies "consent rather than domination, integration rather than exclusion, and cooperation rather than suppression". (Gramsci, 1971:56). The reproduction of this catastrophic balance in state-society relations in Nigeria is manifest in the protracted social crisis in the Niger Delta.

This paper argues essentially that, the path to Sustainable peace and security in the Niger Delta resides unalterably in "mainstreaming peace building and development programming" as a paradigm of

societal reconstruction in the zone. In other words, in a turbulent system such as the Niger Delta, peace as a policy objective could only be predicated on transformational activities which address "structural issues, social dynamics of relationship building, and the development of a supportive infrastructure for peace" (Leaderach 2006:21). In this regard the peace dividend "cannot be separated from the question of the struggle for social and human dignity; "economic longevity and ecological sustainability". In other words, the peace problematic is not unrelated to the "issue of extant social and political conditions and the distribution of power". Thus, peace has become essentially a security issue ("Securitization of peace"): peace and security are "two sides of the same coin" one cannot exist without the other- and both are mutually reinforcing". Security in this context designates the "capacity of groups (and individuals as their agents), to provide their physical and psychosocial needs and livelihoods". Given the centrality of the state (the federal government) as a defining characteristic of the socio-political process, the need to address significant structural and distributive problems in the Niger Delta should now be the focus of security analysis and policy responses to the malignant social context of the region.

II. RESOURCE CONTROL AND ETHNIC NATIONALISM

Central to the dialectics of confrontation in the Niger Delta is the intractable issue of resource control characterized by peripherality, isolation and negation of the oil producing communities perpetuated through a system of domination based on coercive economic and legislative controls within the structure of Nigeria's "centralizing federalism". This coercive and overbearing control is well articulated by prominent fudiciary of the dominant ethnic nationalities: the Nigerian Economist, Pius Okigbo. According to the Pius Okigbo Commission on Revenue Allocation:

The owners of the minerals on which royalties are levied are indisputably, under the existing laws and under constitution, the Government of the Federation. It follows that the payment of a part or the whole of the revenues from this source to the State (or community) where the mineral is produced does not derive from a

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legal right but from political or other considerations. To transform this political act into a legal claim of right, as the producing states seem to want is to do violence to reality (1980:93)

It is not surprising that in line with this determination through the majority fiat, another majority ethnic fiduciary, Olatunde Aboyade, "completely extinguished the- principle of derivation from fiscal federalism" (Oyovbaire, 1985: 193). Rotimi Suberu (1999) has rightly observed that "this change in the rules for allocating revenues has been denounced by ethnic minority elements as a politically motivated assault by the majority nationalities on the economic rights of minority communities who are perceived as too small and weak to threaten the stability of the federation". The phenomenological exploration of this theme of hegemony (the structure of superogation and subordination) in the Nigerian federalism has found multiple expressions in the works of critics such as Ken Saro-Wiwa, Ike Okonta and Oronto Douglas.

Ken Saro-Wiwa's critical interventions in the Nigerian melodrama found expression in his analysis of the structural determination (as well as the structural position) of the ethnic minorities in two critical spheres of dispossession: politics and economics. Politics addresses the ethnic question of "unequal citizenship for the minorities and the instrumentalist construct of Nigeria's multi-state federalism which facilitates the appropriation of surplus by majority ethnic communities. This structural domination, as Ken Saro Wiwa notes, has engendered a condition of domestic colonialism which has turned politics in Nigeria into the "harsh oppression of the minorities, the unabashed and remorseless exploitation of those handicapped by their numbers". (Saro-Wiwa, 1989:11). In this context, "federal .instrumentalities" reinforces patterns of subordination and supererogation in a wide spectrum of activities, resulting in a structural reproduction of the core of the periphery (majority ethnics) and periphery of the periphery (minority ethnics).

The second and interrelated sphere of dispossession addressed by Saro-Wiwa is in the domain of "oil curse" and the instrumentalization of disorder. As he trenchantly notes:

Oil was very much at the center of the civil war... Twenty years after the war, the system of revenue allocation, the development policies of successive federal administrations and the Inactivity of the Nigerian elite have turned the delta and its environs into an ecological disaster and dehumanized its inhabitants. The notion that the oil-bearing areas can provide the revenue of the country and yet be denied a proper share of that revenue because it is perceived that the inhabitants of the area are few in number is unjust, immoral unnatural and ungodly (1995: 63-64)

This and similar passages in Ken's prolific writings express in the most graphic manner the level of

conscientization and psycho-cultural disposition now fueling armed militancy in the Niger Delta. Psycho-cultural disposition, determines the overall level of conflict in a society in terms of shared assumptions, perceptions and images about "what people in a society values, their definition of friends and foes, and the means by which groups and individuals pursue their goals" (Ross, 1993). The perception of dialectics of control is critical to understanding the existential dilemma of minority oil-producing states in the Nigerian, federal dispensation. The legalization of expropriation of oil resources in favor of majority ethnics through a series of draconian decree has been a subject of passionate debate in the literature. This spate of protest literature and critical interventions on the Niger Delta vortex has no doubt generated extensive debate and searing examination of the structure of Nigerian federalism and "resource control" agitation. The establishment and status quo option has been equally propagated and defended as a 'systemic necessity' bearing on the political economy of state – society relations in Nigeria.

Specifically, the term "resource control" betrays a deep tension between two contending social forces: first, those who own the land where the oil resource is located but do not derive a corresponding benefit from the exploitation of the resources. Second, those who wield political power, control the state, and are the greatest beneficiaries of the oil wealth. How best to distribute the oil resource between these two groups in a way that will lead to socio-economic development has generated an enduring set of debates and conflicts between the oil producing communities and the state and its multinational oil partners. Given the activities of militants, which disrupt oil exploration and exploitation activities in the Niger Delta region of the country these debates and conflicts have taken on renewed urgency, and now engages scholars and policymakers alike.

Recurrent questions have been raised in defence of the status quo: can a monocultural economy like Nigeria allow the control of her critical national resources from which over 90 per cent of her GNP is derived to constituents units (states)? What is the implication of resource control for the enormous federal government responsibility reflected in the exclusive list of the 1999 constitution? Given the history of ethnic strife and distrust, what will also be the fate of states that depends exclusively on revenue from the federation account for survival?

A survey of extant literature on fiscal federalism suggests that in all federations horizontal and vertical distribution of national resources between the central government and the federating units is one of the most contentious issues. This issue is even more critical in federations with a monocultural economy like Nigeria. In fact, there are no universally acceptable principles for sharing national revenues from which federal states or provinces can borrow and adopt when the need arises.

This is because no two federations are identical in terms of histories, politics, economies and ethnic/racial compositions. Consequently, the principles of revenue allocation adopted by federating units (states) depend on many factors.

The two fundamental ones are, first, how the country became federal. Second, the political economy of the country greatly influences the control and distribution of the nation wealth among its constituent units. The political economy of the state determines the pendulum swing between centralisation and decentralization of fiscal powers and control of critical national resources. In other words, the nature and pattern of federalism is congruent upon the political economy of the state. Empirical evidence in federations shows that states with diversified industrial economy tilts toward decentralization of fiscal powers and control of critical national resources, whereas federations with weak monocultural economy tilt toward centralization of fiscal powers and control of resources.

However, in both models the central government collects the largest share of the national resources. It also enjoys a wide range of jurisdictional powers over critical national resources and uses taxation/constitutional powers to limit the powers of the federating units over resources in their locality. There is no federation today where the federating units enjoy more fiscal powers than the central government. It is also apparent that in federal states, if the essence of federalism as a tool for managing conflicts in plural societies and correcting vertical imbalances generated by revenue and expenditure assignments are to be realized, the federating units cannot be economically and politically stronger than the central government (Okediji 2006; Osaghae 1991; Elaigwu 1979; Aaron and Samuel 2005).

In older federations such as America and Canada, federal experiment has responded to the changing dynamics of their political economy: from preindustrial social formation based on extractive industries to sophisticated industrial systems of the 20th/21st century. Consequently, the fundamental permutation in the theory and practice of American federalism, reflecting its tumultuous history and political economy: "dual federalism", "centralizing federalism", "cooperating federalism", "creative federalism", "permissive federalism" and "new federalism". (AAPS special issue, vol. 419, May 1975).

Each pattern was quite distinct from the other. Nonetheless, all of them responded to the changing dynamics of the United State's economy. As the United States moved from an agricultural to industrial economy new problems arose and with them new demands for government action: the United States moved from a system of dual federalism to one of cooperative federalism, in which the national and state governments share responsibility for public policies. The Great

Depression brought about an end to dual federalism (under dual federalism, the states and the national government each remain supreme within their own spheres) and a dramatic shift to a strong central government and what became popularly known as cooperative federalism. The economy and the exigency of the time forced the central government to cooperate with all levels of government to implement President Franklin D. Roosevelt's New Deal policies.

Under the "New Deal" the center (Federal Government) became unequivocally assertive through the institution of regulatory agencies (the Treasury and Office of budget Management) which marked a fundamental departure from the neo-classical economic tenet by legitimizing and rationalizing the right of the state to intervene in the market. Under the complimentary Keynesian principles of "positive definition of the neutral state" and "circular flow of income", the Federal Government became not only an umpire but the ultimate arbiter in the management of American economy in fiscal and monetary relations. The rising welfare states in North America and Europe marked the supremacy of the centre over the constituent parts, determining a range of governmental intervention from Agriculture to Education and unemployment benefits.

The "New Deal" became the programmatic expression of the "positive conception of the "neutral state" and "circular flow of income". Since the Keynesian system "regards the capitalist economy as a leaking tyre that must be pumped continuously if it is not to go flat and grind to a halt", the heightened role of the federal government – which is constantly required to pump the economy thrust fiscal – monetary policies – became supreme in the management of centre-periphery relations in American Federalism.

The neo-Richardian system of Reagan era ("Reagonomics") endeavored to reduce the powers and responsibility of the central government in favour of greater responsibilities by the states governments, the federal government has continued to assume greater power of the exchequer as the current intervention of the Obama administration to save American monetary and corporate institutions from collapse suggests. This financial strength has enabled the federal government to obtain the compliance of the states and counties through its Grant-In- Aid Schemes.

The federal government has increased greatly in size and influence, both in terms of its influence on everyday life relative to the state governments. This is because no state can tax as effectively as the federal government. This keeps the states in check since they depend on aid from the federal government to meet their responsibilities.

The highlight of our discussion of the congruency between political economy and patterns of federalism is that there is no federation that the



federating states/provinces control more revenues than the central government. In addition, where the states/provinces enjoy jurisdictional powers over the resources found in their areas such resources are not exceptionally critical to national resources. In other words, the federation does not depend solely on such resources for its survival. Lastly, to correct vertical imbalances and set national standard in service delivery the central government is allocated more funds by the constitution through either taxation and/or direct control of essential resources within the federation.

In line with the observation above, architects of fiscal federalism in Nigeria have sought to strengthen the powers of the federal government through differential powers of control and allocation, which ensure the subordination of the state components to federal control. The justification for this development derives from the centrifugal pressures on the system by the regions in the First Republic, as each region felt viable economically enough to join the League of mini-states in Africa. As a consequence, for the oil-producing minority states of the ND, the development of hegemonic rentier federal system has unleashed a systemic process of structural abnegations as the power elite at the centre reinforce and legitimise allocative system through majority controlled Fiscal Commissions (especially Aboyade, Okigbo and Danjuma Commissions), which permanently relegated the principles of derivation. This heightened the process of "surplus accumulation" from oil revenue to majority ethnic formations based on questionable criteria, which clearly compromised the interest of the minorities in the ND. Thus, through Decree 15 of 1967, Decree 13 of 1970, Decree 9 of 1971 and Decree 6 of 1975 the "balance of control and access to revenue" titled Towards Fiscal Centralisation at the Federal Level". The process of transformation was "effected through the progressive reduction of the principle of derivation and the strengthening of the principle of the Distributive Pool Account (DPA)". The cumulative effect of this skewed allocative mechanism on the oil-producing states was asymmetrical structure of benefits in which the majority ethnic nationalities, to paraphrase Thucydides, get what they may while the weak ethnic minorities concede what they must.

By a calculated act of creating and proliferating more states and local governments areas in the non-oil producing geographical majority ethnic zone, the systematic transfer of oil resources to their benefit became a major feature of inter-government fiscal relations. As Christopher Orubu (1999:189) aptly concludes:

The view is strongly-held among many critics from the oil producing states that the historical blow dealt upon the principle of derivation is the product of the political game play and the overwhelming propensity

of the majority to play down on the preferences of the minority. It turns out that Nigeria's oil is produced in the minority states, where access to political power at the national level is Herculean, if not an impossible task.

As a consequence of this powerlessness of the minority social formations, Orubu (1999:187) contends, the "people have no effective politic-kinetic framework to address the issue of unfair distribution of revenue, as each dominant group in the country struggles to maximize its own benefit from the "God given" petroleum resources". Seen in this context, the structure of revenue allocation has had profound impact on the configuration of Nigerian federalism. Cyril Obi (1998:263) has similarly noted that, "with revenue allocation largely implying the allocation of oil revenues, oil is central to the politics of intergovernmental relations in Nigeria, the economic crisis, and the transcendence of the destabilizing tendencies within the system".

Fiscal federalism, therefore, as conditioned by the "politics of oil revenue acquisition and distribution strikes at the very basis of the existence of the Nigeria federation and the rules of entry and exit from the ruling class". Conversely, as the widespread communal protests in the Niger Delta suggest, the evolution of a "non-crisis generating approach to revenue allocation is germane to the stability and development of the Nigerian society". This dialectics of revenue generation and denial constitutes the source of deepening crisis of Nigerian federalism. The current crisis in the Niger Delta is one definite consequence of "feelings of neglect which have been suppressed for quite a long time". This is obvious from the quantum of protest actions from NGOS and community-based social action groups.

The Kaima declaration of the Ijaw Youth Conference held on December 11, 1998, was even more explicit in terms of the range and depth of grievance of oil producing communities:

- i. That the quality of life of Ijaw people is deteriorating as a result of utter neglect, suppression and marginalization;
- ii. Despite the huge contribution of Ijaw nation's territory to oil revenue, our reward from Nigerian states remains avoidable deaths resulting from ecological devastation and military repression;
- iii. That the unabating damage done to our fragile natural environment and to the health of our people is due in the main to uncontrolled exploration and exploitation of crude oil and natural gas which has led to numerous oil spillage, uncontrolled gas flaring, the opening up of our forests to loggers, indiscriminate canalization, flooding, land subsidence, coastal erosion, earth tremors etc. Oil and gas are exhaustible resource and the complete lack of concern for ecological rehabilitation, in the light of Oloibiri experience, is a signal of impending doom for the people of Ijaw land.

- iv. That the degradation of the environment of Ijaw land by transnational oil companies and the Nigerian State arises mainly because Ijaw people have been robbed of their natural rights to ownership and control of their land and resources through instrumentality of undemocratic Nigerian state legislation such as the Land Use Decree of 1978, the petroleum Decree of 1969 and 1991, the Land (Title Vesting etc) Decree No.52 of 1993 (Osborne Land Decree), the National Inland Waterways Authority Decree No. 13 of 1997.
- v. That the principle of derivation has been consciously and systematically obliterated by successive regimes of the Nigerian state; and
- vi. that 70 per cent of the billions of dollars being looted by military rulers and their civilian collaborators is derived from our ecologically devastated Ijaw land (The Guardian, 1998).

In the light of the above, it has become a central assertion in the oil producing states that the claim of marginalization is not theoretical but existential reality in the ND. This awareness and conscientization has provided the basis of revolt against the structure of Nigerian federation constructed to advance the interest of majority ethnic nationalities. Thus, the contradiction arising from oil production and maximal neglect fuels demands by oil producing states for adequate "compensation, basic infrastructure, community development projects, employment of indigenes, payment of reparations for past exploration and degradation" of the oil producing environment. The consequence of this groundswell of discontent in the ND was a violent eruption of youth militancy, which threatened the petroleum industry and hence the sources of 95% of the Federal Governments foreign exchange earnings. Between the period 1993 and 2009, several attacks and occupation of oil platforms, flows stations, operating rig terminals, pipelines, refineries and power installations have incapacitated petrobusiness in the region. For instance, Shell has been forced to shut down operations in many parts of the ND costing the company and government an estimated one million dollars daily.

These social forces accelerated the dissension against the over-centralization of the polity by the military and subsequent governments, the control of oil and the distribution of its benefits among the constituent units of the federation and the state and multinational oil companies' policies and practices that disadvantaged the region, destroy its environment and impoverished its people. The reactions of these organizations state and multinational policies over their rights and access to the resources found in their territory culminated in heightening the clarion demand for resource control.

III. CONFLICT DISORDER AND STATE RESPONSE

As noted above, what sparted as non-violent protest by youths and civil society organizations in the late 1980s against marginalization and environmental degradation later developed into a fearsome resistance involving heavily armed militant factors of MEND, NDVF, MOSIEND, etc) against the Joint Task Force deployed in the Niger Delta. It could, therefore, be argued that one grave dimension of the instrumentalisation of disorder is transformation of immanent social movements into armed militancy, especially following the execution of key leadership of MOSOP: Ken Saro-Wiwa and the "Ogoni 9". For instance, the Ijaw Youth Council (IYC) under Asari Dokubo has undergone tremendous transformation from a social movement "employing discourses of ethnic identities and solidarities with a wide public appeal, into a privatized militia" dedicated to self-determination of the "Ijaw Nation". Departing from the cautious and less confrontational posture of its forebear, the Ijaw National Council, the IYC drew on the "strategy successfully championed by MOSOP", and rose to "national and international prominence with the Kaiama Declaration that paralleled its foundation in December 1998". The Kaiama Declaration, as noted by Obi (2001, 71) was:

Reportedly adopted by representatives of 500 Delta communities and 25 organisations in the Bayelsa town of Kaiama. It denounced social marginalization and environmental damage and central state repression and oil exploration, and called for the "withdrawal from Ijaw land of all military forces of occupation and repression by the Nigeria State.

This Declaration marked a vital watershed in the campaign for social and environmental justice and set the stage for the tragic events currently unfolding in the Niger Delta in terms of reciprocity of force as a mean of prevalence. The volatile space of the Niger Delta is now characterized by the "establishment of extra-state political formations, their legitimizing discourses and social practices". Thus, IYC presented the Delta minorities with a novel alternative; "the chance to root peripherally, isolation, and silence in resisting action" (Said, 1994). As Bade Onimode once observed in relation to this deadly dialectics of hegemony and counter-hegemony, the Nigerian federal system is "evolving by fission rather than aggregation". The manipulation and politicization of ethnicity turned governance into struggle for control of state which, in conditions of monolithic political structure and generalized material scarcity-, under the military became "Hobbesian, violent and deadly". In this unnerving condition (as demonstrated by the Ogoni experience), social policies and the social order are "imposed by direct domination on those who do not consent either

actively or positively to the rule of the governing classes" (Rothchild, 1998).

From the standpoint of libertarian theory and praxis, the politics of resource control represents a challenge by civil society groups and communities in the ND over the control of oil and the distribution of its benefits among the constituent units of the federation. In other words, the people of the region are simply saying since the state and its multinational oil partners cannot take care of their developmental needs, they should give them back what naturally belongs to them so that they can take care of themselves. This is the core-complex of the ND conflict.

The activities of civil society groups in the ND region have emerged as the most serious threat to the corporate existence of Nigeria. Their activities have been characterized by popular mobilization, social protest, opposition, advocacy and criticisms in favour of reform, change and accountability in the exploration, exploitation and management of the oil resources found in their territory. The high points of their grievances, agitation and protests are, first, that they want a fair share of the resource generated in their territory by whatever legal means. Second, they want compensation for the past neglect, marginalization, injustice and inequity they had suffered in the hands of both the state and multinational oil companies in the exploitation of the oil resources. All these are legitimate claims, which subsequent governments since independence have been unable to address and the consequences are telling on the country now (Ikelegbe, 2001:437).

Over the years, the federal government has tried to address the problems of the region through administrative agencies such as the NDDB, OMPADEC and NDDC. However, because of the enormity of the problem, corruption and the lack of commitment on the part of the government/multinational companies these efforts have amounted to nothing (Fraynas, 2000; Akpan, 2004). In fact, these measures have further aggravated the situation, which makes the government to rely more on repressive policy in response to the activities of civil society groups in the ND region (Suberu, 1998). State repressive policies in the region have changed the manner of conduct of the struggle and resistance of youths in the ND.

Thus, civil society has been able to transform the ND grievances from a mere demand for development from the multinational oil companies and the state, into a political and comprehensive agitation that challenges the authority and legitimacy of the state over the control and allocation of national resources. The failure of the state to find a political solution to the problem has led to very sensitive demands of resource control and self-determination within the federation (Ikelegbe 2001). As a consequence, "the tempo, activity, cohesion and commitment of the civil groups indicate

that, somehow, the state-resource authority and state-regional/ethnic resource distribution would have to be negotiated, redefined and reconstituted if national stability and unity is to be sustained" (Ikelegbe, 2001; 464).

This issue raises fundamental questions pertinent to revenue allocation, which protagonists of state' rights have overlooked over the years. The questions are, first, can a federal state like Nigeria with a mono-cultural economy relinquish the control of critical national resource from which it derives over 80 per cent of her GNP to its constituent units? Second, what are the implications of that for funding federal establishments, especially defence, education, health and foreign policy? Third, given the history of ethnic strife and distrust, what will also be the fate of states that depend exclusively on federally allocated revenues for survival? Primarily, it is important to note that, in all federations, the degree to which the central government/constitution allows the constituent units jurisdictional powers over particular resources depend on the importance of the resources to fiscal outlay as a percentage of the gross national product, and by implication to the ability of the central government to meet is a statutory responsibility: defence, foreign policy, education; health; industrial development etc. For instance, in the United States, oil-producing states enjoy certain jurisdictional powers over the oil found in their locality, because oil is not a crucial national resource. In other words, the United States Government does not depend on oil revenues for its survival, as is the case in Nigeria. The American economy is so diversified and industrialised that the contribution of oil revenues to her GNP is less than 10 per cent, whereas in Nigerian oil contributes over 80 per cent of her GNP. In the US, the manufacturing sector, science and technology, telecommunications and entertainment industries provides more to the economy than the mineral sector.

In the case of Nigeria, the country possesses enormous resources, but the inability of the leadership to harness these resources for the development of the country explains the over dependence on oil revenues. The federal government relies on the oil resources to perform its colossal responsibility as contained in the exclusive legislative list: defence, education, roads, electricity, health, foreign policy, power and steel among others. The states also depend on the same federally collected revenues for virtually everything. Nwabueze (1983) puts it trenchantly when he wrote:

Federally collected revenue is the main stay of the finances of state governments, accounting for a little over 90 per cent of their total revenue upon this revenue, therefore, depend on the ability of the states to maintain services-to pay their staff, pay for essential supplies and execute capital projects (1983:56).

From the foregoing, defenders of federal rights

and prerogative have argued that any fiscal adjustments that would affect state-resource authority and state-regional/ethnic distribution radically given the nature of the country's political economy would be unsettling for the federation. What this translates to in real terms is that the political sway and financial might that the federal government is currently exercising in both national and international politics is simply due to the size of her pocket. That Nigeria is a major player today in most International, Regional and Sub-regional organisations such as the United Nations (UN), the African Union (AU) and the Economic Community of West Africa States (ECOWAS) is mainly due to a combination of factors, the most prominent being her financial capacity. There are numerous instances where the Nigerian government has used her financial strength to swing and influence many international and regional decisions in favour of her national interests and that of the African continent in general.

Similarly, the argument goes, on the domestic scene, we cannot over emphasize federal presence in all facets of the Nigeria's national life such as defence, education, health, environment, science and technology, aviation, iron and steel, including over sixty - seven items on the exclusive legislative list reserved for the federal government. Thus, agitation for the federal government to surrender her jurisdictional powers over the oil resources to the oil producing states will simply mean that the "Crippled Giant" (Osaghae, 2002) will simply become a basket case.

IV. MAINSTREAMING PEACE AND SECURITY

Advocates of resource control like Ken Saro-Wiwa have point to the vast differences in infrastructural developments of the core (majority nationalities) and peripheral (minority nationalities) areas in the Nigerian federation and the differential incorporation of its elements into strategic sectors of its economy.

Ken's diagnosis of the structural subordination of the minorities in the Nigerian federation is unflattering in its exposure and criticism of the system that breeds institutionalized deprivations, but does his prognosis for action - confederation of ethnic nationalities - provide a way forward? There is no doubt, as he noted that the Nigerian constitution "offered a stronger central government and left the ethnic minorities totally unprotected in terms of their economic resources and their culture". Thus, for Ken, the existential problem that arises, is that since the constitution vest the entire mineral resources in the country in "parliament to share as it pleases," in:

A situation where the ethnic minorities provided most of the mineral resources (oil) and yet Were a minority in parliament, and where oil was the "be-all" and "end-all" of Nigerian politics and the economy, as

well as the central focus of all budgetary ambitions, there was no way the ethnic minorities, including the Ogoni, could protect their great inheritance (1995:55)

The solution to this existential dilemma for the ethnic minorities in the entropic federation of Nigeria lies in the reconsideration of its constitutive principles of co-existence or engagement. Ken Saro-Wiwa (1995: 90-98), therefore, advocates unequivocally that:

The only way forward for Nigeria was to allow each ethnic group to exercise autonomy and grow at its own pace using its genius and its political system...!, therefore, suggest that elected representatives of all ethnic groups in Nigeria should gather at a National Conference to select an interim government consisting of twenty reputable Nigerians men and women...from all parts of the country.

Ken's panacea for the reconstruction of state-society relations in Nigeria, however, raises serious epistemic and ontological questions bearing on sociological assumptions about the character of the state in plural social formations. His position is no doubt consistent with the sociological assumptions about "plural societies (commonly referred to as "salad model") which stresses the enduring nature of plural divisions, the discontinuities between sections differentiated by ethnicity, religion or culture and the high probability of violence in the process of political change.

The contradictions, contentious and inherent dilemma of the Nigerian federation in terms of asymmetrical relationship between federalism (state boundaries) and pluralism (ethnic dusters) as competing units of representation, distributive and redistributive policies (fiscal federalism) and the unsettled problem of constitutional design for democratic dispensation persist. The configuration of these issues has turned the Nigerian state into a cauldron of incendiary conflict dominated by hegemonic propensities of contending majority ethnic social forces and in recent times, an equally vehement resistance of minority ethnics social movements, especially in the Niger Delta region. Thus, the peculiar attribute of the Nigerian federation currently is the ethnic base of state (regime) power reproduced in the context of politics of support or what Enloe (1973: 29) calls "state security ethnic map."

It is, however, becoming clear that the contending positions on the resource control divide (defenders of federal or state/oil communities rights and privileges) cannot be exclusively sustained in the accelerating and complex condition of the management of modern state as well as the imperatives of constitutional theory and practice of democratic governance in a federal system. Over centralization of fiscal control in the federal government lacks ontological justification in the poor state of the roads, health, education and other infrastructures under FGN exclusive responsibilities. This requires fundamental restructuring

in inter-governmental relations and extensive devolution of powers and responsibilities to states and local governments (especially in areas of education, health and social welfare). Certainly some of the state Administrators in the Fourth Republic such as Donald Duke of Cross Rivers, Babatunde Fashola of Lagos State and Godwill Akpabio of Akwa Ibom have demonstrated what is possible in terms of infrastructural transformation if sustained quantum of resources and responsibilities is devolved to the states.

On the other hand, despite these manifest realities, prescription such as Ken Saro Wiwa's for the cure of Nigeria's structural pathology (confederal Nigeria) may satisfy widespread popular minorities' sentiment, but as a sustainable project in constitutional practice and development, it may be worse than the disease. At the global level hardly any confederation has so far survived the systemic turbulence of the twentieth century and the accelerating forces of micro-nationalism which saw the end of such experiments in state-building as Czechoslovakia, Yugoslavia, and USSR is gathering momentum all over the world, especially in the artificial state context of Africa. A prescription for a confederation of ethnic nationalities in Nigeria, is in the final analysis a "trap for the overbold and unwary". Even the surviving experiment in confederation (Switzerland) in the 20th century has now irreversibly moved towards a strong central control to meet the increasingly complex challenges of managing a modern state-especially fiscal and monetary regime.

In the light of current global condition where only heavy weights increasingly call the tune and where Lilliputs are equally finding relevance and influence through regional integration, it would certainly be a sad development to a potentially rewarding historical accident that creates a primal economy of scale through the location of sixty percent of the current population of West Africa in what became Nigeria. What perhaps Ken should have argued for and invested his energy in consummating would have been, first, a heightened derivation based on the principle that governed fiscal allocation in the First Republic and, second a mechanism that ensures direct impact of this resources on oil producing communities such as Ogoniland. In other words, the infrastructural crisis and environmental disorder in Ogoniland is to a considerable extent a systemic resultant of fiscal failure on the part of the elite that dominate federal and state governments and parastatals.

The above review of prevailing argumentation on resource control controversy and the assertiveness of the federal state in support of its statutory functions (as entrenched under military tutelage in the 1999 constitution of the Federal Republic of Nigeria) suggests the imperative need for the restructuring of intergovernmental relations to correct the structural imbalance in fiscal allocation and marginalisation of

oil producing communities. The responsibilities of the Federal Government under the exclusive list of the constitution may demand greater arrogation of fiscal resources. In terms of fiscal federalism, however, this translates into the disproportionate appropriation of oil revenue by the majority ethnic nationalities at the expense of the oil producing communities and states. Ken Saro-Wiwa has noted in this regard that:

The way and manner in which the states and local governments were created were an affront to truth and civility, a slap in the face of modern history; it was robbery with violence. What Babangida was doing was transferring the resources of the delta, of the Ogoni and other ethnic minorities to the ethnic majorities - the Hausa-Fulani, the Igbo and the Yoruba - since most of the new states and local governments were created in the homes of these three. None of the local governments or states so created was viable: they all depended on oil revenues which were to be shared by the states and local governments according to the most outrageous of criteria such as expanse of land, equality, underdevelopment and all such subsidies. The brazen injustice of it hurt my sensibilities beyond description.

Thus, from Ken Saro-Wiwa's standpoint, Nigerian federalism is in the final analysis a captive state dominated by powerful ethnic social forces constantly in conflict over material reward of state power. The struggle for control of the federal power structure either through the "ballot box" or the "barrel of a gun" has been a recurrent decimal in the dynamics of power calculus among fiduciaries of the tripolar action-set that constitutes the arena of politics in Nigeria. Irrespective of periodization and regime type, the paramount goal has been the same: ethnic power is fundamentally dependent on control of state power.

Addressing these "negative externalities" in Nigerian federalism is crucial to the mainstreaming of peace and security in the Niger Delta. As an operative concept in peace-building, mainstreaming designates the "art of integrating a given set of values from one primary domain into a secondary one with the aim of bringing the insights from the former to bear on the latter and to achieve by this process a value-added outcome for the resulting practice". Thus, one of the cardinal conclusions from peace and conflict studies bearing on development programming is the extricable linkage between sustainable peace and the struggle for social and human security: "economic longevity and ecological sustainability". Security in this context designates the "capacity of groups (and individuals as their agents) to provide their physical and psychological needs and livelihoods".

In a turbulent system such as the Niger Delta, peace as a policy objective could only be predicated on transformational activities which address "structural issues, social dynamics of relationship building, and the development of a supportive infrastructure for peace".

(Leaderach, 2006: 12). The general assumption in this context is that the conflagration in the Niger Delta reflects, as Mats Friberg (1992) argues, the "failure of governing structures to address fundamental needs, provide space for participation in decisions, and ensure an equitable distribution of resources and benefits that makes identification with a group so attractive and silent in a given setting". Since the elimination of deprivation is the primary concern of the oil-bearing communities of the Niger Delta, the path to peace and sustainable development lies in empowerment through a policy regime which recognizes the systemic linkages between security, economic empowerment and development.

This is the crux of "mainstreaming peace building in development programming" in the Niger Delta. That is, the progressive "elimination of objective conditions" that limits the capacity for groups to satisfy their physical quality of life indices, as well as "reduction of years and anxieties about their abilities to meet these needs" (Ibeanu, 2000). This is so because, as widely reflected in the literature, the root causes of the crises in the Niger Delta are political and economic which "engendered marginalization, poverty and environmental degradation (proximate causes). These in turn trigger widespread social deprivation (Idemudia and Gte, 2006: 393). As Cyril Obil (1997) has aptly noted, "the region is by far the most central to the nation's economic and political survival", but paradoxically, it is one of the "poorest, least developed and reciprocated for its contributions to national wealth". In this regard, John Lederach (2006: 25) has noted that:

Contemporary conflicts necessitate peace building approaches that respond to the real nature of those conflicts..... demands innovation, the development of ideas and practices that go beyond the negotiation of substantive interests and issues. This innovation I believe pushes us to probe into the realm of the subjective – generationally accumulated perceptions and deep-rooted hatred and fear.

In policy terms, given the centrality of the federal government as the ultimate arbiter in the socio-political process, the need to address significant structural and distributive problems in the Niger Delta should now be the locus of security analysis and policy responses to the malignant condition of the region. In the final analysis, the infrastructural development of ND will depend on how available derivation resources are structured and allocated. This entails, (i) a fiscal regime, which allows the oil producing communities to benefit directly from revenue allocation and (ii) how the federal government can ensure that the greater proportion of allocation to states/local governments based on the derivation is committed to capital projects. The federal government can achieve (i) and (ii) above by tying allocations derived from oil revenues to specific developmental project in the oil producing areas to prevent the governing elite of the state and Local

Government from the diverting these resources to projects of ostentation across the Region.

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Conflicts as Indices to Evaluating the Effectiveness of Natural Resources Conservation in the Cross River National Park, Nigeria

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CONFLICTS AS INDICES TO EVALUATING THE EFFECTIVENESS OF NATURAL RESOURCES CONSERVATION IN THE CROSS RIVER NATIONAL PARK, NIGERIA

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Conflicts as Indices to Evaluating the Effectiveness of Natural Resources Conservation in the Cross River National Park, Nigeria

Andrew-Essien ^α, Elizabeth E ^σ & Bisong, Francis E ^ρ

Abstract - Despite the legislative frameworks put in place to enable the preservation of natural resources, it is discovered that conflicts undermine the sustainable conservation of natural resources. The paper examines the nature and intensity of conflicts within the Park while highlighting the critical causes for conflicts within the area. A total of three hundred and ninety-five questionnaires were distributed to eight study communities and the National Park management to elicit information on the factors that account for conflicts in the park. Findings show that conflicts exist in the park owing to a number of factors which include park location and objection of the communities to the restrictions imposed on access to natural resources. These collectively manifest as threats to the communities and the park objectives. The factors accounting for this are identified to include lack of adequate employment of community members by Park management, lack of compensation by the park management to community, unemployment, closeness of park boundary to communities and the restrictions of livelihood sources of the communities. The study advocates for community enlightenment, and the adoption of participatory approaches in creating and managing the National Park.

I. INTRODUCTION

Despite the numerous functions performed by National Parks, it is observed that Park environment frequently strive under conditions of conflicts. Conflict may be regarded as a struggle over values and claims to scarce status, power and resources in which the aims of the opponents are to injure, or eliminate their rivals (Oтите and Albert 2001), Thayer, (2005), Davey, (1993), Coser (1956), Cordell, J. (1993). The conflict situations in park areas are often attributed to conditions of discordance between the park management and the surrounding indigenous communities based on the multiple-values attached to the existence, sustenance, welfare and the role of the natural resources within such environments. The steadily increasing incidences of these conflicts reflect that a consensus has not been reached that will enable the conservation scheme to be achieved. The resulting consequences have been the emergence of series of

criticisms on the impacts created by the establishment of National Parks. This is because while the designation of a national park could be seen to result in future conservation benefits to humankind; it has also resulted in destabilizing the ability of people to survive in present times. It is thus clear that there is a genuine clash between the needs of biodiversity conservation and the development needs of the people.

The commencement of a strict conservation policy by the management of the Cross River National Park, witnessed a strong resistance by communities of the zone. This is because the strict conservation policy demanded restrictions on the ability of the support communities to have free access to the natural resources within the park environment. The consequences have manifested in the form of conflicts of varying dimensions between park authorities and the indigenous peoples of park communities owing to the rich diverse ecosystems of the park; which contain plant and animal resources, produce seeds and fruits for consumption, flavorings, spices, medicines, building materials and other uses (Schmidt 1996).

a) Conservation versus Development conflicts in Protected Areas

Concern has been highlighted on the need to have insights to the compatibility of conservation and development in human inhabited protected areas. Fisher, C. and Ury (1985) and Buckles and Rusnak (1999) identified some of the causes of conflicts related to natural resources utilization to include situations where natural resources are embedded in an environment or interconnected space wherein actions by one individual or group may generate effects that disrupt the livelihoods of those surviving on it for food; natural resources may be embedded in a shared social space where complex and unequal relations are established among a wide range of social actors, resources scarcity, increasing demand and unequal distribution; situations in which natural resources are used by people in ways that are defined symbolically. From the foregoing, it can be deduced that protected area conflict is largely connected to contests over

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resources and access to them and into the forces that make such competition increasingly widespread. The availability of natural resources is not the causes of conflict, rather the forces that compel and make such competition widespread and thus trigger tension and often lead to clashes (Imeh, and Adebobola 2005). In other words, the environment is linked to the base of all social conflicts that pertain to resources use and conservation. Ghirmine & Pimbert (1997) explain the protected –area conflict and the interrelationship of macro-trends as emanating from primary focus on rising income per capita, productivities and technological modernization, while the issue of rural social security and sustainable livelihood have received secondary attention. Over-looking basic community needs is the dominant reason for conflicts thereby undermining the conservation goals.

Daniels (2002) highlights three administrative procedures employed in many National Parks which are often conflict inducers. They include the Top-Down, Mixed Management and Bottom-up Management approaches. The three approaches have been adopted in human inhabited areas worldwide and have resulted in varying impacts. The top-down management approach involves a command management in which the management of protected areas is strictly controlled by the park authorities while the local communities have no direct control or power in the administration and management of the park and its resources. The resulting effects of such management mode have been the involvement of local communities in economic activities that are less sustainable than previously engaged in. The second approach which illustrates resource management in protected areas is the mixed top-down and bottom-up concepts which attempts to partially involve local communities in the management and administration of park areas. The resulting impacts have been the creation of various land uses, anthropogenic landscape features, culturally significant and sacred areas and natural resource distribution to enhance the local communities' abilities to support their livelihoods within the confines of the Park (Arambiza 1995, Leitao 1994, Njiforti, and Tchamba, (1993) and Michelle 1993). The third park management approach is the bottom-up community participation and it involves a total and complete participation of the indigenous people in the management of park affairs.

II. METHOD OF STUDY

The study made use of questionnaires to collect data from a total of eight study communities within the two Divisions of the Cross River National Park namely the Oban and Okwangwo Divisions . Within the Oban Division, selected communities are Abung, Okarara, Neghe and Oban. In the Okwangwo Division, the communities selected include Butatong, Bamba,

Okwabang, and Okwangwo. Questionnaire data was collected using a dual perspective assessment method involving the National Park management and its host communities. Two hundred and eighty-one questionnaires were distributed to eight study communities while one hundred and fourteen questionnaires were also distributed to the National Park management to elicit information on the factors that account for conflicts in the park.

III. RESULTS AND DISCUSSION

In analyzing conflicts in the Cross River National Park, a total of two hundred and fifty-five (255) respondents, equivalent of ninety-one percent (91%) of those sampled from the communities, indicated being aware of the existence of the park. Twenty-six (26) respondents, representing nine percent (9%) indicated not being aware of the existence of the park. Responses from the questionnaire showed that there is a significant level of awareness of the Park existence.

a) *Conflicts in the Cross River National Park.*

The study considered the need to establish the level of association or relationship of integration that existed between the communities and the Park management. One major way of so doing is to examine the communities' acceptance of the National Park Support Zone Strategy based on the designation of communities into the Park's Support Zone as outlined by the Park for the communities located within and around the Park. From the responses, two hundred and six (206) respondents, representing seventy-three percent (73%) regard their communities to be part of the Support Zone, while a total number of seventy-one (71) respondents, representing twenty-seven percent (27%) objected to their communities being part of the Support Zone. Two hundred and fifty-four (254) respondents within the communities or ninety percent (90%) indicated the existence of differences of opinion between the Park management and the communities. Twenty-seven (27%) respondents, making up ten percent (10%) of the sample, denied the existence of any differential opinions between the Park and the communities.

From the National Park's perspective, the acceptance of the existence of conflicts between the park management and its surrounding host communities, is also clearly established by the response of eighty-seven (87) respondents or seventy-eight percent (78%) who opted for yes and twenty-five (25) or twenty-two percent (22%) of respondents who are not aware of the existence of any disagreement between the Park and its host communities. To further buttress the Park management's knowledge of existing conflicts, it was necessary to determine the knowledge of the conflict types. A percentage representation of respondents' responses show that sixteen percent (16%) indicated open hostilities, fourteen percent (14%)

chose resentment, nineteen percent (19%) selected disagreement and fifty-one percent (51%) indicated non-cooperation with the Park management.

Various divisions of the park are affected by the disagreement in disparate proportions. Respondents indicated that Oban Division is most affected. Eighty-six (86) respondents or seventy-five percent (73%) affirmed this fact, while twenty-eight (27) respondents or twenty-five percent (25%) selected the Okwangwo Division as being most affected by disagreements.

b) Threats faced by the National Park management in conservation.

The major challenge faced by the National park in its strive to achieve conservation in the Cross River protected area exists in the form of threats. Threats are actions or decisions undertaken that are most likely to mar the success of deliberate efforts. The establishment of the National Park is a deliberate effort aimed at achieving the conservation of natural resources from unreasonable exploitation. To clarify the existence of threats in the park, respondents, who are staff of the National Park, were required to ascertain if the park conservation scheme was in any way threatened and the nature of the threats that existed. Twenty-four (24) respondents, or twenty-one percent (21%), considered poaching to be a problem faced by the park authorities, while sixteen (16) respondents, representing fourteen percent (14%), regarded illegal logging to be the threats that is most likely to disrupt the conservation efforts. Thirty-five (35) respondents, constituting thirty percent (30%) of the sample population, selected non-cooperation of rural communities in the conservation process. Twelve (12) respondents or ten percent (10%) accepted ignorance of the park's objectives for establishment, while twenty-seven (27) respondents, or twenty-three percent (23%) of the park management study population accounted for intrusion.

c) Factors responsible for Conflicts in the Park.

An analysis of the park authorities' responses shows that there is a high consciousness of the existence of reasons for the conflicts. This is because sixty-six (66) respondents or fifty-eight percent (58%) acknowledge that reasons exist for the conflicts, while forty-eight respondents or forty-two percent (42%) do not acknowledge the existence of reasons for the conflicts within the park. The reasons given by the park management as being responsible for the conflicts in the National Park include, lack of adequate employment of community members by Park management (12%), lack of compensation or failed promises by the park management to community (16%), unemployment and alternative development (25%), closeness of park boundary to communities and the restrictions of livelihood sources of the communities. From the sampled population, it is seen that forty-eight (48) respondents, representing forty-two percent (42%)

attributed the disagreements to lack of education of the people by the park management, thirty-two (32) respondents or twenty-eight percent (28%) selected failed promises by the park management, twenty-four respondents or twenty-one percent (21%) opted for lack of alternative livelihood sources, while ten (10) respondents, representing eight percent (8%) identify unemployment as being the central reason the communities would have for conflicts.

d) Implications of Conflicts in the Cross River National Park.

It would be an understatement to assert that the persisting conflict situations between the park management and the communities of the National Park have implications on the conservation process. However, both positive and negative implications result from the challenges that surround the National Park.

e) Positive Implications.

The main argument presented by the proponents of environmental conservation is in line with the need to slow down the human misuse of the natural environment and thereby put in place a pragmatic utilitarian conservation in which the environment is protected, not only for its authentic and spiritual values (biometric preservation), but also to enable the availability and subsequent use for the present and future. This is in line with Zimmermann's (1966) definition of a resource, as being, not merely characterized by physical presence, but also the use value, which plays a more significant role.

In addition to this, the human development index establishes a relationship between wealth and human development, and anchors on the fact that human development ranking is based primarily on the average life expectancy, health, literacy and nutritional indices. Hence, the conflict situation in the protected area of the Cross River National Park is a reflection of the high level of suppression and marginalization of the rural populace, which is rapidly calling for attention in order to set in motion strategic machineries that can aid the human development of this area.

f) Negative Implications.

The spates of conflicts within the National Park have highlighted effects which cut across a wide sector of the environment. With incidences of conflicts on the increase, the ecological integrity of the environment is threatened, particularly as intruders, who having inhabited the area for long, are well-informed of the geographic configuration of the park, and would indiscriminately exploit the resources therein to the detriment of the conservation objectives. In addition to this, it is seen that the variables that are affected as a result of the existing differential conservation and development value of the National Park resources are intricately linked, and as such, rather than the progress and growth of this area being gingered, a backward

development of the area will continuously be experienced.

In an era where literacy and technological developments are on the increase, it would not be sufficient for the African environment to be backward and slow in its developmental strides. In order words, to favourably compete with other nations of the world, there is the need to re-examine critically, the existing factors of conflicts, such that solutions and options are selected and implemented that will enable conservation and development to integrate for, as succinctly described by the pragmatic utilitarian conservationists, 'the greatest good, for the greatest numbers, for the longest time!' (Gifford Pinchot) This, simply put, refers to the need for both the park management in addition to their adopted policies, to co-exist peacefully with the communities and their strides to eke out their known means of livelihood development in a familiar environment and in occupations that they can readily associate with, for growth and development.

IV. RECOMMENDATIONS

There is a strong and urgent need for the Government at both federal and state levels, to adopt participatory approach in creating and managing protected areas that have tremendous ecological values. Final decisions that involve environmental programmes should be based on the pulse observed at the grass-root level. Representatives from affected communities, government administrative officials and conservation experts are stakeholders who should be involved in the development of strategies that are associated with protected area creation and management.

A social assessment is necessary for the establishment of conservation projects that directly affect the lives of the rural people inhabiting the area. This can be commissioned where it was omitted as a process of initiating a park around an already inhabited area. This is relevant because, a fraction of the responsibility of government involves ensuring that the interests of its citizens are protected, such that the people exist in comfort. Government's responsibility to its citizenry further includes creating an enabling environment for its people acquire or develop a legitimate and sustainable means of livelihood that is enhanced by the relevant formulation and execution of policies. It is therefore vital for the government to assist the rural communities attain a level of development that is sustainable.

In order for the conservation process to be effective in the Cross River National Park, it is necessary to consider some relevant issues. The first is that conservation processes in areas that are inhabited by indigenous communities often have a much longer history than government-designed protected areas and

as such the traditional conservation processes of indigenous communities are legitimate and can be adopted to further enhance the conservation scheme. Secondly, it is vital to recognize diverse governance types within a protected as being legitimate for the effective coverage of the area and the promotion of a high level of connectivity within a large area such as the Cross River Park

There is also the need for the park management to design enlightenment programmes for communities, affected by the park or conservation activities that have significant cultural contents (Lusigi 1992). The essence of this is to address issues or points of conflicts from a cultural perspective. The situation of the Cross River National park demands enlightenment programmes with a cultural bias prior to the establishment of the Park. The affected communities had developed a tradition surrounding their means of livelihood, including their occupations, foods and land-use management processes. These cultural patterns have been handed down through ancestral lineage. The development of new sources of livelihood would therefore require a high level of re-orientation and adaptation. Consultants that understand the culture of affected communities would be relevant in championing conservation issues within the communities .

V. CONCLUSION

Currently, many countries have been challenged in the provision of sound and realistic approaches for the effective conservation of their natural resources, particularly where the sources of livelihood of rural communities have been affected. The establishment of protected area projects such as the National Park in any ecologically well-endowed resource environment should be primarily for the benefit of the indigenous people and subsequently, the world at large. However, it would appear that the initiators of conservation programmes reflect and emphasize more on the long term benefit of biodiversity conservation to mankind, which is often to the detriment of the people and communities occupying protected areas. This can in metaphoric terms, be described as preparing a meal for the unborn child, without first nurturing the womb that carries the child. In relation to this statement, it would be an under-estimation to declare that the people and communities inhabiting the Cross River National Park enclave and support zones have been deprived. Hunger, sickness, unemployment, poverty and premature deaths are the conditions that characterize the current situations in these areas.

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Ideological Battle in the Nigerian State: An Interplay of Democracy and Plutocracy

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Abstract - It has been widely argued that democracy is an imperative for development in the 21st Century Nigeria. Perhaps, it is because the concept has been tested in some societies, particularly in western societies and it worked. The paper argues that one of the reasons democratic institution has not yet been properly rooted in Nigeria is that it has been choked off and smothered by plutocracy. The attendant consequences include, impoverishment of the citizenry, gradual deterioration of established democratic institutions and agencies and high level of criminality, militancy and terrorist-oriented activities.

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Ideological Battle in the Nigerian State: An Interplay of Democracy and Plutocracy

Chris C. Ojukwu ^α & O. G. F. Nwaorgu Ph.D ^σ

Abstract - It has been widely argued that democracy is an imperative for development in the 21st Century Nigeria. Perhaps, it is because the concept has been tested in some societies, particularly in western societies and it worked. The paper argues that one of the reasons democratic institution has not yet been properly rooted in Nigeria is that it has been choked off and smothered by plutocracy. The attendant consequences include, impoverishment of the citizenry, gradual deterioration of established democratic institutions and agencies and high level of criminality, militancy and terrorist-oriented activities.

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I. INTRODUCTION

The democratic forces must be careful about rallying around crooks because of short-term, calculations. Crooks are unreliable. They will sell democracy down the river if and when it becomes necessary in pursuit of their personal ambitions for them to reach accommodation with anti-democratic oligarchy. What democracy needs is a principled and dedicated leadership and more effective institutions for combating any oligarchy (Toyo, 1994:62).

Nigeria, after five decades of political independence, still finds itself in the throes and trajectory of deep political quagmire. Frantic efforts to ensure that there exists smooth and sustainable democratic governance have failed several times. The cause of this is not far fetched. It is basically because the Nation State has been hijacked by a stratum of plutocrats and timocrats. Given the degree and high rate of their ill-accumulated wealth in the Nigerian society, the ideological interest of the Cabal appears to influence and determine the contour of the Nigerian political system and structure that is largely build upon democratic principles.

Many scholars are of the opinion that the woes of democratic institutions have been largely attributed to the military incursion into politics. For instance, the transition programmes during these periods which were ostensibly arranged for the purpose of handing over

power to the civilian were basically characterized by arbitrary power, intimidation, subversion of the rule of law, suspension of the constitution and the abolition of virtually all institutions of democratic governance (popular participation, the fusion of executive and legislative powers, the mutilation and emasculation of the judiciary). The military's repressive nature has also been interpreted through the ethnic prism that accuses the military elite who monopolized power as representing sectional interests. The abortion of the transition to a third Nigerian Republic through the annulment of the June 12, 1993 presidential election was a classical case in point.

Beyond this popular view, some students of political theory have also begun to argue that the country's lose of grip on democracy can be tied to rein of plutocrats in the corridors of power and circles of governance.

The paper, therefore, examines the interplay of democracy and plutocracy in the context of the Nigerian State.

II. CONCEPTUALISING IDEOLOGY, DEMOCRACY, PLUTOCRACY AND GOVERNANCE

From a social-scientific viewpoint, an ideology is more or less a coherent set of ideas that provides a basis for organized political action (whether or not it is intended to preserve, modify or overthrow the existing system of power relationships.) All ideologies, usually in the form of a 'world view', provide a model of a desired future, a vision of the good society, and outline of how political change can and should be brought about. Ideologies are not, however, hermetically sealed systems of thought, rather, they are fluid sets of ideas which overlap with one another at a number of points.

Ideologies are also always subject to political or intellectual renewal, because they interact with and influence the development of other ideologies and because they change over time as they are applied to changing historical circumstances (Heywood, 2003).

Throughout the ages, the great political theorists have dealt with the question: what is a good government and what kind of society will provide the base for it? Their theories were influenced substantially by the type of society they lived in or ideology they subscribed to as no theory or ideology develops in a

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vacuum. In other words, every society is shaped by a set of belief systems, values, norms, and principles which to a large extent determine the nature and character of such a society, its policies and programmes.

While ideologies are capable of being means of progress and liberation for people, they can also be vindictive and oppressive if used as a means of manipulation. They can express racial superiority and ethnic segregation as well as racial solidarity. Ideologies can easily topple noble goals, twist a common goal to favour group interest and domination (Feyisetan, 2008:88-89).

For instance, ideology was the major issue behind the cold war between the West led by the United States and the Eastern bloc led by the then Soviet Union. Unwilling to move into hot war which would have meant self-destruction in an eventual nuclear holocaust, the two power blocs resorted to a war of words, in which Africa and the other less-developed nations remained neutral in spite of the efforts made by the two giants to persuade them to join their respective sides (Ekpebu 1999:66). The West opted for Capitalism and Democracy while the East subscribed to Communism.

The first half of the 1990s marked the end of the cold war after 45 years of its existence. Thus, the aggressive vacuity of the cold war was replaced with the mission of democratisation, a mission that consolidated the hegemony of Western values. As President Bush put it at that time:

A new world order (is) struggling to be born... where the rule of law supplants the rule of the jungle. A world in which nations recognize the shared responsibility for freedom and justice. A world where the strong respect the rights of the weak (Rourke, 1996:1-2).

The end of the Cold War also triggered the sudden collapse of Communism in the Soviet Union and stimulated struggle for democracy in Africa. As Ibrahim (1995:126); Slater (et al. 1993); Diamond (1999:24) remarked:

The end of the Cold War poses for Africa a political and intellectual challenge which provides a critical historical conjuncture to conduct a more fruitful debate and advance the struggle for expanding democracy in the continent.

The concept of democracy has become a buzz word in the contemporary political lexicon. It has become a household terminology both in the developed and developing nations as most of rapid socio-economic and political developments revolve around and/or are shaped by democratic ethos. By the same token, the inability of many nations to measure up as expected of them in the economic and political realm can also be tied to the erosion of democratic principles in such countries. As if institutionalisation of democracy in Africa is sine-qua-non or a precondition to democratic consolidation, scholars have argued that the fall of

Communism has led many to believe that democracy has finally arrived and would serve as a reprieve to ameliorate the pains and sufferings of Africa (Kukah, 2000:XIV). Ake holds that Africans are seeking democracy as a matter of survival, they believe that there are no alternatives to this quest, they have nothing to loose and a great deal to gain (Kukah, 2000:XIV).

Modern democracy, as Samuel Huntington observes, is not democracy of the village, the tribe, or the city-state; it is democracy of the nation-state and its emergence is associated with the development of the nation-state (Huntington, 1991:13). Nwankwo (1992:290) opines that democratisation is a process of political renewal and the affirmative acceptance of the supremacy of popular will and consensual obligation over the logic of elitism and parochialism. It emphasises the shift from individual and class dispositions to polity and the institutionalisation of genuine representative political structures and organs of mass mobilization. The phenomenon stresses the ability of the ruling power-structure to revolutionize the economy to ensure a collective control of productive forces, the common access by all to the means of production, distribution and exchange. The implication is that democracy is meant to fight poverty, economic backwardness and under-development and to promote by all means rule of law, security of life and property and various basic freedoms such as freedom from want, expression, association and religion (Osuntokun, 2010:19). To realise this, requires the product of political leaders who have the will and skill to bring it about.

Laakso and Olukoshi (1996:9) have argued that the problems of nation-states are compounded by the absence of enduring structures of democratic governance and popular political participation, with the consequence that efforts at tackling the National Question are not organically tied to the question of democratisation in much of post-independence Africa. The question is, what are the supposed structures of democratic governance? Are they peculiar to African setting or do they cut across other continents?

In the view of Schumpeter (1942/1976), democracy means competitive leadership and the rule of the political elite and not mass participation and/or popular rule. The mass is used mainly as a mechanism to select the man who has the potentials to govern the society. In other words, the role of "the people" in a democratic society is not to govern but rather to choose representatives who will make the decisions for them. Schumpeter argues that this form of democracy is a political method, that is, a certain type of institutional arrangement for arriving at political-legislative decisions. In contrast, Putnam (1993:171-176) holds that the interdependence of elite and citizen behaviour helps to foster and consolidate democracy. Democracy may not thrive in a setting where there is no mutual understanding, shared trust between the elite and the

masses. Liberal democracy should not be a restrictive enterprise for selecting decision-makers and ensuring their legitimacy through election nor be an attenuated form of governance aimed at securing the hegemony of a ruling political elite (Marsha and Stoke, 1995:232; Elliot, 1973:123-125).

Though the role of the elite is crucial in any democratic process, democracy is meant to uplift the underdog in society, the weak and vulnerable. Whatever its nature and form, it has usually been articulated on the basis of principles such as welfarism, redistribution, social justice, and narrowing the gap between the rich and poor. As Feyisetan (2008:55) captures it, 'democracy defeats its purpose when it makes the conditions of the poor worse off'. In most African countries, attention is not given to democratic norms, rather, what prevails is an executive arrogation which occurs when elected political officers concentrate powers in their own hands which has been variously referred to as "authoritarian democracy", "bounded strongmen". Thus, many governments in new democracies have in sundry occasions abridged political rights and civil liberties of citizens, limited the press freedom and imposed harsh policies on the citizenry. The attendant effect has been political apathy which is a protest participation based on dissatisfaction with the operations of the political game, a post-participative phenomenon when people have reached the limits of what they can give or take politically, and a calculated peaceful aggression without wins (Ayoade, 1997:3).

Drawing from the views of Eskor Toyo (1994:10), democracy refers to the extent to which actual political power to determine people's social destiny belongs to the vast majority of citizens who constitute the people distinct from a ruling oligarchy or class. The fundamental basis of democracy is the ideological thesis that human beings are equal, that no human being is so responsible that he can replace another when it comes to determining the other's fortunes in society. This suggests equal rights of all social individuals to participate in taking socially significant decisions and in running those affairs of society that shape the fortunes of its members. Popular participation in arriving at decision-making or policies of national importance connotes consultations and dialogue with various segments that comprised the population of the State. At any rate, in any society where the concept of democracy does not embrace actual governance by the people and does not extend to the economic and cultural spheres, democracy is at best truncated (Toyo, 1994:15).

In some emerging democracies like Nigeria, it is observed that some key indices of democracy are often personalised by the leaders to the detriment of the masses or the ruled. For instance, public resources distribution, government contracts, instruments of

powers are restricted and circumscribed only to the rulers of the State. As Kukah (2000:218) captures it, the Nigerian State, in its quest for the personalisation of the instruments of power, has sought to domesticate every area of national life, especially those areas considered to be juicy by the elite. This, he termed, the 'myownisation of power', that is, 'power becomes my own, because I am the one who has taken control'. This mentality was virtually tolerated during the periods the Nigerian State was hijacked by the military for twenty-nine years because of the peculiarity of the military institution. It is an institution whose constitutional role is primarily to protect and defend its territory against external aggression, except incursion into politics which is an aberration.

This brings into focus the other concept, which is, plutocracy. The term plutocracy is derived from the Greek *ploutokratia*: from 'ploutos', we get wealth, and 'kratia' means advocate of a form of government. Thus, the concept is formally defined as government by the wealthy. It can also refer to a wealthy class that controls a government, often from behind the scenes or any form of government in which the wealthy exercise the preponderance of political power, directly or indirectly.

Classically, a plutocracy was an oligarchy which suggests a government controlled by the wealthy few. Today, the term plutocracy is generally used to describe two distinct concepts: one of a historical nature and the other of a modern political nature. The former expresses the political control of the State by an oligarchy of the wealthy. The instances of this include, the civilization of Carthage and the Italian merchants republics of Venice and Florence. The latter presupposes a pejorative reference to a disproportionate influence the wealthy are said to have on political processes in contemporary society. A good example of a society where this is operational is the United States in which there is a 'fusion of money and government'. In essence, most plutocrats control the executive, legislative and judicial aspects of government, the armed forces, and most of the natural resources. In some cases, however, there are still some situations in which private corporations and wealthy individuals may exert such strong influence on governments, in a manner that the effect can arguably be compared to a plutocracy.

Typically, most plutocrats are found within the confines of the elite group—the military, bureaucrats, technocrats, intellectuals, politicians and traditional rulers. This group of people (a privileged minority) who through educational exposure, connection, organisational skills, leadership abilities, are materially empowered to influence, formulate policies, guide activities and decide the significant issues of government.

Dye and Zeigler (1975:2) argue that the irony of democracy is that it is government 'by the people', but the responsibility for the survival of such democracy



rests on the shoulders of the elites. They must govern wisely if government 'by the people' is to survive. Drawing instances from the American political system, Dye and Zeigler hold that the American masses do not lead, rather, they follow and respond to the attitudes, proposals and behaviours of the elite. Buttressing this view, Key (1961:558) puts it succinctly thus:

The critical elements for the health of the democratic order consist of the beliefs, standards and competence of those who constitute the influential, the political activists, in the order. That group, as has been made plain, refuses to define itself with great clarity in the American system; yet, analysis after analysis, points to its existence. If democracy tends towards indecision and disaster, the responsibility rests here, not with the mass of people.

Wright Mills (1956:4) in his famous work, 'The Power Elite', emphasises that the elite is the product of the institutionalized landscape of the society. That is, certain institutions occupy pivotal positions in society and the uppermost ranks of the hierarchy in these institutions constitute the strategic command posts of the social structure. Again, drawing from the American society, Mills identifies a three level gradation of the distribution of power: the executive branch of the national government, the large business corporations and the military establishment. He holds that political power resides in the controlling positions of these powerful institutions, hence he describes the structure of the power elite thus:

They rule the big corporations, they run the machinery of the State and claims its prerogatives. They direct the military establishment and occupy the strategic command posts of the social structure in which are now centred the effective means of the power and the wealth and celebrity which they enjoy... To be celebrated, to be wealthy, to be in power requires access to major institutions, for the institutional positions men occupy determines in large part their chances to have and hold valued experience.

Power elite by extension reinforces and crystallizes Lord Acton's famous aphorism, that "all power corrupts and absolute power corrupts absolutely". Money power corrupts and ambition backed by money power both corrupts and blinds (Toyo, 1994:69). No doubt, most societies are being controlled by the plutocrats and timocrats. Before the arrival of the British imperialists in Africa and Nigeria in particular, independent kingdoms, empires and states were under the control of the traditional rulers such as the Obas, Emirs, and Obis. There were also places administered by council of elders. These personalities were conceived to be materially wealthy perhaps as a result of many advantages that accrued to Kings then. At the arrival of the colonisers to Nigeria, the politics and material powers of these Kings were further enhanced mainly because the imperialists used them as means to

attain their administrative goals and economic interests. Interestingly, during the colonial era, the colonisers were totally in control of the country, giving little or no room for Nigerians to participate in the running of the nation.

This facilitated the impoverishment of the country prior to their departure. Unfortunately, the political elites that took over from them followed their footsteps at independence. As Enemu and Momoh (1999:74) point out, the Nigerian State, like others in the rest of Africa, underwent no qualitative and transformative restructuring at independence. Consequently, it remains, just like its colonial progenitor, an instrument of exploitation and suppression of the popular classes and a tool for primitive accumulation and class consolidation for the hegemonic groups. They argue that the few who control the State have access to all imaginable perks while the many who are excluded are victims of all forms of abuse. As a result, the struggle to attain and retain power has become a veritable war fought without restraint and with total disregard for the ethos and conventions of democracy.

III. PLUTOCRATS AND THE RUNNING OF THE AFFAIRS OF THE NIGERIAN STATE

As stated elsewhere, democratic governance becomes effective when it is directed and managed by a stratum of minority group that is imbued with organisational skills, knowledge and drive. But it becomes worrisome and problematic when the State's affairs are run totally by plutocrats and political machines, a class that uses the resources of the State to consolidate their political and economic interests rather than better lives of the citizenry. In Nigeria, it is the views, sentiments, whims and caprices of this class of people that are often articulated and recognised. The opinions of the masses or the 'representatives' of the masses are taken with a pinch of salt because they do not have the financial clout to influence and in some cases, counter some policies of the government that seem not to have human face. As Nwankwo (1997:60) points out, the bulk of the Nigerian elite are without moral fibre and scruple. They existed for long as a self-serving, grasping hobo, men and women who never worked or sweated for their wealth, who lack vision, sense of direction and purpose, a class that is content to lend support to successions of regime tyrants and that indulge itself in the make-believe world of licentious living and profligacy.

Interestingly, most of the Nigerian plutocrats are found under the platforms of different political parties and prominent socio-cultural and political organisations. Party politics is a critical factor in democratic governance. Since a lot of money is required to sustain political parties, money bags, millionaires and political mercenaries take advantage of the circumstance to popularize and consolidate their political and economic

interests in those political parties. For instance, most western democracies permit partisan organisations to raise funds for politicians which can be either directly or through corporate institutions. Ideally, the gesture should have no effect on the legislative decisions of elected representatives, but some politicians are influenced by these contributions. In the United States, campaign finance reform makes efforts to ameliorate this situation. It challenges officials who are beneficiaries of the system that allows the practice. Thus, many reform advocates have suggested that taxpayer dollars be used to replace private campaign contributions (Scarrow, 2005:13). As Mimpen asserts, democracy has a cost, is elaborated regularly when talking to political party representatives in developing democracies, referring to the considerable amount of finances that political parties need in order to fulfil their democratic tasks (Mimpen, 2010). This finds expression in the intra-party democracy in Nigeria where the major financiers of the parties would want to be the ones to select their own candidates for primaries and subsequently to be nominated to represent their parties in the general elections.

The financiers in this context are popularly known as godfathers in Nigeria. They sponsor candidates for various political positions—presidency, governorship, National Assembly, State House of Assembly, Chairman of the Local Government and at the end of the day expect due reward and compensation from them in the form of fiscal and/or in the form of awarding contracts. Striking instances were the cases of Chinwoke Mbadinugu and Chris Ngige who were Governors of Anambra State between 1999 and 2003. They had Chief Emeka Offor and Chief Chris Uba respectively as their godfathers who in turn made Anambra State ungovernable in their attempt to take over the running of the affairs of the State (Ojukwu and Olaifa, 2011:250). They not only demanded monetary compensation but also a lion share in the appointment of State Commissioners. This buttresses Griner and Zovatto (2005) argument that, money and democracy have a complex relationship, especially since the affluent role of private money in politics can have many distorting effects such as, corruption, buying of votes and clientelism. When a party is well funded, it can achieve a lot of things, but the financiers may also have some strings attached to it.

A situation whereby the so-called mentors, patrons and godfathers of political parties and political office holders view parties as just a source of personal aggrandizement as is the case in many political parties in emerging democracies, probably suggests that there will be little or no dividends of democracy to be distributed to the electorates. The political office holders in ensuring that they retain their portfolios—ministers, governors, commissioners, president of the country; may be forced to delve into blatant misappropriation of

public funds and other economic illegality (Ahonosi-Yakubu, 2001:83-84). Albeit this kind of political game can be found in other advanced democracies such as the United States and Great Britain, it does not seriously affect their democratic governance or their political stability. Rather, that kind of interplay fosters and enhances their political development particularly in the area of human resources development.

Specifically, in the United States, the idea that a relatively fixed group of privileged people might shape the economy and government for their own benefit goes against the American grain. Though, the owners and top-level managers in large income producing properties are by far the dominant figures in the United States, and that there is often competition between national corporations and local growth coalitions for profits and investment opportunities, both are cohesive on policy issues affecting the general welfare of the Americans (Domhoff, 1997). The corporate rich and the local growth entrepreneurs supplement their small numbers by developing and directing a wide variety of non-profit organisations like a set of tax-free charitable foundations, think tanks, and policy-discussion groups. These specialised non-profit groups in turn constitute a policy-formation network at the national level (Domhoff 1997:241-249). It is pertinent to note that most of the power elites (captains of industries and corporations) are not interested in the general governance of the State. Rather, they simply sit back and enjoy the lifestyle that their great wealth affords them.

Again, in the United States, to claim that the corporate rich have enough power to be considered a dominant class does not totally imply that lower social classes are totally powerless. Domination in this context means the power to set the terms under which other groups and classes must operate, not total control. Hence, even the most powerless of people—the very poor and those discriminated against—sometimes develop the capacity to influence the power structure of the State through sit-ins, demonstrations, social movements and other manners of social dislocations. The practice explicates a setting where there is strong and healthy interplay and synergistic role of democracy and plutocracy, and where pluralism is at its best. Pluralism presupposes that power is more widely dispersed among groups and that power is held by the general public through the pressure that public opinion and voting put on elected officials. Sadly, this kind of attitude is still a far cry in many developing democracies like Nigeria where there is still an overwhelming political domination and subjugation of the corporate rich and petty bourgeoisie over the less privileged citizens, and where the wealth and income distributions are skewed in the favour of those steering the ship of the State.

The question is, what has been the impact of the corporate rich in Nigeria on the Nigerian democracy? To what extent has the relatively fixed class



of highly privileged people in Nigeria influenced or impacted positively on the political economy of Nigeria since independence? A good number of the military personnel in Nigeria are millionaires and billionaires as a result of the quantum of money they appropriated for administering the Nigerian State for 29 years. General Ibrahim Babangida (retired) for example, made a lot of money from the Gulf War between 1991 and 1992 but it was not used in any form to transform and restructure the Nigerian State, instead, the money was used to further consolidate his financial empire and today, he is considered globally as one of the richest personalities in the world. The same applies to Late General Sani Abacha who stashed away a good chunk of the Nigerian money in coded foreign accounts with impunity. It was also these very elite that benefited from the proceeds and revenue of the nation's oil and mineral resources and bought huge controlling shares in blue chip corporations and firms with the enterprises promotion Act of 1972, popularly called the Indigenization Decree (Nwankwo, 1997:55-56). And as the structural goals and institutional requirements fade away as a result of the repetitive tragic cycle of junta hegemony, and as the succession of military dictators intimidate their way to power with the promise of producing yet another set of super rich multi-millionaires through their bazaar approach to governance, they still fine-tune more thorough ways of adapting and accommodating themselves in the new scheme and emergent power relations.

Unfortunately, the civilian governments do not fare better, but continued from where the military institution stopped. Since 1999, the beginning of the Nigerian 4th Republic, the country is yet to be transformed and reengineered to meet the global standard. This is the case because most of the bureaucrats, technocrats, politicians, and intellectuals in power are more interested in amassing wealth to solidify their economic stronghold than to effect far-reaching structural, fundamental and strategic changes in the government at all levels of power. For instance, the governor of Nigeria's Central Bank, Lamido Sanusi Lamido in 2010 argued that the salaries and overhead cost of the National Assembly gulp 25% of the yearly National Overhead (Okolo, 2011:19). The salaries and allowances that these legislators collect are not approved for them by the Revenue Mobilization Allocation and Fiscal Commission (RMAFC) statutorily nor by the National Wages and Salaries Commission. For instance, the clerk of the National Assembly informed the Economic and Financial Crimes Commission (EFCC) on the arraigning of former speaker of the House of Representatives, Dimeji Bankole, that the Senators take home with them about N360 million per annum. They are entitled to take home N11 million maximum but they contrive all sorts of arrangements. In view of this, Okolo (2011:19) remarks:

It is only the members of the National Assembly that have the impunity to change their furniture every year and ride the latest cars while most Nigerian Youth and young graduates are wallowing in abject poverty as a result of unemployment.

All the same, the situation with the executive arm of government is not different from that of the legislature. Feyisetan (2009:209) remarks that, Nigeria's political appointees are elevated to the highest pedestal as untouchable sacred cows who earn more money than any best paid worker in the Nigeria's private sector mainly as a result of having access to other revenues and opportunities to embezzle and receive bribes before contracts are signed. They feel they are put in that position to enrich themselves and not for the services of the nation flanked by police, guards or thugs to protect and defend them in their atrocities. This why politics is a do or die affair in Nigeria.

In the 2012 budget, the Jonathan-led administration proposed spending billion of dollars on travel, refreshment, generator and furniture. To be specific, N13 billion was budgeted for local and international travels; N4.5 billion for stationery, magazines, newspapers; N17 billion for maintenance of vehicles, furniture; N4 billion for generating set; N9 billion for refreshment and mails. For the Aso Rock Villa, the following was budgeted: N285 million for welfare, N265 million for computers, N150 million for scanners, N161 million for buses, N295 million for new furniture and N1.8 billion for the maintenance of existing furniture, office and residential quarters (Mumuni, 2012:4).

Indeed, not only that the budgetary allocations for some of these variables or items are stupendously outrageous and preposterous, but that at the end of the day, two-third of the money allocated for all these may be misappropriated by the government through its acolytes, loyalists and cronies. This perhaps underpins Fafowora's (2011:64) argument that the Nigerian governments are no less profligate in their expenditure on general administration. The cost of running the State's overblown bureaucracy is as much as 80% of the country's total income. At the comparative level, very few countries match the cost of general administration in Nigeria. He argues, for instance, that the United States, the largest economy in the world, with a GNP of US\$13 trillion per annum, has a federal cabinet not exceeding 20, about one half that of Nigeria with 37. The cost of general administration represents less than 10% of the federal budget of the United States. Fafowora further pointed out that, the rich countries spend on the general administration of their countries an average of 10%. China and India have the largest bureaucracies in the world, yet their average annual expenditure on general administration is only 12%.

The prevailing crisis rocking the foundation of the Nigerian State again hinges on insensitivity and the lack lustre performance of the plutocrats in power. The

Jonathan-led administration on the 1st of January, 2012 declared the deregulation of the oil sector by the removal of the petrol subsidy against the wishes of the Nigerian populace. This implies that the official pump price of petrol will be N141.00 as against the former price—N65.00. Government's reason for this is partly to be able to provide enough social amenities and infrastructure and to make life more meaningful for the citizenry, and also to stop a tiny cabal from enjoying the subsidy alone.

In view of this, the Nigerian Labour Congress (NLC), the Trade Union Congress (TUC) representing all Nigerian unionised workers both in the public and private sectors, whether junior or senior staff, and many civil society organisations (CSOS) backed up by millions of Nigerians citizens including the House of Representatives disagreed with the policy on the ground that it lacks human face. Government's ingrained attitudinal disposition and determinate social behaviour toward the policy are considered to be suspicious and discernible, hence the public alarm and almost nationwide protest. While the government that we perceived to be composed of most of the Nigerian plutocrats insists that deregulation has become an official government policy which cannot be reversed, the NLC, TUC and the CSOS argue that there is need for the government to first raise a committee to audit crude importation, fuel importation in order to determine appropriate pricing of fuel before thinking of the removal of the subsidy and determining the price of the fuel. The question is, how do we explain that none of the country's refineries is working at full capacity? Why should the level of corruption in the oil sector and other sectors be condoned? If Nigeria is the 6th largest oil producing country in the world, why should she pay as much as the government is proposing per litre of petrol?

The logic behind all this, is that the 'common Nigerians' have begun to capture some of the ploy and antics of the Nigerian plutocrats in government. The policy of removal of petrol subsidy happens to be the straw that broke the camel's back. It stimulated and catalysed the citizenry to rise for social change, to defend their rights and the democracy that they believe in and fought for, and to oppose the overwhelming hegemonic control of the cabal over the Nigerian masses for the past fifty years. The massive and intensive protests are designed to draw the attention of the government to more salient, philosophical and constitutional matters, protests that are meant to usher in good, accountable governance. As Eriye (2012:11) remarks:

Laws are laws only if the people continue to obey them. Once they cross the fear barrier, you are on your own... policies are meant for people. You don't crush them just to make a policy point. If they say they don't want, even if you believe your position is superior,

you back off. It happened in Tunisia, Egypt, Libya, Yemen, and is on-going in Syria.

To Ihonvbere (2004), what is so interesting about Nigeria and its peoples is that all the citizens demand the good things of life: from good governance to basic human needs. They are also of the view that things have not gone too well in the direction that they wished because the nation's leadership has failed to rise to the challenges. Thus, followership has become trivialized, commoditized, contaminated and corrupted. The challenge, therefore, is for all to brace up in finding democratic solutions to the failures of the past and the challenges of the present. He opines that the consequences of this benign neglect are huge. They include, cynicism and general distrust of government, susceptibility to manipulation, low capacity to understand and support good public policies, subversion of public policies by the urban-based elite, bureaucrats, politicians and the so-called middle class. Thus, rather than evolve structures, implementable ideologies, relationships, networks and enabling environments to build a nation-state that will stand the test of time, the power elite prefer to criminalise and bastardise some of the institutions established to foster democratic governance.

IV. CONCLUSION

The paper examines how democracy has been threatened by the domination of the plutocrats and kleptocrats in the various Nigerian corporate bodies and institutions. It emphasises that the Nigerian government is one whereby wealth and the benefits that wealth brings lead to a concentration of power in the hands of those with disproportionate access to financial resources. In other words, due to the tilting to plutocracy and institutional disfigurement precipitated by inordinate greed and parochial interest, the nation's nascent democracy is gradually losing its grip, lustre and aura both locally and globally.

The masses are not only disenchanting, disillusioned and disconnected from the polity, but have also lost confidence and trust in the government. This was demonstrated in the recent nationwide strike and protest orchestrated and prosecuted by the combination of the NLC, TUC and some civil societies in Nigeria. Granted that every democracy is often spiced with some other ideologies like plutocracy, capitalism and socialism, there cannot be real democratic institution if the setting is predominated by a class that is only interested in feathering its own nest and whose policies and programmes do not in any manner attempt to alleviate the precarious state of the citizenry. It suffices to argue that apart from the imperialistic principles which are the basis of all the problems of the developing world, the Nigerian plutocrats and their allies have contributed optimally in squandering the hope of their

people by vitiating the aspirations and expectations of the dividend of independence.

Our thinking, therefore, is that the country should evolve or generate any ideology(ies) that would be a building block and not a stumbling one and one that is capable of stifling and frustrating the imperial ambition of the plutocrats and kleptocrats that constitute serious hindrance to, and fetters unjust structures, policies and manipulative strategies. The Nigerian millionaires and billionaires should have a rethink and re-invest their 'wealth' in their own country rather than investing in other countries that have already attained optimal advancement in various spheres of life. Though every nation has its own peculiarities, problems and solutions, it is our feeling that Nigeria should take a cue from developed nations in relation to models of development. Many wealthy elite in developed democracies first consider investing in their own countries before giving consideration to other countries. For instance, investors such as Warren Buffett of USA, William Henry (Bill) Gates—an American business magnate and investor, Ted Turner—an American and the founder of Cable News Network (CNN), Carlos Slim Helú of Mexico, Bernard Arnault of France, Larry Ellison of USA, Lakshmi Mittal of India, Amancio Ortega of Spain, Eike Batista of Brazil, Mukesh Ambani of India are all top 10 wealthiest men in the world and investors that contributed maximally in economic development of the world beginning from their country. Furthermore, these wealthy individuals do a lot to develop their societies via donating to charities, heavy taxation as well as the establishment of foundations that fund education, research and the control of diseases. This is not the case with Nigerian wealthy persons. However, there are quite a number of Nigerian technocrats and bureaucrats though in the minority, who have indeed, contributed in no small measure towards the economic and political development of the country by investing largely in the country. The likes of Alhaji Dangote, Ibeto, and Chief Olusegun Obasanjo fall under this category.

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Potential Impacts of Climate Change on Waste Management in Ilorin City Nigeria

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Abstract - Ilorin is one of the major cities in Nigeria today and its growing capacity in both socio-economic affiliations is commendable. However, the city is potently polluted with heaps of refuse that are occasionally caused traffic hold-up in places in the urban centre. A lot of health incidence resulting from water, air and pest borne diseases are not uncommon within areas where prevalence of effluents prevailed. Current problems of poor waste management upon the government efforts is as a result of the potential impacts of climate change on the natural world, and with wide effects resulting from these changes has its implications in Ilorin city. This work examines the management of waste in city of Ilorin which has been the sole responsibility of the Kwara State Environmental Protection Agency (KWEPA) and other health management sectors. Worldly wise, there are evidences that climate change and its due, at least in part to human activities, gives rise to emissions of Green house gases (GHG,s) which invariably is disturbing the world (Wilby,2003). Over the last 100 years, the average temperature of the air near the Earth's surface has risen a little less than 1° Celsius ($0.74 \pm 0.18^{\circ}\text{C}$, or $1.3 \pm 0.32^{\circ}$ Fahrenheit).

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Keywords : *Climate Change, Potential impacts, Green house gases, Effluents, Waste management.*

1. INTRODUCTION

Climate change results from the increase in the average temperature on Earth. As the earth is getting hotter, disasters like hurricanes, droughts, floods, land degradation, accumulation of wastes and wastes decomposition are getting more frequent. Human activities have led to large increases in heat-trapping gases over the past century. The climate change in the past 50 years or more is due primarily to human-induced increase. Global average temperature and sea level have increased, and precipitation patterns have changed. All these not alone, human "fingerprints" also have been identified in many other aspects of the

climate system, including changes in ocean heat content, precipitation, atmospheric moisture, plant and animal health and location, and de-forestation syndrome have contributed to the phenomenon of our time.

In the U.S., the amount of rain falling in the heaviest downpours has increased approximately 20 percent on average in the past century. Many types of extreme weather events, such as heat waves and regional droughts, have become more frequent and intense during the past 40 to 50 years. The destructive energy of Atlantic hurricanes has increased. In the eastern Pacific, the strongest hurricanes have become stronger since the 1980s, even while the total number of storms has decreased. Sea level has risen along most of the U.S. coast over the last 50 years, and will rise more in the future. Arctic sea ice is declining rapidly and this is very likely to continue (Lynne Cherry and Gary Braasch, 2008). This work focuses on a study of Environmental Impacts of Climate Change on Waste Control Procedures in Ilorin city of Nigeria. The aim of this study is centered on how to improve on climate impacts to reduce perils of waste accumulation in the area of study. The attending objectives used are: Assessment of changes in temperature and other weather parameters, which in turn activate waste generation in the study area. Examination of disposal methods, if in conformity with modern method of waste control and management or not, and, what are the assessment impacts resulting from climate change on waste product on livability of people of Ilorin.

Climate change discourse has been a serious international environmental concern and the subject of much research. Moreover, in international scientific circles, a consensus is growing that the buildup of CO₂ and other Green House Gases (GHGs) in the atmosphere will lead to major environmental changes such as (1) rising sea levels that may flood coastal and river delta communities; (2) shrinking mountain glaciers and reduced snow cover that may diminish fresh water resources; (3) the spread of infectious diseases and increased heat-related mortality; (4) possible loss in biological diversity and other impacts on ecosystems; (5) agricultural shifts such as impacts on crop yields and productivity; and (6) increase in waste generation impediment (McCarthy, 2001).

Climate change could result in changes in temperatures, cloud cover, rainfall patterns, wind speeds, and storms: all factors that could impact future

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waste management facilities' development and operation. The time scales for climate change and waste management are similar. For instance, landfill sites can be operational for decades and still remain active for decades following their closure (Houghton, 2001). There is, therefore, a need to consider potential changes in waste management over significant timescales and respond appropriately.

In most developed and developing countries with increasing population, prosperity and urbanization, it remains a major challenge for municipalities to collect, recycle, treat and dispose of increasing quantities of solid waste, especially in a changing climate. A cornerstone of sustainable development is the establishment of affordable, effective and truly sustainable waste management practices in developing countries. It must be further emphasized that multiple public health, safety and environmental co-benefits accrue from effective waste management practices which concurrently reduce GHG emissions and improve the quality of life, promote public health, prevent water and soil contamination, conserve natural resources and provide renewable energy benefits. The major problems facing Ilorin city today are incessant migration of people from rural areas and from other urban centers, most especially from Northern parts of the country where many people fled from religious or political persecutions. This new settlers added to the urbanization problems already prevailed in the city. This also added to some challenges facing by urban planners and developers on ways to ensure that the city adopt cleanliness pattern in conformity with modern cities of the world (Adedibu, 1983; Ahmed, 2008).

Ilorin metropolis lacks proper land use zoning arrangement, and has no precinct layouts of both new and old area demarcation. The city has little proper provisions for open spaces, greenbelts and recreational activities. The results of these have led to pollution of all types which are collectively referred as "brown agenda". This set of problems disproportionately has impacts on human, urban health and productivity (Bartone et al, 1994). For any city to be well developed, it must be properly planned because planning tends to concentrate on physical environment through; orderliness of layouts, provision of needed and necessary infrastructure and facilities, efficiency as well as ultimate aesthetic quality for the area. In other words, the planning process, from drawing board to implementation is nothing but environmental control as a means of ensuring functional and harmonious relationship between components of the urban areas and the ability to guarantee good health for urban residents through a sanitary control and management (Anozie, 1994).

In Ilorin, the capital of Kwara state, the problem of wastes is turning into alarming rate because the more these wastes are evacuated the more they are

generated on a daily or weekly basis(see table 1). Huge of refuse are found dumped on unauthorized places, gutters and roads are filled up with sand and sediments which at times obstructed both free movement of pedestrians and vehicles alike. Thus, the issue of solid waste situation in Ilorin areas, to say the least, is quite distressing (Oyegun, 1987; Ahmed, 2000).

In Africa and Nigeria in general, cities and urban areas are the engines of economic growth and development, but implications of such growth need a thorough environmental management and adequate control. All over the world, urban centers/cities need environment that is free of health hazard, an environment where water, land, river and forest, public health, sewage and garbage disposal in factories among others, are of great important to all and sundry. Where these measures are not properly maintained, the consequences are numerous and hazardous. The gathering and disposal of solid wastes become a major public health issue of our time and this needs some urgent attention if our environment is to be protected. Therefore, this work sets up to achieve the following objectives: Examination of disposal methods that conform to the modern time techniques in removing effluent, bad odour, vermin, dust and other urban waste products in Ilorin township resulting from climate change in the recent time. Also assessment of changes in temperature and other weather parameters, which in turn could affect waste management and control processes among others in the study area.

II. EVIDENCES OF CLIMATE CHANGE IN DEVELOPED AND DEVELOPING COUNTRY

The global temperature has risen by about 0.60c. over the last 100 years and 1998 was discovered to be the single warmest year in the last 142 global instrumental record (Jonathan and Kerey(2003). There is also evidence in Nigeria today that climate change is already happening and it is due, to human activities that give rise to emissions of greenhouse gases (GHG) get proper checks. Climate models suggest that in the future in this country we are likely to experience higher temperatures, changes in seasonal precipitation and a shift to more extreme rainfall events, rising sea levels and more frequent storms. These changes could have significant impacts on a range of socio-economic and environmental processes that are affected by the weather (NIMET, 2009)

The timescale for climate change and some of the consequences on how we manage our waste in urban centers are similar. For example; landfill sites can be operational for decades and still be active for decades following their closure. Residual wastes will remain in the landfill site for many years after degradation processes have ceased, while capital

assets like energy from waste plants and materials will remain to be operational for decades and so could be affected by climate change. Climate change is happening now and so could already be affecting waste management processes and operations that are subject to weather related impacts. There is therefore a need to consider potential changes over significant timescale and respond appropriately. Different other types of waste are daily piled up in streets of Ilorin, though a contracted company-, 'Clean and Jerk' (Ola Kleen) is responsible for streets cleaning, but our disposal sites are affected by some undisputable items which need some additional and modern means of waste disposal if we must abate the peril of impacts ahead of time in the state in general. This study therefore, call for establishing a lasting solution to the socio-economic menace attached to the impacts that change climate exerts on; individual, agricultural products and on human health conditions in the study area. It suggests that some improvements on the methods of waste collection, transportation and disposal need additional and overhauling operations.

Accordingly, the United Nations Programmes on 'Global Environmental Outlook 2000' has warned that an impending worldwide environmental damage is imminent as a result of irreversible harm done to ecosystems (Owolabi, 2000). The Earth Summit in Rio in 1992 has also clearly alerts the world on the evils of environment mistreatment (FEPA, 1993). Though many nations are giving priorities to other environmental issues, while many nations are facing other worldly hazards. For example, the United States of America had the highest awareness on environmental issues followed by the European countries. While some Asian, Mid-East and African nations are facing political upheaval and instability.

III. CLIMATE IMPACTS

The world view of global warming project is documenting this change through science photography from the Arctic to Antarctica, from glaciers to the oceans, across all climate zones. Rapid climate change and its effects is fast becoming one of the prime events of the 21st century. It is real and it is accelerating across the globe. As the effects of this change combine with overpopulation and weather crises, climate disruptions will affect more people than does war (Oyedele, 2009).

The status of waste management sector in Nigeria indicates that the availability and quality of annual data are major problems for the waste sector. Solid waste data is lacking for many countries, data quality is variable, definitions are not uniform and inter-annual variability is often not well quantified. However, there are three major approaches that have been used to estimate global waste generation and this is adopted for this work:

- i. data from national waste statistics or surveys including IPCC methodologies (IPCC, 2006);
- ii. estimates based on population (NBSC, 2006)
- iii. the use of a proxy variable linked to demographic or economic indicators for which national data are annually collected (US EPA, 2008). Global solid waste generation rates range from <0.1 t/cap/yr (tons per capita per year) in low income countries to >0.8 t/cap/yr (table 1). Overall, the waste sector contributes <5% of global GHG emissions (US EPA, 2003).

In Nigeria, accurate data on the quantities of municipal solid waste generated in Nigeria are not easy to come by. Nevertheless, Rushbrook and Pugh (1999) outlined the range of per capita waste generation as well as waste densities (on net weight basis) from low and middle income neighborhood of Nigerian cities (see table 1).

Table 1 : Range of Management Solid Waste (MSW) per capita Generation and Density in Nigeria.

| Waste Generation Capacity(WGC) | Middle Income Earner | Low Income Earner |
|---|----------------------|-------------------|
| Waste generation (Kg/cap/day) | 0.5- 0.9 | 0.4- 0.6 |
| Waste densities (net weight basis-Kg/m ³) | 170-330 | 250-500 |

Source : Rushbrook and Pugh (1999) and as modified by the Author (2011).

IV. WASTE MANAGEMENT ACTIVITIES IN NIGERIA

In Nigeria, recycling activities are not popular and non-existent. However, the recovery of materials from wastes (scavenging) is practiced on a large scale. This type of recovery takes place at both legal and illegal dump sites where scavengers search continually for valuable metals, plastics, and bottles to be reused or for sale to buyers of different type of scraps. In general, treatment of solid wastes is not often carried out in Nigeria. Incineration of wastes or use of approved

sanitary landfill is non-existent. The most common practice is open dumping and burning of waste within residential areas and at illegal and legal dumps. Other strategies employed in disposing waste in the country include:

a) Composting :

Composting is a biological process that uses micro-organisms to degrade organic matter using atmospheric oxygen. The stabilized end product occupies a reduced volume compared with the starting materials. The principal emissions are CO₂ and water

vapor, bio-aerosols and odor. It is estimated that nearly a quarter of all household waste is organic and can be composted. In Nigeria, composting is undertaken in the open. The end product is used in farms.

b) Collection and Transfer :

Waste transfer points are used by waste management companies as a means of increasing the efficiency of their waste collection service through the bulking up of waste into larger consignments prior to transfer to dump and disposal sites. At the transfer points, waste is loaded directly into large bulk container vehicles and transferred by road to the dump site. The environmental impacts commonly cited are: odor, dust, bio-aerosols, attraction of bird, noise and surface water pollution and surface water runoff management. Waste transfer stations are often located along the streets, while the dump sites are usually away from the city centers.

c) Combustion :

Combustion of MSW results in emissions of CO₂ (because nearly all of the carbon in MSW is converted to CO₂ under optimal conditions) and N₂O. CO₂ from burning biomass sources (such as paper products and yard trimmings) is not courted as a GHG because it is biogenic.

V. WASTE MANAGEMENT POLICIES AND REGULATIONS IN NIGERIA

The discovery of a major toxic waste dumped by a foreign company at Koko Town near Warri in Delta State, Nigeria in 1987 led to the establishment of Federal Environmental Protection Agency (FEPA) by Decree No. 58 of 1988. In June, 1999, the Federal Government of Nigeria created the Ministry of

Environment and as a result, FEPA's function was absorbed by the new ministry.

The Federal Ministry of Environment has the following instruments of intervention in place to tackle the problem of environmental degradation including waste management:

- The revised policy on environment, 1999.
- The National Agenda 21 (published in 1999), which touches on the various cross-sectoral areas of environmental concern and map out strategies on how to address them.

These instruments complement what existed in the form of guidelines and standards for environmental pollution control in Nigeria and other regulations that deal with effluents, industrial pollution, waste management and environmental impact assessments (FME, 2003).Among FEPA's instructions in combating environmental degradation are the waste management Regulation S.1.9 of 1991 and Environmental Impact Assessment (EIA) Decree No. 86 of 1992. FEPA policies regulate the collection, treatment and disposal of solid and hazardous waste for municipal and industrial sources and makes EIA mandatory for any major development project likely to have adverse impact on the environment (see table 2).There is also in existence an environmental sanitation edict of 1997 that declared the last Saturday of every month to be used for cleaning the environment for three (3) hours (7am – 10am). This edict is still in force and still being observed all over Nigeria. Every last Saturday of the month, between the hours of 7am and 10am, people are required by law to clean their surroundings and offenders are apprehended and punished as stipulated by the act. The post-1988 environmental laws and regulations continue to prevail without any change.

Table 2 : Impacts of Waste Management on the Environment.

| Climate Variable | Potential Climate Change | Examples of Impacts on Waste Management on the environment |
|------------------|--|--|
| Temperature | Annual warming of between 1 ^o and 5 ^o by the 2080s | Increased water for both workers and site operations. |
| | More hot days increases especially in dry seasons | Decline in air quality and subsequent negative impacts of heat on vulnerable groups. |
| | Number of cold days decreases, especially in rainy seasons | Impacts on biological processes e.g. composting anaerobic digestion etc. |
| | More frequent stagnant summer anticyclones. | Increased risk of changes in distribution of vermin and pests. |
| Precipitation | Generally wetter days for Nigeria, mostly in the Southern part. | Increased risk of flooding from groundwater, Surface water, tidal and sea surfaces.. |



| | | |
|--------------------|--|---|
| | Precipitation intensity increases in rainy seasons | Disruption to infrastructure e.g. road and Rail Increased precipitation intensity could affect slope stability on waste management sites (Jones,1993) Impacts on biological processes e.g. composting, anaerobic digestion etc. |
| Cloud Cover | Reduction in cloud cover | Risk to workers of skin condition associated with increased exposure to sunshine during outdoor workings. |
| Humidity | Specific humidity increases especially during rainy seasons | Impacts on outdoors biological processes. |
| Sea level | Mean sea level may be up to 86cm Above its current level due to thermal Expansion and natural land movements by the 2080s. | Inundation of waste management facilities. Increased erosion of coastal areas. |

Source: Adopted from Enete I. C.(1996) and modified by the Author (2011).

VI. METHODOLOGY

This work employs in addition to secondary data, a survey aimed at generating primary data on the potential impacts of climate change on waste management standard in Ilorin. The work embarks on the random distribution of questionnaire to 200 households in ten selected wards from Ilorin. This allows for generation of needed and necessary information on; respondents perception about the causes of climate change, the estimated volume of water in which households use during dry season periods, quantity of fuel used when there is no supply of electricity from the Power Holding Company of Nigeria (PHCN) and impacts of combustion carbonized items and other domestic wastes generated by households from homes, selling points (stalls) and farmlands (see tables 3, 4, 5 and 6). In all, three hundred structured questionnaires were used to assess the households' response to impact of climate change as affecting domestic waste in their areas and their coping mechanism. In addition to this, on the spot assessment and oral discussions were carried out among the agencies that control and manage waste in the selected study area. The agencies include; the Kwara State Environmental Protection Agency (KWEPA), the Kwara State Ministry of Health and the Kwara State Waste Management Company (KWMC).The reason for this is to assess their contributions and attendance challenges on climate change as affecting waste management activities in the state.



Table 3 : Households Response to Method of Domestic Waste Control/Disposal in Ilorin Metropolis.

| Location By Wards | Dump on Available Space | Drum/Dustbin | Bury in Ground | Burn in Incinerator | Others | Total & % |
|-------------------|-------------------------|--------------|----------------|---------------------|--------------|-----------------|
| Adewole | 3 (15.0) | 9(45.0) | 2 (10.0) | 3 (15.0) | 3(15.0) | 20(100) |
| Balogun Alanamu | 10(50.0) | 4(20.0) | 2(10.0) | 2(10.0) | 2(10.0) | 20(100) |
| Balogun Gambari | 9(45.0) | 7(35.0) | 3 (15.0) | 1(5.0) | 0(0.0) | 20(100) |
| Balogun Ajikobi | 5(25.0) | 5(25.0) | 2(10.0) | 3(15.0) | 5(25.0) | 20(100) |
| Balogun Fulani | 4(20.0) | 6(30.0) | 3(15.0) | 3(15.0) | 4(20.0) | 20(100) |
| Baboko | 7(35.0) | 4(20.0) | 4(20.0) | 4(20.0) | 1(5.0) | 20(100) |
| Magaji Aare | 2(10.0) | 9(45.0) | 4(20.0) | 2(10.0) | 3(15.0) | 20(100) |
| Magaji Badari | 6(30.0) | 7(35.0) | 4(20.0) | 2(10.0) | 1(5.0) | 20(100) |
| Magaji Ibagun | 4(20.0) | 5(25.0) | 5(25.0) | 2(10.0) | 4(20.0) | 20(100) |
| Magaji Ngari | 6(30.0) | 2(10.0) | 6(30.0) | 3(15.0) | 3(15.0) | 20(100) |
| Total | **280 | **570 | **175 | **125 | **130 | 200(100) |

Source : Author's Computation.

1. Figures in parentheses are row percentages. 2. ** are total row percentages.

Table 4 : Estimated Figures of Waste Generated in Ilorin Metropolis by Wards (2006)

| | Location/Area | Garbage | | Ashes | | Paper | | Rags | | Polythene/Rubber bag | | Unclassified Items | | Total | |
|-----|--------------------|--------------|-------------|--------------|-------------|--------------|-------------|-------------|-------------|----------------------|-------------|--------------------|-------------|--------------|--------------|
| | | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % |
| 1. | Maraba | 0.782 | 0.10 | 0.512 | 0.06 | 2.63 | 0.32 | 0.24 | 0.03 | 2.61 | 0.32 | 1.43 | 0.17 | 8.204 | 9.84 |
| 2. | Adewole | 0.736 | 0.30 | 0.004 | 0.00 | 0.154 | 0.06 | 0.004 | 0.00 | 0.73 | 0.29 | 0.883 | 0.35 | 2.494 | 2.99 |
| 3. | Ita-Amodu | 0.920 | 0.23 | 0.663 | 0.18 | 0.222 | 0.06 | 0.831 | 0.21 | 0.600 | 0.15 | 0.731 | 0.18 | 2.967 | 3.56 |
| 4. | Oloje | 0.600 | 0.12 | 2.72 | 0.56 | 0.009 | 0.00 | 0.281 | 0.006 | 0.413 | 0.09 | 0.814 | 0.17 | 4.547 | 5.45 |
| 5. | Oja-Oba | 0.243 | 0.07 | 2.23 | 0.61 | 0.131 | 0.04 | 0.113 | 0.03 | 0.225 | 0.06 | 0.732 | 0.20 | 3.672 | 4.41 |
| 6. | Idi-Ape | 0.51 | 0.06 | 0.79 | 0.14 | 0.99 | 0.18 | 0.361 | 0.07 | 1.73 | 0.31 | 1.14 | 0.21 | 5.543 | 6.65 |
| 7. | Oju-Ekun | 0.633 | 0.12 | 0.77 | 0.14 | 0.71 | 0.01 | 0.93 | 0.17 | 1.55 | 0.28 | 1.53 | 0.28 | 5.484 | 6.58 |
| 8. | Alore | 0.534 | 0.11 | 0.66 | 0.14 | 0.21 | 0.04 | 0.88 | 0.18 | 1.46 | 0.30 | 1.09 | 0.23 | 4.834 | 5.79 |
| 9. | Tipper Garage/Tank | 1.222 | 0.24 | 0.72 | 0.14 | 0.232 | 0.05 | 0.73 | 0.14 | 1.02 | 0.02 | 1.17 | 0.23 | 5.094 | 6.11 |
| 10. | Ajikobi | 0.259 | 0.08 | 0.34 | 0.10 | 0.02 | 0.01 | 0.55 | 0.17 | 0.93 | 0.12 | 0.98 | 0.30 | 3.309 | 3.97 |
| 11. | Alanamu | 0.851 | 0.16 | 1.72 | 0.33 | 0.77 | 0.15 | 0.30 | 0.06 | 0.85 | 0.16 | 0.76 | 0.14 | 5.251 | 6.29 |
| 12. | Baboko | 0.943 | 0.21 | 0.90 | 0.20 | 0.63 | 0.14 | 0.27 | 0.20 | 0.97 | 0.21 | 0.84 | 0.18 | 4.553 | 5.46 |
| 13. | Oke Aluko | 0.77 | 0.19 | 0.39 | 0.10 | 0.79 | 0.20 | 0.31 | 0.08 | 1.20 | 0.29 | 0.62 | 0.15 | 4.08 | 4.89 |
| 14. | Surulere | 0.931 | 0.15 | 0.66 | 0.11 | 0.89 | 0.14 | 0.65 | 0.10 | 1.41 | 0.23 | 1.70 | 0.27 | 6.241 | 7.49 |
| 15. | Ita-Ajia | 0.98 | 0.23 | 0.05 | 0.01 | 0.71 | 0.17 | 0.07 | 0.02 | 1.55 | 0.36 | 0.89 | 0.21 | 4.25 | 5.09 |
| 16. | Zango/Kulende | 1.66 | 0.45 | 0.14 | 0.04 | 0.11 | 0.03 | 0.06 | 0.02 | 0.65 | 0.17 | 1.10 | 0.3 | 3.72 | 4.46 |
| 17. | Balagun Fulani | 0.881 | 0.25 | 0.61 | 0.17 | 0.14 | 0.04 | 0.09 | 0.03 | 0.85 | 0.24 | 0.93 | 0.27 | 3.501 | 4.19 |
| 18. | Taiwo-Isale | 0.94 | 0.03 | 0.04 | 0.01 | 0.92 | 0.30 | 0.43 | 0.14 | 0.99 | 0.32 | 0.58 | 0.19 | 3.054 | 3.66 |
| 19. | Taiwo-Oke | 0.12 | 0.01 | 0.001 | 0.00 | 0.65 | 0.45 | 0.01 | 0.01 | 0.63 | 0.43 | 0.15 | 0.10 | 1.453 | 1.74 |
| 20. | Sabon-Ngari | 0.052 | 0.05 | 0.003 | 0.00 | 0.51 | 0.46 | 0.11 | 0.10 | 0.14 | 0.13 | 0.33 | 0.30 | 1.105 | 1.33 |
| | Total | 14.57 | 3.16 | 13.92 | 3.04 | 11.43 | 2.85 | 6.34 | 1.77 | 20.51 | 4.48 | 18.4 | 4.43 | 83.36 | 99.95 |

Source : Author's fieldwork.

Table 5 : Estimated Figures of Waste Generated in Ilorin Metropolis by Wards (2010).

| | Location/Area | Garbage | | Ashes | | Paper | | Rags / Polythene&Rubber bag | | | | Unclassified Items | | Total | |
|-----|---------------------|--------------|-------|--------------|-------|--------------|-------|-----------------------------|-------|--------------|-------|--------------------|------|---------------|--------------|
| | | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % | Kg | % |
| 1. | Maraba | 1.8768 | 4.46 | 1.2288 | 3.68 | 6.312 | 22.85 | 0.576 | 3.32 | 6.264 | 12.73 | 3.432 | 7.52 | 19.6896 | 9.84 |
| 2. | Adewole | 1.7664 | 4.19 | 0.096 | 0.29 | 0.369 | 1.34 | 0.009 | 0.05 | 1.752 | 3.56 | 2.119 | 4.65 | 5.9856 | 2.99 |
| 3. | Ita-Amodu | 2.208 | 5.25 | 1.5912 | 4.75 | 0.533 | 1.93 | 1.994 | 11.51 | 1.44 | 2.93 | 1.754 | 3.85 | 7.1208 | 3.56 |
| 4. | Oloje | 1.44 | 3.42 | 6.528 | 19.49 | 0.0216 | 0.08 | 0.674 | 3.89 | 0.991 | 2.01 | 1.954 | 4.28 | 10.9128 | 5.46 |
| 5. | Oja-Oba | 5.5832 | 13.27 | 5.352 | 15.98 | 0.314 | 1.14 | 0.271 | 1.56 | 0.54 | 1.09 | 1.757 | 3.85 | 8.8128 | 4.41 |
| 6. | Idi-Ape | 1.224 | 2.91 | 1.896 | 5.66 | 2.376 | 8.59 | 0.866 | 4.99 | 4.152 | 8.44 | 2.736 | 5.99 | 13.3032 | 6.65 |
| 7. | Oju-Ekun | 1.5192 | 3.61 | 1.848 | 5.52 | 0.71 | 2.57 | 2.232 | 12.88 | 3.72 | 7.56 | 3.672 | 8.05 | 13.1616 | 6.58 |
| 8. | Alore | 1.2816 | 3.05 | 1.584 | 4.73 | 1.704 | 6.17 | 2.112 | 12.19 | 3.504 | 7.12 | 2.616 | 5.73 | 11.6016 | 5.79 |
| 9. | Tipper Garage/Tanke | 2.7332 | 6.49 | 1.728 | 5.16 | 0.557 | 2.02 | 1.752 | 10.11 | 2.448 | 4.98 | 2.808 | 6.16 | 12.2256 | 6.11 |
| 10. | Ajikobi | 0.6216 | 1.48 | 0.816 | 2.44 | 0.048 | 0.17 | 1.32 | 7.62 | 2.232 | 4.54 | 2.352 | 5.16 | 7.9416 | 3.97 |
| 11. | Alanamu | 2.0424 | 4.85 | 4.128 | 12.32 | 1.848 | 6.69 | 0.72 | 4.15 | 2.04 | 4.15 | 1.824 | 4.00 | 12.6024 | 6.29 |
| 12. | Baboko | 2.2632 | 5.38 | 2.16 | 6.45 | 1.512 | 5.47 | 0.648 | 3.74 | 2.328 | 4.74 | 2.016 | 4.42 | 10.9272 | 5.46 |
| 13. | Oke Aluko | 1.848 | 4.39 | 0.936 | 2.79 | 1.896 | 6.86 | 0.744 | 4.29 | 2.88 | 8.85 | 1.488 | 3.26 | 9.792 | 4.89 |
| 14. | Surulere | 2.2344 | 5.31 | 1.584 | 4.73 | 2.136 | 7.73 | 1.56 | 9.00 | 3.384 | 6.88 | 4.08 | 8.94 | 14.9784 | 7.49 |
| 15. | Ita-Ajia | 2.352 | 5.59 | 0.12 | 0.36 | 1.704 | 6.17 | 0.168 | 0.97 | 3.72 | 7.56 | 2.136 | 4.68 | 10.20 | 5.10 |
| 16. | Zango/Kulende | 3.984 | 9.47 | 0.336 | 1.00 | 0.264 | 0.96 | 0.144 | 0.83 | 1.56 | 3.17 | 2.64 | 5.79 | 8.928 | 4.46 |
| 17. | Balagun Fulani | 2.1144 | 5.03 | 1.464 | 4.37 | 0.336 | 1.22 | 0.216 | 1.25 | 2.04 | 4.15 | 2.232 | 4.89 | 8.4024 | 4.20 |
| 18. | Taiwo-Isale | 4.564 | 10.85 | 0.096 | 0.29 | 2.208 | 7.99 | 1.032 | 5.95 | 2.376 | 4.83 | 2.32 | 5.09 | 7.3296 | 3.66 |
| 19. | Taiwo-Oke | 0.288 | 0.68 | 0.0024 | 0.01 | 1.56 | 5.65 | 0.024 | 0.14 | 1.512 | 3.07 | 0.36 | 0.79 | 3.4872 | 1.74 |
| 20. | Sabo-Ngari | 0.1248 | 0.29 | 0.007 | 0.02 | 1.224 | 4.48 | 0.264 | 1.52 | 0.336 | 0.68 | 1.32 | 2.89 | 2.652 | 1.33 |
| | Total | 42.07 | | 33.50 | | 27.63 | | 17.33 | | 49.21 | | 45.62 | | 200.05 | 99.98 |

Source : Author's Computation.

VII. FINDINGS AND DISCUSSIONS

It was found out that from this study that most households need some orientation as regards how, when and where to dump waste they generated daily in their community and homes. Because most households in both Ilorin dump refuse at all available area in their homes or send their wards to dump refuse in the rivers closed to their residential areas. Even where bins are available for waste disposal from homes and community, after bins are filled up, many people still dump waste products in the bare floor. In Ilorin, it was discovered that 56 (28%) households dumped refuse generated in their homes on any available spaces, while 58 (29%) households dropped waste generated from their homes in drums/dustbins in selected wards in Ilorin. Similarly, only 23(11.5%) households drop their waste in barrel or dustbins. However, most households at selected wards in Ilorin claimed that Government did not provide them with any waste-bins but they make provisions for this on their own.

In general, when households from the study area were asked if they filled any changes in the weather within their locations, more than half of the total households retorted sharply that, they experienced such sudden changes in climate conditions, such as, hotness throughout the day even in the wet seasons. The likely

solutions as they suggested, is that, they want Government to ease the problems of incessant power output so that every home could afford either air conditioners or fans to wade-off heat. Also, Government to take more responsibility on issue of waste management in all cities and towns in the states in order to avoid epidemic diseases.

VIII. SUGGESTIONS AND RECOMMENDATIONS

Nigeria with a population of about 130million people and a few urban areas where the population is concentrated provides fertile grounds for LFGE / MSWE projects. The waste disposal sites in these concentrated urban areas provide a vast supply of renewable energy sources. Methane gas which is created naturally through anaerobic waste decomposition is a readily available renewable energy source that can be collected and used directly as medium or high Btu gas for industrial use or to fuel turbine driven generators of electricity. The inability of the existing power infrastructure to consistently meet the power demand needs in the urban and rural areas provides an opportunity for the public and private sector to explore alternative energy sources using existing sustainable resources. The existing alternative energy solutions (residential and industrial

generators) are prohibitively expensive to acquire and maintain and are not environmentally sound.

In order to ensure success and sustainability of LFGE / MSWE projects in the study area and Nigeria in general, Greenovative Chain recommends the following keys:

1. Recognizing generated waste as a reusable resource for generating electricity supply rather than an unfortunate urban and rural menace. Through energy recovery processes, collected and disposed waste serves as a reusable resource for generating electricity supply.
2. Designing robust and sustainable municipal waste management plans that are based on strategic goals.
3. Identifying and recommending appropriate disposal infrastructures that reduce environmental pollution caused by combustion of waste in regulated and non-regulated waste disposal sites.
4. Identifying sustainable energy solutions using Landfill Gas to Energy (LFGE) / Municipal Solid Waste to Energy (MSWE) technologies to address the endemic power supply shortage in Nigeria while mitigating greenhouse gas emissions.
5. Providing lower cost alternative LFGE / MSWE energy solutions as compared to the current prohibitive acquisition costs for private fossil fueled electricity generating sets.
6. Financing LFGE / MSWE projects through the Clean Development Mechanism (CDM). Benefits of LFGE / MSWE

There are several environmental and social benefits from implementing LFGE / MSWE solutions. A few are listed below:

1. Improved Security: With improved power supply, it can be expected that night crimes will be reduced.
2. Increased Productivity: Countless hours are lost each day due to a) power outages and b) health related issues caused by hazardous air pollutants.
3. Increased Profitability for Businesses: Lower energy costs compared with the current alternate solution of private generating sets. This will lead to lower costs of doing business and subsequently increases in returns to shareholders.
4. Increased Ownership and Accountability: If consumers and businesses understand the correlation between appropriate waste disposal and power supply, it is anticipated that consumers will be motivated to ensure appropriate disposal of waste takes place within their communities.
5. Sustainable Electricity: Landfill Gas and Municipal Solid Waste is available for combustion to electricity 24hours in 7days..
6. Improved Air Quality in the urban areas: Methane is 21% more potent than CO₂. Therefore, channeling methane from landfills to generate electricity

reduces environmental pollution and health hazards caused by natural combustion of waste. Generation of electricity from LFG / MSW will also reduce the usage of private generating sets thereby reducing the air pollution caused by emissions from fossil fuel generators which are the prevalent alternative energy source today in Nigeria.

7. Noise Reduction: Reducing the noise pollution caused by fossil fuel generators which are the current prevalent source of electricity.
8. Optimal Land Use: Reclaiming land from landfill and waste disposal occupation – both regulated and non-regulated sites. High generation levels of methane in landfills (50 – 60%) and leach generation makes dumpsites unsafe areas to develop on every street corner.
9. Sustainable Feedstock: Providing sustainable and affordable to electricity to our communities. The feedstock (waste) will always be generated in every household and commercial enterprise as a by-product of daily living.
10. Job creation: Creating public and private sector jobs in the area of waste collection and disposal, facilities operations and maintenance, recycling etc.
11. The Federal Government of Nigeria should incorporate Energy From Waste (EFW), biomass and biogas, as a key component of its energy production strategy. Currently, EFW is one of the key components of energy production. The focus has been more geared to conventional energy sources i.e. Fossil fuels, Hydro, Coal etc as evidenced in the Renewable Energy Action Program (REAP) document. The manifold benefits include avoiding waste to unregulated sites, reduction in environmental pollution, renewable and sustainable energy value chain solutions.
12. Eliminating regulatory barriers that could be key obstacles to potential LFG recovery projects. In Nigeria, alternative energy prices i.e. fossil fuel generating sets and the cost of maintenance are relatively high thus the LFG cost could be an attractive alternative.
13. Waste disposal acts and relevant Municipal regulations must be in place to support waste collection, recycling, transportation, disposal and operation.
14. Laws must be enforced to ensure that waste is transported to regulated waste disposal areas. This would result in a sanitary environment void of dispersed waste and a reduction in environmental pollution in the communities. No one is immune from keeping these laws.
15. Policies and regulations should be put in place to support energy production and sales from renewable resources. Examples of such policies based on best practices in the United States are the

IX. CONCLUSION

This study has begun the process of understanding what climate change could mean for waste management in urban areas of Nigeria. As it is a new area, it is recommended that more research is carried out into specific impacts. The selection of truly sustainable waste strategies is very important for both the mitigation of GHG emissions and for improved urban infrastructure. Most wastes could be turned into a new product that can benefit all a sundry, therefore some private companies and individuals could be encouraged to source for new wealth from refuse as it is being practiced in advanced world through wastes recycling efforts. Finally, the work has also demonstrated a research effort on upgrading waste management and control in Ilorin city of Nigeria. Though the bulk of this management was left to Government who also contacted the waste management to firm like-Ola-Clean Company to handle. The job being carried out by this company is commendable, but from all indications and information gathered for this investigation, only the main streets and low density area like Government Reservation Area (G.R.A) were adequately catered for. Whereby, the inner parts of the urban areas were almost untouched by this agent (Ahmed, 2008). Efficient and effective disposal of refuse and other effluent is dependent on the waste/refuse management technique adopted by the local or state government. Therefore all stakeholders- the governments, the present company that handle the sanitary development in the city, as well as private and public sectors should share the responsibility together. This no doubt will pave ways for an improved quality of environment free from deplorable sanitary condition or from any threat from change in weather or climate which is a new peril to the world.

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Urban Poverty and Residential Environment Degradation in Calabar Area of Cross River State, Nigeria

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Abstract - In recent times the problem of environmental degradation of urban areas in Nigeria has reached an unprecedented proportion. This phenomenon which is prevalent in both residential and industrial areas is caused by increased population growth, unsustainable use of resources, rapid industrialization, unemployment, income inadequacies as well as inefficient or non-existing waste management strategies. This study examines the contributions of poverty as a reflection of income inadequacies and disparity to the availability of waste disposal facilities and its role in environmental degradation in Calabar urban area. The research objectives are achieved through the identification of the disparity in household income distribution. An assessment of the quality and quantity of waste disposal facilities available to housing units is made using primary and secondary data. The findings reveal a wide pattern of disparity in household income and waste disposal facilities. It is observed that the high density residential areas of Calabar South Local Government are not well served in waste management facilities resulting in environment degradation. The medium and low density residential areas within the municipality are better served resulting in proper waste management. The opinion of residents within the urban area is that government should be solely responsible for waste management.

GJHSS-A Classification : FOR Code: 160810



Strictly as per the compliance and regulations of:



Urban Poverty and Residential Environment Degradation in Calabar Area of Cross River State, Nigeria

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Abstract - In recent times the problem of environmental degradation of urban areas in Nigeria has reached an unprecedented proportion. This phenomenon which is prevalent in both residential and industrial areas is caused by increased population growth, unsustainable use of resources, rapid industrialization, unemployment, income inadequacies as well as inefficient or non-existing waste management strategies. This study examines the contributions of poverty as a reflection of income inadequacies and disparity to the availability of waste disposal facilities and its role in environmental degradation in Calabar urban area. The research objectives are achieved through the identification of the disparity in household income distribution. An assessment of the quality and quantity of waste disposal facilities available to housing units is made using primary and secondary data. The findings reveal a wide pattern of disparity in household income and waste disposal facilities. It is observed that the high density residential areas of Calabar South Local Government are not well served in waste management facilities resulting in environment degradation. The medium and low density residential areas within the municipality are better served resulting in proper waste management. The opinion of residents within the urban area is that government should be solely responsible for waste management.

1. INTRODUCTION

Urban areas are characterized by indices of modernization which trigger development and inadvertently propel the functionality of the urban hub or economy as nerve centers for enhanced investment, production, and distribution. This further drives the urban center to hold a stock of manpower supply for capacity development (Bedung et al 2003). All too frequently, urban areas in the Third World strive to meet the demands of modernization in the face of deprivation of basic infrastructural facilities that result in poverty. Poverty has been described as a multi-dimensional situation and process of serious deprivation or lack of resources and materials necessary for living within minimum standards conducive to human dignity and well being. It is a situation whereby the basic necessities of man are either absent or exist in negligible quantities or state. Thus, a country may be classified as being poor, when such basic amenities as good road,

shelter, portable water, medical services, job opportunities and conducive living environment are lacking or inadequate (World Bank 2000, 2001, 2006, NEEDS 2000, and Shamaki 2006).

Various factors account for urban poverty and these include amongst others low income, low educational attainment, lack of skilled manpower development, rapid population increase, (World Bank 2000, Sule 2001). The contributions of urban poverty as a factor in residential environment degradation cannot be over-emphasized given the significance of a healthy environment to the sustainable development of a people. The quality of residential environment is pointed out to be as if not more important than the quality of the environment in which people exist. This is highlighted in contemporary times by high level of unemployment, emergence of shanty towns, problems of waste disposal and population pressure on existing anachronistic facilities. Bradford and Kent (1993) related housing quality and environmental degradation to income and regional economic trends, while Short (1984) assessed out that in comparison to the cities of the developed countries, housing in the developing (and inevitably under-developed) countries is relatively of much poorer quality with the poorest-quality housing facilities found on both sides of the equator covering such countries of Latin and Central America, Africa and Asia.

In Nigeria, the distribution of poverty along the six geo-political zones indicates 72.2% for the North East; 71.2% for the North West, 67.0% in the North - Central, 43.0% in the South -West, 36.1% for the South-South and 26.75 for the South- East (Central Bank of Nigeria Report 2005). Within the South South, Calabar urban area of Cross River State apart from its industrial area is the product of old and newly built-up residential areas. The old houses are mainly dilapidated and located in the traditional area nearer to the king's historical palace and the old sea ports. Other areas with old houses include areas inhabited by the Quas and Efuts ethnic groups. Mbukpa, Edibe-Edibe, Afukang and Anantigha in Calabar South Local Government Area stand out as major areas of residential environment decay. Yet, why do people choose to live here?

The built residential areas in Calabar include the Federal and State Housing estates, and both the University of Calabar and Cross River University of

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Technology (CRUTECH) Staff housing estates. Other areas include the New Parliamentary extension, Ekorimim, Eight Miles, the Military Barracks and other estates show distinctively that there is noticeable inequality in the spatial distribution of population and housing units with various levels of qualities. This is probably dictated and characterized by different levels of income, social status, and housing qualities. What factors opportune the residents to live here? This research aims at gaining an insight into the contributions of poverty as a reflection of differences and inadequacies in household income to choice of residential location, availability of housing facilities relevant for waste management in the residential environment of Calabar, Cross River State of Nigeria. The findings of this research is of significant importance to government and non government efforts at poverty eradication, urban renewal and sustainable development

II. SHOULD POVERTY DETERMINE HOUSING ENVIRONMENT DEGRADATION?

In recent times the rapid increase in urbanization has reached an unprecedented level as distribution of income regionally and of household quality, have continued to increase, thus becoming a major source of concern to different tiers of government and non government organization (NGOs). The complicity brought about by the rapid rate of rural – urban migration and industrialization in developed and developing countries alike have resulted in the emergence of urban problems with socio-environment and health dimension in cities. The problems of inadequate or non-existing housing amenities, air pollution, noise pollution, increasing crime rate, environment degradation through poor waste management, unemployment and income inadequacies, slums and charity towns emergence have become major nightmares to urban researchers and governments almost every where in the world.

The contributions of poverty as a reflection of income inadequacies resulting from unemployment or under-employment as well as inadequate residential housing facilities, especially for waste management, and residential environment degradation in Nigeria have in the past also attracted much attention in Nigeria. For example, most urban renewal and modification programmes have been concentrated in urban areas where residential housing quality is low for both the low and middle income grouping. These areas are populated by housing units with inadequate domestic and recreation facilities such as domestic waste-water disposal facilities. Where they exist, communal utilization and over-usage ensues. This consequently results in environmental degradation

The situation in Calabar urban area of Cross River State has slightly been less severe when compared to other states in the geo-political regions in Nigeria (Central Bank of Nigeria Report 2005). Eni (1999) and Sule (2001) however point out that there are differences in the quality of existing housing facilities as the level of environmental degradation in different areas of Calabar urban is steadily on the increase. The growing level of industrialization triggered- off by economic growth has herald the influx of new banks and insurance outfits, service providers and government agencies. The resulting consequence translates to direct needs for housing units which often are not be readily available. This will inevitably exert undue pressure on existing residential housing and waste management facilities, thus further reducing environmental quality. In view of the above there is a need to study and identify the contributions of income inadequacies to environmental degradation, availability of waste management facilities and the perception of respondents in the other study area to the existing environmental management processes.

III. POVERTY AND RESIDENTIAL HOUSING DEGRADATION NEXUS IN CALABAR

There exists diverse literature on problems and causes of housing facility inadequacy, the contribution of increasing residential population on housing residential as well as household environment degradation and waste management. (Marris (1965), Abraham (1970) Jones (1972) Akinola, (1978) Sule (1981), Sule (2001) and International Bank for Reconstruction and Development / World Bank, 1990) However, there exists scanty literature relating poverty and environment degradation in Calabar urban area particularly. Housing environment and residential housing facilities in Calabar have been examined by Sule (2001) which show that the quality of the residential environmental is considerably if not much more important than quality of the environment. Mabogunje (1970) and Onakerhoraye (1984) in the assessment of residential environments and policies identified that the dearth of adequate facilities in most urban residential areas are at variance with relevant policies. Studies by Eni (1999) in Calabar confirmed a growing trend in housing environment facilities deterioration particularly with the increasing population. In other to assess the extent to which poverty affects the residential environment, this study selects residential areas based on average household income distribution levels and assesses the available residential housing waste management facilities in each residential area, while identifying the mode of household waste disposal in the study area. Also the study considers the perception of household members in the study area concerning waste management strategies

IV. STUDY METHODS

Calabar, the capital of Cross River State is located in South Eastern Nigeria. The scope of study is Calabar South and Calabar Municipality Local Government Areas (LGAs). The districts considered include Mbukpa, Edibe-Edibe, Big Qua Town, Afukang, State Housing Estate, Federal Housing Estate, University of Calabar Staff quarters, Cross River University of Technology Staff quarters, and Ekpo- Abasi residential areas. The major socio economic activity in Cross River State is largely service provision, especially in a market economy. The recently growing industrial-manufacturing opportunities offer a suitable environment for the establishment of the Calabar Free Trade Zone (CFTZ) and the migration of people to Calabar. Civil service and private institutions provide employment for a considerable proportion of the population. Both primary and secondary data sources were collectively utilized. For the collection of primary data, the entire study area was sub-divided into sampling zones based on existing area nomenclature.

On each street, using existing nominal street numbering system, every third numbered house was selected for sampling. This is done to ensure that sampling is randomly done on both sides of the streets. Where there are more than one distinct household in a house (or compound) with the same number in an area not large enough for the number of samples required not more than two households are selected. The statistical model of analysis employed for this study is the percentages and arithmetic averages. The poverty determinant is examined using the International Bank for Reconstruction and Development income level of 257-370 US Dollars per person in a year. Only household

member of 18 years and above were considered in determining the average household income.

V. RESULTS

Table 1 shows data collected on income distribution pattern of sampled households in the study area. The residential areas considered include Mbukpa, Edibe-Edibe, Ekpo- Abasi, Afukang Orok-Orok, Etta Agbo and Parliamentary area which fell under the poverty line i.e. average household incomes divided among all household members aged 18 years and above was below \$257, which is the minimum (least) for the \$257 – 370 range recommended by the International Bank for Reconstruction and Development and World Bank (1990). The table also shows that the second group which includes University of Calabar and CRUTEC fall within the middle income group, and slightly above the poverty level. The third group include the respondents interviewed in the Federal, State Housing estates who because their incomes were very slightly higher than the second group were grouped in the high income group. The average incomes of the first group were highly reduced by the high average population of about 6 people in a household. The population of the middle income group was the lowest (about 4 persons), while the high income group had an average of about 4.5 persons.

This considerably influenced the average incomes. In the first group although about 69% of the population was below 18 years the average income was relatively impacted due to low individual incomes. Thus the three income groups were delineated and presented in a tabular form :

Table 1 : Income distribution pattern of selected household members in study area.

| N/S | Residential area | N/H | Average annual household salary | Parameters for determining poverty level | Classification (poverty level) | Classification (income group) |
|-----|----------------------|-----|---------------------------------|--|--------------------------------|-------------------------------|
| 1. | Mbukpa Area | 50 | ₦14,246 | \$257-S370/per/year (₦-37,950₦51.060) | Below | Low Income |
| 2. | Edibe- Edibe | 50 | ₦16,546 | „ | Below | Low Income |
| 3. | Ekpo Abasi | 50 | ₦22,063 | „ | Below | Low Income |
| 4. | Afokang area | 50 | ₦15,356 | „ | Below | Low Income |
| 5. | Orok- Orok | 50 | ₦17,421 | „ | Below | Low Income |
| 6. | Etta Agbor | 50 | ₦38,221 | „ | Above | Middle Income |
| 7. | Parliamentary area | 50 | ₦39,452 | „ | Above | Middle Income |
| 8. | Unical staff quarter | 50 | ₦38,741 | „ | Above | Middle Income |

| | | | | | | |
|-----|------------------------|----|----------------|---|-------|---------------|
| 9. | Crutec staff quarter | 50 | N37,112 | „ | Above | Middle Income |
| 10. | Federal Housing Estate | 50 | N49,652 | „ | Above | High Income |
| 11. | State Housing | 50 | N51,251 | „ | Above | High Income |

Given the data above, the need to understand the reason(s) for the choice of residential areas is relevant to this study. Why do some households reside in areas with adequate facilities, while others choose to reside in dilapidated areas of the city? Table 2 shows

primary data on factors responsible for choice of residential areas in Calabar Urban Area. Only 550 Household heads were interviewed and their responses are presented for assessments.

Table 2 : Factors responsible for choice of residential area.

| | Reasons for choice of residential area | No. of household heads | Percentages % |
|----|---|------------------------|---------------|
| 1. | Income/Affordability | 230 | 41.81 |
| 2. | Availability/ Facility adequacy | 94 | 17.10 |
| 3. | Relations/Association/ family compound self owned | 53 | 9.63 |
| 4. | Proximity to plasce of work | 78 | 14.18 |
| 5. | Company /government provided residence | 48 | 8.73 |
| 6. | Nearness to children’s school | 31 | 5.63 |
| 7. | No consideration | 16 | 2.92 |
| | Total | | |
| | Percentages | 550 | 100 |

The most indicated factor is “Income/ Affordability”(230 household heads or 41.81 percent). The least reason was “No Consideration” (4 households or 0.73 percent). The second highest response of 94 (17.10 percent) was for “Availability” of housing and type(s) of facilities available. The data set thus shows that income largely influences where people live in the study area. This shows that income is most likely to dictate the choice of residential area by a household, although other factors are important. Below poverty

level, affordability may become great restrain limiting household to grossly undesirable sections of the urban area, with least housing facilities. Given the relatively high population and low educational levels of this group, it could result in higher rates of housing environment degradation.

Data in table 3 provides an insight into the pattern of residential housing facility availability in sampled households. It is presented below:

Table 3 : Facilities available in sampled household.

| N/S | Name of Residential | Facilities available in household interviewed | | | | | | | |
|-----|----------------------|---|---------------------------|------|----------|---------|------|----------------------|------|
| | | Toilet | | | Bathroom | | | Waste water drainage | |
| | | Modern water system | Latrine (crude/ modified) | None | Modern | Outdoor | None | Available drainage | None |
| 1. | Mbukpa Area | 26 | 65 | 10 | 18 | 78 | 04 | 21 | 79 |
| 2. | Edibe- Edibe | 11 | 74 | 15 | 10 | 83 | 07 | 10 | 90 |
| 3. | Ekpo Abasi | 52 | 46 | 02 | 15 | 50 | 00 | 33 | 67 |
| 4. | Afokang area | 59 | 39 | 04 | 55 | 44 | 01 | 30 | 70 |
| 5. | Orok- Orok | 65 | 31 | 02 | 60 | 38 | 02 | 27 | 73 |
| 6. | Etta Agbor | 67 | 31 | 92 | 77 | 23 | 00 | 46 | 54 |
| 7. | Unical staff quarter | 98 | 00 | 03 | 96 | 04 | 00 | 91 | 09 |
| 8. | Crutec staff quarter | 97 | 00 | 04 | 92 | 08 | 00 | 88 | 12 |
| 9. | Parliamentary area | 63 | 33 | 00 | 75 | 24 | 01 | 72 | 28 |
| 10 | Federal Housing | 98 | 02 | 00 | 98 | 02 | 00 | 100 | 00 |
| 11 | State Housing | 100 | 00 | 00 | 100 | 00 | 00 | 100 | 00 |
| | Percentage | 735 | 321 | 44 | 731 | 354 | 015 | 618 | 582 |
| | Total | 66.8 | 29.2 | 04 | 32.2 | 1.40 | 1.40 | 56.2 | 43.8 |

It is noticed that, in high income areas, the number of households with modern toilets and bathrooms as well as good networks of water drainage are highest. Areas with low income do not have adequate modern facilities. The number of households with none of the specified facilities was found largely in low income areas. The non -availability or inadequacy of such household waste management facilities will inevitably result in spill-over of such wastes into the

residential environments resulting in environmental degradation.

Table 4 present primary data collected on disposal sites for evacuated household wastes. Household heads, children or other adults responsible for waste management were interviewed. Only 50 households were selected in each residential area, giving a total of 550 households.

Table 4 : Disposal for evacuated household waswaste by household members.

| S/N | Sites of Evacuated Household wastes Disposal | Responses (number) | Percentage % |
|-----|--|--------------------|--------------|
| 1 | Designated waste Disposal sites | 205 | 37.27 |
| 2 | Uncompleted building sites | 054 | 9.81 |
| 3 | Intra- Urban Roads | 004 | 0.73 |
| 4 | Intra-urban Roads (Not in Drainage system) | 072 | 13.10 |
| 5 | Drainage system along major/ minor streets (Non-Rainfall Periods) | 021 | 3.81 |
| 6 | Drainage system along major/ minor streets (During Rainfall Periods) | 158 | 28.72 |
| 7 | Open Fields/ buhes Within City | 036 | 6.55 |
| | Total | 550 | 100 |

The highest figure of 205 households or 37.27% indicated that their household wastes are usually deposited at "Designated waste disposal sites". The next highest figure of 158 households (or 28.72%) indicates "Drainage systems along major and/or minor streets, (During rainfalls)" as their site of household waste management. The least indication of 4 households or 0.73% was for Inter-urban roads deposition.

Respondents indicate that "Rainfall duration" is the most convenient time or period to evacuate household wastes, as rain- water flow inevitably washes (carries) the waste materials /substances into the gutter and surrounding water bodies such as the river and ultimately into the Ocean. The cost of waste material transportation may have reduced the choice of "Inter-urban roads" (72 households or 13%) as an option. There is a general indication based on the data collected, that these household members about, 96% of which reside in the low income (below poverty level) areas considerably contribute to the deterioration of the urban residential environment.

Table 5 shows data collected on perception of respondents on who should facilitate household waste evacuation. The options provided to respondents

include government agency, private/commercial agency and lastly household members. Notably, distinctions were made between the first two options, since a government may in practice contract a private/commercial waste management agency. In this study, however the commercial waste management agency are those contracted and paid for directly by households.

Table 5 shows that respondents from the three income groups (1063 household or 96.63%) generally indicate that the evacuation of household wastes should be done by government agencies from public tax. A total of 032 households or 2.91% of the total 1100 (100%) households sampled suggested that private/commercial wastes management agencies will perform better, or are most suitable. The least indications (5 households or 0.46%) for "Household members" by respondents, is largely from the low income group. This group observably can not afford such extra household expenditures. (See tables 4 for possible implications of household member dependent waste management (evacuation).These have implications for waste management policy formulation in the state.

Table 5 : Perception of respondents on who should facilitate household waste evacuation.

| S/N | Name of Residential area | Government Agency | Private/ Commercial | Household members |
|-----|--------------------------|-------------------|---------------------|-------------------|
| 1 | Mbukpa Area | 098 | 00 | 02 |
| 2 | Edibe- Edibe | 097 | 01 | 02 |
| 3 | Ekpo Abasi | 100 | 00 | 00 |
| 4 | Afokang | 99 | 01 | 00 |
| 5 | Orok- Orok | 100 | 00 | 00 |
| 6 | Etta Agbor | 088 | 11 | 01 |

| | | | | |
|----|----------------------|-------|------|------|
| 7 | Unical staff quarter | 094 | 05 | 00 |
| 8 | Crutec staff quarter | 098 | 02 | 00 |
| 9 | Parliamentary area | 100 | 00 | 00 |
| 10 | Federal Housing | 090 | 10 | 00 |
| 11 | State Housing | 098 | 02 | 00 |
| | Total | 1063 | 032 | 005 |
| | Percentage | 96.63 | 2.91 | 0.46 |

VI. CONCLUSION

It is observed that there is wide disparity in household incomes of respondents which could be matched aggregately with the areas in which they reside. Income largely influences the choice of residential areas, along with other relatively less considered factors. There is a high level of poverty complicated by high household population in low income areas.

The quality of housing facilities available in low income residential areas is very low and inadequate in quantity, while high income areas have comparatively high levels.

Household wastes evacuated by household members are deposited in numerous forms, including residential and non-residential areas.

The general consensus is that government agencies should be responsible for waste management. This and other observations should be reflected in policy formulation in the state, and other similar places inside and outside Nigeria

VII. RECOMMENDATIONS

Recommendations preferred to observed problems include the involvement of government and relevant private instructions in the enforcement of the following:

1. Appropriate housing policies and adequate monitoring with practical approaches for implementation.
2. Strict compliance to building regulations and waste facilities provision
3. Appropriate technology and materials suitable for the tropics which are not expensive but readily available and affordable.
4. Development of low-cost housing programs for low income earners with options for owner-occupier.
5. Provision of low-interest house purchasing and self constructed loans to low income persons.
6. The use of rent control, encourage rent debates and provision of allowances in order to improve the purchasing power of low income earners.
7. Better waste management strategies which considers incomes of the beneficiaries should be formulated and concentrated especially in low income areas.

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University Students' Perception of Acceptance & Rejection

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Abstract - The purpose of this study was to extend the existing body of knowledge on the perception of acceptance and rejection among the university students. A conceptual framework which illustrates three dimensions of acceptance and rejection including parental, siblings and peer group was developed. The present research was a descriptive study which used an indigenous research inventory to measure acceptance and rejection. The study was carried out on a sample of 100 university students and it explored the impact of demographic variables including gender, age, birth order, and family income level on determining the level of acceptance and rejection. Result of the study revealed that the phenomenon of university students' acceptance and rejection does exist among. Male students experience higher parental and siblings rejection than females. Students from higher income families experience higher rejection compared to students from low income families. The findings also indicated that different demographic variables contribute significantly in determining the perceived level of acceptance and rejection.

Keywords : *Parental, siblings and peer group acceptance and rejection, indigenous inventory, university's students.*

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University Students' Perception of Acceptance & Rejection

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I. INTRODUCTION

The phenomena of perception of the acceptance and rejection affect a person from psychologically and behaviourally and consequently it influences emotional and social health (Leafgran, 1989). University students' academic learning typically takes place in a social context. Their perception of acceptance or rejection is shaped by a combination of cognitive and social learning processes and it can influence their normal learning activities (Patrick, 1997; Welsh, Parke, Widaman, & O'Neil, 2001). In the university years, a number of important changes occur in student's social worlds. These shifts produce both new demands and new opportunities for adult social and emotional growth. Peer groups enlarge and mostly the students become free of adult supervision, including their older siblings and even parents. The experience of acceptance refers to the warmth, love, affection, care, comfort, concern, nurturing and support that a person can experience from parents, siblings and peers. In the context of parent-child relationship, acceptance can be defined as love, care, support or simply affection that parents feel

and communicate toward their children and others.

Physical and verbal expressions are considered as two principle behavioural expressions. The physical expressions include hugging, caressing, approving glances, kissing, smiling, and other such signs of compliment, approval or support. The verbal expressions of acceptance include praising, complimenting, saying nice things to or about the child or other person, perhaps singing songs or telling stories to a young child, and the like. Acceptance is also characterized by the absence or minimal presence of rejection (Waltres j. & Stinnett, (1971).

On the other hand rejection is the absence or withdrawal of feeling of love and behaviours marked by the presence of a different physically and psychologically destructive acts. It can be observed by cold, unaffectionate, hostile, aggressive, indifferent neglecting and rejecting behaviours. Such behaviours may hurt a person physically or emotionally. Rejection occurs when an individual is deliberately excluded from a social interaction. A person can be rejected on an individual basis or by an entire group of people. It can be either active such as bullying, teasing, ridiculing, ignoring a person or giving the "reticent medication." The experience of being rejected is subjective for the recipient. While humans are social beings, some rejection is an inevitable part of lifespan. Yet, rejection can become a problem when it is prolonged, when the relationship is important, or when the individual is highly sensitive to rejection. Experience of rejection can lead to a number of psychological problems such as low self-esteem, aggression, loneliness, and depression. It can also lead to feelings of insecurity and an intensified sensitivity to imminent rejection.

Parental acceptance-rejection is commonly represented along a continuum representing the condition of the adoration bonds between parents and their offspring with the physical, verbal, and symbolic behaviours that they use to convey their feelings. One end of this continuum represents warmth dimension whereas the other end is marked by parental rejection demonstrated in the form of physically and psychologically hurtful actions. Empirical evidence demonstrates that children who do not receive adequate parental love tend to be psychologically maladjusted and exhibit poor self-esteem and self-adequacy and are

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likely to develop a negative worldview. Rejected children often perceived other individuals as untrustworthy, unfriendly, threatening and even dangerous. All such misconceptions negatively influence their interpersonal relationships and psychological wellbeing (Rohner, Khaleque, Cournoyer, 2009). Maslow suggested that the need for love and belongingness is fundamental for human motivation. All humans, even introverts need to be able to give and receive warmth to be psychologically strong. Coie (1990) stated that rejected individuals are likely to have lower self-esteem, and to be at greater risk for internalizing psychological problems like depression while some rejected individuals display externalizing behavior and show aggression rather than depression. Children with problems are more likely to be rejected and this rejection may lead to even greater problems for them. Parental acceptance is defined as parent's willingness to see a child's strength, weaknesses, potentials and limitations. Parental involvement matters because parental warmth or acceptance appears to be crucial to the development of children's self-esteem (Mruk, 2003). Parental rejection is known as absence of acceptance and lack of warmth is detrimental to children's self-esteem. Rohner (1986) presented parental acceptance-rejection theory (PAR Theory), which described the 4 causes, effects and other correlates of perceived parental acceptance-rejection. It is exploratory research for universals pertaining to the antecedents, consequences, and other associates of interpersonal acceptance and rejection. It accentuates a global perspective of sampling widely across all known socio-cultural groups of the world, including across all languages, ethnicities, socioeconomic status, ages, sex, and other related variables. Moreover, Rohner employed multi-method and multi-procedure approach to the study of acceptance-rejection and to the search for universals.

Pfouts (1976) stated that the relationship with siblings is an independent source of variance in the child's personality development. One of the most striking qualities of sibling relationships is their dual nature of positive and negative attributes; moreover, this relationship is also seen among the most volatile of human relationships as they are rooted in ambivalence. Siblings' rivalry is seen as the basis for most of the negative aspects of sibling relationships such as emotional struggles involving issues of sibling anger, identity and competition for the recognition and approval from their parents. However, sibling acceptance is attached with a number of positive features such as closeness, supportiveness, care giving and companionship.

Although this world is by no means independent from the family, the school, and other social institutions, there are unique features of peer relationships that set the world of peers apart from children's other

socialization experiences. Contexts for peer interaction also increasingly include remote electronic contact by computer (e-mail, "instant messaging," and on-line "chatting"), an area that, to our knowledge, has not yet received focused research attention despite the growing number of anecdotal reports from parents of the many hours their children spend in such activities. According to Bierman, most students who are rejected by their peers display low rates of social behavior, high rates of aggressive, disruptive, inattentive, immature and socially anxious behavior. He further stated that well-liked children show social expediency and know when and how to join play groups. Those who are at risk for rejection are more likely to rush in obtrusively, or hang back. Students experiencing higher rejection may find it hard to concentrate, worry about themselves, feel pressure to do well to pass the exams and may push themselves which may be counter-productive for them. It can also lead to conduct disorders, externalizing behavior, drug abuse and delinquency (Light et al., 1989). Most of the previous research, however, in this area has been done in the western culture context. Very few researches were available in the field of acceptance and rejection in the context of Pakistan. The present research is therefore, designed to investigate the university students' perception of acceptance and rejection as experienced by them as they interact with their parents, siblings and peers. The study further examines the relationship of gender, age, number of siblings, birth order and family income in determining the perception of acceptance and rejection.

II. RESEARCH HYPOTHESES

1. The phenomenon of acceptance and rejection does exist among the university students.
2. Age is positively associated with the students' perception of acceptance.
3. Female students perceive more rejection than male students.
4. The perceived level of acceptance is higher in students from higher income families.
5. Students who are the last born in their families perceive higher levels of rejection.
6. Number of siblings is inversely related to perceived acceptance.
7. The female university students are more accepted by their peer groups than the male students.

III. METHODOLOGY

The acceptance and rejection inventory was developed through a standardized procedure. A sample of 20 statements was collected from the local universities for item generation purposes. 75 items were generated from this source and after weeding out the repetitions, the remaining items were converted into 52 statements to comprise the initial pool. These statements were

presented to 3 judges including one educationalist and two psychologists for qualitative item analysis in terms of accuracy and appropriateness of contents. As a result the statements were further reduced to 40. The psychometric properties of the scale were determined by administering it on a random sample of 50 students including 28 males and 22 females. In order to determine the validity of rating scale the data was subjected to principle component analysis. Factor loading less than .35 was considered as non-significant. A total of 35 items were retained in the acceptance and rejection inventory. Total variance explained by all 3 factors was 57.2864 and were named as parental acceptance scale, siblings acceptance scale and peers acceptance scale. Item-total correlations were computed in order to determine the Reliability of acceptance and rejection inventory. The results reveal

that all items have significant correlation with the total score on the inventory, ranging from .39 to .92. Cronbach's Alpha coefficient yields an internal consistency coefficient of .83 for the entire 35 items. It ranges from .81 to .86. The inter-correlations of the subscales as well as with the total scale analysis indicated that all subscales have significant correlation with each other and with the total score on acceptance inventory. The results of alpha reliability coefficients and inter-correlations of the subscales indicated that this inventory has enough reliability and content validity to measure the perception of parental, siblings and peers acceptance and rejection for the present sample. Norms were established through percentile analysis to interpret the scores obtained by an individual on acceptance inventory

Table 1 : Percentile Ranks of Acceptance Inventory Based on 35 items (N=100).

| Percentile | Scores |
|------------|--------|
| 5 | 73 |
| 10 | 91 |
| 15 | 93 |
| 20 | 96 |
| 25 | 100 |
| 30 | 102 |
| 35 | 104 |
| 40 | 107 |
| 45 | 115 |
| 50 | 116 |
| 55 | 119 |
| 60 | 125 |
| 65 | 129 |
| 70 | 131 |
| 75 | 132 |
| 80 | 138 |
| 85 | 140 |
| 90 | 141 |
| 95 | 143 |

Table 1 shows the range of score on acceptance inventory, it ranged from 73 to 143. It also highlights the percentile ranks of respondent's scores on the acceptance inventory.

A random sample of 100 university students was collected from various local universities. Respondent's age ranged from 20 to 28 years, their

family's income level ranged from Rs. 20,000 to Rs.100,000. The respondents were contacted at their respective departments. After obtaining their consent the purpose of study was explained to them and acceptance and rejection inventory was given to them with the assurance of anonymity and confidentiality. They were asked to complete it in one sitting.

Table 2 : Levels of Acceptance and Rejection.

| Levels of Acceptance and Rejection n Percentage | n | Percentage |
|---|----|------------|
| Rejection | 31 | 31% |
| Moderate Acceptance | 47 | 47% |
| High Acceptance | 22 | 22% |

The results indicate that 31% students experience rejection, 47% experience moderate acceptance whereas 22% students experience high level of acceptance.

Table 3 : Comparison of Mean and SD of the Student's Scores on Acceptance and Rejection Inventory for Variables Gender, Age, Birth order and Income ($N=100$).

| Subscales | Gender | | | | Age | | | | | | | |
|--------------|-----------------|-------------|-----------------|-------------|-----------------|--------------|-----------------|-------------|-----------------|------------|--------------|------------|
| | Male | | Female | | 20-25 years | | 26 and above | | | | | |
| | M | SD | M | SD | M | SD | M | SD | | | | |
| Parents | 54.5 | 2.6 | 60.3 | 7.4 | 60.5 | 10.9 | 56.7 | 2.3 | | | | |
| Siblings | 23.1 | 5.3 | 24.1 | 3.6 | 24.8 | 1.1 | 23.3 | 4.2 | | | | |
| Peers | 24.2 | 8.3 | 29.2 | 4.9 | 28.1 | 4.7 | 27.5 | 3.1 | | | | |
| Total | 101.8 | 15.2 | 113.6 | 15.9 | 113.4 | 18.19 | 107.5 | 9.6 | | | | |
| | Birth Order | | | | | | | | | | | |
| | 1 st | | 2 nd | | 3 rd | | 4 th | | 5 th | | Last | |
| | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD |
| Parents | 60.1 | 6.3 | 50.1 | 5.3 | 59.5 | 8.4 | 59.3 | 8.3 | 60.5 | 3.1 | 68.6 | 4.1 |
| Siblings | 26.2 | 3.2 | 22.4 | 5.3 | 25.3 | 3.8 | 23.5 | 6.3 | 27.5 | 4.2 | 30.1 | 3.2 |
| Peers | 28.1 | 4.4 | 19.1 | 7.2 | 28.7 | 2.1 | 26.1 | 2.1 | 23.4 | 2.1 | 20.1 | 2.1 |
| Total | 114.4 | 13.9 | 91.6 | 17.8 | 112.5 | 14.3 | 108.9 | 16.7 | 110.4 | 9.4 | 118.8 | 9.4 |
| | Income | | | | | | | | | | | |
| | 30000 to 60000 | | More than 60000 | | | | | | | | | |
| | M | SD | M | SD | | | | | | | | |
| Parents | 61.4 | 3.4 | 55.1 | 3.1 | | | | | | | | |
| Siblings | 24.8 | 2.1 | 21.4 | 2.3 | | | | | | | | |
| Peers | 26.5 | 3.4 | 26.8 | 2.4 | | | | | | | | |
| Total | 101.7 | 8.9 | 103.3 | 7.8 | | | | | | | | |

Table # 3 illustrates that the male students reported the scores for rejection by their peers were the higher. As far as the peer acceptance is concerned female university students experience more peer acceptance than the male university students. Age wise differences in the respondents' scores revealed that students whose age ranged from 26 and above experienced more rejection. Student's with age ranging from 20-25 years, experience higher peer and siblings

acceptance. Overall the first born child experienced higher acceptance whereas, the last born experienced higher rejection. The last-born experienced higher peer acceptance than the first born. Moreover, third, fourth, and fifth born children experience higher siblings acceptance than first and last born children. The students from low income families experienced higher rejection as compared with students from the higher income families.

Table 4 : One-Way Analysis Of Variance scores on Acceptance Inventory for the Variables Age, Income, birth order ($N=100$).

| Source | df | F | P |
|-------------|----|-------|---------|
| Age | 97 | 5.147 | .008*** |
| Income | 96 | 4.246 | .007*** |
| Birth order | 91 | 3.34 | .05*** |

* $P < .01$

Table 4 indicates a highly significant difference between the scores of students belonging to different age groups, $F(3, 97) = 5.147$, $P < .008^{**}$, income $F(4, 97) = 4.246$, $P < .007^{**}$ and birth order, $F(9, 97) = 3.34$, $P < .05^{**}$.

IV. DISCUSSION

The present research investigated the university students' perception of acceptance and rejection as result of interaction with their parents, siblings and

peers. The relationship of gender, age, number of siblings, birth order and family income with the perception of acceptance and rejection was examined. The study found that as a whole, majority of respondents experience moderate acceptance (41%) and only 22% students experienced high level of acceptance, whereas, 31 % respondents reported experiencing rejection. Overall female students experience higher rejection as compared to their male students. Overall male students experienced higher rejection from their peer group. Age was found significantly related to the perception of acceptance and rejection. The students aged 26 years and above experience higher rejection. The students aged 20-25 years experience higher peers and siblings acceptance. Previous research has highlighted the significance of peer rejection for adolescent's concurrent and subsequent adjustment as peer group provide a sense of identity to adults (Hamburg, 1992). Rejection experienced by peers envisages different problems in adulthood, such as, dropout, misbehavior, and psychopathology. Negative response of peers is usually linked with rule-violating behavior. In all cultures, adolescents have learned to become adults by following, imitating, and interacting with peer group.

Another important variable in this study was birth order as it can affect the perception of acceptance and rejection. Birth order play a very important role in determining the direction of relationship with siblings, as older siblings are more likely to perceive themselves as responsible, nurturing and dominating while younger siblings are more likely to report being nurtured and dominated somehow older sibling are more likely to dominate (Bierman, 2003). In the context of Pakistan the average family size is a bit large. A family with higher number of siblings has its advantages and disadvantages. For example, one has to share many things with siblings or experience siblings' attitude. The literature perused on peer rejection indicates the significance of peer rejection for adolescent's concurrent and subsequent adjustment as it envisages different psychological problems in the adulthood. Peers also play a vital role in maintaining rejected status. Moreover rejected adults experience more negative prospect, behaviors and explanation of their own actions than other do. Interestingly, the results revealed that the first-born child experiences higher acceptance and the last born experience higher rejection. These results are in line with research results drawn by Copper Smith (as, cited in Mruk, 2003) suggesting that birth order can have an impact on self-esteem as first born slightly enhances the acceptance. It seems that first and only children receive more attention from and interaction with parents than those who arrive late, which other ordinal positions.

V. CONCLUSIONS

The study identified that the phenomena perception of acceptance and rejection of parental, siblings and peer does exist and affects students' personality development and adjustment in their lives. The conclusions drawn from the study included; male university students experience higher rejection as compared to female students, age is positively associated with rejection, female university students experience higher peer acceptance than male students. Birth order affects the level of acceptance and rejection as the first born child experience higher acceptance and the last born experience higher rejection. Moreover, third, fourth, and fifth born children experience higher siblings acceptance than first and last born children and students from low income families experience higher acceptance as compared to the students from higher income families. The present research was an attempt to increases an understanding of perception of acceptance and rejection of the university students. Further studies may look into acceptance and rejection from other angles such as, self-esteem, stress and academic achievement of students at various levels in wider jurisdiction.

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Chronic Ill Effects of Air Pollution in Children: Neurological Derailment

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Abstract - Exposure to complex mixtures of air pollutants produces inflammation in the upper and lower respiratory tract. Because the nasal cavity is a common portal of entry, respiratory and olfactory epithelia are vulnerable targets for toxicological damage. The brain is a target for several environmental substances that may or may not be primarily airborne. Neurodevelopment and neuro-behaviour largely reflect brain development and its chemically induced modification, with resulting delays or deficits in development. It is generally believed that the developing brain is a particularly vulnerable target for chemical insult, and that such insult may have long lasting or even irreversible developmental consequences. Environmental exposures in uterus and during early life may permanently change the body's structure, physiology and metabolism, and lead to diseases in adult life. Infants are particularly vulnerable because of their rapid growth and cell differentiation, immaturity of metabolic pathways and development of vital organ systems. The central nervous system has unprotected barriers and a broad time window of conformation, leading to a long period of vulnerability in the developmental process and to susceptibility to any environmental insult leading to neurological diseases.

Keywords : Air pollution, neurological derailment, children.

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CHRONIC ILL EFFECTS OF AIR POLLUTION IN CHILDREN NEUROLOGICAL DERAILMENT

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Chronic Ill Effects of Air Pollution in Children: Neurological Derailment

Dr Harendra Kumar ^α & Dr Anita Sharma ^σ

Abstract - Exposure to complex mixtures of air pollutants produces inflammation in the upper and lower respiratory tract. Because the nasal cavity is a common portal of entry, respiratory and olfactory epithelia are vulnerable targets for toxicological damage. The brain is a target for several environmental substances that may or may not be primarily airborne. Neurodevelopment and neuro-behaviour largely reflect brain development and its chemically induced modification, with resulting delays or deficits in development. It is generally believed that the developing brain is a particularly vulnerable target for chemical insult, and that such insult may have long lasting or even irreversible developmental consequences. Environmental exposures in uterus and during early life may permanently change the body's structure, physiology and metabolism, and lead to diseases in adult life. Infants are particularly vulnerable because of their rapid growth and cell differentiation, immaturity of metabolic pathways and development of vital organ systems. The central nervous system has unprotected barriers and a broad time window of conformation, leading to a long period of vulnerability in the developmental process and to susceptibility to any environmental insult leading to neurological diseases.

Keywords : Air pollution, neurological derailment, children.

INTRODUCTION

I. BACKGROUND

A complex mixture of gases, particulate matter (PM), and chemicals present in outdoor and indoor air produces adverse health effects. Because the nasal cavity is a common portal of entry for such pollutants, the nasal olfactory and respiratory mucosa are vulnerable to damage and well-known targets for air pollutant-induced toxicity and carcinogenicity (Henriksson J & Tjälve H, 2000 and Morgan KT & Monticello TM, 1990). The nose-brain barrier depends on intact epithelia, including tight junctions and an intact xenobiotic metabolizing capacity (Dahl AR & Lewis JL, 1993). Olfactory receptor cell dendrites are in direct contact with the environment, and, thus, pinocytosis and neuronal transport are likely routes of access to the central nervous system (CNS) of potential toxins (Lin DM & Ngai J, 1999). Olfactory receptor neurons project from the sensory epithelium to targets within the olfactory

bulb, the first synaptic relay in the olfactory pathway (Lin DM & Ngai J, 1999). The mucociliary apparatus of the respiratory mucosa also functions as a barrier to protect against neuronal uptake and transport by trapping insoluble inhaled material in a layer of secretions that are in continuous movement towards the nasopharynx (Morgan KT & Monticello TM, 1990). The contribution of air-pollutant exposure to airway epithelial injury is well documented. Healthy children and adult populations in Southwest Metropolitan Mexico City (SWMMC)—an urban area characterized by significant daily concentrations of pollutants such as ozone, PM, and aldehydes—have shown extensive damage to the respiratory nasal epithelium (Kelly FJ, 2004 and Calder 'on-Garcidue~nas L, Rodr'õ guez-Alcaraz A, Villarreal-Calder 'on A, Lyght O & Janszen D, Morgan KT, 1998). Children in SWMMC display ultra structural evidence of deficiencies in nasal epithelial junction integrity, cytoplasmic deposition of PM, and altered mucociliary defense mechanisms (Calder 'on-Garcidue~nas L, et al. 2001a). Canines living in SWMMC exhibit similar nasal respiratory lesions, along with respiratory bronchiolar and myocardial pathology (Calder 'on-Garcidue~nas L, Mora-Tiscare~no A, Chung CJ, Valencia G, Fordham LA, Garcia R, Osnaya N, Romero L, Acu~na H, Villarreal-Calder 'on A, Devlin RB, Koren HS, 2000 and Calder 'on-Garcidue~nas L, et al. 2001b). A sustained pulmonary inflammatory process is clearly seen in exposed canines (Calder 'on-Garcidue~nas L, et al., 2001c) and SWMMC children show radiological and spirometric evidence of lung damage and cytokine imbalance (Calder 'on-Garcidue~nas L, et al. 2001d). Impaired olfaction, hyposmia, or anosmia are important early changes in neurodegenerative diseases including Alzheimer's (AD) and Parkinson's disease (PD) (Hock C, Golombowski S, Muller-Spahn F, Peschel O, Riederer A, Probst A, Mandelkow E & Unger J, 1998; Kovacs T, Cairns NJ & Lantos PL, 1999, and Wszolek ZK & Markopoulou K, 1998), as well as in aging (Hirai T, Kojima S, Shimada A, Umemura T, Sakai M & Itakura C, 1996 and Hoffman HJ, Ishii EK & MacTurk RH, 1998). All layers of the olfactory bulb are affected in aging and AD, and olfaction is impaired in the early stages of AD. Among the groups of environmental chemicals for which neurodevelopmental and neurobehavioural effects in children are to some extent documented are some heavy metals and polyhalogenated aromatic hydrocarbons (PHAHs). The former primarily include

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lead, mercury and (less frequently) manganese, whereas, the most extensively studied PHAH species include the polychlorinated biphenyls (PCBs).

Ambient air pollution is a global health problem and it is an important factor associated with morbidity and mortality worldwide (Narayan, Ali et al. 2010). In high income countries air pollution was associated with 2.5% of all deaths, making it the eighth leading risk factor for mortality (Narayan, Ali et al. 2010). Pollutants do not stay within the national borders. They are carried by winds, contaminating water and soil far from their origin. The great London smog of 1952 focussed the world's attention on the problem of air pollution (LOGAN 1953). Since then there has been an improvement in air quality in developed countries, but a in developing countries air pollution continues to be a big problem. The air quality in large cities in developing countries is remarkably poor and large numbers of people living in these cities are exposed to levels of air pollutants well above the World Health Organization guidelines for air quality (Kim, 2004).

Traffic-related air pollution, basically urban outdoor pollution is a global public health problem. Cardio-respiratory effects and mechanisms have been fully investigated. In contrast, little is known regarding neurological effects, with only some preliminary evidence. In rats, ultrafine carbon particles have been found in the olfactory bulb and the cerebrum and cerebellum after inhalation exposure, his finding has been reproduced more recently with manganese particles directly translocated to the olfactory nerve from the nose to the brain. In one study, dogs living in a highly polluted region in Mexico City (Mexico) had an increase in brain inflammation compared with animals living in a less polluted area (Calderón-Garcidueñas L, Azzarelli B, Acuna H, et al. 2002). The brain tissue of animals from Mexico City had higher levels of nuclear factor-k B activation and nitric oxide production, as well as the principal pro-inflammatory cytokines interleukin (IL)-1 and tumour necrosis factor (TNF)- α , compared with the animals from the non polluted area (Campbell A, Oldham M, Becaria A, et al. 2005). In a study on human autopsies in Mexico City, exposure to severe air pollution has been associated with increased levels of cyclooxygenase (COX)-2 and accumulation of the 42-amino-acid form of β -amyloid, a cause of neuronal dysfunction (Calderón-Garcidueñas L, Reed W, Maronpot RR, et al. 2004).

Although urban air pollution crosses geographical and socio-economical boundaries, urban minority populations are likely to be more exposed to indoor and outdoor air pollution than other populations (Breyse, Buckley et al. 2005). Also, children may have increased exposures to air pollutants compared to adults, because of higher minute ventilation and higher levels of physical activity. They are also more exposed

to ambient air pollution, because they usually spend much more time outdoors than adults (Kim, 2004).

II. AIR POLLUTION

Pollutants are substances in the air that can cause harm to humans and the environment. They arise in different forms like gasses, solid particles and liquid droplets. They can also divided in pollutants from natural sources in the environment, like volcanism and forest fires (when started by lightning) and pollutants that are man-made or anthropogenic, like fossil fuel combustion emitted by traffic, power generation and industry. Both the natural and anthropogenic pollutants can also be classified as either primary or secondary pollutants. Primary pollutants are directly formed and emitted, whereas secondary pollutants are formed in the atmosphere, when primary pollutants react or interact. Since a lot of air pollutants are emitted by natural sources, industry and traffic, it is logical that people are mainly focused on the outdoor air pollution. However, it is important to realize that indoor air pollution (IAP) might also play a role in the origin of neurological effects. Especially in developing countries, most people still rely on solid fuels for cooking and heating, which generates high levels of pollutants like particulate matters and carbon-monoxide. Women and young children may be significantly more exposed to this form of air pollution because of their traditional role in the house hold. But also in developing countries IAP plays a role, since people tend to spend 80-90% of their time indoors and good ventilation is often lacking.

In this review we will mainly focus on the neurological effects of ambient air pollution. Toxicological studies will give an indication of the possible effects the air pollutants can have on the neurological development, whereas case studies will give insight into the extension of these effects in children.

a) *Pollutants of Interest*

i. *Particulate matter*

One of the most important groups of primary pollutants is the group of fine particles, also known as particulate matter (PM). This PM contains particles from different sizes, sources and chemical composition. Based on size, they are divided in three categories. Particles indicated by PM₁₀ have a aerodynamic diameter of less than 10 μm . PM_{2.5} are particles smaller than 2.5 μm and PM_{0.1} are the particles smaller than 0.1 μm which are also called ultra-fine particles (Miyata, van Eeden, 2011). Because of their size, the largest particles (2.5-10 μm) are not able to penetrate the respiratory tract very deeply. They are mainly deposited in the nasal cavity, larynx and trachea (Heyder, 2004). The particles that are between 0.1 and 2.5 μm penetrate the bronchi and bronchioles. However, the larger particles in this

group will still deposit mostly in the upper airway, whereas the particles between 0.1 and 1 μm hardly deposit at all (NRPB, 2004). The ultrafine particles ($<0.1 \mu\text{m}$) are able to penetrate the alveoli and have a deposition rate of more than 80% (NRPB). The origin of particulate matter can be natural (volcanoes, dust storms and forest fires), but mostly they are emitted as a result of fuel combustion from traffic and industry or agriculture.

ii. Nitrogen dioxide & Ozone

Nitrogen dioxide (NO_2) is formed in most combustion processes that use oxygen as an oxidant. NO_2 is a highly reactive and nitrogen-centered free radical that can induce airway inflammation, like asthma and acute bronchitis (Shima & Adachi, 2000). NO_2 is also a major precursor for a number of harmful secondary pollutants. The most important form of a secondary pollutant is ozone (O_3). Ozone is formed by photochemical reactions of sunlight on air containing hydrocarbons and nitrogen oxides. This newly formed ozone reacts with UV light again, resulting in the production of hydroxyl radicals. These hydroxyl radicals are the first step in the creation of smog components, including peroxyacyl nitrates that can be powerful eye irritants. But also neuronal deficits have been shown

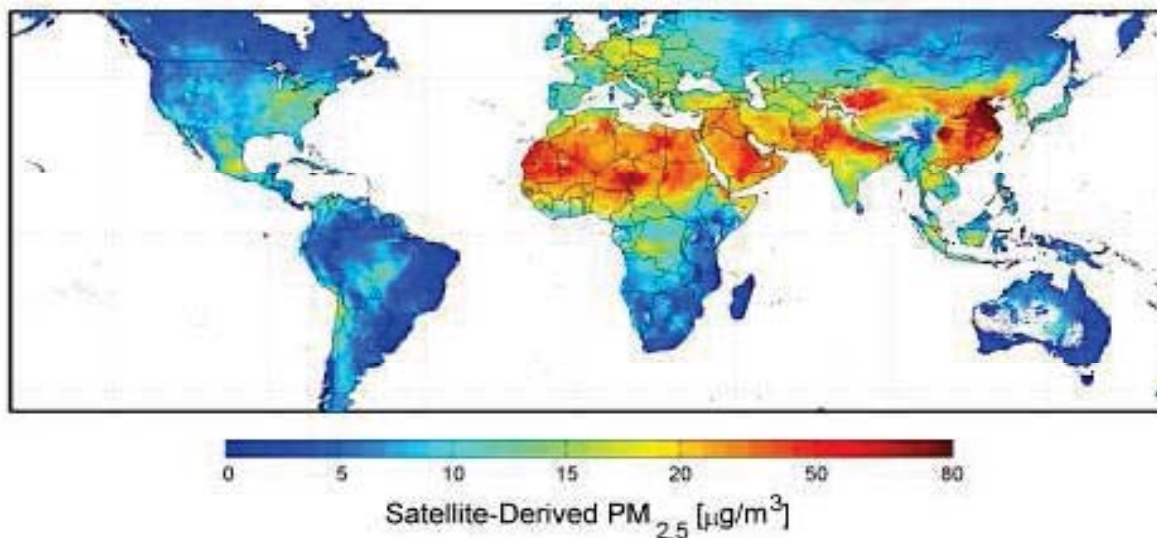
after O_3 exposure. Upon O_3 inhalation, Gackiere et al. showed a time- and dose-dependant neuronal activation pattern similar to that induced by systemic stress. This chronic stress is known to disrupt sleeping patterns, anxiety, depression and social isolation (Gackiere, Saliba et al. 2011).

b) Air pollution levels

Air pollution is usually concentrated in densely populated areas, especially in developing countries where environmental regulations are relatively lax or nonexistent, but also areas in the developed world can be highly polluted. In many developing countries the absence of surface-based air pollution monitors makes it difficult and sometimes impossible to get even a rough estimate of the abundance of a subcategory of airborne particles that epidemiologists suspect contributes to millions of premature deaths each year. Therefore, van Donkelaar et al. created a map (see figure 1) by blending total-column aerosol measurements with information about the vertical distribution of aerosols from a computer model (van Donkelaar et al. 2010). Figure 2 clearly shows that the areas with the highest concentration of $\text{PM}_{2.5}$ are concentrated around the equator and especially in Northern Africa and the rapidly developing countries in Asia.

Figure 1 : Worldwide $\text{PM}_{2.5}$ concentration.

The picture shows the worldwide concentration of fine particles. The highest concentrations are found in the developing countries of Africa and Asia (Source: van Donkelaar, 2010).



III. BIOLOGICAL CONSIDERATIONS OF HUMAN BRAIN DEVELOPMENT

A brief account of some basic principles of human brain development may help to better understand why and how prenatal or early postnatal environmental exposure to chemicals may give rise to adverse neurobehavioural alterations in infants and children postnatally. This brief overview can only be

elementary; for a more detailed account the reader is referred to standard textbooks. The maturation of the central nervous system (CNS) is often described under the four headings of gross morphology, proliferation and migration of neurons and glial cells, neuronal differentiation, and myelination. By the end of the embryonic stage (12th week of gestation) the organogenesis of the brain already shows division of the prosencephalon into two hemispheres occurs together

with a pronounced enlargement of the thalamus and an initial formation of the cerebellum. Towards the end of the 12th week of gestation, separate ventricles occur but the brain surface is still smooth. Its structuring into lobes through the formation of primary sulci (folds) occurs in the 4th month of gestation, such that the main lobes (frontal, parietal, occipital and temporal) become discernible. Among the deeper structures the main hemispheric connections, namely the corpus callosum and the commissurae anterior and posterior, also develop early. Brain damage during these early stages of CNS development gives rise to gross structural anomalies.

Following the formation of the primary sulci, secondary sulci are formed during the last three months of gestation, whereas tertiary sulci develop postnatally until the end of the 2nd year of life. It is important to note that the place of origin of neurons and glial cells is different from their final destination in the brain. Cells migrate to form, for example, the six cortical layers and the architecture of other brain structures. Besides migration, the maturation of neurons from their precursor cells, the neuroblasts, is another important developmental principle. Maturation includes enlargement of the cell body, storage of Nissl substance, formation of neurofibrils, arborization of axons and apical dendrites, and finally the increasing number of synaptic contacts between neurons. Although neuronal differentiation begins prenatally (the six cortical layers, for example, being already present around the 28th gestational week), much neuronal maturation extends into the first two postnatal years, such as the arborization of dendrites and synapse formation. Also, much of the myelination of fibres occurs postnatally. Thus, both the prenatal and early postnatal phases of CNS development offer opportunities for chemical insult. It must finally be pointed out that many of the above-mentioned developmental processes and their timely orchestration, namely proliferation, migration, differentiation and myelination of neurons, are partly under endocrine control. One prominent example is the hypothalamic-pituitary-thyroid (HPT) axis. Clinical observations show that severe congenital or dietary hypothyroid conditions during pregnancy or in the neonatal stage, if untreated, often result in cretinism associated with mental retardation. This is one mechanistic possibility of how chemicals interacting with endocrine systems may also interfere with brain development and associated dysfunctional neurobehavioural development postnatally (Porterfield S, 1994).

a) Brain

The brain, or encephalon (derived from Greek), is the centre of the nervous system. It is the organ that is responsible for sensing, controlling and processing signals and is therefore found close to primary sensory

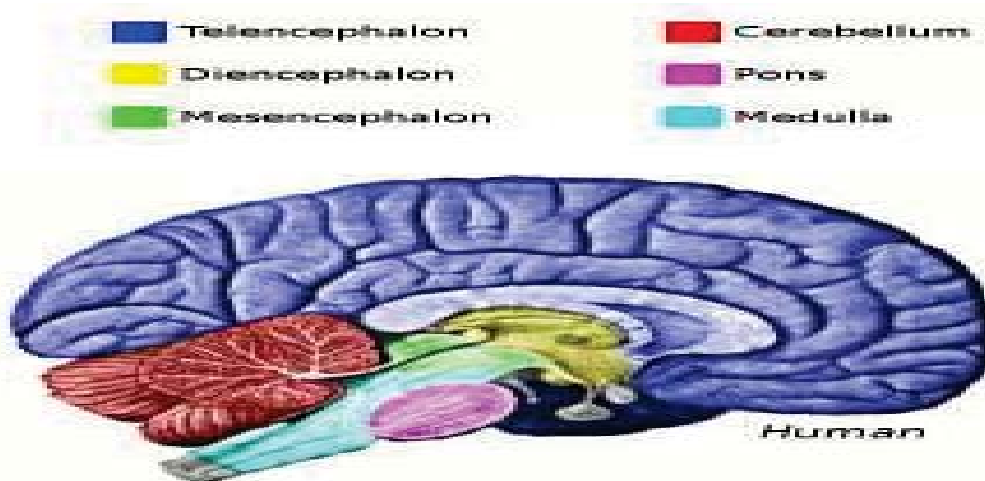
apparatus like vision, hearing, balance, taste and smell. The brain consists of billions of neurons each connected via synapses. Neurons communicate via these synapses with chemical signals called neurotransmitters. Electrical signals are transmitted through the axons that carry action potentials to distant parts of the brain or body to target specific recipient cell. Every function will involve multiple brain regions and every brain region may be involved in several other functions. Therefore, understanding the brain is not simple and straightforward (Silverthorn, 2004).

b) Anatomy

In the early embryo, the cells that will form the nervous system are positioned in the neural plate. During the development of the embryo, neural crest cells migrate to the middle and thereby creating a neural tube. The anterior portion of the neural tube will specialize into the regions of the brain, being the forebrain, midbrain and hindbrain. The posterior part of the neural tube will form the spinal cord. Finally the six main parts of the brain are formed: (1) the cerebrum, (2) the diencephalon, (3) the mesencephalon, (4) the cerebellum, (5) the pons and (6) the medulla oblongata (see figure 2). The cerebrum is the largest and most distinctive part of the human brain and fills most of the cranial cavity (Silverthorn, 2004).

Figure 1 : The anatomy of the human brain.

The different parts of the brain are indicated with the colour legend. The cerebrum is by far the largest part of the brain. (Source: Ranson S.W, 1920)



c) *Gray and White Matter*

The cerebrum has distinct regions of gray and white matter. The outer layer of the cerebrum, which is only a few millimetres thick, forms the gray matter of the cerebral cortex. Gray matter consists of unmyelinated nerve cell bodies, dendrites and axon terminals. The cell bodies form layers in some parts of the brain or cluster into groups of neurons with a similar function. White matter in the cerebrum is found primarily in the interior. White matter is made up mostly of myelinated axons and contains very few cell bodies. Its pale (white) colour comes from the myelin sheaths that surround the axons. Bundles of fibres allow different regions of the cortex to communicate with each other and transfer information from one hemisphere to the other primarily through the corpus callosum (Purves et al. 2008).

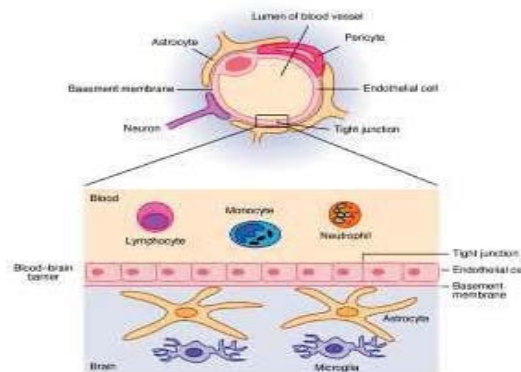
d) *Blood Brain Barrier*

The blood brain barrier is a separation of circulation blood and the brains extracellular fluid and

prevents potentially harmful particles from being delivered into the brain. It is formed by the brains capillary endothelium. These endothelial cells form tight junctions that are composed of transmembrane proteins that are anchored in the endothelial cell (see figure 3). The capillary endothelium uses selected membrane carriers and channels to move nutrients and other useful material from the blood to the brains interstitial fluid. Other transporters move wastes from the interstitial fluid into the plasma. If a water soluble molecule is not transported on one of these carriers, it cannot cross the blood brain barrier (Liddelw, 2011). Although the blood-brain barrier excludes many water-soluble substances, smaller lipid-soluble molecules can simply diffuse through the cell membranes. Because of the high demand of oxygen of the brain, oxygen can pass the blood-brain barrier freely. Neurons consume oxygen at such high rates that interruption of the blood flow to the brain can have devastating effects within only a few minutes (Pritchard, 1999).

Figure 3 : The blood brain barrier.

The blood brain barrier consists of tightly bound endothelial cells that prevent particles and immune cells from entering the brains interstitial fluid. Source: *Expert Reviews in molecularmedicine@2003 Cambridge University Press.*



e) *Function*

The brain receives sensory input from the internal and external environments. After processing these incoming signals it creates a response. However, the brain is also able to generate information and act without the external input of signals. There are three different systems that influence the output signals, being (1) the sensory system that monitors the internal and external environment and initiates reflex responses, (2) the cognitive system that is able to initiate voluntary responses and (3) a behavioural state system, which governs sleep-wake cycles and other behaviours. Cognition refers to mental processes, which include: attention, memory, Understanding a language, solving problems and making decisions. It can be natural or artificial and conscious or unconscious (Silverthorn 2004).

f) *Toxicology Studies:*i. *Translocation of Particles to the Brain*

Translocation to extra pulmonary sites after respiratory tract deposition is an important mechanism for particles to cause effects in secondary organs. Whether this process occurs and to which extent, depends on several factors including particle size, solubility, site of deposition and the integrity of the epithelial lining. Elder et al. showed that ultra fine and fine particles can translocate from the lungs by penetrating pulmonary tissue and enter the capillaries, reaching other organs, including the brain by circulation (Elder, Gelein et al. 2006). As mentioned before, the blood brain barrier is supposed to inhibit harmful particles from entering the brain. However, some particles are still able to cross the blood brain barrier either because they are small enough to leak through the endothelial tight-junctions, or because they disrupt the blood brain barrier by inflammatory responses. Pollutants can also enter the brain through direct translocation. Animal studies have shown that inhaled particles can be translocated to the brain via the olfactory nerve that connects the nose and the brain directly (Elder, Gelein et al. 2006 and Oberdorster, Sharp et al. 2004).

ii. *Neuro-inflammation and Degeneration*

The first and main form of active immune defense in the central nervous system is formed by the action of microglia. These microglia are a type of glial cells that reside in the brain and spinal cord. They respond to tissue insult with a complex array of inflammatory cytokines and actions. They are recognized as the prime components of an intrinsic brain immune system. Before neuro-inflammation became a commonly used term, scientists used the term 'reactive gliosis' (Streit, Mrak et al. 2004). This term specifically referred to the accumulation of enlarged glial

cells, notably microglia and astrocytes, immediately after CNS injury had occurred. Activation of immune cells in the periphery leads to leukocyte infiltration of tissues, but this leukocyte infiltration is absent in the brain, unless there has been destruction of the blood brain barrier. Without breakdown of the blood brain barrier, leukocytes are not able to cross this barrier and there is a much subtler response of the brain's own immune system. Although these specific responses might be included in the term neuro-inflammation, this term generally applies to a more chronic, sustained cycles of injury and response. This chronic microglia activation likely contributes to injury, loss of neurons and neuronal dysfunction (Bellucci, Westwood et al. 2004). Neuro-degeneration is the overall term for progressive loss of structures or function of neurons and axons in the central nervous system. Immune activation in the CNS is a classical feature of neuro-degeneration

iii. *IL-1 and COX-2*

Among the pro-inflammatory molecules, cytokines are thought to play a central role in the self-propagation of neuro-inflammation, with a prominent function for interleukin-1 (IL-1). IL-1 is a family of three related proteins, being IL-1a, IL-1b and IL-1ra. Normally, IL-1 is expressed at low levels, but is upregulated rapidly in response to local or peripheral insults. The specific cellular source of these proteins is unclear, but microglia cells appear to be the early primary source. Astrocytes and neurons have also been reported to express IL-1. (Pearson, Rothwell et al. 1999) It remains uncertain whether IL-1 plays a major role in the normal, healthy brain, because the expression is barely detectable. However, IL-1 has been shown to act by increasing fever, hypophagia, slow-wave sleep, sickness behaviour and neuro-endocrine changes. Its expression is also increased in human degenerative conditions and inhibition of IL-1 in rodents reduced neuronal loss dramatically. (Rothwell & Luheshi, 2000). Cyclooxygenase (COX) generates reactive oxygen species (ROS) as a byproduct of the conversion of prostaglandin G2 to prostaglandin H2 in the synthetic pathway of prostaglandins and thromboxanes. There are two different isoforms of COX. COX-1 is expressed and predominant in peripheral tissues, while COX-2 has been shown to be expressed at high levels in the CNS and is induced by a variety of stimuli (Yamagata, Andreasson et al. 1993). It is rapidly up regulated at sites of inflammation and it is primarily expressed by neurons, whereas microglia and astrocytes are almost unlabelled. Given the fact that oxidative stress is involved in neurodegeneration, it is likely that the induction of COX-2 and the generation of free radicals by this protein are related to the underlying mechanism (Oka & Takashima, 1997).

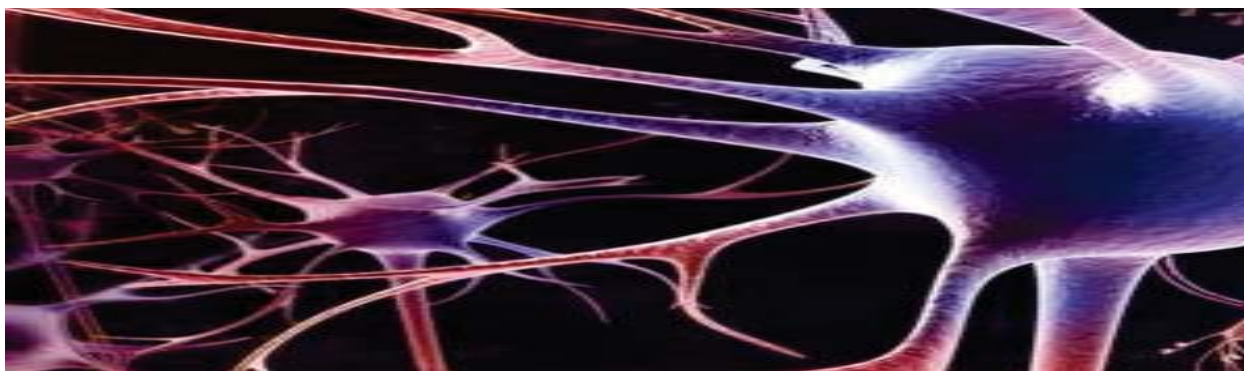
iv. *White Matter Lesions*

White matter lesions are small areas of disrupted neurons in the white matter, commonly seen in older people, since it is a normal result of aging (Sierra, 2001). However, aging is not the only factor that induces these lesions. They also appear in the brains of people who have suffered stroke or have progressive

neurological diseases and they can be induced by exposure to toxicants. While it is not clear that white matter lesions directly cause brain dysfunction, they are seen as good indicators. Namely there is a clear connection between lesions and decreases in brain volume, loss of memory and vision, and cognitive impairment (De Groot, De Leeuw et al. 2002)

IV. CASES OF AIR POLLUTION ON NERVOUS DEGENERATION

a) *Exposure to traffic-related air pollution and neurobehavioural functions*



For this study, children from two different primary schools were selected to explore the association between traffic-related air pollution and neurobehavioral function in children (Wang, Zhang et al. 2009). The first school was located 3.5km away from primary traffic roads in the north of Quanzhou and had low traffic density. The second was located on a three-way-intersection in the centre of the city. Levels of ambient air PM10 and NO2 were measured for two days at five different school sites. The children were 8-10 years old and selected based on a questionnaire about their socioeconomic status and neurobehaviour was tested based on nine standardized tests. The NO2 levels in the polluted area were significantly higher than in the clear area. However, levels of PM10 did not show any differences. Children that were going to school in a polluted area had significantly lower scores on all nine tests, compared to the children that were going to school in a clean area. Therefore, Wang et al. state suggests that there is a significant relationship between traffic related air pollution and neurobehavioral functions in children. Similar findings were obtained by Kumar (2011) in children belonging to traffic density area of Moradabad, district of U.P. (India).

b) *PAH Exposure and developmental delay*

Another prospective cohort study was done by Perera et al. and evaluated the role of prenatal exposure to urban pollutants in the pathogenesis of neurobehavioural disorders (Perera, Rauh et al. 2006). The urban pollutants included polycyclic aromatic hydrocarbons (PAHs), environmental tobacco smoke (ETS) and pesticides. The woman who participated in

this cohort were Dominican or African-American, non-smokers, free of diabetes, hypertension and known HIV; did not use drugs and had resided in the area for at least one year. During the third trimester of pregnancy, personal PAH exposure was monitored for 2 consecutive days and measures of child behaviour and neurodevelopment were done with the use of the Bayley Scales of Infant Development-Revised. Infants who had been exposed to the highest concentration of PAH, scored significantly lower on the mental development index (MDI) at three years of age, compared to infants that were lower exposed. The odds of having low MDI scores were 2.89 times higher in the high exposed children, suggesting that more exposed children are potentially at risk for performance deficits.

c) *Black Carbon Exposure and Cognition*

The relation between black carbon and cognition among 202 Boston children was examined by Suglia et al. in a prospective birth cohort study (1989-2001) (Suglia, Gryparis et al. 2008). Pregnant women over 18 years, receiving prenatal care at an urban community health center in Boston were fitted for enrolment. At each clinic visit during their pregnancy the women were asked about their smoking status and the smoking habits of other members of the household. Also a urine sample was taken to determine the cotinine level. The postnatal exposure of the child to second hand smoke was obtained by a questionnaire every month for the first 26 months, twice a year for the period between 26 months to 4 years and annually for the remaining years. To estimate the residential black carbon levels, data was used from pollution



measurements at more than 80 sites performed at more than 2000 different days. For the follow-up study, children were selected based on their birth weight, blood-lead level and ETS exposure. When the children were aged 8-11 years, cognitive tests were administered, including the Kaufman Brief Intelligence Test (K-BIT) for verbal and non verbal intelligence and the Wide Range Assessment of Memory and Learning (WRAML) for verbal and visual memory and learning (Putzke, Williams et al. 2001). In this study, long-term concentration of black carbon particles from mobile sources was associated with decreases in cognitive test scores, both on verbal and non-verbal intelligence and on memory. Socioeconomic status could have been a confounder, since it can be a determinant of cognitive abilities during childhood. Also it can determine whether a family lives close to traffic areas. However, since all families were recruited from one neighbourhood, the variability in socioeconomic status was restricted and therefore the potential of confounding was reduced. (Suglia, Gryparis et al. 2008). Another study conducted by Kumar and Sharma (2011) on the neurological effects of chronic exposure to black carbon in the children (N=150) of labor class in the Greater Noida, district of U.P. (India) also found a significant deterioration in their cognitive system and brain impairment.

V. OXIDATIVE STRESS INFLAMMATION OF LUNGS AND BRAIN IMPAIRMENT

Oxidative stress, changes in autonomous function and progression of atherosclerosis have been hypothesised to be mechanisms of the neurological effect of urban air pollution in humans at any age (Peters A, Veronesi B, Caldero´n-Garciduen˜as L, et al, 2006). Among them, inflammation secondary to oxidative stress appears to be the major suspected culprit for delay in conformation and maturation during developmental steps. Even though most of the available research about the inflammatory effects of air pollution refers to the lungs, there is evidence that the oxidative stress and inflammation induced by particles translates systemically beyond the lungs (Hirano S, Furuyama A, Koike E & Kobayashi T, 2006). For example, we found in an international longitudinal study of 1,003 adult subjects that particle count increased markers of systemic inflammation (IL-6 and fibrinogen peripheral levels) (Ruckerl R, Greven S, Ljungman P, et al. 2007). The major underlying hypothesis is that chronic respiratory tract inflammation may lead to brain inflammation by altering levels of circulating cytokines, such as TNF- α and IL-1. These cytokines have the ability to up regulate COX-2, a potent active mediator of inflammation, in capillary brain endothelium (Campbell A, 2004). Changes in brain cytokine and chemokine

expression in mice have been directly linked to intranasal exposure to ultra fine carbon (Tin-Tin-Win-Shwe, Yamamoto S, Ahmed S, Kakeyama M, Kobayashi T, Fujimaki H, 2006). Carbon particles themselves generally adsorb transition metals (including antimony, barium, copper, iron and zinc) emitted from traffic exhaust and also from tyres and brake wear. These metals, which are mainly generated by traffic in the current urban atmospheres (Steiner M, Boller M, Schulz T, Pronk W, 2007), have been shown to induce oxidative stress in the lung. An alternative hypothetical mechanism of the neurological effect of air pollution is based on the observation that ultra fine particles containing metals translocate directly to the brain without entering the lung (Elder A, Gelein R, Silva V, et al., 2006). Changes in cognitive function in children have been shown to be associated with relatively low internal doses of lead (Lanphear BP, Hornung R, Khoury J, et al., 2005) and mercury. In addition to being linked to cognitive deficits in children, lead has been related to a diversity of behavioural problems (reading problems, school failure and delinquent behaviour), with a high social impact. In experimental studies, some metals, such as mercury and lead, inhibit neuronal differentiation, myelination and synaptogenesis (Johansson C, Castoldi AF, Onishchenko N, Manzo L, Vahter M, Ceccatelli S, 2007), but the specific mechanisms for lead induced intellectual deficits have not been fully elucidated.

a) *Environmental Factors in Brain Development*

A well-known constellation of factors related to neurodevelopment could all play a confounding role or they could explain differences in vulnerability of the dose-response relationship between air pollution and neurodevelopment (Bellinger DC, 2008). These factors must be considered and include, for example, the social environment (including parental psychological status), breast feeding, diet, maternal smoking, birth-weight and noise (Clark C, Martin R, van Kempen E, et al. 2006) along with other pollutants such as lead, mercury, DDT and indoor air pollutants (those originating from indoor sources, such as heating and cooking, or from microbial contaminants, such as endotoxins). Endotoxins are the common structural component of Gram-negative bacteria in indoor air that induced chronic inflammation in the rat brain (Lehnardt S, Massillon L, Follett P, et al., 2003). Therefore, it is important to examine diet, since it is a major source of antioxidants. Antioxidant defense mechanisms could be increased by dietary means (vitamins, omega-3 (docosahexaenoic acid) and omega-6 (arachidonic acid) fatty acids, and other micronutrients (zinc and folic acid)) to protect against air pollutants (Kelly FJ., 2004). Antioxidants in the lung are the first line of defense against oxygen free radicals. All of these antioxidants are free radical scavengers and they react rapidly to limit interaction with lung fluid lipids

and proteins (Beck-Speier I, Dayal N, Karg E, et al., 2005). The brain is particularly susceptible to free radical-mediated insult, due to its inherent biochemical and physiological characteristics, including high lipid content and energy requirements (Pajovic SB, Saicic ZS, Spasic MB & Petrovic VM., 2003). Reactive oxygen species are generated continuously in the nervous system during normal metabolism and neuronal activity (Gurgueira SA, Lawrence J, Coull B, Murthy GG & Gonzalez-Flecha B., 2002). Similarly, genetic background may result in a differential susceptibility toward the oxidative stress pathway (Nebert DW & Vasiliou V., 2004). For example, antioxidant supplementation with vitamins C and E appears to modulate the effect of ozone in asthmatic children homozygous for the GSTM1 null allele (Romieu I, Castro-Giner F, Kunzli N & Sunyer J., 2008). Inflammatory cytokines released in the periphery (e.g. respiratory epithelia) upregulate the innate immune Toll-like receptor 2. Such activation and the subsequent events leading to neuro degeneration have recently been observed in lung lavage in mice exposed to ambient Los Angeles (CA, USA) particulate matter (Mohankumar SM, Campbell A, Block M, Veronesi B., 2008).

VI. CONCLUSION

To conclude, the study of chronic effects of air pollution should incorporate subtle health effects, such as functional delays in brain maturation and impairment of neurobehavioural competences, from early life exposures. The long-term consequences of these effects in the co-causation of neurodegenerative diseases have proved that our urban air is neurotoxic and deadly for our children and the chronic inflammatory process elicited within the respiratory tract upon exposure to outdoor and indoor air pollutants could serve as the trigger for a chain of events involving the brain. Hence, necessary steps have to be taken to put a check on this disastrous chain of air pollution.

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Interrogating National Conscience: Blacks Versus Whites in Louis Nowra's Radiance

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Abstract - In contemporary Australian drama, quite often family is represented as a portrait of the nation as a whole. The intimate family scenes are integrated with the larger political themes of strong contemporary relevance like Australian race relations, exploitation of women and the fragmentation of black families through state policies to which many contemporary Aboriginal people are heirs.

The present paper analyses that how Radiance, an internationally acclaimed play by one of the famous Australian playwrights, Louis Nowra exposes the secret history of Australia's black and white sexual relationships and the fate of mixed-race individuals and their status in contemporary white Australia. The play, an emotional story of the inter-personal relationships of three half-caste sisters, Mae, Cressy, and Nona and their mother becomes a narrative of historical Aboriginal stories of dispossession and sexual exploitation. The aboriginal myths of the stolen children and the Home coming are dealt with in the story of the three sisters in the play. The paper will focus on the bonding of the three sisters after initial mistrust, lies and mysteries. It will also be analysed that how this intense family drama is suggestive of the reconciliation at the national level.

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INTERROGATING NATIONAL CONSCIENCE BLACKS VERSUS WHITES IN LOUIS NOWRAS RADIANCE

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The present paper analyses that how *Radiance*, an internationally acclaimed play by one of the famous Australian playwrights, Louis Nowra exposes the secret history of Australia's black and white sexual relationships and the fate of mixed-race individuals and their status in contemporary white Australia. The play, an emotional story of the inter-personal relationships of three half-caste sisters, Mae, Cressy, and Nona and their mother becomes a narrative of historical Aboriginal stories of dispossession and sexual exploitation. The aboriginal myths of the stolen children and the homecoming are dealt with in the story of the three sisters in the play. The paper will focus on the bonding of the three sisters after initial mistrust, lies and mysteries. It will also be analysed that how this intense family drama is suggestive of the reconciliation at the national level.

Radiance (1993) for which 'Australian Literature Society' awarded Louis Nowra its Gold Medal in 1994 was first performed at 'The Belvoir Street Theatre,' Sydney on 21 September 1993. It is a painful story of three half-sisters' homecoming, ironically after their mother's death, to heal their estrangement from one another and from their mother. Like most melodramas of family dynamics, it becomes the occasion for divulging secrets and probing personal, collective and cultural memories. Behind this story lie Australia's ghostly echoes of the disruption of several generations of the Aboriginal families through decades of government's policies of assimilation and protection. As Veronica Kelly observes:

Nowra's concern with the social lives of his characters is blended with the psychic territory of a culture, with the creation that is of images which reflect the collective unconscious of a people. In other words, they reflect in Nowra's own terms the true reflection of his country's psyche in fictional images. (Louis Nowra 92)

The play was premiered after the High Court's June 1992 'Mabo Decision' which gave the Indigenous,

the right to claim their land. The play is a portrait of a political climate in which the Aboriginal right to 'home' yet remains provisional and dependent on the fluctuating goodwill of the powerful whites.

Set in North Queensland, the play revolves around the catastrophic lives of three half-sisters— Mae, Cressy and Nona, who return to their childhood beachside home on the eve of their mother's funeral. Their ethnic origin is not clearly mentioned in the text of the play, but the theme of exploitation foregrounds it automatically. Though their mother is already deceased at the start of the play, she seems to appear as a character in the story through the reminiscing episodes narrated by her daughters. The retrospective drama reveals that their mother was sexually oppressed by a number of violent white boyfriends. One of them named Harry Wells, a local sugarcane plantation owner, whom she truly loved, gave her a house to live in. She was under the false impression that he would marry her, but he never did because she was a black woman. And when she died, he gave her daughters the notice of eviction from his house.

Mae and Cressy remember their painful past, when as minors they were separated from their mother. The white officials had forcibly shifted them to a remote religious institution to civilise and to teach them according to the norms and the codes of conduct of the whites. The long years of loneliness, sexual exploitation and separation from her daughters gradually afflicted her with premature senility and eventually madness.

Mae, the eldest sister reveals her illicit love affair with a married doctor in the hospital where she served as a nurse. She was jailed for stealing money from the nurses' fund to buy him gifts. She has become an alcoholic and a kleptomaniac for she is abandoned by everyone she loved and cared for. She tells her sisters that she was fed up with her mother refusing to tell her anything about her heritage or even if she loved her or not. Nona, the youngest sister, has been drifting from one boyfriend to the other. She is jobless, and she, therefore, engages in free sex with several men in exchange of money. She has turned into a nymphomaniac. She is also beaten up and imprisoned by her lovers. The most painful and shocking revelation comes from Cressy, the middle sister who at the age of twelve was violently raped by one of her mother's

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boyfriends. Scared of him, she kept quiet until she discovered she was pregnant. The result of this sexual abuse was Nona's birth. She could never come out of this trauma. She tried to forget this dreadful experience as well as her alienation from her mother and her daughter Nona, by taking up a career of an opera performer and a singer. She has become somnambulist due to stress and overwork. She hated her mother for not putting up a strong fight to rescue her and Mae from the clutches of the white authorities.

Having disclosed all the secrets and shared all the painful experiences, the trio build a deep sense of understanding and belongingness. To pay homage to their mother, they decide to scatter her ashes on the Nora Island, their ancestral home. Mae and Cressy set the house of Harry Wells on fire to avenge their mother's painful death. A strongly emotional mother-daughter bond binds the trio together.

Radiance, on the one hand, is seen as an exposure of the Australian secret history of black and white sexual relationships and the trauma of the stolen generations of the black children on the other. Its analysis of the moral dilemmas of the indigenes dispossessed, trying to regain a 'home' has a strong contemporary relevance.

The image of the ghost of the history— the haunted past, finds its parallel in the spirit of the women's mother that haunts the house until it is burnt down to exorcise the heart-piercing memories of rape, lies and mysteries. As the play opens, Mae, the eldest daughter tries to get rid of these painful memories by burning the chair on which her mother used to sit. She hysterically talks to her dead mother:

MAE: Are you still there? You are, aren't you? I'll have to burn down this place to get rid of you. Ghosts burn, did you know that? And you'll burn. It'll all burn down, even ghosts can't live in a place that doesn't exist any more. (1)

The physically absent mother through her emotional recollection of her daughters, remains strongly present as a colonised survivor in the play. She is also depicted as a symbol of the trio's spiritual motherland. She becomes a living force of transformation of their lives and the creation of their new identities. This enigmatic mother figure, an emotional force-field around which her daughters revolve, enthuses in them the spirit of survival. In dramatic terms, her silences function as a metaphor for that historical void which Nowra sees at the centre of white Australian history: "a kind of black hole of mystified good and evil meanings which her daughters must now decode if they are to find some sort of enabling script for their own survival," informs Veronica Kelly (Theatre of Nowra 97).

The play is also seen as an allegory of the nation. Rosalba Clemente, the director of the first production of the play, refers to it as Nowra's

interrogation of the national conscience and its relation to Australia's repressed traumatic past and present scenario:

On our own island European culture has never really come to terms with its past so the past can never really be finished with. It continues to glide alongside us— an ever present ghost. This outpost of European society still has much to come to terms with particularly in the face of a now ever darkening Europe. (Radiance ii)

The issues of the Aboriginals appear more explicitly in Radiance. At a broader level, the repressed family histories are seen as parallels of the repressed histories of the nation, and these draw attention to their traumatic and psycho-social effects on the Aboriginals in the contemporary period.

The trio's return to their familial 'home' echoes the Aboriginal myth of homecoming. The legal judgement about the persistence of the native title in 1992 signalled the commencement, rather than the achievement of the homecoming journey. Radiance portrays the characters in it as the strong fighters to secure their 'home'— the house that belonged to their mother. Cressy has been straining herself to financially support Mae to maintain their isolated ramshackle house wherewith lie their roots. Mae tells Cressy: ". . . The day I arrived some couple walked through the house taking pictures. They thought it was derelict. I threw them out: [Rueful smile] Yelling at them 'It's my home! Get out. It's my home!'" (14)

Nona loves to be home and she says, "Home is where the heart is" (18). The sisters' homecoming gives them a sense of togetherness. However, they discover the truth that the house they were living in never belonged to the family, neither emotionally nor legally. It had instead been loaned to their mother by Harry Wells till he could receive her sexual favours. They have now been given the court's notice of eviction. The three are pushed to psycho-social marginality. They have been doubly exiled, first displaced from their homeland and now evicted from their mother's house. It projects the painful history of Aboriginal dispossession and also its legacy in the contemporary multicultural nation.

Through this play, Nowra returns to the unfinished post-colonial moment, where the Aboriginal people still strive for the heritage which is theirs by right of origin and long occupation, but which remains, as Veronica Kelly says "unattainable, blocked by legal machinery and by obscure or disavowed white paternity" (Theatre of Nowra 98).

The greatest assault on the Indigenous culture and family life was the forced separation of the indigenous children from their families. The deliberate displacement of mixed-blood children, the half-breeds, as they are called, from their families had been the chief concern of State and Federal Governments. The main objective was to make their Aboriginal culture extinct

and their unique identity lost as *The Australian* (2007) reported in the article, "The Culture of Denial" (Web 2010). This occurred in every Australian state from the late 1800s until the practice was officially ended in 1969. During this time as many as 100,000 children were separated from their families. These children became known as the 'stolen' children.

These forced separations were the deliberate policies of 'assimilation.' This act of assimilation was, however, a cunning device to cut indigenous children off from their culture, to make them think and act as 'white.' The chief aim was to establish eugenecism, the whites' policy of the racial purity. Most of the children separated from their families grew up knowing very little about their Aboriginal homes, families, culture and heritage. Mae and Cressy are depicted as the poor cases of the stolen children in the play. Mae tells Cressy, "I came here because I wanted to know where I came from, how I ended up the way I did . . . how did my great great grandparents get thrown off the island I wanted to know about my father. My relatives. About her" (43). She cries out as her identity is lost and asks Cressy, "You don't know. Who are you? Who is me? [Thumping her chest] Who is me? (43). Cressy also cries in pain: "Not good enough, Nono. Not good enough. Not to have a father and your mother not wanting to see you" (26-27).

The removed Aboriginal children were maltreated in the foster homes or other institutions. They were frequently punished if caught speaking in indigenous dialects. The boys were raised as agricultural labourers and the girls as domestic servants. The physical infrastructure of such homes and institutions was often very poor and resources were insufficient to improve them or to keep the children adequately sheltered, clothed and fed. Cressy and Mae had to go through the same traumatic experience in the convent suffering "in the steam and stink of the laundry, with its smell of starch and dirty clothes in hell" (27).

Nowra through *Radiance* theatrically foregrounds the questions of racial hybridity and sexual oppression. The three fatherless women in the play are fragments, indicating the shattering impact of sexual colonisation. Their scattering away from their family is theatrically emphasised in a black slapstick comedy scene (I, iii) in the play, in which the three women try to transfer their mother's ashes to a tin box, "*Radiance Liquorice Nougat*." They struggle and MAE whips the box of ashes from NONA and in so doing sprays the ashes on she and her sisters and the floor. The three women are wide eyed in astonishment. Silence The three are now laughing, almost hysterically (30). The ashes are scattered and the trio's strained efforts of collecting them back end up with the possession of a dusty mixture, this mixture pointing towards the interbred identity of the three.

The interbred individuals are even today treated as 'outcasts' by the government in Australia. Nowra raises his voice against the contemporary eugenic policy of the government. In an interview with Veronica Kelly, he told, "this nineteenth-century fantasy about pure blood is such a shocking fantasy, because, yes, it's still with us. A stinking political correctness" (89). He suggests that this purist version of Australian identity that marginalises the minority groups must definitely be challenged. Nowra believes that "eventually all the human races should interbreed," informs Margaret Throsby, who interviewed him in 1997 (Web. 2010).

Dramatising a shattered family's haunting by historical secrets and shame, *Radiance* explores the theme of sexual exploitation of powerless black women. This theme is staged through a series of narratives which reveal the painful mysteries. A black mother of part-white children, doubly vulnerable on racial and sexual grounds, had little chance. Cressy and Mae, though placed in institutions, at least knew who their mother was and where they were born, but she is their only kin and her own family connections are a mystery, perhaps as much to herself as to her daughters. Nona tells Mae and Cressy, "Mum said our relatives were scattered across the whole country" (10).

The three women not knowing anything about their fathers, whom they call "aliens" (19), are full of bitterness. Their bitter revelations and resentments represent larger issues concerning two hundred years of repression of the black voices and black histories. The light is also thrown on the contemporary urban social conditions of the Aboriginal women who have children of unknown paternity, and these children are separated from their families in their childhoods. This particularly hints at the sexual vulnerability of the Aboriginal women.

Radiance through its emotional family drama exhibits Australia's haunted past of dismantled Aboriginal families through decades of government's harsh policies. "Who is she?" is the refrain of the dead mother's song which becomes an interrogation of the state policies which led to Aborigines' dislocated history and disrupted identity:

She is handsome, she is pretty,
She is the belle of Dublin city,
She is courting one, two, three,
Please won't you tell me, who is she? (54)

Painful mysteries surround the paternity of the three women in the play but it is the semiotic bond with their mother that rebinds them. They were all she had. Her haunting presence functions as the centre from which their memories radiate. The tin box which once stored '*Radiance Liquorice Nougat*,' their mother's favourite sweet, and which gives the play its title, is "treated as a sacred object throughout the play," observes Paul Makeham (190). This box now contains their mother's ashes which reminds them of her oppression at the hands of the whites. The trio intend to

take her ashes 'home' to Nora Island, their ancestral home: "We're scattered, like Mum, like her mum. But we'll take her home. And we'll have to do that for each other" (50). Though their identities are scattered, yet they are emotionally bonded with each other and with their mother symbolising the strong ties of the Aboriginal kinship. This kinship bond between them is the only uniting force worth sticking to. They set Harry Well's house on fire to avenge their mother's exploitation by him and the whole white paternity.

This act of revenge becomes an act of redemption for the three women in the play. As Leslie Rees puts, "In Nowra's theatre, the act of killing or any kind of destruction functions as a device of exorcising pain, loss and errors committed in the past. It paves the way for new future forgetting the anathemic relationships" (297). It enacts a ritual cleansing for Cressy as it was this dirty house where her child-like innocence was brutally destroyed by rape. For Mae, the radiating fire from the house burns the painful memories of lies, mysteries and betrayals with it. In a larger political sense, this act might be understood as the Aborigines' fight against their oppression by the whites. Paul Makeham reviews this act as "Nowra's preoccupation with fire's capacity to cauterise the colonial wound" (192).

With the radiating fire, the three women beam with joy and sing the loud version of 'The Belle of Dublin City.' They dance hysterically to this song, the unifying family ritual—the only thing they learnt from their mother. They laugh. Silence. They look at one another. The song has brought them together (50). They try to emerge as survivors of a painfully fragmented hybrid history. Mae says of Nona, "She's a born survivor. All us three are." "Sort of," Cressy equivocally replies (54). As the play ends, the trio try to reconstruct their identities from the hybrid heritage of pain, guilt and mysteries.

Through the painful story of the Aboriginal family, *Radiance* on the one hand exposes the cruel and injustice Australian race relations prevalent in contemporary society, and on the other focuses on the need to retrieve the past—both at personal and national level for an integrated self and integrated nation through understanding, bonding and faith. The evil legacies of the past need to be evaded to pave the future path of comfortable survival. Like the united family in the play, the nation must unite by letting the bitterness, illusions and misconceptions go.

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You can use your own standard format also.

Author Guidelines:

1. General,
2. Ethical Guidelines,
3. Submission of Manuscripts,
4. Manuscript's Category,
5. Structure and Format of Manuscript,
6. After Acceptance.

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(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

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Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

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- Not at all, take in raw data or intermediate calculations in a research manuscript.



- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

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- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
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- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

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