SOCIO-ECONOMIC IMPACTS OF DEFORESTATION ON RESIDENTS OF UKWUANI LOCAL GOVERNMENT AREA, DELTA STATE, NIGERIA

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Abstract

Forest and its resources play essential role in the sustenance of mankind and the ecosystem especially as millions of people including plants and animals in the world depend on forests for their livelihood and shelter. In spite of the importance of this earth's veritable resource, man's exploitation and use of it has led to its degradation and depletion but not without some consequences. This study examined the socioeconomic impacts of deforestation on residents of Ukwuani Local Government Area, Delta State, Nigeria. Adopting the passive observational research design approach the study uncovered that the rapid depletion of forest and forest resources through acts of deforestation has also resulted in the loss of farm land, reduced income that negatively has affected the socioeconomic well-being of the people. The study recommends massive awareness campaigns aimed at making the people know the importance of forest as sure way of slowing down the rate of deforestation in the area.

Keywords: Socio-economic, Deforestation, Forest, Forest resources, Environmental degradation

1. Background to the study

Forest and forest resources are essential ingredients for the socio-political and economic survival of any social system. This is because of the role which forest and its resources play in the advancement of the society and environment. The importance of forest can be easily seen only when we appreciate the fact that over 1.6 billion people across the world depend majorly on forest resources for livelihood. Forest provides vital ecological functions, there absorption of carbon-dioxide and release of energy through photosynthesis help to control the level of greenhouse gases. This process, in turn, helps to moderate fluctuations in global temperatures

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and provides the atmospheric elements essential for all living things. The widespread conversion of forested ecosystems to grass land and pasture contributes to the increase in atmospheric carbon dioxide and the build-up of greenhouse gases.

Forest vegetation also helps to support the resource base by nutrient cycling. Forests keep soil from eroding into rivers and aid flood control and the prevention of silting of reservoirs. Many forest species, their potential use to society, and their ecological importance are yet to be discovered. Untapped treasures contained in the genes of forest-dwelling plants, animals and micro organisms include undeveloped medicines, crops, animals, pharmaceuticals, timbers, fibres, pulp, soil-restoring vegetation, petroleum substitutes and countless other products and amenities. If forest felling continues, new and existing sources of scientific information will be forfeited and vast potential biological wealth will be destroyed.

It has been estimated that between 2000 and 2012, 2.3 million square kilometers (890,000sq.mi) of forests around the world were cut down. (Wikipedia,2018). This source also indicated that of the original 16 million square kilometres (6 million square miles) of forest that formerly covered the Earth, only 6.2 million square kilometres (2.4 million square miles) are not deforested. The Food and Agriculture Organisation (FAO, 2001), opines that Nigeria through careless exploitation and husbandry, destroys about 600,000 hectares of her forest every year, whereas the reforestation effort is about 25,000 hectares a year; replenished only 4% of the loss. The constant deforestation attitude has caused the extinction of plants and animals in Nigeria. Nigeria ranks the top 10 countries in the world with highest rates of deforestation and second highest in Africa, behind Sudan,.

For Henkel (n.d) rapid deforestation occurring on a large scale is associated to factors such as disregard of ascribed value, lax forest management, and deficient environmental more so, the degradation of forest ecosystems has also been traced to economic incentives that make forest conversion appear more profitable than forest conservation. (Pearce, 2001). Many important forest functions have no markets, and hence, no economic value that is readily apparent to the forests' owners or the communities that rely on forests for their well-being.

Forest removal unfortunately causes flooding, siltation of rivers and streams, the entrophication of fish and losses in agricultural production systems which, in turn, affect the socio-economic activities of the people, leading to or aggravating unemployment, scarcity of forest resources, emigration, civil unrest, crime, poverty, and food shortage amongst others.

In view of the veritable role forest and its resources play in the advancement of the society, goal 4 of the Sustainable Development Goals (SDG) seeks to Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and reduce biodiversity loss (UN General Assembly, 2014).

A review of man's interaction with forest resources in the study area shows rapid abuse of these earth-given precious resource-forest with its attendant negative effects on the ' socio-economic life of the people. Communities in Ukwuani are and are still witnessing incessant deforestation which at present threatens the socio-economic life of the people. For example, residents of these communities destroy the forest through bush fire, excessive cultivation for agriculture, urbanization, logging, collection of fuelwood etc. Little did they know that the removal of the forests unsustainably will have adverse effect on the socio-economic life of the people.

The effects of deforestation on the socio-economic activities of the communities are numerous. The peasants suffer degradation of farmlands and deprivation from access to land. The quality of life in the rural communities has worsened in recent years as the basic means of livelihood such as fertile land and forests resources are increasingly being threatened. Large number of the people living in the communities suffers unemployment, poverty, hunger, forced migration, civil unrest, and scarcity of forest products.

Though, environmental problems such as deforestation, global warming, wind disaster, earthquake, landuse and land cover change, are the result of millions of individual local actions and decisions, environmentalists have learnt that global environmental problems are inter-twined with local individual actions operating at the grass root level in the different global localities of the world (Desai, 1998). There is therefore an urgent need to examine the effect of deforestation on the socio-economic activities of the study area and to develop appropriate responsive and sustainable management strategies to curb this growing menace.

2. Materials and Methods

Data for this work came from both primary and secondary sources. The primary source of data was obtained from survey through the use of structured and semi-structured questionnaires. The secondary data came from already published materials. The study adopted the passive observational research design since the researchers do not intend to manipulate any variable

more so this design provides the necessary framework for dealing with the research problems as well as helping in defining the research purpose and boundaries.

Ukwuani local government area has a total population of 80,957 persons, (Census, 1991). Of this population, a sample fraction of 0.21% was which gave a sample size 236 respondents. To ensure that all segments of the study area have equal chances and non-zero chance of been selected the stratified and the simple random sampling techniques were used. The unit of inquiry is the various heads of households while the unit of analysis is the local government area.

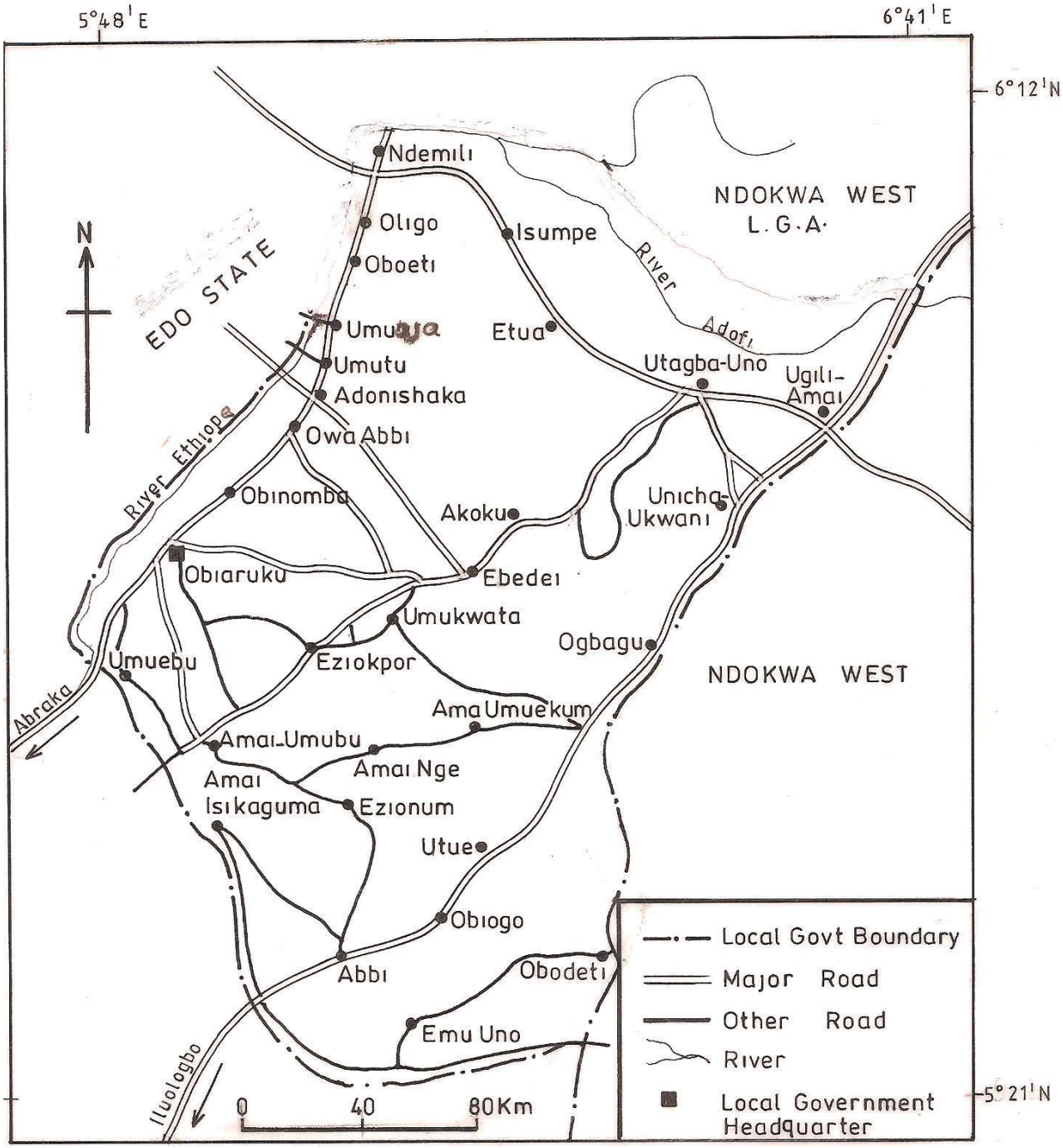
3.Study Area.

Ukwuani Local Government Area (LGA) is geographically located between latitude $5^{o}21'N$ and $6^{o}12'N$ and longitude $5^{o}48'E$ and $6^{o}10'E$. It is bounded in the north by Ndoka-West, in the south by Iliologbo (Isoko-North Local Government Area) and West by Edo State, South – West by Abraka and Ethiope-East LGAs (figure 1). Ukwuani is situated within the Niger-Delta region of Nigeria. The rock type in the area is of the sedimentary type, which falls within the recent Holocene era. There are many river valleys in the area of study. Notable among them are River Ethiope, and River Niger .

The climate of the study area is humid sub equatorial with a long wet season lasting from March to October that alternates with a shorter dry season that last from November to February. The climate is influenced by two prevailing air masses – the South West Monsoon wind and the North East Trade wind

The vegetation of the study area consists of rain forest type. The forest consists of many trees which include iroko, mahogany, obeche, opepe, ebony, abura among others. The raphia palm, sciophytes and epiphytic plants are also present in the area.

Fig.1: Ukwuani Showing study Communities.



Source: Town Planning Area Office, Obiaruku, 2018.

4. Conceptual Framework and Review of Literature

This study is anchored on three conceptual frameworks: environmentalism; possibilism; and probabilism. Environmentalism is a concept that emphasized that all activities of man in space are determined and dictated by the environment. It indicates that man's socio- economic activities are determined by his environment. The physical configuration such as the relief, soil, and vegetation conditions determines the activities of man. Proponents of environmentalism (Carney and James 2006, for example) opine that there is rather a direct link between the built environment and behavior within it. For members of this school, man's behavior to a large extent is determined by the physical environment (Carney and James 2006).

Possibilism is a philosophical view which opines that the physical environment offers man a range of opportunities from which he selects according to his cultural needs and norms. This theory was popularized by the French school of geography especially Vidal de la Blache and Brunhes. For this school, man has freedom of choice while human activities are the results of peoples' choices within an inert or permissive environmental frame (Goodall,1987). The causal attributes of environmental determinism is replaced in this case, with the view seeing environment as a "passive limiting agency" (Carney and James, op cit).

Generally speaking, the concept of environmental possibilism states that the environment offers possibilities but man can to some extent control and influence the environment. It indicates that man influences the physical environment and the environment can also influence the behavior of man. The behavior of man is considered according to human needs.

The third position is environmental probabilism which emerged to capture the probabilistic relationship between physical environment and behavior. It was conceptualized that certain behaviors have probabilistic links to the environment. For example, an attractive, warm and welcoming entrance to a campus environment will increase the probability of it being entered more than if it is cold and unwelcoming. The welcoming entrance does not cause entry, but the probability of entry can be increased with proper design. As a result, the attributes of forest resources increases man's interaction with his environment

The relationship between possibilism as a concept and deforestation can be traced to the fact that the environment had provided the resources (forests) for man to use. The excessive exploitation of the resources (forests) without considering the sustainability of the environment has led to the problem of deforestation.

A lot of authors have written copiously in this subject area. Alakpodia (1947), worked on direct effects of fire on vegetation, and pointed out that if fire is very hot, leaf, mould; the upper part of the humus containing the plants is destroyed. He also pointed out that rainfall interception is eliminated when losses are not increased proportionately. The soil moisture content may rise for lack of plants to use up the water. From the work of Alakpodia, (op cit), it is clear that uncontrolled fire can trigger off soil erosion and total destruction of plant species. The study only addressed one factor of deforestation – fire. He failed to consider the other factors responsible for deforestation such as agriculture, logging, population, urbanisation and effect it has on the socio – economic life of the people.

Dale (1952), worked on the effects of fire on vegetation. He pointed out that fire is an important factor that affects the growth and development of plants. According to Dale (op cit), there are cardinals temperatures under which a plant can survive. As stated, whenever the local temperatures are above the figures for the environment, the plants find it difficult to cope. The basic physiological process like transpiration and photosynthesis are disturbed and the general effect is that the biological productivity of such plant community falls drastically. Dale failed to ascertain the extent to which fire affected the plant species. Also, the impact of deforestation is not explicitly addressed since only one factor (fire) that is responsible for deforestation is researched into.

Aweto (1990) stated that in Nigeria, the area previously characterised by continuous forest cover has been converted into secondary re-growth vegetation, mainly as a result of shifting cultivation and lumbering. People engaged in the trade of forest products locally and internationally. This is one of the controversial issues in international trade. While some individuals and states encourage such trade in order to generate revenue others, are campaigning against such trade on grounds that deforestation is devastating to the environment. The case of Nigeria is pathetic because the most vulnerable group in the society (women and the poor) use some of the wood as fire wood for cooking in the absence of cooking gas. Deforestation is a form of disinvestment for the future generations because the nutrients in the soil would have been lost in time and space (Aweto, 1990).

Wilm (1952), worked on the influence of forest vegetation on water and soil. He stated that one of the earliest and most widespread conjectures on the relation of forests to water has been their influence upon climate. For FAO, while the recommended forest cover for every

nation is 26 per cent, the reverse is the case for Nigeria, because the country's forest cover is said to be less than six per cent

5. Results and Discussion

Socio-Economic Characteristics of the Study Area

5.1 Sex

The result of our survey indicate that majority of the respondents were male constituting 63.0 percent while the corresponding value for female is 37.0 percent. The presence of more male than female has some implication especially when viewed against the background that men engage more in diverse activities that also reinforce deforestation in the study area

Table 5.1: Sex of respondents

S/NO	Sex	Frequency	percentage
1	Male	145	63.0
2	Female	85	37.0
	Total	230	100.0

Source: Field Survey, 2018.

5.2: Marital Status

Table 5.2 indicated that more than half of the respondents are married (82.2 percent). Those that are single accounted for 6.5 percent, widowed are 7.0 percent and the least is divorced with 4.3 percent.

Table 5.2 Marital Status

S/NO	Marital status	Frequency	Percentage
1	Single	15	6.5
2	Married	189	82.2
3	Devoiced	10	4.3
4	Widowed	16	7.0
	Total	230	100.0

Source: Field Survey, 2018.

Table 5.3 considered the age of respondents and it revealed that the ages 41-50 years and 51-60 years dominates the study area with 38.3 percent and 33.0 percent respectively. The age 31-40

years is 18.7 percent, 21-30 years and 61-70 years are 3.5 percent and 6.5 percent respectively. The High number of ageing population in the area is expected given that the rural nature of the area may have encouraged lost its young population to neighboring towns in search of greener pastures.

Table5,3 Age Distribution

S/NO	Age	Frequency	Percentage
1	21-30 years	8	3.5
2	31-40 years	43	18.7
3	41-50 years	88	38.3
4	51-60 years	76	33.0
5	61-70 years	15	6.5
	Total	230	100.0

Source: Field Survey, 2018

5.3 Occupation

In table 5.4 majority of the respondents are farmers {51.7 percent}, followed by civil servant {23.9 percent}. Others include traders {15.7 percent}, business {0.9 percent}, retired [2.6 percent}, unemployment {3.9 percent}, and fishing 1.3 percent respectively.

Table 5.4 Occupation

S/NO	Occupation	Frequency	Percentage
1	Farming	119	51.7
2	Fishing	3	1.3
3	Business	2	0.9
4	Civil Servant	55	23.9
5	Trader	36	15.7
6	Unemployment	9	3.9
7	Retired	6	2.6
10	Total	228	99.1

Source: Field Survey, 2018.

5.4 Extent of deforestation in Ukwuani LGA

An analysis of the extent of deforestation in the study area reveals that diverse human activities contribute to the issue of deforestation in Ukwuani. The result is shown in the table below:

Table 5.5: Summary on the extent of deforestation by activity type

Activities	VH	H	MH	L	VL	NA	Total (%)
Farming	91.7%	7.4%	0.9%	-	-	-	100.0
Lumbering	94.3%	3.9%	1.7%	-	-	-	100.0
Fuelwood collction	98.7%	0.9%	0.4%	-	-	-	100.0
Grazing	33.5%	47.0%	17.4%	2.2%	-	-	100.0
Fertilizer	3.5%	8.7%	17.8%	44.8%	212.7%	3.5%	100.0
urbanization	95.7%	3.0%	1.3%	-	-	-	100.0
Bush fire	93.0%	5.7%	1.3%	-	-	-	100.0

Source: Field work, 2018.

Overall the result indicates that farming (91.7%), lumbering (94.3%), fuelwood collection (98.7%), Urbanization (95.7%) and Bush fire (93.0%), are the major cause of deforestation in the study area. The contribution of fertilizer to deforestation is very insignificant.

5.5 Socio-economic effects of deforestation

The result of the effect of deforestation on the socio-economic lives of the residents of the study area is as shown in Table 5.6. On the whole, 81.3% of the respondents strongly agreed that deforestation is the major cause of the loss of economic trees in the study area. Also, when the total percentage of respondents was summed together, it indicated that 95.2% (81.3% + 13.9%) of the respondents confirmed that deforestation is a major cause of the loss of economic trees in the study area.

The result indicated that 93.9 %(62.6% + 31.3%) of our respondents strongly agree that deforestation contributed to loss of lives and properties in the study area. The result also revealed that the deforestation is major cause of unemployment with 90.5 %(62.2% + 28.3%) of respondents. Furthermore, 68.7% of respondents affirmed that the flooding and erosion problems in the study area are caused by deforestation. His result confirms our claim that there is a relationship between rate of deforestation and the socio-economic status of communities in Ukwuani LGA.

Table 5.6: PROBLEMS CAUSED BY DEFORESTATION

S/no	Problems	SA	A	U	SD	D	NA	Total (%)
1	Loss of economic trees	81.3%	13.9%	3.9%	0.9%	-	-	100.0
2	Loss of lives and properties	62.6%	31.3%	3.5%	3.5%	1.3%	1.3%	100.0
3	Unemployment	62.2%	28.3%	7.0%	2.6%	-	-	100.0
4	Scarcity of fertile land	36.5%	41.7%	16.5%	3.5%	1.7%	-	100.0
5	Loss of medicinal plants	26.1%	13.0%	8.3%	19.6%	32.2%	0.9%	100.0
6	Flooding and Erosion	50.0%	18.7%	12.2%	12.2%	7.0%	-	100.0

Source: Field work, 2018

A sector by sector analysis shows that 95.8 percent (67.0% + 24.8%) of deforestation activities is carried out by members of the community contributed in the study area. The Lumbermen contribution to deforestation is very high with 71.3% of respondents. Against this background, the government (45.7%) contribution is very low. The result that the community contributed 95.8% to deforestation may be attributed to the farming activity which is the major occupation of the people in the study area.(see table below).

Table 5.7: Summary Analysis on the level of Deforestation

S/no	**Name**	**VH**	**H**	**MH**	**L**	**VL**	**Total (%)**
1	Community	67.0%	24.8%	5.7%	2.6%	-	100.0
2	Private persons outside the community	71.3%	22.2%	4.8%	1.7%	-	100.0
3	Government	14.3%	3.9%	21.3%	45.7%	14.8%	100.0

4	Lumbermen	71.3%	6.5%	5.2%	13.9%	3.0%	100.0

Source: Field work, 2018.

The study sought to ascertain the ways deforestation activities are carried out in the study area. The study investigated the ways and found that deforestation is mostly through illegal exploitation (99.2%), legal exploitation (98.8%) and indiscriminate burning of bush (94.4%) as indicated in table 5.8. Based on this analysis, it indicates that the loss of forest resource was through illegal exploitation and indiscriminate burning of bush in the study area. The removal of forest resources especially through burning of bush will not only destroy the forests but could also affect the socio-economic activities of the people in the study area.

Table 5.8 Summary Analysis on the factors accounting for deforestation

Factors	**SA**	**A**	**SD**	**D**	**U**	**Total (%)**
Illegal Exploitation	97.0%	2.2%	0.4%	0.4%	**-**	**100.0**
Legal Exploitation	76.1%	21.7%	0.4%	1.7%	-	100.0
Indiscriminate burning of bush	77.4%	17.0%	-	0.3%	4.3%	100.0

Source: Field work, 2018

6. Conclusion and recommendation

The study looked out the effects of deforestation on the socio-economic well-being of residents of Ukwuani LGA in Delta State, Nigeria. It was discovered that many factors such as anthropogenic factor amongst others are the major causes of deforestation. The finding also revealed that farming (91.7%), lumbering (94.3%), fuelwood collection (98.7%), urbanization (95.7%) and bush fire (93.0%) are the major causes of deforestation in the study area. The uncontrolled nature of deforestation in the study area negatively reinforces the loss of economic trees; loss of lives and properties; unemployment; soil erosion; scarcity of fertile soil; imbalance in the ecosystem; loss of medicinal plants that in turn affects the socio economic well-being of the people of Ukwuani community.

The importance of forests to the sustenance of mankind is an incontrovertible fact that should not be overlooked. Thus, effort aimed at reversing current trend through replanting of lost trees,

forest regeneration, enforcement of environmental laws and enlightenment campaigns should be pursued.

In view of the identified negative effects of deforestation on the people of Ukwuani LGA, it is recommended that a more friendly approach which seeks for the integration of resources exploitation, economic growth and physical development with environmental sustainability be adopted. This is to enhance the quality of life of the people and improve the quality of life in the communities and enhance their capacity and capability to meet and manage their social, economic, cultural and political activities.

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