



**Technology  
Education &  
Environmental  
Issues  
in Nigeria**

**NATT**

**NIGERIAN ASSOCIATION OF TEACHERS  
OF TECHNOLOGY**

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**FUNDING OF ENVIRONMENTAL ACTIVITIES IN DELTA AND EDO STATES OF NIGERIA (1992 – 1997)**

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**ABSTRACT:**

*The public sector remains the most important source of funds for environmental activities in Nigeria. The study aims to establish if proportional attention has been devoted to the environmental sector. Summaries of the official annual budgets of the States considered in this study constituted the research data, which was analysed using simple linear regression and analysis of variance. It was found that on the average, 93% of variations in the environmental sector budget were due to variations in the total budget of the States. Conclusions were drawn that funding for the environmental sector had been dictated by the level of funding available for the States concerned as a whole, with estimated values of environmental budgets being 10% – 15% of total annual budgets. It was recommended that the consistency in the trend of financial allocations revealed by this study should be maintained and improved upon. Private sector participation (PSP) through Private Financed Initiatives (PFI) in areas such as water supply, sewerage, and housing could also be explored.*

**INTRODUCTION:**

Public sector definitions of the environmental sector show that it encompasses the following activity sub sectors: (i) Community development/Special Areas Development, (ii) Housing, (iii) Sewerage and Drainage, (iv) Town and Country Planning, and (v) Water resources/Water Supply, at least for budgetary expenditure purposes in most States in Nigeria, (Edo State, 2000; Lagos State, 2000). Environmental activities of the governments of the States in Nigeria thus cover a very wide spectrum of activities, and of necessity require prodigious amounts of funding. Historically, the environmental sector had been funded mainly from the public purse, as Nwosu (1977) observed of the First and Second Development Plans of Nigeria. Private and non-governmental funding of specific areas or programmes of environmental activity has become more important in the last two decades of the last century. Such funding is usually directed towards the improvement of urban and rural water supplies and sanitation. In terms of consistency and volume, however, the public sector remains the most important source of funds for environmental activities in Nigeria, as in developing countries generally, (Bahl and Linn, 1992).

The study area covers two Nigerian States that are located almost wholly within the Niger delta area of the country. Both States fall within the geopolitical grouping of the South-South. Growing awareness of the undesirable effects of crude oil prospecting and exploitation in the study area and beyond has generated restiveness in the people of the area. Such undesirable effects include the destruction of the natural flora and fauna, and poisoning of surface and ground water supplies, (Oyebande, 1990). Unfortunately for the inhabitants of the Niger delta areas, the provision of physical infrastructure such as roads, hospitals, water supply facilities etc have not been in any reasonable proportional ratio to the exploitation of crude oil. Deprivation of the area might be linked to the fact that the nature of the environment renders the provision of such infrastructure an exceedingly expensive undertaking.

The period of the study derives its importance from three main sources. The first is the fact that for the period of the study Nigeria was under military rule, with the attendant implications of arbitrariness in allocations stemming from the pursuit of legitimacy from the governed by the ruling junta, (Nwosu, 1977). Secondly the period coincides with increased agitations by the peoples of the Niger Delta area for greater attention to environmental and infrastructural issues that resulted in the execution of the leaders of the agitation in 1995. Lastly, the period comprises of the succeeding years after the Earth Summit in Rio de Janeiro in 1992; which represents the peak in international attention devoted to environmental matters.

Within the context of the financial resources of the States comprising the study area (represented by their total annual budgets), this study aims to establish if proportional attention has been devoted to the environmental sector. To this end, it was hypothesised that the total annual budgets of the States considered in the study have no effect on the sizes of the allocations to the environmental sector.

#### MATERIALS AND METHODS:

Summaries of the official annual budgets of the States considered in this study constituted the research data used for the analysis. Such summaries were obtained from the following sources.

- 1) Delta State Ministry of Finance, Budget and Economic Development, Asaba, Delta State.
- 2) Edo State Ministry of Finance, Budget and Economic Development, Benin City, Edo State.

The research method adopted for this study utilized graphical representation to describe the data collected. The inferential statistical techniques of simple linear regression and analysis of variance were used to test the research hypothesis. Table 1 below provides a summary of the data collected and used for the study.

Table 1 Raw Data Used For The Research

Year	DELTA STATE		EDO STATE	
	Total State Budget (N)	Total Capital Budget for Environmental Sector (N)	Total State Budget (N)	Total Capital Budget for Environmental Sector (N)
1992	1,194,773,750	81,976,900	958,588,000	54,099,000
1993	1,842,208,360	85,137,500	1,834,964,670	112,623,000
1994	2,207,087,730	238,611,500	1,728,269,000	132,392,000
1995	2,579,987,260	232,272,440	2,887,726,000	215,149,000
1996	4,359,510,060	431,328,300	3,372,417,000	328,541,000
1997	4,504,626,000	620,197,640	3,159,491,000	258,935,000
TOTAL	16,688,193,160	1,689,524,280	13,941,455,670	1,101,739,000

Sources: Delta State Ministry of Finance, Budget and Economic Development, (2001); Edo State Ministry of Finance, Budget and economic Development, (2000).

#### RESULTS AND DISCUSSIONS:

Figure 1 below provides a graphical representation of the data collected and used for the study. In Table 2 the results of the analysis of the research data are displayed.

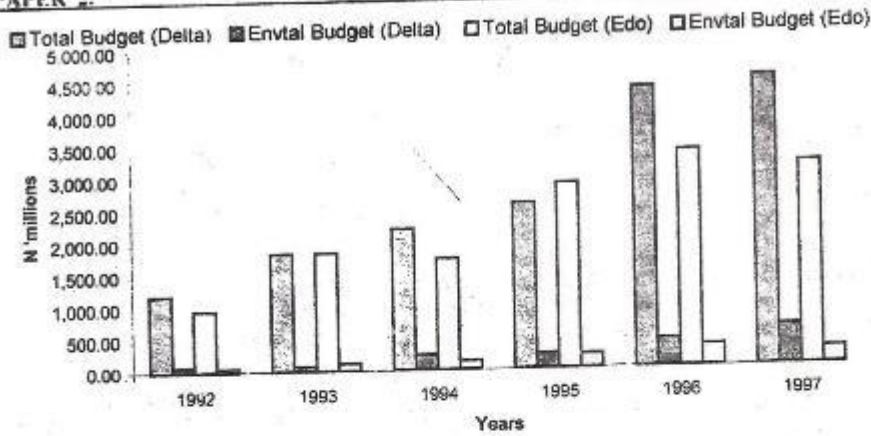


Fig. 1: Budgetary Allocations to Environmental Sectors In Delta and Edo States [1992-1997]

Source: Author's analysis of research data, (2002).

Table 03: Influences of Total State Budgets on Allocations to Environmental Sector.

Exp No.	Variables		Results of Experiment				Inference		
	X	Y	Regression Equation	R <sup>2</sup> %	F <sub>cal</sub>	F <sub>tab</sub>	P Value	Strength of Relationship	Rmk
1	TSB Delta	EnvB Delta	EnvBDelta = -126.927 + 0.147TSBDelta	90.6	7.71	38.5	0.003	Very Strong	S
2	TSB Edo	EnvB Edo	EnvBEdo = -57.568 + 0.104TSBEdo	94.6	7.71	69.6	0.001	Very Strong	S

Key: NS = Not Significant; S = Significant

Source: Researcher's analysis of research data (2002).

It was observed in experiment no. 1 that 91% of variations in the environmental sector budget of Delta State are due to variations in the total budget of the State. This finding coupled with (i) direct proportionality, (ii) an F<sub>calculated</sub> figure (38.5) higher than the F<sub>tabulated</sub> figure of 7.71, and, (iii) probability value of 0.003, far below the  $\alpha$  level of 0.05, it was inferred that the variables were related in a statistically significant manner. In the case of Edo State, the percentage of derived variations was 95%. In terms of magnitude, the relationship between the variables in Edo State was even stronger than that of Delta State. For experiment no. 2, positive linearity was observed as well an F<sub>calculated</sub> value of 69.6 as against a tabulated value of 7.71. The probability value was 0.001. The regression equation obtained for both experiments shows that in Delta State estimated values of budgets for the environmental sector will be about 15% of the total annual budget (beta coefficient = 0.147), while in Edo State, the value is about 10% (beta coefficient = 0.104).

These results are in agreement with the trend in funding of environment-related activities within the last two decades. Such funding increased tremendously in the 1980s and 1990s, being brought about mainly by the spate of international campaigns on the importance and problems of the environment. Foreign funding has also been a significant component of such increased expenditure on the environment. Furthermore, earlier trends in environmental sector funding as observed of the



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first three National Development Plans of Nigeria (1962-68; 1970-74; 1975-80) by Dean, (1972) and Nwosu, (1977) that consistent attention was not paid to the environmental sector appear to have petered out.

**CONCLUSIONS AND RECOMMENDATION:**

This study concluded as follows: - (i) Environmental budgets were a significant component of total annual budgets over the six-year period covered by the study. (ii) Nine times out of ten, changes in the size of the environmental sector budgets were due to changes in the size of the total state budget. (iii) In terms of the influence of the total annual budget upon the environmental sector budget, Edo State ranked first ( $R^2 = 94.6\%$ ); Delta State was a close second ( $R^2 = 90.6\%$ ). (iv) Values derived by estimation of the environmental sector budgets were about 15% and 10% of the total annual budgets of Delta and Edo States respectively. The import of these findings is that while they did not show the adequacy or otherwise of the funding for environmental activities, it was clear that commitment to the sector existed. Funding for the sector has been dictated by the level of funding available for the States concerned as a whole. The initial study hypothesis was therefore rejected.

The following measures were recommended by this study as a way to improve the impact of the environmental sector in the States covered. First, the consistency in the trend of financial allocations revealed by this study should be maintained and improved upon. Secondly, efforts should be directed towards increasing the sizes of the total annual budgets of the States. Thirdly, alternative sources of funding for the component areas of the environmental sector should be explored. These recommendations could be implemented by (i) leaving in place current budgetary processes in the States, (ii) enhancing internal generation of revenue, and (iii) encouraging private sector participation (PSP) through Private Financed Initiatives (PFI) in areas such as water supply, sewerage, and housing. Further research could focus on the derivation of appropriate models for private sector participation in the environmental sector.

**REFERENCES:**

- Edo State, Government of, (2000) 'Annual budget summaries': Benin City, Nigeria, Edo State Ministry of Finance, Budget and Economic Development, unpublished.
- Lagos State, Government of, (2000) 'Annual budget summaries': Ikeja Lagos, Nigeria, Lagos State Ministry of Finance, Budget and Economic Development, unpublished.
- Delta State, Government of, (2000) 'Annual budget summaries': Asaba, Nigeria, Lagos State Ministry of Finance, Budget and Economic Development, unpublished.
- Bahl, R.N., and Linn, J.F., (1992). *Urban public finance in developing countries*. Oxford University Press, New York, USA. Pp. 38-489.
- Dean, E., (1972) *Plan implementation in Nigeria 1962 - 66*: Ibadan, Nigeria, Oxford University Press, p. 23.
- Nwosu, H.N., (1977) *Political authority and the Nigerian civil service*. Enugu, Anambra, Nigeria. Fourth Dimension Publishers. Pp. 1-173.
- Oyebande, L., (1990) 'Water supply needs in the 1990s and strategies for satisfying them': *Water resources journal* (Nig. Hydrological Assoc) Lagos, Nigeria, Vol 2(2) pp. 14 - 25.