

Original Paper

World Environment Day 2024 Initiatives in Bayelsa State: Promoting Environmental Stewardship and Sustainable Practices - A Collaboration Between Federal University Otuoke, Niger Delta University, and the Nigerian Environmental Society

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Abstract

Environmental degradation has emerged as a critical global issue, significantly impacting ecosystems and human health, particularly in low and middle-income countries like Nigeria. The need for comprehensive and sustainable environmental management practices is paramount to address these

challenges effectively. This study aims to assess the current state of environmental degradation in Bayelsa State, Nigeria, and evaluate the effectiveness of initiatives undertaken during World Environment Day (WED) 2024 to promote environmental stewardship and sustainable practices. The study employed a mixed-method approach, including field observations, community surveys, and analysis of environmental data. Activities during WED 2024, such as tree planting, educational lectures, and site visits, were evaluated to determine their impact on raising environmental awareness and promoting sustainable practices. The activities conducted during WED 2024 significantly increased community awareness about environmental issues and the importance of sustainable practices. The planting of 500 native saplings contributed to combating deforestation and soil erosion, while educational lectures and site visits provided residents with practical knowledge and insights into environmental conservation. The initiatives undertaken during WED 2024 in Bayelsa State have laid a strong foundation for fostering a culture of environmental stewardship. By engaging the community and promoting sustainable practices, these efforts have set a positive precedent for future conservation activities, contributing to a more resilient and sustainable environment. To build on the success of these initiatives, it is recommended that the Bayelsa State Government enact stricter environmental laws and regulations. Increased environmental advocacy by the Nigerian Environmental Society and other stakeholders is crucial, along with adopting sustainable agricultural practices and improving waste management systems. This study highlights the critical role of community engagement and education in promoting environmental conservation. The findings demonstrate that targeted initiatives, such as those undertaken during WED 2024, can significantly enhance environmental awareness and drive sustainable practices, contributing to the overall resilience and sustainability of ecosystems in Bayelsa State and beyond.

Keywords

Sustainable Practices, Degradation, Stewardship, World Environment Day, Community Engagement, Conservation, Awareness, Ecosystem Restoration, Otuogori Community, Ekoli Creek, Etelebou dump site, Bayelsa State

1. Introduction

Despite numerous research efforts on environmental degradation, little progress has been made in the last 30 years. Approximately 2.4 billion people living in low- and middle-income countries rely on the combustion of solid biomass fuels, such as wood and charcoal, for daily heating and cooking needs. The inefficient combustion of these fuels in traditional cookstoves emits harmful gaseous pollutants and particulate matter (PM_{2.5}) that are associated with multiple adverse human health outcomes, including acute and chronic pulmonary and cardiovascular effects. Even though, growing human populations have placed a variety of pressures on the natural world, resulting in human-driven changes to our planet's climate, the function of ecosystems, and the dispersal rate of species. Urban and suburban centers, including the developing Yenagoa city network, have rapidly increased in size as

rural populations have migrated to cities in search of opportunities. These stressors have increased dependence on a global network of natural resources, leading to rising numbers of rare, endangered, and invasive species. To support robust societal growth and preserve global biodiversity, more comprehensive data on the abundances and ranges of species are needed [1-15]. Over the past few decades, environmental degradation has escalated into a critical global issue, now recognized as one of the most pressing challenges humanity faces [14, 15]. The severity of this problem is underscored by the alarming statistic that an estimated 7 million people die annually from exposure to polluted air, water, and soil [16-27]. These pollutants pose significant health risks, particularly in low and middle-income countries (LMICs) like Nigeria, where the lack of infrastructure and resources exacerbates the impact of environmental contamination. The widespread presence of pollutants not only affects human health but also undermines economic development and social well-being in these vulnerable regions [16-27]. Compounding the issue of environmental pollution are the adverse effects of climate change [28, 29], which manifest in extreme weather events, rising sea levels, and the loss of biodiversity [30]. These climate-related phenomena further threaten the stability and sustainability of ecosystems worldwide. The increase in the frequency and intensity of natural disasters, such as hurricanes, floods, and droughts, disrupts lives and livelihoods, particularly in regions already struggling with environmental challenges [31]. Additionally, the gradual rise in sea levels poses a significant threat to coastal communities, leading to displacement and loss of habitat for both humans and wildlife. The ongoing loss of biodiversity, driven by habitat destruction and climate change, diminishes the resilience of ecosystems and their ability to provide essential services [3-5, 8-10, 30]. The urgency of these interconnected issues calls for comprehensive and decisive action on a global scale. Addressing environmental degradation and climate change requires coordinated efforts from governments, organizations, and individuals to implement sustainable practices and policies [9-19]. Mitigating the effects of pollution, reducing greenhouse gas emissions, and protecting natural habitats are essential steps towards a more sustainable future [20-22]. Without immediate and sustained action, the adverse impacts on human health, economies, and the natural world will continue to escalate, posing even greater challenges for future generations. Thus, this commentary aims to highlight the critical need for environmental protection and restoration, particularly in regions heavily impacted by industrial activities and ecological degradation. By examining the recent activities in Bayelsa State during the commemoration of World Environment Day (WED) 2024, we can gain insights into the challenges and potential solutions for restoring and preserving our ecosystems.

2. Background of World Environment Day

World Environment Day (WED) was established by the United Nations in response to the growing environmental catastrophe highlighted during the 1972 Stockholm Conference on the Human Environment. Recognizing the urgent need to mitigate the impacts of environmental degradation, the UN designated June 5 as an annual day to promote environmental protection. WED aims to raise global

awareness and encourage action at all levels i.e. local, national, and international. By bringing attention to pressing environmental issues, WED serves as a catalyst for positive change, inspiring individuals, communities, and governments to take proactive steps in preserving and restoring the planet's natural resources. Celebrated annually on June 5, World Environment Day serves as a vital platform for uniting diverse stakeholders in the pursuit of a more resilient and sustainable future. It encourages participation from governments, organizations, and individuals, fostering a collaborative spirit to address environmental challenges. Activities and events organized on this day range from tree planting and clean-up campaigns to educational workshops and policy discussions, all aimed at promoting sustainable practices and enhancing environmental stewardship. By emphasizing the collective responsibility towards environmental protection, WED empowers communities worldwide to make significant contributions towards safeguarding the environment for future generations.

2.1 WED 2024 Theme and Activities in Bayelsa State

The theme for World Environment Day (WED) 2024, "Accelerating Land Restoration, Drought Resilience, and Desertification," underscores the urgent need to address environmental degradation. This theme highlights the critical importance of innovative solutions and collective action in combating ecosystem degradation, which poses significant threats to both the environment and human health. By focusing on land restoration and resilience against drought and desertification, the theme calls for immediate and coordinated efforts to restore degraded lands, improve water management, and adopt sustainable land-use practices. These actions are essential to mitigate the adverse effects of climate change, protect biodiversity, and ensure the well-being of communities dependent on healthy ecosystems. In Bayelsa, a coastal state in Nigeria, the WED 2024 theme was adapted to "Restoring the Land Ecosystem in Bayelsa State: The Way Forward," addressing the specific regional challenges faced by the wetlands. To commemorate this day, the Nigerian Environmental Society (NES), Bayelsa State Chapter, organized visits to three major threatened ecological sites: the wood market in Otuogori Community, where excessive logging occurs; massive dredging sites along the Ekoli Creek linking the River Nun; and the Etelebou dump site, which recently experienced an explosion. During these visits, NES members sensitized the local population about the negative impacts of these activities on the land and ecosystem. They emphasized the urgent need for the Bayelsa State Government to reawakened the forest bill and enact strict laws to regulate these harmful practices and protect the environment. Through these efforts, the NES highlighted the critical need for community engagement and governmental intervention in preserving Bayelsa's unique and vital ecosystems.

While, table 1 provides an overview of the timeline as well as the speakers involved. Speakers were affiliated with diverse institutions, including Niger Delta University, Maritime University, Federal University Otuoke, governmental bodies (Ministry of Lands and Survey, National Environmental Standards and Regulations Enforcement Agency (NESREA), Nigerian Television Authority (NTA) Yenagoa), and private companies (Azaiki Foundation, Dalon Security Services, and Winners International Academy). Each speaker was assigned an average 30-minute slot, including 15 minutes

dedicated to questions. The activities of each day were organized around a central topic, “Restoring the Land Ecosystem in Bayelsa State: The Way Forward.” After each interactive lecture, participants were highly engaged in discussions, with many questions arising spontaneously. Discussions often extended into the breaks and occasionally continued into the evenings after the tree planting at the state secretariat. This provided participants the opportunity to put into practice what they had just learned, strengthening networking and creating lasting connections within the NES members and workshop invitees. The workshop activities were spread to the state secretariat for tree planting. In this way, participants were given the opportunity to put into practice what they had just learned and thus providing a great opportunity to strengthen networking and create lasting connections within the NES members and invitees for the workshop. Awards were given to deserving individuals who contributed significantly to environmental restoration and sustainability both nationally and internationally. By emphasizing the importance of community engagement and governmental intervention, the WED 2024 events in Bayelsa State highlighted the critical need to preserve the region's unique and vital ecosystems, ensuring a sustainable future for all. More details about the tree planning activities are provided in Appendix A. Through these efforts, the NES highlighted the critical need for community engagement and governmental intervention in preserving Bayelsa's unique and vital ecosystems. The combination of practical activities, such as tree planting, and theoretical discussions provided a comprehensive approach to addressing the environmental challenges faced by the region.

Table 1. Programme of Activities

S/N	Time Allocated	Activities
1.	10:00 – 11:00am	Arrival of Participants/Registration
2.	11:00 – 11:35am	Arrival of Special Guest of Honour
3.	11:35 – 11:50am	Introduction of Special Dignitaries
4.	11:50 – 12:00noon	Opening Prayer/National Anthem
5.	12:00 – 12:20pm	Welcome Address by the Chairman of NES, Bayelsa State, Dr. (Mrs.) Douye P. Markmanuel FNES
6.	12:20 – 12:50pm	Opening Remarks by the Chairman of the Occasion, Prof. Tonbaragha Kingdom , Deputy Vice Chancellor Academic, Niger Delta University, Bayelsa State
7.	12:50 – 1:30pm	Our Land, Our Future by the Students, Winners International Academy
8.	1:30 – 2:00pm	Goodwill messages
9.	2:00 – 3:00pm	World Environment Day Lecture, by Prof. Perekiniba A. Bariweni MNES, MISPAN, FECRMI . Dean, Post Graduate School, Maritime University, Okerenkoko, Delta State. Nigeria.
10	3:00 – 3:30pm	Panel Discussion led by Dr. Meshach Owho Ojile FNES

11.	3:30 – 3:50pm	Presentation of Awards and Acceptance Speech by Dr. Morufu Olalekan Raimi <i>MNES, MECRMI, REHO, LEHO, FAIWMES</i> , Federal University Otuoke, Bayelsa State. Nigeria.
12.	3:50 – 4:00pm	Remark by Hon. Commissioner of Lands and Survey. Barr. Perepuigha Biewari
13.	4:00 – 4:10pm	Vote of thanks by the LOC Chairman. Dr. Alex T Akpobulokemi MARINE.
14.	4:10 – 4:20pm	Closing Prayer/Photography
15.	4:20 – 5:30pm	Tree Planting at Bayelsa State Secretariate

2.2 Ecological Zones and Ecosystem Services in Bayelsa State

Bayelsa State, situated in the Niger Delta region of Nigeria, is distinguished by its diverse ecological zones, shaped by its unique geographical features. The state's landscape includes extensive water bodies, dense mangrove swamps, and lush tropical rainforests, creating a rich tapestry of both terrestrial and aquatic ecosystems. This ecological diversity encompasses marine, brackish, and freshwater systems, each contributing significantly to the region's environmental health and biological richness (see Figure 1 & 2 below). The interplay between these ecosystems supports a wide range of flora and fauna, making Bayelsa a critical area for biodiversity conservation. Marine ecosystems in Bayelsa State include the open ocean, coastal marine ecosystems, bays, and estuaries. These areas are vital for various marine species and play essential roles in nutrient cycling and water purification. Brackish water ecosystems, such as estuaries, backwaters, lagoons, and mangrove swamps, serve as transitional zones between freshwater and marine environments, supporting unique plant and animal communities adapted to varying salinity levels. Freshwater ecosystems in Bayelsa, represented by lakes, ponds, rivers, and streams, are crucial for maintaining the region's hydrological balance and providing habitats for numerous species. Together, these ecosystems deliver indispensable services, including nutrient cycling, water purification, and the provision of habitats, all of which are essential for sustaining biodiversity and the overall ecological health of Bayelsa State.



Figure 1. Mangroves Ecosystem



Figure 2. Freshwater Swamp Forest or Flooded Forests

2.3 Causes and Consequences of Ecosystem Degradation

The degradation of ecosystems in Bayelsa State is primarily driven by a range of anthropogenic activities. One of the most significant contributors is the oil industry, where frequent oil spills have led to severe pollution of land and water bodies. This contamination not only destroys habitats but also poses serious health risks to the local population. Poor waste management practices further compound

the problem, with inadequate disposal of industrial, agricultural, and household waste leading to widespread pollution. Additionally, rapid urbanization has resulted in the encroachment of natural habitats, disrupting the balance of ecosystems and contributing to the degradation of land and water resources. Agricultural practices in Bayelsa State also play a major role in ecosystem degradation. The use of agrochemicals, deforestation for farmland, and unsustainable farming techniques lead to soil erosion, loss of soil fertility, and water contamination. Mining activities, particularly sand mining and oil extraction, cause significant land degradation and alter the natural landscape, impacting both terrestrial and aquatic ecosystems. The physical disturbance of land for mining and the runoff of pollutants into water bodies disrupt the habitats of numerous species, leading to a decline in biodiversity. These activities not only degrade the environment but also undermine the ecosystem services that are crucial for the well-being of local communities. Adding to these challenges are the introduction of invasive species and the far-reaching impacts of climate change. Invasive species, such as water hyacinth, outcompete native species, disrupting local ecosystems and reducing biodiversity. Climate change exacerbates existing environmental problems, with increased temperatures, altered rainfall patterns, and more frequent extreme weather events further stressing ecosystems. These combined factors lead to significant disruption of ecosystem services, such as nutrient cycling, water purification, and flood regulation, which are vital for the health and livelihoods of Bayelsa's communities. The loss of these services not only impacts environmental health but also has profound socio-economic consequences, highlighting the urgent need for sustainable management and conservation efforts in the region.

2.4 Restoring Wetland Ecosystems

Wetland restoration involves the strategic manipulation of a degraded wetland's physical, chemical, or biological characteristics to return it to its natural functions. This process can include measures such as re-establishing hydrology, removing invasive species, reintroducing native vegetation, and restoring soil and water quality. By focusing on these critical aspects, wetland restoration aims to recreate the conditions necessary for the original flora and fauna to thrive, thereby enhancing biodiversity. The restored wetlands can then provide essential ecosystem services such as water purification, flood control, and carbon sequestration, which are vital for maintaining ecological balance and supporting human communities. Land restoration, on the other hand, targets the broader landscape and involves activities designed to halt or rehabilitate degraded land. This includes reforestation, which helps rebuild forest cover and combat desertification, as well as soil conservation practices that prevent erosion and maintain soil fertility. Integrated waste management is also crucial, addressing pollution and promoting recycling and waste reduction to minimize environmental impact. These restoration activities are essential for enhancing biodiversity, as healthy, diverse ecosystems are more resilient to environmental changes and disturbances. Furthermore, these efforts play a significant role in restoring the ecosystem services that humans rely on, such as clean air and water, fertile soil for agriculture, and habitats for wildlife. Collectively, wetland and land restoration efforts contribute significantly to mitigating the

impacts of climate change and achieving several Sustainable Development Goals (SDGs). By enhancing biodiversity and restoring critical ecosystem services, these restoration projects help stabilize the climate by sequestering carbon and regulating local climates. They also support SDGs related to clean water and sanitation, sustainable cities and communities, life on land, and climate action. Through these integrated approaches, wetland and land restoration not only improve environmental health but also enhance the quality of life for local communities, creating a more sustainable and resilient future.

3. Conclusion

The events held in Bayelsa State for World Environment Day 2024, including tree planting, educational lectures, and site visits, have significantly raised environmental awareness and promoted sustainable practices within the community. The tree planting initiative, which saw the planting of 500 native saplings, plays a crucial role in combating deforestation and soil erosion. These newly planted trees will not only help stabilize the soil and reduce erosion but also enhance local biodiversity by providing habitats for various species of flora and fauna. This effort marks a significant step towards restoring the ecological balance in the region and promoting a greener, more sustainable environment. Educational lectures organized during the World Environment Day celebrations have been instrumental in informing residents about the importance of land restoration and sustainable management practices. These lectures covered various topics, including the benefits of reforestation, soil conservation techniques, and the need for integrated waste management. By highlighting the interconnectedness of these practices and their impact on the local ecosystem, the lectures have empowered community members with the knowledge and tools necessary to implement sustainable practices in their daily lives. This educational component is crucial for fostering a culture of environmental stewardship and ensuring the long-term success of restoration efforts in Bayelsa State. Site visits to key ecological areas, such as the wood market in Otuogori Community, the massive dredging sites along the Ekoli Creek, and the Etelebou dump site, have provided practical insights into the benefits of environmental conservation efforts. During these visits, participants observed firsthand the detrimental effects of activities such as excessive logging, dredging, and poor waste management on the local ecosystem. The Nigerian Environmental Society (NES), Bayelsa State Chapter, used these opportunities to engage with the local population, sensitizing them to the negative impacts of these practices and advocating for stricter environmental regulations. By combining hands-on learning with community engagement, these site visits have reinforced the importance of proactive environmental conservation and have inspired collective action towards achieving a more sustainable and resilient Bayelsa State.

4. Policy Recommendation

To build on the success of these initiatives, it is essential that the Bayelsa State Government enact stricter environmental laws and regulations. These regulations should be designed to curb activities that

contribute to environmental degradation, such as unchecked deforestation, illegal mining, and improper waste disposal. By implementing stringent policies and ensuring their effective enforcement, the government can create a legal framework that deters environmentally harmful practices and promotes sustainable development. This regulatory approach will provide the necessary support for ongoing and future environmental conservation efforts, ensuring that the positive impacts of initiatives like tree planting and educational campaigns are not undermined by continued ecological damage. Increased environmental advocacy by the Nigerian Environmental Society (NES) and other stakeholders is crucial in addressing ongoing issues such as oil spills, deforestation, and habitat destruction. Advocacy efforts should focus on raising public awareness about the importance of environmental protection and mobilizing community action. This can be achieved through continuous education, media campaigns, and grassroots movements that highlight the environmental challenges facing Bayelsa State and the urgent need for collective action. By fostering a strong sense of environmental responsibility among the local population, advocacy groups can drive demand for better environmental policies and practices, ensuring that community voices are heard in the policymaking process. Furthermore, adopting sustainable agricultural practices and improving waste management systems can significantly reduce environmental degradation in Bayelsa State. Sustainable agricultural practices, such as crop rotation, organic farming, and agroforestry, help maintain soil health, reduce reliance on chemical inputs, and promote biodiversity. Improving waste management involves the development of comprehensive waste collection, recycling, and disposal systems that minimize environmental impact. This includes tackling issues like plastic pollution and ensuring that hazardous wastes are properly treated and disposed of. By integrating these sustainable practices into the everyday lives of Bayelsa residents, the state can move towards a more resilient and environmentally sustainable future, where both the natural environment and the communities that depend on it can thrive.

5. Environmental Significance

The activities undertaken during World Environment Day 2024 in Bayelsa State represent a pivotal step towards fostering a culture of environmental stewardship. These events, which included tree planting, educational lectures, and site visits, have significantly raised awareness about the importance of environmental conservation and sustainable practices. By engaging the community and highlighting the urgent need to address environmental issues, these initiatives have laid the groundwork for a more informed and proactive population. The participation of local residents in these activities demonstrates a growing recognition of their role in preserving the environment and a commitment to taking concrete actions to protect their natural surroundings. Raising awareness through educational lectures has been particularly impactful, providing residents with the knowledge and tools necessary to adopt sustainable practices in their daily lives. These lectures covered a range of topics, from the benefits of reforestation and soil conservation to the importance of integrated waste management. By emphasizing the interconnectedness of these practices and their impact on the local ecosystem, the educational efforts

have empowered community members to make informed decisions that contribute to environmental preservation. The practical insights gained from site visits to threatened ecological areas further reinforced the importance of environmental conservation, offering firsthand experiences of the negative impacts of activities such as excessive logging and poor waste management. These initiatives not only set a positive precedent for future conservation activities but also contribute to a more resilient and sustainable environment in Bayelsa State and beyond. By promoting sustainable practices and fostering a culture of environmental stewardship, the World Environment Day 2024 activities have inspired a collective commitment to protecting and restoring the natural environment. This momentum can be harnessed to drive further conservation efforts, encouraging ongoing participation and collaboration among residents, local organizations, and government bodies. Ultimately, these initiatives help build a foundation for a healthier, more sustainable future, where both the environment and the communities that depend on it can thrive in harmony. Thus, graphically it is represented (Figure 3) as:

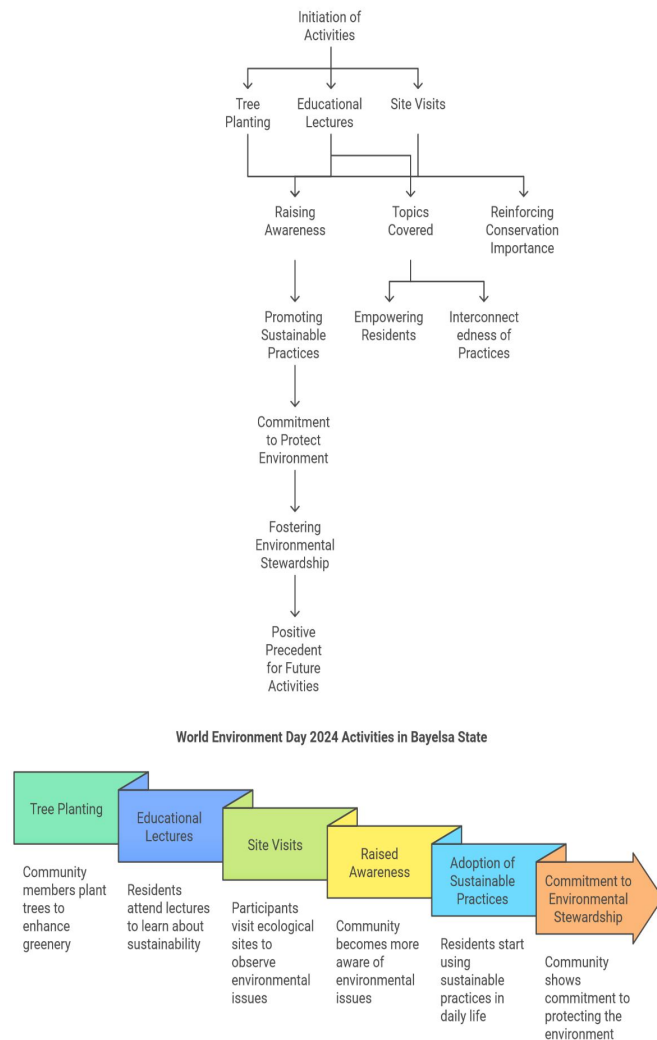


Figure 3. Bayelsa Environmental Stewardship

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Appendix A

Activities of the Day: Tree Planting



High table delegate to commemorate the 2024 World Environment Day. They include Barr. Perepuigha Biewari (Commissioner for lands and Survey, Bayelsa State); Hon. Living E. Mitin (Chairman House Committee on Environment, Bayelsa State); Prof. Steve Sinikiem Azaiki (Chairman/CEO, Azaiki Foundation and Former Member, House of Representative); San. Korubo Uncle Clinton (Permanent Secretary, Ministry of Environment, Bayelsa State); Chief David Lyon (Chairman/CEO, Dalon Security Service); Prof. Tonbaragha Kingdom (Deputy Vice Chancellor Academic, Niger Delta University, Bayelsa); Prof. Perekibina A. Bariweni (Dean, Post Graduate School, Maritime University, Okerenkoko, Delta State, Nigeria.)

Prof. P



FUO Lecturers at the Entrance of the Conference Hall, Azaikis Library, Imgbi Road, Amarata, Yenagoa. Bayelsa State, Nigeria.

Environment Day Banner



Some participants at the Entrance of the Conference Hall, Azaikis Library, Imgbi Road, Amarata, Yenagoa. Bayelsa State, Nigeria.



and Surveys at the State Secretariat.



The wood market in Otuogori Community, where excessive logging occurs; massive dredging sites along the Ekoli Creek linking the River Nun.



Bayelsa State Chapter at the State Secretariat.



Tree Planting by Chief Markkanuel with Commissioner for Lands and Survey, Chairman, Nigerian Environmental Society and Some Member of the Nigerian Environmental Society, Bayelsa State Chapter at the State Secretariat.



Road, Amarata, Yenagoa. Bayelsa State, Nigeria.



Tree Planting by Some Member of the Nigerian Environmental Society, Bayelsa State Chapter at the State Secretariat.

