

Sustainability Report 2019



VRA... We Add Value to Lives



**VOLTA
RIVER
AUTHORITY**

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Vision

A model of excellence for power utilities in Africa



Mission

The Volta River Authority exists to power economies and raise the living standards of the people of Ghana and West Africa. We supply electricity and related services in a reliable, safe and environmentally friendly manner to add economic, financial and social values to our customers and meet stakeholders' expectations.

Our Values



Accountability



Commitment



Trust



Integrity



Team Work

ACT IT
The VRA Way

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Corporate Leadership

Mr Kwaku
Andoh Awotwi
Chairman



Mr Emmanuel
Antwi-Darkwa
Chief Executive



Rev. Dr. Joyce
Rosalind Aryee
Member



Nana Kobina
Nketsia V
Member



Chief Musah
Badimsugru Adam
Member



Mrs.
Janet Anane
Member



Mr. El
Farouk Umar
Member



Mr. Richard
Obeng Okrah
Member



Mrs. Claudia
Gyeke-Aboagye
Board Secretary



BOARD CHAIRMAN & MEMBERS



Chief Executive's Message

The Volta River Authority (VRA) has sustainable development at the core of its corporate strategy. We are aware that sustainability is increasingly important for our stakeholders. For this reason, the issues of climate change, fuel diversity and environmental protection are important to us.

Sustainable development has been embedded in our operations since our creation as an institution in 1961. This is manifested in the design and operation of the communities who were affected by the Volta River Project. Over the years, as the requirements and demands of sustainability has grown, we have worked to integrate the new paradigms into our corporate culture and our relationship with the communities. The fifty-two (52) communities affected by the Akosombo Dam and the six (6) communities under the Kpong Hydropower Project have been beneficiaries of this strategy. We have become more sensitive to the needs of these communities and are deeply connected to them.

We have also made progress in the area of thermal power generation. Our strategy to switch from light crude oil to natural gas has not only significantly improved our carbon footprint, but also contributed to putting us on a sustainable financial path owing to lower operation and maintenance costs of our thermal power assets.

We have further improved our carbon footprint through a number of renewable energy projects including the 17 MW Kaleo/Lawra solar project and the 60 MW Pwalugu Hydropower Multipurpose project. Our 150 MW wind project is also at the development stage.

We also prioritize the well-being of our employees who form the most important pillar of our corporate strategy. Our values of Accountability, Commitment, Trust, Integrity and Teamwork (ACT IT) has created an environment that offers both motivation and challenge to our staff. This has made the VRA one of the most preferred employers in the country.

As we continue to integrate sustainability into our operations, our key stakeholders to whom we are required to deliver value remain our most important consideration. We are therefore grateful to them for their continued support in our operations.

The VRA remains a leading power producer in the West African sub region and will build on this foundation to offer high value to our customers and stakeholders through our sustainability strategy.

We are grateful to all our partners for the roles they play in our corporate social responsibility and sustainability endeavours.

Sincerely,
E. Antwi-Darkwa

Chief Executive

Organisational Profile

The Volta River Authority (VRA) was established on April 26, 1961 under the Volta River Development Act, Act 46 of the Republic of Ghana with the mandate to generate, transmit and distribute electricity. However, following the promulgation of a major amendment to the VRA Act in the context of the Ghana Government Power Sector Reforms in 2005, VRA's mandate has been largely restricted to the generation of electricity. The amendment has the key function of creating the enabling environment to attract Independent Power Producers (IPPs) onto Ghana's energy market.

Following the amendment, the transmission function has been hived off into an entity, designated Ghana Grid Company (GRIDCo) while VRA's distribution agency, the Northern Electricity Department (NED), has been transformed into the Northern Electricity Distribution Company (NEDCo), a wholly-owned subsidiary of VRA.

Power Activities

The VRA has diversified its power generation portfolio to take advantage of available and sustainable sources of energy, mainly hydro, natural gas, liquefied petroleum products and renewables. Accordingly, the VRA operates a total installed generation capacity of 2597.5MW.

PLANT	Current Installed Capacity (MW)
RENEWABLES	
Akosombo-Hydro	1,020
Kpong-Hydro	160
Navrongo-Solar	2.5
<i>Sub-Total</i>	1,182.5
THERMAL	
Takoradi Power Company (TAPCo)	330
Takoradi International Company (TICo)	345
Tema Thermal 1 Power Plant (TT1PP)	110
Tema Thermal 2 Power Plant (TT2PP)	80
*Takoradi T3 (Broken Down)	132
AMERI Plant	250
Kpone Thermal Power Station (KTPS)	220
<i>Sub-Total</i>	1,547
<i>Overall Total</i>	2,729.5



Hydro



Thermal



Solar

Domestic Customer Relations

The VRA reaches its customers in Ghana and neighbouring countries through Ghana Grid Company (GRIDCo's) transmission system, which covers the entire country and links up with the national electricity grids of Cote d'Ivoire (Compagnie Ivoirienne d'Electricité), Togo and Benin (Communauté Électrique du Benin), as well as Burkina Faso (Société Nationale d'électricité du Burkina Faso).

01

Electricity Company of Ghana (ECG) remains VRA's major bulk customer. Power sold to ECG and NEDCo caters mainly for domestic, industrial and commercial concerns within Ghana.

02

Bulk Sales are also made to many mining companies including AngloGold Ashanti, Newmont Ghana Gold Ltd., Goldfields Ghana Ltd, Golden Star Resources Group

03

Bulk Sales to other industries such as Aluworks, Akosombo Textile Ltd., and Diamond Cement Ghana Ltd., forms part of our domestic supply

External Customer Relations



Cote d'Ivoire, Compagnie Ivoirienne d'Electricité (CIE).



Communauté Electrique du Benin (CEB), Togo and Benin



Société Nationale d'électricité du Burkina Faso (SONABEL)

Domestic Market Share

The year 2019 saw an increase in the Authority's market share from the Base Case projected share of 59.7% to an actual share of 63.8%. The IPPs base case projected share of 42.10% reduced to an actual share of 36.20%. However, analysis of VRA market shares over the years show significant decline from 2010 market share of 98.7% to 2019 figure of 63.8%. VRA market share is shown in the figure below.

VRA Market Share for 2019



Role in Regional Cooperation

The VRA is a major foundational player of the West African Gas Pipeline Project (WAGP). The project is a 20-inch 600km long natural gas transmission pipeline from Nigeria to Ghana. VRA's participation in the WAGP is to get natural gas from Nigeria to operate its thermal facilities, and thereby reduce significantly the cost of thermal generation, while increasing electricity availability, accessibility and affordability and protecting the environment. The project now supplies gas to the VRA thermal facilities.

Recognizing the VRA's distinctive competencies in power system operations, the United Nations Development Programme (UNDP), appointed the VRA as the principal consulting agency for the implementation of an Emergency Power Programme (EPP) in Liberia after years of conflict. Consequently, the VRA embarked on a power construction scheme to restore power to Monrovia and other critical institutions.

In collaboration with the West Africa Power Pool (WAPP), the VRA is participating in the development of a power pooling mechanism to provide the West African Sub region with increase accessibility, availability and affordability to electricity under the auspices of ECOWAS.

The VRA is a founding member of the Association of Power Utilities of Africa (APUA) previously known as Union of Producers, Transporters and Distributors of Electric Power in Africa (UPDEA).

The APUA aims to promote the integration and development of the Africa power sector through active corporation among its members and all international power sector organizations and donors.

Our Materiality Analysis.

Our material issues focussed on environmental, social, human rights and business ethics performance and commitment. They are defined along our own community development framework and issues that are of importance, taking into cognisance the United Nation's Global Compact guiding principles and the 17 Sustainable Development Goals.

Subsidiaries

Northern Electricity Distribution Company Ltd

The Northern Electricity Distribution Company (NEDCo), is a wholly-owned subsidiary of the VRA.

NEDCO's current operations covers about 64% of the geographical area of Ghana and is the sole distributor of electricity in the Upper East, Upper West, North East, Savannah, Northern, Brong-Ahafo, Bono East, parts of Oti, Ashanti and Western North regions respectively.

NEDCo also manages VRA's electricity supply to some border towns in Burkina Faso, Cote d'Ivoire and Togo. NEDCo was originally developed as an integral part of the larger Northern Electrification and System Reinforcement Project (NESRP), which connected the northern part of Ghana to the national electricity grid.

Customer population has therefore grown at an average growth rate of about 13% per annum from less than 20,000 in 1987 to 938,475 in 2019 with a maximum load demand of 325.3MW.



Volta Lake Transport Company (VLTC)

The Volta Lake Transport Company operates river transportation for passengers in addition to bulk haulage of petroleum products and significant quantity of cement and cargo such as cross lake ferry services along the Volta Lake.



VRA Property Holding Company (PROPCO)

PROPCO has as its core activity among others the efficient management and holding of all commercial real estate assets of all other operational subsidiaries.



Akosombo Hotels Ltd (AHL)

The Akosombo Hotels Limited runs a three-star hotel, restaurant, modern conference/seminar facilities, pleasure activities, including cruising on the Lake by MV Dodi Princess, and promotes tourism.



VRA International Schools Limited (VISL)

The Schools offer study opportunities in international curricular such as the Cambridge International Examination (UK) and the Scholastic Aptitude Test (USA) certificates. The VISL provides quality and affordable first and second cycle education in Akosombo, Akuse and Aboadze to all wards of stakeholders of the Authority and members of the general public.



VRA Health Services Limited (VHSL)

The VRA Health Services Limited provides medical care for staff and their dependants as well as the general public. Its services are currently in operational enclaves of the Authority such as Akosombo, Akuse, Accra and Aboadze providing in-patient, out-patient and specialist services.



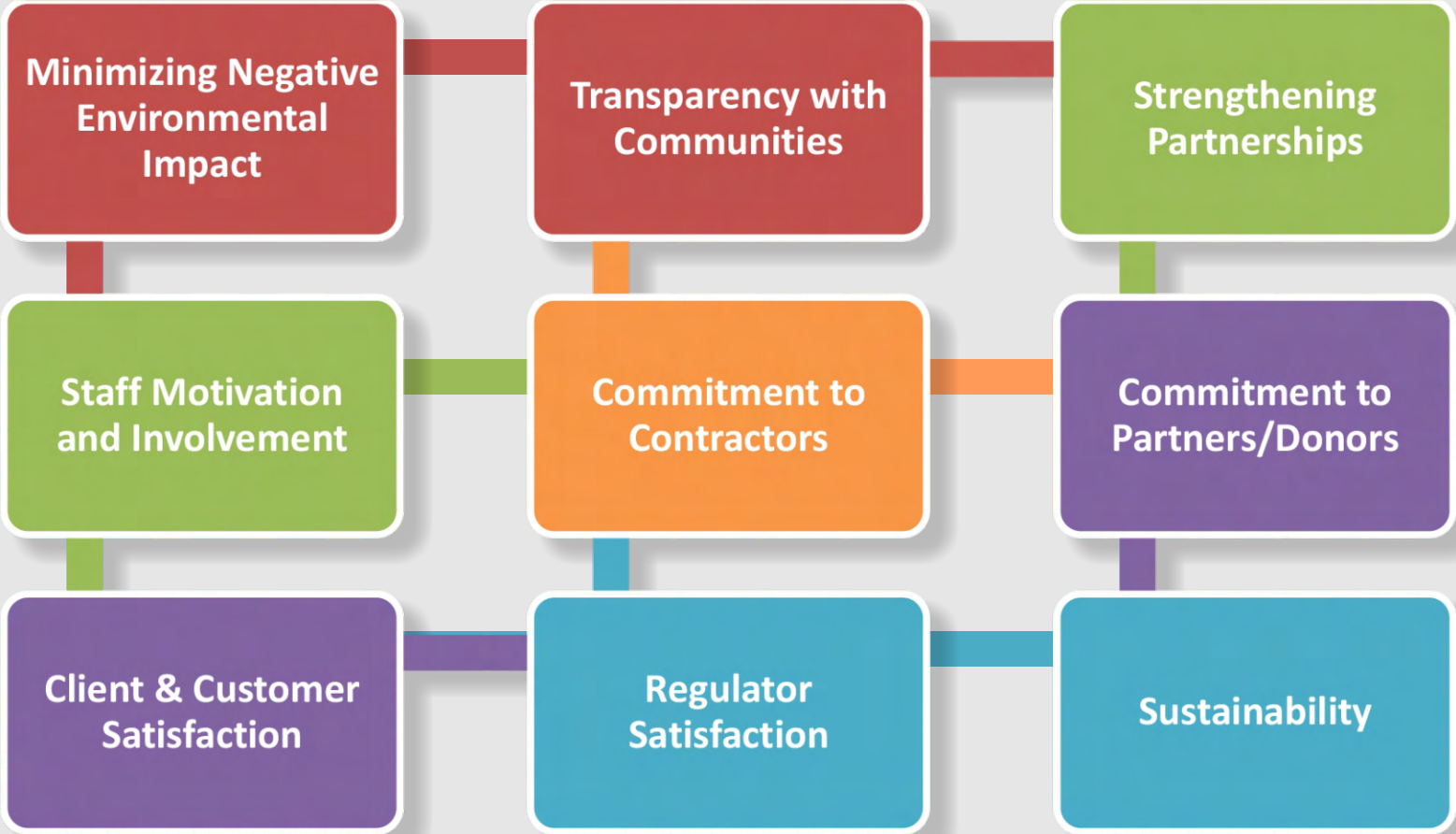
Kpong Farms Limited (KFL)

Kpong Farms Limited started as a resource centre of excellence for research into modern agricultural practices. It played significant role in the overall agricultural development of Ghana through activities in livestock, rice production, meat processing, and the cultivation of pawpaw for export as a foreign exchange earner. Local interns and expatriates from Egypt, Pakistan and the United States of America have also received attachment training at the Farms.

However, in recent years its operations have temporarily been halted due to the obsolete state of the Farm's equipment and facilities as well as liquidity constraints. The VRA is therefore seeking strategic investors in a joint venture partnership to transform the Farms into a profitable agribusiness.



Our CSR Strategic Pillars



About this Report

This Sustainability Report describes the VRA's performance in 2019. It presents overall indicators of the activities we have carried out in the year with a significant operation where we have social, environmental and economic impact and management of which is under our control.



It has been prepared with reference to the ten principles of the United Nations Global Compact of which we have been a signatory since 2003.

We also describe our business activities within the context of our sustainability performance and our contributions to the UN Sustainable Development Goals (SDGs), which encourage businesses to consider how they can best contribute to overcome the global challenges.



Our Key Sustainability Initiatives



VRA Renewable Energy Development Programme



Enhancing Thermal Power Plant Efficiency (Utilisation of natural gas)



Tree Planting Activities to enhance carbon stocks.



Regular Staff Training



Promoting sustainable development of impacted communities



Solid Waste Management



Reduction in Mobile Emission



Sustainability Reporting

Integrating CSR into core activities

Our campaign to integrate social responsibility and sustainability issues in the organisation begun in 2016 with series of presentations and social responsibility courses taking place at various locations for Management and Staff.



The CSR Policy adopted in 2015 requires the Authority to conduct its business in a socially responsible and ethical manner; protect the environment and guarantee safety in its operations as well as respect and support the impacted communities in their development effort. The policy's life cycle model begins with carrying out a sustainability audit for all CSR interventions, identifying risk and mitigation measures, determining key performance indicators, carrying out stakeholder mapping and analysis, monitoring and measuring outcomes and finally closing and reporting the impact.



Our Staff

Our staff contribute to a shared vision of becoming a Model of Excellence for Power Utilities in Africa. This we do through living the core values of Accountability, Commitment, Trust, Integrity and Teamwork. Opportunities abound in personal development, rewards and aspirations. Workers are challenged to think outside the box.



Environmental Performance



Our corporate Environmental Policy requires that we develop and implement Environmental Management Systems for all our business units in order to ensure compliance with national and international environmental protection regulations as well as monitor and report on environmental performance as required to the appropriate stakeholders.

Performance

Our environmental performance over the past ten years has improved across many business areas. We have an Environmental Management Plan (EMP) and Environmental Preparedness Plan of activities for the operation of our two hydro dams Akosombo and Kpong Power Plants. Internal and external policies and regulations were adhered to stakeholders' optimum satisfaction.

Our Climate Change Programme

Our Carbon Footprint Management Programme (CFMP) started in 2016 in response to the global clarion call on nations and organizations to assist in combating climate change and its impact. Our programme aims to improve environmental sustainability of the Authority's business as well as help strengthen its green credentials in the marketplace. We collect fuel data from both stationary and mobile combustion to compute its Greenhouse Gas (GHG) Emission. The Authority voluntarily maintains and updates its GHG emissions inventory each fiscal year and use this inventory to develop and publish its GHG emissions reduction strategy.

Our GHG Inventory Report covering the period 2012 -2015, which constituted the initial report, was submitted to the Environmental Protection Agency (EPA) for verification. The reporting duration was selected to coincide with that of the Fourth National Communication Report and the Second Biennial Update Report to the United Nations Framework Convention on Climate Change (UNFCCC). The report was prepared in accordance with the Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard, Revised Edition ("Greenhouse Gas Protocol"), which allows for direct integration with Ghana's and international greenhouse gas (GHG) registries.

Following the submission of the report, the EPA was requested to verify and audit the Greenhouse Gas Inventory Report to ensure it conforms to international best practice prior to its publication. Accordingly, the EPA conducted a site verification and audit during the fourth quarter of year 2019. The audit recommendations are to be issued in 2020 for incorporation and finalization of the GHG report prior to publication.

The carbon footprint



Our GHG Emissions Levels (2012-2018)

Operational Emission Category	Emission Source Category	Corporate Emission Source	Total Emissions in Metric Tons CO ₂			Total Corporate Emission	% of Total Corporate Emission
			2012-2015	2015-2017	2018		
Direct Emission Sources		T1	3,343,826.02	988,204.72	504,971.71	4,837,002.45	56.54%
		T3	135,109.88	-	-	135,109.88	1.58%
	Stationary Combution	TT1PS	1,595,136.40	441,457.84	224,776.29	2,261,370.53	26.43%
		TT2PS	480,885.29	16,751.91	1,834.26	499,471.46	5.84%
		MRPS	321,253.36	1,659.72	-	322,913.08	3.77%
		KTPS	-	192,208.28	192,029.64	486,029.64	5.68%
	Mobile Combution	Vehicles	6,622.99	5,552.53	1,087.96	13,263.48	0.16%
Total Emission from direct Sources			5,882,833.94	1,747,448.08	924,878.49	8,555,160.51	100%

Our Generation Fuel Sources



Fossil-fuel / Gas Power Plants



Transportation vehicles



Mobile air conditioning sources (vehicles)



Building Heating Ventilation Air Condition (HVAC) systems



Natural Gas distribution systems



Akosombo Landfill



Climate Smart Stove (CSS) Project

Our Climate Smart Stove project aims to minimize the harvesting and utilization of trees as firewood in the Volta Lake basin. The Authority in 2016 successfully piloted this fuel-efficient and energy saving improved domestic cook stoves in twenty-one (21) riparian communities.

Health, Safety & Economic Benefits of our CSS

- Smoke-free cooking environment
- Reduced exposure to heat and
- Monetary savings on the purchase of firewood.



Goals of CSS

- Reduce emissions of Greenhouse gases (GHGs) and mitigate climate change impacts
- Reduce forest degradation through reduced consumption of firewood as fuel for cook stoves.

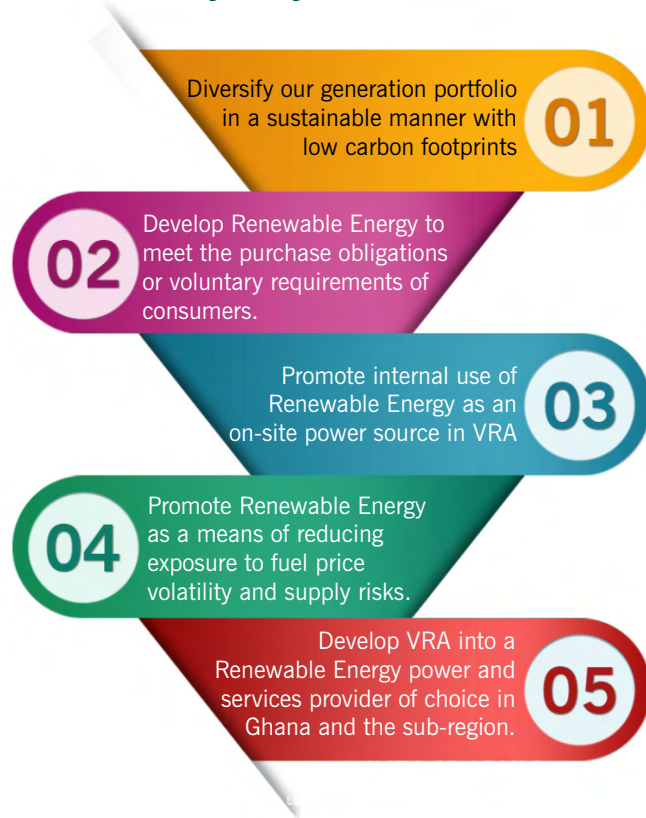
One hundred and twenty (120) stoves for four (4) communities in Biakoye, North Dayi and Asuogyaman districts. Cumulatively, 420 stoves have been constructed for 420 households.

Our Renewable Energy Development Programme

In line with the Government of Ghana policy to promote the development and utilization of Renewable Energy (RE), the VRA has rolled out a 5 -10 years' Renewable Energy Development Programme (REDP).

Our goal is to command at least 70 per cent of the renewable space in Ghana. This we will do through collaboration with private entities to develop the other renewables VRA has in its portfolio. The Government's policy is to have at least 10% of our power generation sourced from renewables. Today it is just about 1% of the total generation sources in the country.

Our RE Key Objectives



Our Solar Agenda

Our first solar plant with a capacity of 2.5MW is situated at Navrongo in the Upper East region, north of the country with a settlement population of about 27,306 people. The terrain is flat and the ecology, typical of the sahel . Sited on an 11.79-acre (4.77 ha) land size, the photovoltaic type of solar system was commissioned in 2013 and feeds power into the grid. Sunlight is in abundant in the Northern part of Ghana, making the choice of the area suitable for more solar plants.

In 2019 the Authority completed its first 80kw rooftop Solar at its headquarters in Accra as part of its culture of working in a green and smart environment.

In future VRA intends to develop a pilot floating solar project on the Kpong Hydro-electric head pond at Akuse and deploy rooftop solar system in our office and residential facilities at Akosombo, Akuse and Aboadze.

1ST PHASE

2.5 MW Navrongo
(completed 2013) /
0.079MW Head Office
Rooftop (completed 2019)

17MW Lawra & Kaleo
(Sod-cutting in 2020)

200 MW at Bongo, Lawra,
Kaleo & Navrongo Expansion,
Floating Solar & Pwalugu
Hybrid

VRA Residential and
Institutional Office Buildings.

2ND PHASE



Navrongo Solar

Head Office
Rooftop Solar



Our Wind Project

The VRA is also venturing into wind power production and looks forward to developing about 150MW wind power project to be located in Anloga and Ada West Districts of the Volta and Greater Accra region respectively in the short to medium terms.



Feasibility Studies and the Environmental and Social Impact Assessment Studies has been concluded for the first 76 MW Wind Power Project at Anloga, Srogbe and Anyanui in Volta Region as well as the second 76.5MW Project in Wokumagbe and Goi in Greater Accra Region.

Environmental Permit for The Wind Power Project (WPP) 1 has been acquired from the EPA and siting permits has also been acquired from the Energy Commission. Wind measurements have been completed at all the sites and we are working towards obtaining work permit from the District Assemblies.

OUR RE Programme and Emissions Avoided

Programmes		Project	Emissions Avoided (tCO ₂ e annually)
	2.5MW	Navrongo Solar Power Plant (Completed 2013)	753.0
VRA's Renewable Energy Development Programme	17MW	Solar Kaleo Lawra - Phase 1	10,701.0
	15MW	Solar Kaleo Lawra - Phase 2	12,050.0
	40MW	Bongo Solar Power Project	32,134.0
	0.448MW	Akuse Residential & Institutional Office Buildings Solar PV Rooftop Project	360.0
	0.057MW	Head Office Solar Car Park	46.0
	0.079MW	Head Office Rooftop Project (Completed 2019)	63.0
	75MW	Wind Power Project - 1 (Anloga, Srogbe, Anyanui)	97,073.0
	60MW	Pwalugu Multi-purpose Dam	62,963.0
	50MW	Solar Power Component Pwalugu Multipurpose Dam	37,937.0
Enhancing Thermal Power Efficiency	330MW	Conversion of 220MW SC KTPP to 330 MW Combine Cycle Plant	400,000.0



Corporate Solid Waste Segregation Programme

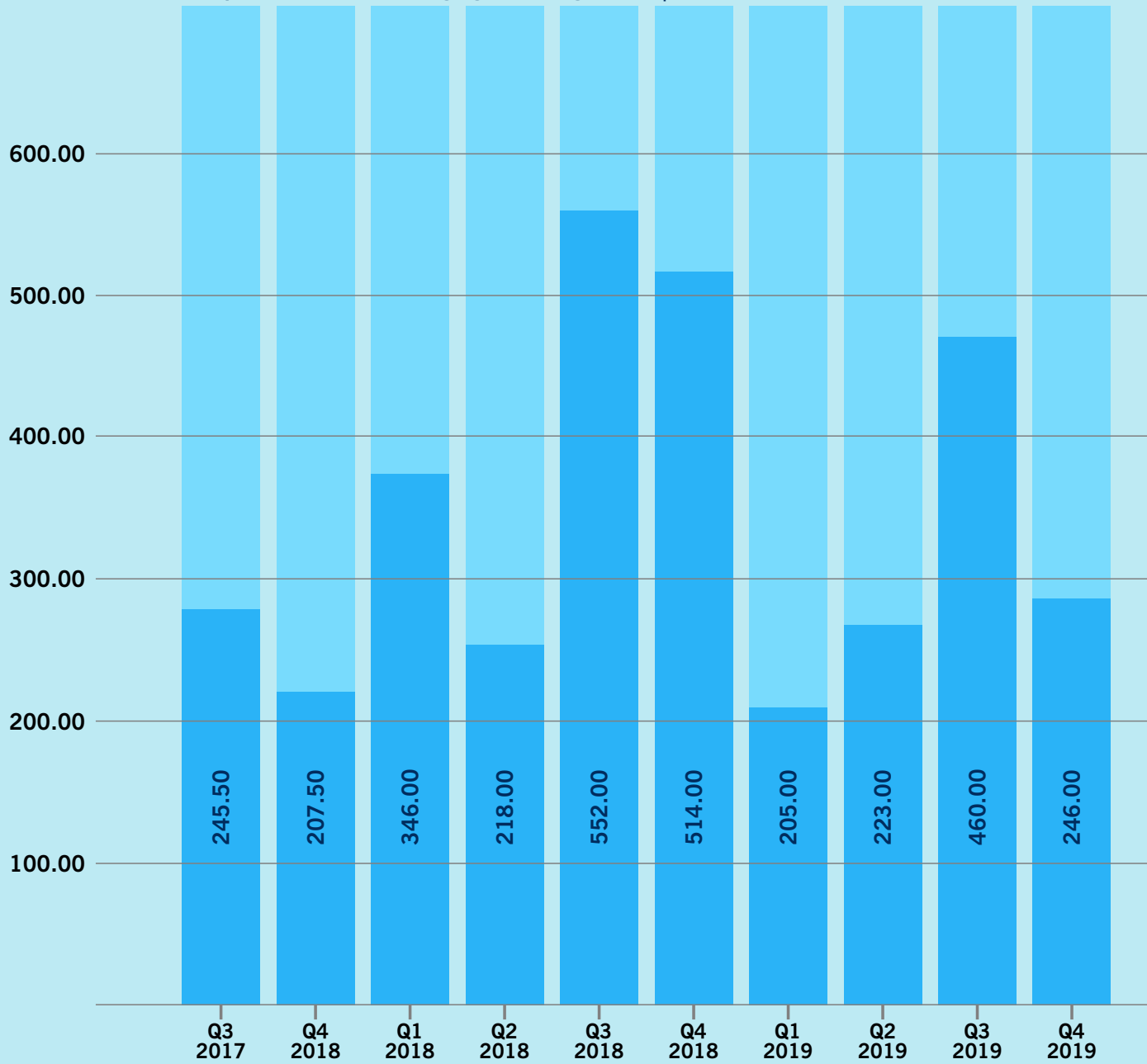
The VRA Corporate Environmental Policy commits the Authority to focus on activities that lead to pollution prevention and waste reduction in line with Goal 12 of the United Nation's (UN) Global Goals for Sustainable Development. Under the responsible production and consumption goal (Goal 12), member countries are required to substantially reduce waste generation through prevention, reduction, recycling and reuse by 2030 and encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

In compliance with UN's Sustainable Development Goal 12 and the Authority's Corporate Environmental Policy, the Authority in October 2016 embarked on a Pilot Office Waste

Paper Exchange Programme with Akosombo Paper Mill Limited (APML). A Memorandum of Understanding (MOU) as well as a Non-Disclosure Agreement (NDA) was executed between the Authority and Akosombo Paper Mill Limited to guide the implementation of the office waste paper exchange programme. The exchange involves the supply of 80 pieces of unwrapped toilet rolls for 1 ton of office waste paper supplied to APML. A total of 3,399.00 Kg of waste paper has been delivered to APML since the inception of the programme in August 2017 and the authority has in return received 240 pieces of unwrapped toilet rolls.

During the year 2019 alone, 1,316 kg of waste paper was delivered to APML.

Corporate Solid Waste Segregation Programme | [AMOUNT SUPPLIED (KG)]

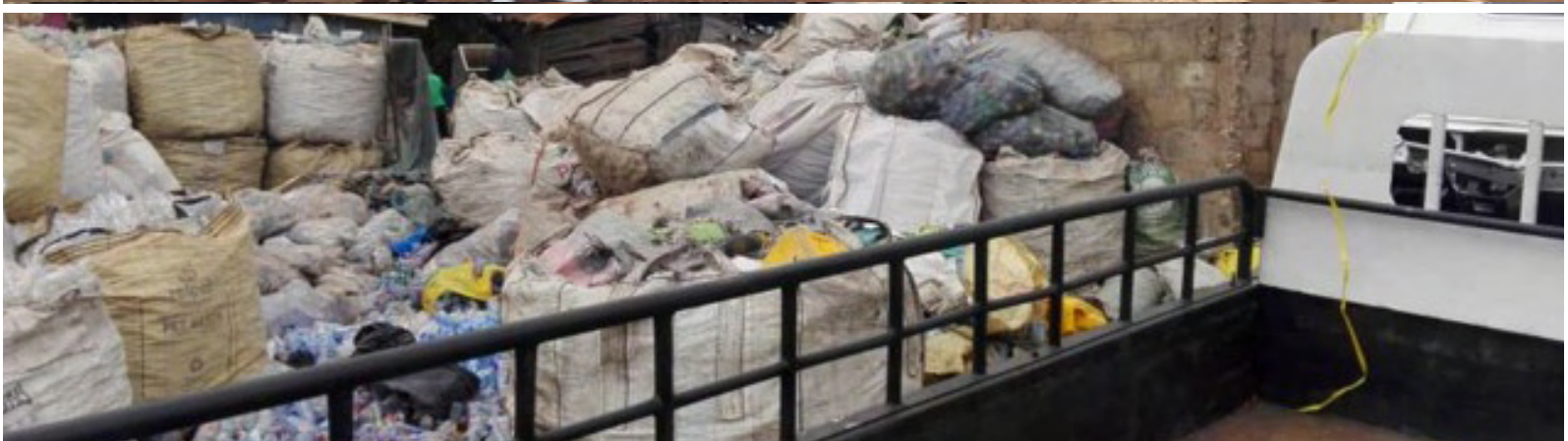


PET Bottles Segregation & Processing Programme



Our PET Bottles Segregation Programme commenced in 2019 in collaboration with Coliba Recycling Services Limited (COLIBA), a leading Ghanaian recycling company. This will lead to the establishment of Akosombo Plastic Waste Processing Recycling Centre for the segregation and disposal of Polyethylene Terephthalate (PET) bottles or plastic drinking bottles, targeting Akosombo and its environs.

We hope to conclude the preparation of the memorandum of collaboration in 2020.



Social Performance



Educational Scholarship

The scholarship awards seek to provide an avenue for brilliant but needy students in our impacted communities to maximize their potentials and thus contribute to Ghana's human resource development needs.

The scholarship package covers the full tuition and other expenses throughout the beneficiaries' years in Senior High and Tertiary Schools. Since its inception, the scheme has supported 329 needy but brilliant students. The selection of beneficiaries is done in collaboration with local educational authorities of the Ghana Education Service and traditional authorities.

With the introduction of Government free SHS policy in 2017/2018 academic year, the Authority in 2019 engaged stakeholders with the hope of transferring its budget for SHS scholarship component to support Technical & Vocational Education Training (TVET).

Academic Year	Total No. of Beneficiaries	SHS Beneficiaries	Tertiary Beneficiaries
2011/2012	50	50	-
2012/2013	46	46	-
2013/2014	61	46	15
2014/2015	61	46	15
2015/2016	61	46	15
2016/2017	Continuing Students only		
2017/2018	Continuing Students only		
2018/2019	Continuing Students only		
2018/2019	50	-	50
		234	95



Employee Volunteer Programme (EVP)

As a means of giving back to society, in 2013 we instituted an employee volunteer programme on career guidance, counselling and teaching programme for Senior High Schools in communities where we have installations or our operations impact.

The EVP is aimed at promoting volunteerism among employees, inspire students in the catchments to aim high and help to improve community perceptions about the VRA.



Commitment towards Water and Sanitation



In 2015 the Authority as part of its social responsibility programme, took a giant step to help find a lasting solution to the spread of the Schistosomiasis in impacted communities along the Volta River. This bold step introduced the provision of water and sanitation facilities as a more sustainable way of curbing the spread of bilharzia in riverine communities along the Volta Lake.

Provision of Potable Water

Six communities with a population of about 5,000 have so far benefited from our solar powered mechanized borehole water facilities. Our water project in collaboration with Project Maji Foundation, goes to assist deprived communities affected by bilharzia disease.



Communities benefited so far are Sedorm and Korankyi in the Asuogyaman District and Amlalokorpe and Volo in the North District and Atrobinya in the Shai-Osu Doku district and Teikpitikorpe in Ada East District. The provision of the potable water system is part of our intervention to fight bilharzia (Schistosomiasis) in many of our impacted communities along the Volta lake. Lack of potable water in these communities has been identified as one of the major causes of the spread of the disease.

Biofil Sanitation Project

Bakpa Kebenu, a bilharzia (schistosomiasis) endemic community in the Central Tongu District of the Volta Region was the first to benefit from our Biofil Sanitation Programme in 2015. The community at the time had more than 80% of its population infested with urinary type of the disease due lack of improved sanitation facilities and potable water.

Biofil toilet is an off-grid alternative to septic tank that treats faecal matter on site in a digester separating solids and liquids under aerobic composing condition making the system odour free. Two years after providing the community with 30 separate micro-flush standalone biofil toilet facilities, the prevalence level of the disease dropped significantly to as low as 20%.



Following the success story at Kebenu, management approved another proposal to assist the people of Dzebetato in the South District in 2018. Most houses in Dzebetato have no improved sanitation facility and thus open defecation was common. The prevalence rate of the disease was more than 60% of the urinary type of schistosomiasis. The community also received 30

standalone units for clustered households in 2019.

Other beneficiary communities in 2019 include West Kpong Resettlement in the Manya Krobo District and Supomu-Dunkwa in the Shama District of the Western Region.

The West Kpong Methodist Primary in the resettlement community received five units for the school and the entire community of Supomu- Dunkwa were provided with 30 standalone units.





Schistosomiasis Control Programme

Impoundment of the Volta River during the construction phases of the Akosombo and Kpong Hydro-Power Generation Stations has resulted in changes of the water environment within the reservoir and downstream. This has provided conducive environment for the incidence of water borne diseases particularly Schistosomiasis. Over 1.5 million persons are exposed to the incidence of Schistosomiasis within over 300 communities in 11 districts along the Volta Basin.

Our commitment to ensure the health and well-being of the Lakeside communities is anchored on the provisions of Volta River Development Act, Act 46 as amended.

The Act entreats us to take reasonable measures to ensure the health and well-being of the projected affected communities as well as our contribution to SDG 3.3, which require national efforts at ending the incidence of Neglected Tropical Disease, which includes Schistosomiasis by 2030.

Our control strategy, which is in accordance with the World Health Organization's Schistosomiasis control programme, focuses on preventive chemotherapy. This is complemented with sensitization and education, control of intermediate host snail population and provision of alternate source of water supply and toilet facilities.

Our mass drug administration programmes are implemented within the communities in collaboration with the Ghana Health Services (GHS) and other relevant stakeholders.

In 2019, a total of 5,951 persons were treated in 53 communities within North Tongu, South Tongu, Asuogyaman and Ada East Districts. Prevalence within the four districts ranged from 3.5% to 13.0% with an average reduction of 60.2% from the previous year (2018).

The reduction in prevalence levels is an indication of a relief from schistosomiasis infection in the four district and would be sustained and subsequently reduced further until possibly, total eradication by 2030.

Management of our Waste and Sound

Hazardous waste is of absolute priority to the Authority. One of such wastes is Polychlorinated Biphenyls (PCBs) contained in Transformer oil waste. The Authority is committed to ensuring safety of PCB contaminated operational sites and sound management of in-service transformers in compliance with the Hazardous and Electronic Waste Control and Management Act (Act 917).

We do so in furtherance to the requirement of the Stockholm Convention, which seeks to ensure that Ghana sets up safe management of PCB contaminated Equipment until a final phasing out of any material above a concentration of 50mg/kg by 2025.

The Authority ensures the health and safety of employees by consistently implementing all the relevant regulations. These include VRA Corporate Environmental Policies, Environmental Quality Standards (EPA, 2000) and Environmental Protection Act, 1994 (Act 490).

The priority lines of action include Inventory of transformers containing PCBs, Preparation of PCB Management Plan, Promotion of Health and Safety Management Practices, Enhancement of Sound Operational Practices and End-of-life treatment of PCB containing equipment.



Sampling transformer oil for testing PCB concentration

Inventory of 687 transformers have so far been taken, out of which 196 were presumptive positive. Series of actions are being undertaken on them, with the expectation that it will be concluded, prior to the Stockholm convention deadline of 2025.

It is envisaged that the public health risk associated with exposures to PCBs will be progressively minimised with the execution of the lines of actions that will ensure that all contaminated sites and end-of-life Transformers are properly managed and disposed of.

Ensuring Water Quality of the Volta Lake

The Authority is committed to monitoring pollution and protecting the quality of water of the Volta Lake to ensure the least possible negative environmental and social impacts on lakeside communities per the Authority's Environmental Policy.

To complement Government's efforts to attain SDG 6.3 by improving water quality through reduction of pollution, we monitor and assess bi-annually the water and effluent from the tailrace of the Akosombo and Kpong Dams.

We also monitor pollutant-laden effluents from suspected pollution sites along the shoreline of the Volta River and salinity levels at the Volta estuarine area to minimise pollution. Our benchmark of pollution monitoring performance is the WHO/EPA targets in monthly and quarterly reviews.

Monitoring and assessment targets for 2019 were duly

achieved. Impoundment of the Volta River during the construction phases of the Akosombo and Kpong hydropower generation stations was anticipated to have resulted in changes of the water environment within the reservoir and downstream segments. Although changes in the flow and ecological interactions were expected, the quality of water is still within acceptable limits.

Again, although it was estimated that anthropogenic activities along the river basin might discharge pollutant-laden effluent into the river during the operation stage, the quality within the Authority's operational areas was found to be within acceptable limits, hence having minimal environmental and social impacts on lakeside communities.



Staff Sampling & Analysing quality Water

Biodiversity Efforts

We do well to maintain the Volta Lake ecosystems through the management of water hyacinth. This occupies a leading role in the Authority's business strategy and contributes to SDG 15.5 which requires urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species. Plant diversity of the Volta River ecosystem is a fundamental component of natural capital. Changes in the status of plant diversity components, poses threats to ecology, livelihood, social and economic development. During the respective life cycles (Lake Formation and power generation in particular) of the Volta Lake Development Project activities and cause interactions with the river ecosystems and plant species

The invasion of the Volta River by water hyacinth in 1998 was identified as a disruptive event. Water hyacinth is an invasive plant specie, with the potential of changing the status of plant diversity components of the Volta River ecosystem by

colonizing habitats it invades and subsequently eliminating species that are unable to adapt to the changing environment. As at December 2019, the frontline of infestation of water hyacinth reached about 30km north of the Volta-Oti Confluence.

This menace is being managed through a Corporate Environmental Policy approved by Management, which defines three priority lines of action to:

1. Control southward spread of water hyacinth on the Oti Arm of the Volta Lake which is currently at Kpetsu, a community located about 27km north of the Volta-Oti confluence.
2. Remove excessive water hyacinth growth at water contact sites of communities to minimise the impact on socio-economic activities
3. Undertake periodic reconnaissance survey on the Volta river for disclosure of new infestation sites



Community volunteer group removing water hyacinth at water contact sites to minimize impact on socio-economic activities



Aquatic Weed Management team assessing level of water hyacinth



Weed Management Team uncovering swathe of water hyacinth infestation

In line with the above, the Authority provided seventeen riparian communities with hand-held tools including cutlasses and rakes to assist in clearing their human water contact sites to enhance socio-economic activities.

As a result, southwards drift of water hyacinth infestation in the Oti arm of the Volta Lake is duly contained thus minimising any threats on plant diversity in that segment of the Volta Lake. Manual control of infestation in the Lower Volta basin is on-going.



The manual control is being supplemented by the Authority operating Weed harvesters to prevent the water hyacinth from spreading further towards the southern parts of the river.

LOWER VOLTA DREDGING PROJECT

Dredging of the Volta Lake is one of the most costly restoration techniques that we undertake every year. Unfortunately, over the past few years planned dredging exercises have been difficult due to serious mechanical problems with our dredger, which has elapsed its lifespan.

To ensure sustainable management of the Akosombo and Kpong dams, in 2015, the Authority decided to introduce private sector participation into the dredging and aquatic weed management of the Volta Lake.

Two private companies, Eko-H Mediterranean Limited have been awarded contract for dredging Lots 1, 2 & 3 spanning Akuse to Sogakope bridge whilst Lower Volta Dredging Consortium will dredge Lots 4 and 5, spanning Sogakope bridge to the Estuary at Ada.

The following defines the Lots for dredging services:

- LOT 1: Kpong tailrace (Akuse) to Avakpo;
- LOT 2: Avakpo to Aklakpanu;
- LOT 3: Aklakpanu to Sogakope Bridge;
- LOT 4: Sogakope Bridge to Agotaga;
- LOT 5: Agotaga to Ada (Estuary).

With the introduction of commercial interests, communities stand to benefit from proceeds from the dredging services, which will also make the programme more sustainable. The dredging will start from the Kpong dam all the way to the estuary at Ada in 2020.



VRA Old Dredger

Alternative Livelihood Programme

Our Alternative Livelihood Programme for riparian communities in beekeeping and fruit-tree development programme started in 2014. The programme serves as alternative source of generating income for members of Community Based Organisations (CBOs).

Under the beekeeping venture, the CBO members provide labour for the buffer zone protection activities in the Volta Region.



So far, the Authority has installed 32 beehives in ten (10) riparian communities namely: Tsita, Adjamasu, Adope, Ahobrease, Dabidabi, Tapa Abotoase, Odomitor, Aveme Awrokosi Abui and Woadze Xorse Kope, all in the Volta and Oti Regions.

The CBOs, with our support, also succeeded in developing a total of one hundred and twenty-four (124) beehives by the end of 2019.

Till date 355.5 litres of pure honey have been harvested with a market value estimated at GH¢15,800.00 at GH¢200.00 per gallon (4.5Litres).

The CBOs are expected to continue to manage the beekeeping project to produce honey in commercial quantities in order to improve their income levels.



Fruit Tree Development

Our fruit tree programme started three (3) years ago, to develop mango plantation to protect the Volta Lake and provide additional income for landowners and volunteers who provide labour for our Volta Lake reforestation activities through the sale of the fruit.



Tree Development Programme

As at the end of 2019, we have distributed approximately one thousand (1,000) grafted mango seedlings to about 20 communities in Asuogyaman, South & North Dayi Districts, Biakoye District and Kpando Municipal.



Reforestation Programme

Volta Gorge Reforestation (VGR) Programme

The Volta Gorge Reforestation Programme started in 1994 after a landslide event in September 1993. The Volta Gorge is a land area of 5,149.24 hectares spanning the Volta Lakeshore to the summit of the immediate hills bordering the Volta Lake from the Akosombo dam to Adjabui (about 32 km from Akosombo dam).

The programme is aimed at forest cover restoration through the protection of the existing vegetation and restocking of all grass and degraded lands either by enrichment planting or by full plantation development. The Volta Gorge reforestation programme consists of 23 reforestation projects being implemented in 23 riparian communities along both the Eastern and Western banks of the Volta Gorge in the Asuogyaman District.

Annual activities of the programme include environmental education in communities and schools; tree nursery establishment for raising of forest tree seedlings and grafted mango seedlings; tree planting, weeding of tree plantation, replacement of dead tree seedlings (beating-up); wild fire management; survival survey; and monitoring to provide feedback for decision-making.



As at December 2019, about 3,106 hectares of the Volta gorge area had been covered by dense forest vegetation, consisting of both plantation and natural forest. Tree species adopted for plantation are *Senna siamea* (cassia), *Acacia mangium*, *Khaya senegalensis* (Mahogany), *Cedrella odorata*, and *Leuceana leucocephala*.

The forest plantation area is 1,604 hectares; the natural forest cover is 1,502 hectares and the area of land with rocks and grass vegetation is 2,043.24 hectares.



Bamboo Plantation Development

In partnership with the Forestry Commission (FC), we started a bamboo plantation development programme to further protect the Volta Lake.

This partnership became necessary because the Volta Lake environment including the Volta Gorge is being degraded and deforested on daily basis through livelihood activities such as: farming, fishing, biomass energy production (firewood and charcoal) and sale of lands.

In addition, the Authority in collaboration with the riparian communities, land owners and District Assemblies have implemented various watershed management interventions aimed at protecting the Volta Lake environment and improving livelihoods of the fringe communities.



The use of the bamboo species will help serve the following purposes:

- Protect the Volta Lake by serving as a means of demarcation of the 85 meters above mean sea level (280 feet contour).
- Create a buffer zone to avoid encroachment of VRA acquired lands and flood prone areas.
- Protect against erosion and to prevent or reduce the rate of evaporation of the Volta Lake.
- Promote the socio-economic importance of bamboo for a sustainable development of the riparian communities.

Buffer Zone Reforestation Programme

This programme started in 2007 and consists of forty (40) reforestation projects in 40 riparian communities in the South Dayi and North Dayi Districts and Kpando Municipal in the Volta Region and Biakoye District in the Oti Region.

A total of 98,646 forest tree seedlings and 1,600 grafted mango seedlings for planting were supplied between 2007 and 2019.

Community Outreach on Dental Health Care

Our Dental Health Unit under the Health Services Limited carries out routine free dental screening for basic schools in communities where VRA operates.

The oral examination is to help promote regular dental examination as an important part of preventive health care for people, especially those living in the vicinities of our medical facilities.



Human Rights & Business Ethics

Corporate Governance

In accordance with the Organisation for Economic Co-operation and Development (OECD) Governance principles, VRA relates well with its Management, Board, Shareholders and Stakeholders; with a system of structuring, operating and controlling the Authority to achieve specific results. Transparency, Accountability, Responsibility and fairness are the Pillars of Corporate Governance. The Authority's quest to achieve good corporate Governance is anchored on the above Pillars.



Transparency

The Chief Executive's letter to Staff sets the tone for management engagement with staff annually on operational and budgeting matters, bringing everyone on board. VRA encourages high standard of ethical behaviour among employees with continuous education on the Authority's code of conduct and regular assessment of staff understanding and performance on the core values of Accountability, Commitment, Trust, Integrity and Teamwork. These exercises augment our efforts to develop systems and strategies to promote our values towards dedicated and faithful service to the Authority. They also signal to our suppliers and customers the Authority's expectation regarding proper conduct and generally acceptable standards of behaviour.

Respect for International Conventions

Under our business code, which conforms to the principles of the International Labour Organization (ILO) and the UN Convention on Human Rights, we monitor our operations to ensure compliance.

The Authority recognised and respected its workers' unions in all its affairs, especially during its new strategy, which begun in 2018.

Professionals are also allowed to join any external association and VRA pays for the subscription. Some staff are members to external associations like the Ghana Institution of Engineering, Ghana Institute of Architects, Institute of Chartered Accountants, Ghana Bar Association, Ghana Institution of Surveyors, Ghana Journalists Association and Institute of Public Relations, Ghana.

VRA does not employ child labour in its operations and will not deal with any supplier who uses forced and compulsory labour.

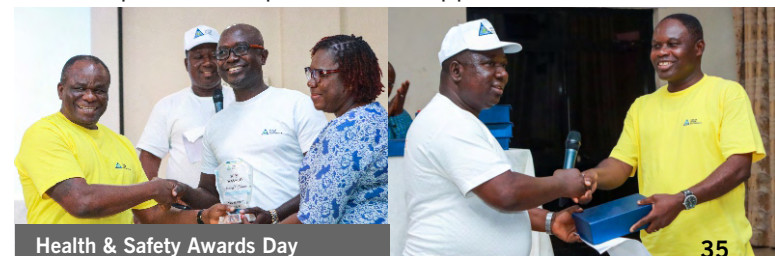
Workplace Policies

At VRA, we strive to apply our workplace policies in a fair and firm manner. Equal opportunities in terms of employment and training exist for all staff because of our commitment to attract employees based on ability and merit to do the job.

Health and Safety

We have a workplace Health and Safety Policy, Risk Management Policy and Corporate Compliance Framework that give credence to the basic belief that VRA's operational success largely depends on health, safety and risk management.

Over the years, we have seen the observance of Corporate Safety Awareness Day as a mandatory exercise at all VRA locations. All Departments hold compulsory staff monthly/weekly safety meetings and participation by staff forms part of their performance appraisal.



2019 Corporate Awards

CEO of the Year (Power)



West Africa Award for Operational Excellence



Clean Energy Initiative of the Year, and Innovation Project of the Year



NiBS Ghana Innovation Awards.JPG



NiBS Ghana Innovation Awards.JPG



Procurement Award 1



West Africa Award for Operational Excellence

Strategy for “The New VRA”



B

BUILDING,
Nurturing &
Developing our
Human Capital



R

RESTORING
our Finances



A

ADVANCING
Internal &
External
Business
Processes



I

IMPROVING
Operational &
Project
Implementation
Efficiencies



S

SUSTAINING
our Position as
Market Leader



E

ENSURING
Developments
in a Sustainable
Manner

VRA... We Add Value to Lives

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