



**Biodiversity Offset Business Scheme
(BOBS)**

Framework

March 2016

ACKNOWLEDGEMENTS

The Environmental Protection Agency would like to thank all those who have contributed to the preparation of this Biodiversity Offset Business Scheme (BOBS) Framework particularly NYCOB Enterprise Consortium, The John A. Kufuor Foundation, Forestry Commission, National Biodiversity Committee and Business Sector Advocacy Challenge Fund (BUSAC).

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List of Acronyms

EPA – Environmental Protection Agency

EA – Environmental Assessment

EIA – Environmental Impact Assessment

LI – Legislative Instrument

BOBS – Biodiversity Offset Business Scheme

CBD – Convention on Biological Diversity

MDA – Ministries, Departments and Agencies

NGO – Non Governmental Organizations

CSO – Civil Society Organizations

MESTI – Ministry of Environment Science Technology and Innovation

NDPC - National Development Planning Commission

EU – European Union

GDP – Gross Domestic Production

GSBAs - Globally Significant Biodiversity Areas

IBAs - Important Bird Areas

CREMA - Community Resource Management Areas

1.0 Introduction

Biodiversity is the variety of life forms on earth: the different animals, plants and micro-organisms, their genes and the ecosystems of which they are part. Biodiversity provides beneficial ecosystem services that maintain the life support system services, including oxygen production, soil formation, water purification, climate stabilisation, pollination, waste assimilation and products that are needed for food, clothing and shelter. The degradation and loss of biodiversity affects capacity of ecosystems to provide goods and services.¹ Globally the rate of loss of biodiversity is very significant. The Millennium Ecosystem Assessment Report of 2005 indicates that about 60% of ecosystem services are being degraded or used unsustainably²; Seventy-five percent of the genetic diversity of agricultural crops has been lost worldwide since 1990. According to an EU Biodiversity Strategy published in 2011, an estimated 13 million hectares of tropical forests are cleared each year and 20% of the world's tropical coral reefs have already disappeared.

Loss of biodiversity accounts for substantial depreciation of the natural capital. The World Bank estimates that the cost of biodiversity degradation is about 6% of Ghana's GDP (World Bank 2006). The rate of decline of the country's forest was estimated at 2.24% between 2005 to 2010. The total forest cover was reported to have reduced from 32.7% of total land area as at 1990 to 21.7% in 2010 (NDPC, 2014). The direct impacts of biodiversity loss include spread of invasive species, climate change, over exploitation, pollution, agriculture, mining commercial and residential building, oil and gas installations, roads and highways, dams etc.. Indirect impacts include increase in human population, incomes, changes in lifestyle, and technological advancement, all resulting in habitat alteration and degradation of natural resources. Projections of the impacts of climate change, in particular, show continuing changes in the distribution and abundance of non-native species and habitats, resulting in increasing species extinction³. Continued rapid loss of biodiversity may further compromise future supplies of ecosystem services and associated economic output.

1.1 Threats to Ghana's Biodiversity and Economic Growth

Sixteen percent (16%)⁴ of Ghana's land surface area has been set aside to conserve representative samples of her natural ecosystems in the form of forest reserves, national parks and other wildlife reserves including various traditional forms of conservation. The efforts being made by the Environmental Protection Agency (EPA), the Forestry Commission and other stakeholders to address biodiversity loss include initiatives such as the Globally Significant Biodiversity Areas (GSBAs), Important Bird Areas (IBAs) and conservation of Biological Corridors through the Community Resource Management Areas (CREMA)⁵ concept.

Threats to the conservation of Ghana's biodiversity continues to persist due to the over exploitation of resources, invasive alien species, climate change, habitat conversion and pollution from urban and industrial waste. In 2002, about 3.7 million cubic meters of log was extracted from Ghana's forest which represents four times the annual allowable harvest (MESTI, 2015). Most of the prime indigenous species like, *Milicia excels* and *Milicia regia*, the mahoganies (*Khaya* and *Entandrophragma* species), *Pericopsis elata*, *Nauclea diderrichii*, and *Triplochiton scleroxylon* which, mainly generate substantial revenues for Ghana's economy, have drastically reduced. The timber stocks in the off-reserve areas are disappearing at faster rates, leaving the forest reserves areas as

¹ http://ec.europa.eu/environment/marine/pdf/1_EN_ACT.pdf

² <http://www.millenniumassessment.org/documents/document.356.aspx.pdf>

³ http://ec.europa.eu/environment/marine/pdf/1_EN_ACT.pdf

⁴ <https://www.cbd.int/doc/world/gh/gh-nbsap-01-en.pdf>

⁵ National biodiversity strategy 2002

“vulnerable small isolated islands” with limited populations of trees and animals with low possibilities for genetic exchange⁶.

The proliferation of invasive alien species has led to significant decline in native biodiversity resulting from the degradation of local ecosystem and decline in associated ecological services (MESTI, 2015). The coverage of freshwater weeds in the lower Volta and the Tano was estimated to be about 5000 ha of water surface (EPA, 2010). *Broussonetia papyrifera* (Paper Mulberry) a common terrestrial invasive alien species threatens the River Afram Headwaters Forest Reserve.

Studies conducted in Amentia and Abofour communities in 2007 indicated that land rentals could decrease to 50% depending on the severity of infestation by Paper Mulberry. The study further established a decrease in the yield of maize and cassava by 75% and 90% respectively (Trenor, 2007). Habitat conversion such as agricultural expansion, infrastructural development, mining, and urbanisation has had detrimental impact on biological diversity. Agricultural expansion has been the main driver of land use change in Ghana leading to significant changes in biodiversity at landscape level. More than 50 percent of the original forest area has been converted to agricultural land by slash-and-burn clearing practices. The construction of the Bui hydroelectric dam in 2009 led to the loss of habitat of the White collared mangabey (*Cercocebus torquatus torquatus*) (MESTI, 2015). Urban development has also contributed to the threat of Ghana’s biodiversity.

A recent study by Gbogbo et al 2015 recorded a decline in the numbers of hooded vulture (*Necrosyrtes monachus*) in the Greater Accra Metropolis which is known to hold a viable population of vultures in the country. Port Infrastructure and hard engineered coastal protection works using armoured rocks and revetments have led to the loss of some nestling sites for turtle. Pollution from urban and Industrial discharges has seriously affected several coastal lagoons and estuaries. The Korle, Kpeshie and Chemu lagoons have lost their aquatic life.

Biological resources remain the cornerstone of Ghana’s socio-economic and cultural development and growth. They are undoubtedly a major capital asset with an excellent potential for yielding sustainable benefits. The biological diversity of the high forest ecological zone is considerable and accounts for most of the biological diversity of the country. For example, out of 3725 higher plants known to be in Ghana, about 2300 are found in the high forest zone, including 730 tree species⁷.

1.2 Problem Statement

Ghana signed and ratified the Convention on Biological Diversity in 1992 and 1994 respectively. The country is therefore under obligation to pursue the conservation of its biodiversity; hence a national strategy for the sustainable use of the country's biological resources was developed in 2002 by the Ministry of Environment and Science. The adoption of the Strategic Plan for Biological Diversity 2011-2020 (Aichi Biodiversity Targets) commits countries to raise awareness of the value of biodiversity and to integrate them into strategic plans and national accounting⁸.

The EPA has applied the Environmental Assessment (EA) as a major tool for the protection of biodiversity and pollution control. The Environmental Assessment Regulations, 1999 (LI1652) require that all undertakings should take into account potential impacts of the development on the environment, and institute appropriate mitigation measures to avoid, minimize, restore and offset the impacts.

⁶ <http://thereddesk.org/countries/policies/revised-forest-and-wildlife-policy-ghana>.

⁷ <http://thereddesk.org/countries/policies/revised-forest-and-wildlife-policy-ghana>.

⁸ http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB_-NaturalCapitalAccounting-andwaterQualityBriefingnote_20131.pdf

In spite of these efforts by government and stakeholders, the continuous loss of biodiversity and ecosystem services is of great concern. Aggregate pressure from agricultural expansion, mining, timber extraction, construction and infrastructural development including roads, dams, mines, oil and gas installations, industrial plants, residential and commercial buildings among other socio-economic factors all account for the continuous biodiversity loss.

The World Bank in 2006 estimated that the annual cost of environmental degradation is nearly US \$850 million or 10.0% of Ghana's GDP. The degradation of natural assets (agricultural soils, forests and savanna woodlands, coastal fisheries, wildlife resources, and Lake Volta's environment) costs at least US\$520 million annually (6.0% of Ghana's annual GDP) and health effects account for nearly US \$330 million or 3.8% of GDP⁹.

These observations point to the need to look more critically at the methods by which biodiversity is assessed as part of the Environmental Impact Assessment (EIA) procedures and also, to ensure full mitigation of the impacts of undertakings.

Businesses impact ecosystems through consumption, pollution and land conversion. However, biodiversity conservation can benefit businesses and ought to be a key part of a company's sustainable production strategy. For example industrial effluent can be treated through biological remediation using bacteria, algae and other plants at a much lower cost to businesses than elaborate infrastructure from chemical treatment. Many businesses, unfortunately, fail to make the connection between the health of ecosystems and sustainability of production. Companies are not immediately aware of the footprints of their production system through their value chains

Indeed, all businesses, regardless of their size, location or sector, have a direct or indirect impact on biodiversity and ecosystem services through their operations, supply chains or investment choices. It is thus important for businesses to integrate biodiversity and ecosystem services considerations into their practices. Conserving biodiversity and equitable use can be the basis for unique value propositions, enabling entrepreneurs and investors to develop and scale up 'biodiversity businesses'¹⁰. The case for biodiversity as a business opportunity is perhaps most apparent in ecotourism, organic agriculture and sustainable forestry, where there is growing demand for 'sustainable' goods and services.

Goals and targets for biodiversity and ecosystem services can be integrated into business risk and opportunity assessment, operations and supply chain management, as well as financial accounting, audit and reporting¹¹. A business commitment to manage biodiversity and ecosystems begins with corporate governance and involves integration into all aspects of management. New tools and improved information systems are needed to support analysis and promote decision-making about biodiversity and ecosystem services at corporate level¹².

2.0 Biodiversity Offsetting

Biodiversity offsetting refers to a process that seeks to counterbalance the unavoidable impacts of development activities on biodiversity by enhancing the state of biodiversity elsewhere. It is the last resort option in the mitigation hierarchy to address residual adverse biodiversity impact resulting from undertakings after all feasible avoidance, minimisation and restoration actions have been considered. It also provides support services that ensure gains for biodiversity and requires the quantification of potential biodiversity losses and gains, and their expression in a

⁹ http://siteresources.worldbank.org/INTRANETENVIRONMENT/3635842-1175696087492/21919456/Ghana_CEA.pdf

¹⁰ <http://www.teebweb.org/media/2012/01/TEEB-For-Business.pdf>

¹¹ http://www.unepfi.org/fileadmin/biodiversity/TEEBforBusiness_summary.pdf

¹² <http://www.teebweb.org/media/2012/01/TEEB-For-Business.pdf>

common currency, the equivalence of the exchange is then evaluated in an accounting model to demonstrate whether no net loss has been demonstrated.

This approach ensures that project proponents take full responsibility for adequately mitigating the harm impacted to biodiversity by their development activities, at an offset site. It also enables businesses internalize the full cost of their impacts and ensure the sustainability of their operations. It will also give businesses the leverage to enhance their brand and product reputation and also manage their financial risks such that while adequately compensating for their biodiversity impact, they also gain competitive market edge in the process. They help to make the world a better place by improving on the country's biodiversity status.

3.0 Policy and Regulatory Framework for BOBS Implementation

The Biodiversity Offset Business Scheme (BOBS) is being developed and implemented in compliance with International Conventions and the laws of the Republic of Ghana, taking all the following regulatory provisions into consideration.

3.1 The 1992 Constitution of Ghana

The 1992 Constitution of Ghana mandates all citizens to be custodians of the environment. Some of the provisions include Article 41 (k) of the Constitution which places a duty on every citizen of Ghana to protect and safeguard the environment while exercising and enjoying their rights and freedoms under the Constitution.

Article 36(9) of the Constitution also provides that, the State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind. Within the context of the constitutional provisions, the government has developed a national environment policy and enacted an Environmental Protection Act.

3.2 National Environment Policy (2014)

The Policy has a vision that seeks to manage the environment to sustain society at large based on an integrated and holistic management system for the environment in Ghana by uniting Ghanaians in working towards a society where all residents will have access to sufficient and wholesome food, clean air and water, decent housing and other necessities of life. It also seeks to ensure sound management of the environment and the sustainable use of resources to avoid irreparable damage to the environment. The Policy document identifies the importance of government to own the national environmental objectives but also stresses the need for the ministries, departments and agencies (MDA's), as well as other institutions including non-governmental organizations (NGO's) and civil society organizations (CSO's) to be part of the policy implementation process to ensure overall success. It encourages the involvement of local communities inside and outside protected areas in the planning and management of biodiversity areas. The policy further recognizes the important role environmental impact assessment plays in ensuring sustainable development and encourages the use of incentive, economic and pricing policies as instruments to support biodiversity conservation.

3.3 Environmental Protection Agency Act, 1994 (Act 490)

The Environmental Protection Agency Act 1994 (ACT 490) mandates the Agency with responsibility to oversee issues or matters pertaining to the environment. The Agency has 19 functions under Section 2 of Act 490, notable among these are;

- to ensure compliance of all undertakings with laid down environmental impact assessment procedures in the planning and execution of development projects
- to issue environmental permits and pollution abatement notices for controlling the volume, types, constituents and effects of waste discharges, emissions, deposits or other

source of pollutants and of substances which are hazardous or potentially dangerous to the quality of the environment or any segment of the environment;

- to secure in collaboration with such persons as it may determine the control and prevention of discharge of waste into the environment and the protection and improvement of the quality of the environment;
- to prescribe standards and guidelines relating to the pollution of air, water, land and other forms of environmental pollution including the discharge of wastes and the control of toxic and to promote studies and research.

Section 62 of the Act gives the Agency the mandate to develop regulations for;

- Standards and code of practice relating to the protection of development and rehabilitation of the environment
- The protection of particular species of flora and fauna.

The BOBS scheme is developed taking all the above provisions into consideration

3.4 Environmental Assessment Regulations, 1999 (LI 1652)

The Environmental Assessment Regulations enjoins any proponent or person to register an undertaking with the Agency and obtain an environmental permit prior to the commencement of the project. The regulation allows the EPA to place proposed undertakings at an appropriate level of environmental assessment. The legislative Instrument prescribes the procedure for conducting an environmental Assessment in Ghana. In complying with the mitigation hierarchy, a proponent may be required to use biodiversity offset as a mitigation measure to fully address the residual impact of the undertaking. This is to ensure that development is undertaken in a sustainable manner and there is no net loss arising from a development project.

3.5 Securities Industry Law, 1993 (P.N.D.C.L. 333), Securities Industry (Amendment) Act, 2000 (Act 590)

The security industry Act requires the Security and Exchange Commission to register, license, authorise or regulate any entity involved in stock exchange, investment advisers, unit trust schemes, mutual funds securities dealers and their agents to control and supervise their activities with the view to maintaining proper standards of conduct and acceptable practices in the securities business.

In compliance with this law, the Biodiversity Offset Business Scheme (BOBS) will provide the platform for obtaining license to operate a biodiversity credit trade and BioBanking Trust Fund from the Commission working with The EPA.

3.6 Securities And Exchange Commission Regulations, 2003 (L.I. 1728).

The regulations provide the administrative structure as well as the human capacity requirements of a security exchange. It further provides the procedures for setting up a stock exchange, maintenance of a register of interests and financial compliance requirements among other.

The BOBS exchange platform would be set up with due consideration to this statutory requirements in the regulations The Policy document identifies the importance of government to own the national environmental objectives but also stresses the need for the ministries, departments and agencies (MDA's), as well as other institutions including non-governmental organizations (NGO's) and civil society organizations (CSO's) to be part of the policy implementation process to ensure overall success. It encourages the involvement of local communities inside and outside protected areas in the planning and management of biodiversity areas.

3.7 Other Related Policy and legal Documents

Other related Policies and legal document that have bearing on biodiversity conservation include:

- Convention on Biological Diversity
- Ghana Forest and Wildlife Policy (2012)
- National Water Policy (2007)¹³
- Riparian Buffer Zone Policy (2011)¹⁴
- National Biodiversity Strategy (2002)¹⁵
- National Land Policy (1999)¹⁶
- Local Government Act, 1993¹⁷ (Act 462)
- Trees and Timber Amendment Act (1197)
- Control of bush fires Law, 1983 (PNDCL 46)
- Wild Animals Preservation Act, 1961 (Act 43)
- Minerals and Mining Act 2006¹⁸ (Act 703)
- Ghana National Spatial Development Framework¹⁹
- Tree Tenure Policy 2015
- Guidelines for Mining in Productive Forest Reserves
- Land Use and Spatial Planning Act, 2016, Act 925
- Mineral and Mining (Associated) Guidelines

4.0 Biodiversity Offset Business Scheme (BOBS)

The Biodiversity Offset Business Scheme (BOBS) is designed to mainstream biodiversity conservation actions into broader economic development activities and decision making processes in Ghana. The scheme ensures responsible management, sustainable utilization, and equitable benefit sharing of biodiversity resources. It also encourages businesses to take responsibility for its impacts²⁰ and generate additional private sector investments in conservation that add to the available resources contributing to conservation by governments' overall objectives for biodiversity conservation. This is consistent with the agreement by Parties to the CBD in 2008 to promote business engagement, with biodiversity offsetting as a tool²¹, to further drive governments to put offset policies in place and engage with businesses to undertake offsets²².

The goal of the scheme is to link businesses to achieve biodiversity gains on the ground with respect to species composition, habitat structure, ecosystem function, livelihoods and cultural values associated with biodiversity.

BOBS is a public private sector-led intervention that stimulates demand and consumption of services and products beneficial to biodiversity conservation through a structured market mechanism.

¹³ <http://www.purc.com.gh/purc/sites/default/files/WATERPOLICY.pdf>

¹⁴ <http://www.wrc-gh.org/dmsdocument/47>.

¹⁵ <https://www.cbd.int/doc/world/gh/gh-nbsap-01-en.pdf>

¹⁶ <http://theredddesk.org/sites/default/files/National Land Policy.pdf>

¹⁷ <http://mlgrdghanagov.com/default/pdf/Local%20Government%20Act%20462%201993.pdf>

¹⁸ <http://www.sds.org/wp-content/uploads/2011/06/Ghana-Minerals-Act-2006.pdf>.

¹⁹ <http://www.townplanning.gov.gh/files/NSDFFINALREPORTVOLII>

²⁰ <https://portals.iucn.org/library/efiles/documents/2008-002.pdf>

²¹ <https://www.cbd.int/doc/decisions/cop-09/cop-09-dec-26-en.pdf>

²² http://www.unepfi.org/fileadmin/documents/Biodiversity_Offsets-Voluntary_and_Compliance_Regimes.pdf

The scheme creates new incentives for private landowners and local communities to develop and manage land for bio-banking, bio-prospecting, carbon sequestration, biodiversity education garden centres, and other biodiversity enterprises e.g. ecotourism, apiculture, craft marketing, organic horticulture.

Regulatory biodiversity offsets can be planned and implemented either by using a set of guidelines and principles provided by the regulator (where offsets need to be designed and implemented on a case-by-case basis) or using a market-based mechanism (where credits are available for sale off the shelf). Offsets can be put in place by the government, the developer or by entrepreneur (private sector conservation banks) whose existence has been facilitated by the regulator²³.

This framework adopts the market based approach that creates an enabling regulatory environment for private sector participation in offset development and management. The market based approach to biodiversity conservation is growing as the potential of biodiversity offsets to help achieve sustainability; is increasingly appreciated. A number of companies see a business advantage in developing processes to integrate biodiversity into their operations, as well as seeking market-based solutions and opportunities.

4.1. BOBS Administration

Proponents of undertakings in Ghana are required to mitigate the impacts of their activities in accordance with Environmental Protection Agency Act (1994) Act 490 and the Environmental Assessment Regulations (1999) LI 1652. Undertakings tend to have very focused business objectives such that any requirement to compensate the impacts of their activities by way of biodiversity offsets may appear to distract them from their core business.

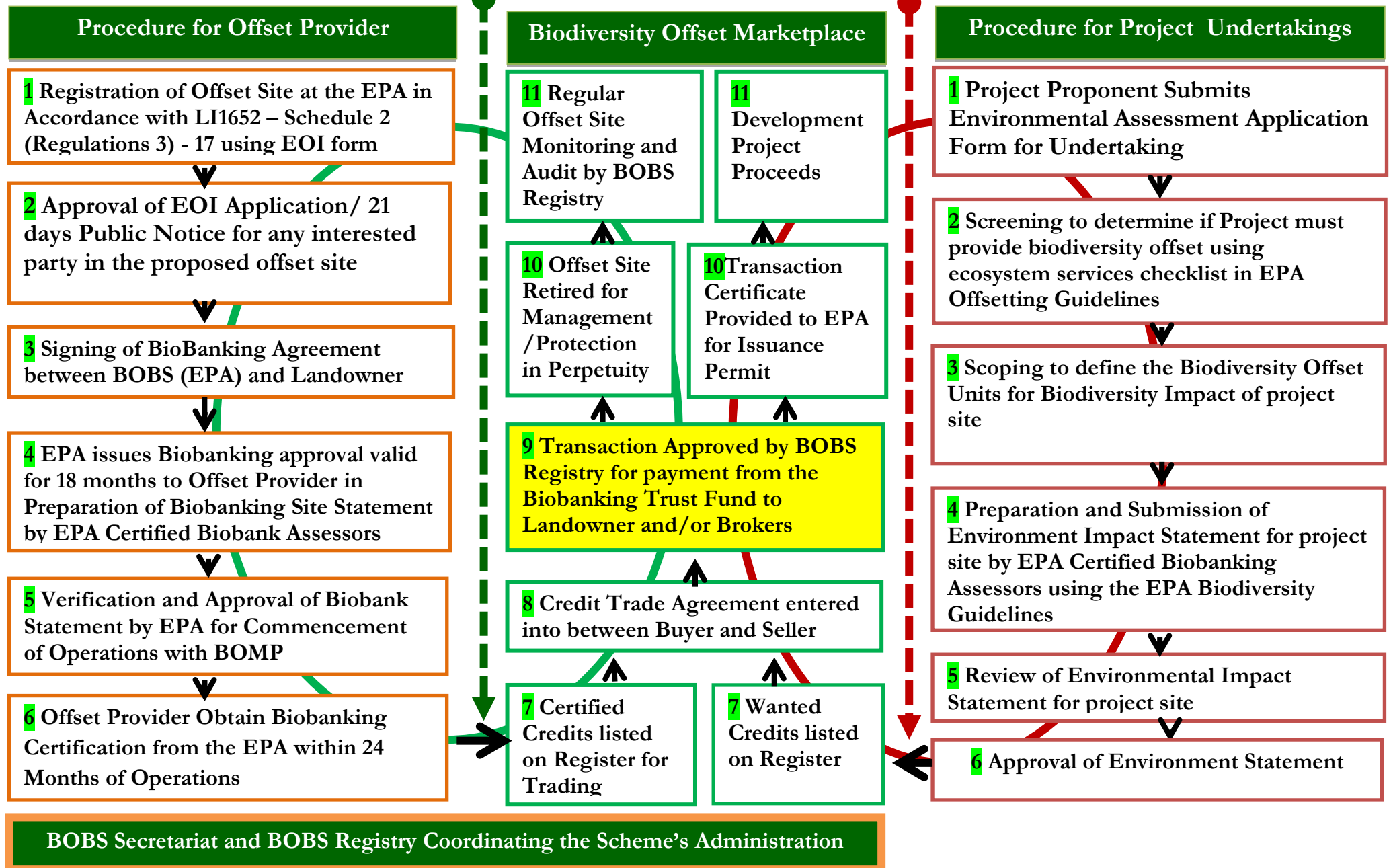
BOBS provides a single platform where certified biobanks and biodiversity credits are traded by offset providers, undertakings, businesses and entities. Biodiversity credits could be purchased to compensate directly for the impacts of an undertaking or as an investment for re-sale at a later date or purchased in advance of project approval which can be resold at a later time if not used or acquired to build a portfolio of credits to offset future development.

BOBS will create a real-time online portal which will be used to facilitate biodiversity credits trading and tracking throughout the life cycle. Displays of biodiversity credits will be available for sale or rent. Available biodiversity credits are searchable and viewable by registered buyers who can send expression of interests. Additionally, buyers can also enter the specific criteria of credits they wish to purchase from providers looking to list credits. The platform would increase transparency, efficiency and scalability within Ghana's offset trading market with links to other international trading platforms.

The scheme offers offset packages that enable all categories of businesses and undertakings fulfil their environmental obligations to the state whilst also building a "green brand" reputation for their operations. BOBS creates opportunities for new skills training and green jobs for Ghanaian youth.

²³ <https://www.icmm.com/document/4934>

Administrative Flow Chart of Biodiversity Offset Business Scheme (BOBS)



4.2 BOBS Packages

Effective responses to biodiversity loss and the decline in ecosystem services require economic incentives and markets. For effective offset administration, Market-based tools for evaluating biodiversity and ecosystems services, such as biodiversity quality criteria for investors, offset certification, assessment and reporting procedures, will be instituted. ²⁴

The BOBS has two categorized offsets packages for project proponents. They are the Primary Offset and Secondary Offset.

Table 1: BOBS Packages

Class	Packages	Categories	Description
A	Primary Offset ²⁵	A1	Habitat Restoration,
		A2	New Landscape Creation,
		A3	Ecosystems Enhancement Projects
		A4	Species Habitat Protection
B	Secondary Offset	B1	Biodiversity Offset Related Research
		B2	Contribution to Biodiversity Policy Development
		B3	Education And Awareness
		B4	Skills training

4.2.1. Primary Offsets

Project proponents are expected to undertake primary offsets after all feasible avoidance, minimisation and restoration actions have been considered. However, once an offset site is provided and activities of restoration, creation of new landscapes or enhancement of ecosystems are completed, maintenance is crucial to the success of offset project.

Project proponents that opt to undertake primary offsets themselves are expected to rent a matching offset on the market as their undertaking commences in anticipation of the maturity of their offsets. At maturity the Agency will certify the offset, after which the rented offset may then be placed back on the market.

4.2.2. Secondary Offsets

Secondary offsets involve providing funding for targeted research, education, awareness, and skills training linked directly to biodiversity values or the offset site. These offset packages provide support services that help recreate biodiversity values being impacted upon.

4.3 Benefits of the BOBS

- I. Drives innovation in relation to earlier stages of the mitigation hierarchy
- II. Incentivize landowners and communities to protect species/habitats values of their land
- III. Enhances the efficiency of the EIA process.
- IV. Increases private investment in biodiversity conservation and ecosystems management

²⁴ http://www.unepfi.org/fileadmin/biodiversity/TEEBforBusiness_summary.pdf

²⁵ http://www.yc.tcu.ac.jp/~tanaka-semi2/pdf/tanaka/tanaka2010_d08.pdf

8.0 Developing Guidelines for Biodiversity Offset Business Scheme

The Environmental Protection Agency will develop the following guidelines to ensure the effective administration of the BOBS.

- I. Biodiversity Offset Business Scheme – Framework
- II. Guidelines for offset providers and undertaking
- III. Biodiversity Assessment Guide.
- IV. Biodiversity Offset Management Plan (Template)

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