

# AGRICULTURE, NATURAL RESOURCES AND ENVIRONMENT





## **OUR TOPICS**

Blue economy – marine and coastal governance
Irrigation – managing a scarce resource
Integrated water resource management
Agroecology – sustainable pathways in a changing world
Skills development in agriculture
Protected area management
Land management – shaping the future
Environmental governance
Food and nutrition policies
Forest landscape restoration
Rural development – integrating the poor
Payment for environmental services



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## BLUE ECONOMY – MARINE AND COASTAL GOVERNANCE



#### **CHALLENGES**

The oceans cover almost three quarters of the Earth's surface and provide food for billions of people. Jobs and income for communities worldwide depend on them, especially in developing countries. Specifically, coastal and marine areas account for economic, environmental, social and cultural values.

Yet, the resilience of coastal socio-ecological systems is increasingly tested through the impacts of climate change and developments associated with rapid population and economic growth. Following the Blue Economy business model, exploitation of seas and oceans must balance economic productivity and associated human use with the protection of different habitats and species. Over 90 % of all fish stocks are exploited beyond their sustainable limits. As millions of tons of waste end up in the oceans every year, land- and sea-based marine litter is a global concern with far-reaching consequences for ecosystems, the economy, human health and food supplies.

Therefore, effective and sustainable coastal and marine governance is of increasing importance. It has to take into account a multitude of topics such as conservation and management of marine and coastal biodiversity, sustainable fisheries and aquaculture, sustainable tourism development, pollution control and waste management as well as disaster risk and climate change mitigation and adaptation. But spaces and processes associated with coastal and marine

areas are often not bound by sectors or administrative borders, hence tackling these challenges and their related objectives requires cross-sectoral, interregional and international stakeholder coordination and cooperation.

#### GFA CONCEPTS AND SERVICES

Taking the multidisciplinary and cross-sectoral nature of marine and coastal governance into consideration, GFA offers a holistic approach. Apart from an internal thematic working group, the company benefits from its interdisciplinary regional departments, supported by the expertise of technical departments and teams. From feasibility studies to practical implementation advice and policy support, GFA and its partners offer a broad range of expertise and services:

- Coastal and marine protected areas
- Climate change adaptation and mitigation
- Marine spatial planning
- Integrated coastal area management
- Sustainable fisheries and aquaculture
- Disaster risk reduction & coastal protection
- Marine pollution and waste management
- Sustainable tourism development
- Offshore energy and resource use



## IRRIGATION — MANAGING A SCARCE RESOURCE



#### **CHALLENGES**

Water has always been a limited resource, but due to climate change effects its scarcity and value have increased in many areas worldwide. Undoubtedly, irrigation allows for improved quality and quantity of food production, but water for irrigation is in competition with other types of use. Therefore water use efficiency and effective management of irrigation infrastructure and water remain key challenges even though innovative techniques, tools and materials have been developed.

#### **GFA CONCEPT AND SERVICES**

GFA offers services along the entire project cycle, from feasibility studies to the implementation of irrigation projects, specific support services such as set-up of water user groups, training of maintenance service providers, determination of water doses and tariffs, and evaluations. We promote holistic approaches including water harvesting, water quality treatment, irrigation and drainage and reuse as essential parts of water management. We understand participatory irrigation management (PIM) as a planning process that takes upstream and downstream situations of any irrigation scheme into account and gives all stakeholders a voice. Appropriate techniques have to be identified for each locality, and ownership among the beneficiaries who are to sustainably maintain and manage a given management system is a crucial success factor. From scratch, our experts have a project's exit strategy in mind and prepare beneficiaries and supporting entities for related post-project management and organisational tasks.

For preparing and implementing irrigation projects, GFA cooperates with specialised engineering firms. While we have long-standing experience and knowhow regarding irrigation hardware, GFA is specialised in supporting measures. These can be activities that protect irrigation infrastructure from erosion or floods or support to beneficiaries in efficient water use for agricultural production. Other services are related to organising water user groups and cooperatives, water management, tariff setting and negotiation of by-laws, and the maintenance of irrigation infrastructure.



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## INTEGRATED WATER RESOURCE MANAGEMENT



#### **CHALLENGES**

Water resources are under increasing pressure from population growth, climate change, competing sectoral demands and environmental degradation. Uncertain precipitation patterns, reduced snow and glacier storage, and more frequent floods and droughts are intensifying pressure on river basins worldwide. At the same time, responsibilities for water management are often fragmented.

These challenges lead to rising competition among users, greater vulnerability of communities and ecosystems, and reduced economic productivity. Integrated Water Resources Management (IWRM) provides a framework for balancing environmental sustainability, efficient water use and equitable access. Operationalising IWRM requires strong governance, cross-sectoral coordination and long-term, climate-responsive planning.

#### **GFA CONCEPT AND SERVICES**

GFA applies a holistic, evidence-based and climate-responsive approach to IWRM that strengthens governance systems and supports sustainable water use. Our services include:

 Governance and institutional strengthening: Support to river basin authorities, policy development, regulatory frameworks, coordination mechanisms and decentralised water governance structures.

- Water resources assessments and monitoring: Hydrological and groundwater studies, climate-risk analyses, and digital information systems for decision-making. Glacier melt and seasonal flow analyses are incorporated to support climate-adaptive allocation scenarios.
- Participatory basin planning: Inclusive approaches integrating upstream-downstream linkages, environmental flows, socio-economic priorities and climate risks.
- Use management: Advisory services on water-saving technologies, allocation mechanisms, tariffs and reuse strategies across key sectors.
- Climate resilience and adaptation: Integration of projections and risk assessments into planning, nature-based solutions for flood and drought mitigation, and adaptive management of water infrastructure.
- Capacity development: Training for authorities and user groups, communication strategies, and stakeholder engagement tools with a focus on strengthening women's leadership in water governance.



## AGROECOLOGY — PROMOTING SUSTAINABLE PATHWAYS IN A CHANGING WORLD



#### **CHALLENGES**

Three out of four poor people in developing countries live in rural areas. While most rely on agriculture for their livelihoods, climate change, biodiversity loss and unsustainable food systems intensify pressure on land and natural resources. By embedding ecological principles into farming, agroecology provides a transformative and just path to sustainability and resilience.

#### **GFA INTERVENTION OPTIONS**

Sustainable agriculture depends on healthy ecosystems amid growing land and water scarcity. Aligning incentives, investments and policies with agroecological principles enables resilient agri-food systems that protect watersheds, biodiversity and vulnerable groups. Expanding sustainable markets drives the bioeconomy through innovation in finance, institutions, biotechnology and information technology. GFA leverages these opportunities across rural development, irrigation and land management.

GFA supports the spread of context-specific, climate-resilient technologies to close production gaps caused by climate change. A key focus is strengthening agricultural extension through demand-driven, multi-stakeholder approaches. Guided by agroecological principles, GFA promotes services that diversify value chains, reflect local diets and reduce input dependency through circular practices. Recognising the barriers smallholders face in accessing markets and inputs, GFA fosters fair, enabling environments by improving market linkages through diversification, connectivity, governance, information and green finance. We provide public policy analysis aligned with global regulations, such as the EUDR. Our work also targets strong land and natural resource governance, drawing on experience in participatory land management, tenure regulation and GIS-based planning to build reliable land registries and cadastral systems. Access to water and irrigation is vital for productivity and climate adaptation. GFA advances landscape-level water management based on integrated and participatory principles.





## SKILLS DEVELOPMENT IN AGRICULTURE



**CHALLENGES** 

The agricultural sector in most GFA partner countries needs to produce more and better food in order to safeguard food security of a growing population. While large proportions of the population in developing countries earn their livelihood in agriculture related activities, productivity and income generation in this sector remain low.

One of the core problems is the lack of knowledge about modern production and management techniques at the farm and the small and medium enterprise (SME) level. Therefore, the education sector in many countries needs innovative and flexible approaches to tackle these shortcomings.

#### **GFA CONCEPTS AND SERVICES**

GFA applies a collaborative approach in agricultural development and technical and vocational education and training (TVET) to cater for the specific needs of the largely non-formalised agricultural sector.

Our interventions cover a wide range from short training courses to long-term design and reform processes of formalised TVET systems. We aim at integrating any form of agricultural training and education into the educational system of a country by applying selected tools from a comprehensive set of services such as:

- Conceptual support for policies and sector frameworks
- Professional human capacity development of advisors, teachers, trainers and educational managers
- Design of target-oriented delivery modes, e.g. classroom, mobile, e-learning etc.
- Inducement of modern learning approaches
- Establishment and review of national qualification frameworks and recognition of prior learning mechanisms
- Development and review of skills and occupational standards, curricula and training programmes

More than anything, we favor a competency-based approach in learning and training (CBT) that integrates practical training in enterprises or on farms.

Family farms and SMEs are major actors and target groups in the rural sector. Most of them need knowledge and skills in innovative farming techniques. At the same time, they require management and organisation skills so they can raise the productivity of their farming systems and develop their businesses. As a result, appropriate training and education shall lead to better performing value chains at a system level. GFA supports the design of curricula for the required complex occupational profiles that cover both technical as well as business topics. We emphasise target group specific modes of delivery, language use and didactical methods as to optimise learning success and adoption rates.



## PROTECTED AREA MANAGEMENT



**CHALLENGES** 

As a leading consultancy firm since 1982, GFA has long-standing experience in protected area (PA) management and biodiversity conservation. With more than 60 conservation specialists as well as subsidiaries and strategic partners in many countries, GFA provides successful and efficient conservation solutions that balance the needs of people and the environment. GFA works in a broad range of coastal and inland PAs — transboundary conservation areas, national parks, wildlife reserves and sanctuaries, and eco-corridors. We assist governmental and non-governmental organizations as well as local communities in reinforcing sustainable management principles.



GFA is convinced that long-term success in PA management depends on an integration of PAs and their management into the wider land- or seascape and the concerns of society as a whole. The core of the GFA approach is based on an integrative spatial planning and management approach that focuses on balancing conservation objectives and local economic development. This, we believe, will reduce poverty, enhance ownership and, as a result, will decrease the pressure bearing on PAs.

Involving the private sector in the development of sustainable business opportunities in PAs and the intervening landscape is an essential element of our concept. Our key objective is to foster forest-dependent people, intermediary bodies and partners through capacity building so they can develop organizationally, ecologically and socially in a sustainable and self-determined way. This is in line with CBD principles emphasizing the importance of sustainable use strategies addressed by a combination of participatory, ecosystem and governance approaches. The new challenges for national PA systems are connectivity and representation of all ecosystems (Aichi Targets). PA management by objectives and financial sustainability are crucial elements to these principles as well.

#### **GFA CONCEPT AND SERVICES**

GFA's range of services in PA management is related to three building blocks:

- Protected area planning and management
- Protected area governance and capacity building
- Community-based natural resources management

We focus on helping our partners efficiently manage conservation projects. Our range of services entails studies as well as conceptual, strategic, and technical consultancy in a wide variety of fields. Integrated PA planning and management including related infrastructure development and gazettement is the heart of the matter. Strengthening PA governance incorporates comanagement structures and mechanisms such as anti-poaching systems or human-wildlife conflict management. We advise biodiversity conservation and valuation by making use of wildlife survey techniques and managing sustainable financing mechanisms such as REDD+ or payment for ecosystem services (PES). As mentioned, support to socio-economic development based on sustainable production by developing non-timber forest product value chains or ecotourism is an important element of the GFA approach. Reliable monitoring systems making use of remote sensing technologies and GIS as well as the conceptualization and implementation of awareness raising campaigns and human capacity development programs support the surveillance of ecosystem functions of PAs.



## LAND MANAGEMENT — SHAPING THE FUTURE



consultancy services which combine developing policies and institutional arrangements with decentralisation, rural economic development and environmental conservation. Since land security is considered an important pillar of poverty reduction and peace, support to reliable cadastre and register systems are high on many countries' development agenda. Our experts focus on consulting the implementation of cadastral systems, reliable maintenance mechanisms and appropriate human resource development based on the latest technological developments, adapted to specific needs. GFA can draw on experiences from successfully implemented structural adaptation projects worldwide.

Given the complexity of land management, GFA teams offer multi-disciplinary

#### **CHALLENGES**

Land, as a limited resource, and the tenure of land are of crucial importance for socio-economic transformation and sustainable development. Existing limits to individual and economic freedom with respect to land ownership are given in land policies and institutions for land management and administration. Ideally, these are based on a broad consensus on development goals and good governance principles. Conflicts related to land access and land use rights can significantly reduce the productivity of land, lead to social unrest and political instability that affect social and economic development and welfare. Therefore, responsible governance of land tenure is vital for poverty reduction, food security and economic growth.

In recent decades, major efforts have been made to unleash the development potential inherent in land management and development. Land sector development is highly complex as it involves political, legal, economic and cultural aspects, often related to conflicts over land access and land use rights.

#### **GFA INTERVENTION OPTIONS**

Secure land tenure and land rights transactions are key aspects of responsible land administration and transparent land markets. The latter rely on functional and efficient cadastre and register systems, are tailored to a country's needs, and recognise individual and collective as well as formal, traditional and customary rights. Comprehensive consultation processes are necessary to obtain free, prior and informed consent before adopting administrative measures affecting indigenous people and territories. GFA assists its partners in designing and implementing specific land administration systems for responsible land governance.

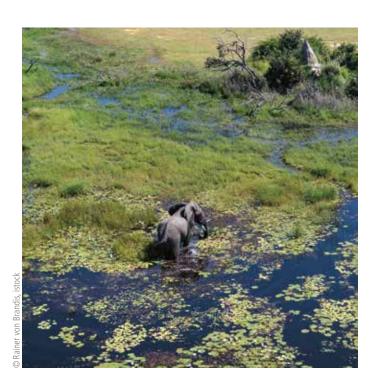
In many countries, an adequate legal framework for responsible land governance is yet to be developed, especially concerning the integration of formal and indigenous or customary land rights. Our proven expertise comprises the development of specific legal provisions for the regularisation of land tenure under individual and collective as well as formal and traditional regimes. Decentralisation processes and strong local government capacities in land management and land development are key conditions for creating transparent and effective land markets. Participatory and transparent development of land valuation systems will foster the acceptance of tax policies and compliance with tax liabilities and will boost local economic development.



FA Consulting



## **ENVIRONMENTAL GOVERNANCE**



#### **CHALLENGES**

As a leading consultancy firm since 1982, GFA has a long-standing experience in helping national ministries, regional bodies and municipalities to strengthen their country's environmental governance. In this context, GFA experts work with subsidiaries and strategic partners to craft tailor-made interventions in response to needs related to three main pillars, i.e. goal-oriented policy and legislation, institutional capacity for planning, implementation and enforcement, and evidence gathering and interpretation.

Relevant, evidence-based policies focus on priority public health and environmental issues. Effective governance requires that involved line ministries and other stakeholders identify with such policies.

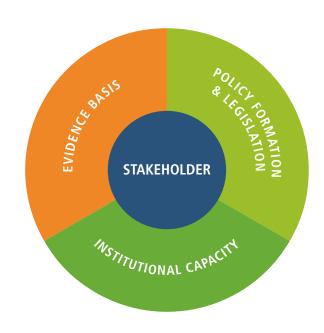
Often, ministries responsible for environmental management have adopted narrow, legalistic methods, engage only to a limited extent with their regulated sectors and associated ministries, and are significantly under-resourced. Compounding these challenges, government communi-cation with stakeholders and the general public may be weak in terms of providing information and a platform to hear people's voices. GFA provides direct support to ministries and other actors to overcome these challenges and to make best use of available resources.

#### **GFA CONCEPTS AND SERVICES**

GFA aims at promoting and supporting a sustainable governance framework appropriate to a country's traditions while taking into account relevant international standards and the legitimate interests and needs of sectoral stakeholders and the general public.

As part of the evidence pillar, our consultancy services include the assessment of actual environmental and ecological monitoring systems as well as specifying improvements and facilitating their implementation. Advising on environmental information systems and using them to assess the impacts of policy implementation is an equally important task. GFA experts advise on available policy options and analyze and discuss with our partners the development of policy measures and standards. Where needed and requested they draft suitable legislation and implementing regulations.

Institutional capacity building is an integral task. GFA advises on appropriate structures, administrative processes, personnel numbers and skills, budgetary and equipment needs. Our teams of experts identify and facilitate the implementation of essential information and communication technology. We assess priority training needs and provide targeted training as well as on-the-job support. GFA emphasizes effective communication. Therefore, we provide stakeholder liaison and coordination services, develop information networks and design communication strategies. In addition, we assist in the implementation of related measures and support awareness raising activities and outreach programs.





## FOOD AND NUTRITION POLICIES



#### **CHALLENGES**

One in three people worldwide is malnourished, about 795 million are undernourished, 1.9 billion are overweight and 2 billion are considered micronutrient deficient. The cost of the malnutrition burden is estimated amount to 4–5% of the global gross domestic product, while preventing malnutrition is estimated to have ca. 16 Euro return for every Euro invested. This is considered one of the top ten most effective investments in development. Although 80% of food is produced by smallholder farmers, their family members account for 50% of the undernourished.

In 2015, the Sustainable Development Goals stipulated to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture until 2030. The United Nations named 2016 to 2025 the Decade of Action on Nutrition, aiming at improving maternal, infant and young child nutrition and tackling obesity and related diseases such as diabetes, hypertension and others.

#### **GFA APPROACH**

Better nutrition is an important enabler and outcome of poverty reduction and development. GFA's approach is multi-sectoral, linking nutrition to health, agriculture, natural resources management, water, education, in-come generation and good governance. Our Food & Nutrition experts at GFA collect specific information and know-how and make it available to these business areas.

#### **GFA SERVICES**

GFA offers a wide range of services that aim at putting global nutrition goals on the national agenda and into sub-national development planning. Our health experts are linking maternal, infant and young child nutrition to ante and post natal care, while promoting breastfeeding, growth monitoring, complementary feeding as well as sanitation and hygiene. We train local trainers on nutrition communication and support e-learning and ICT solutions for a younger generation.

GFA also supports nutrition-sensitive agriculture, value chains and market linkages to generate household income and strengthen the decision making of women and men in healthy food and living conditions. We track public budgeting in nutrition, and the targeting of social protection programmes for nutrition enhancement. On a global level we are analysing rural-urban linkages and policies in favor of sustainable food systems for growing urban populations. This all contributes to fighting the underlying causes of malnutrition and hunger, and to increasing the quality, diversity, and affordability of food for healthy livelihoods.



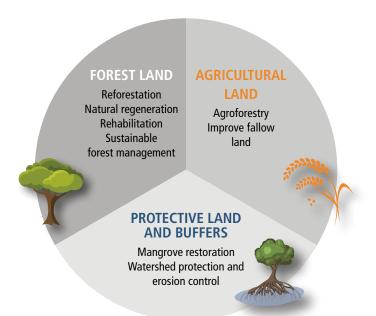
## FOREST LANDSCAPE RESTORATION



**CHALLENGES** 

Forest landscape restoration (FLR) is the ongoing process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes. FLR focuses not only on forests but on the restoration of the whole area, to create multiple benefits and different land uses.

FLR landscapes are typically categorised into three land use types, each incorporating different options for forest landscape restoration:



With more than 30 years of experience working on projects related to the restoration, management, and protection of forest landscapes in Asia, Africa, Latin America and the Middle East, GFA provides profound expertise in FLR. GFA experts have already implemented more than 170 projects realising different types of FLR, such as reforestation, agroforestry, watershed management, and sustainable forest management and protection. They have also contributed to the development of environmentally-friendly income-generating strategies in boreal, sub-tropical and tropical areas. This encompasses private, communal and state-owned forests, plantations, agricultural land and natural or secondary forests in buffer zones and protected land.

#### **GFA CONCEPT AND SERVICES**

The GFA implementation strategies are based on combining international best practice with local knowledge and methods, and field experience with scientific knowledge. This paired with extensive knowledge of financial and institutional requirements ensures services that meet customers' demands. Working in cooperation with stakeholders in the public and private sectors as well as civil society groups, GFA balances innovation and reliability to meet local needs.

Due to the interaction between FLR and combating illegal timber trade, we offer integrated assistance in sustainable silvicultural techniques, responsible investments and the implementation of national and international policy initiatives to reduce deforestation and forest degradation. However, such efforts to tackle deforestation and degradation need to be supplemented by ambitious restoration activities to reduce the pressure on existing forests and provide alternative sources, to improve soil fertility and reduce erosion and to generally contribute to carbon-sequestrating land uses. GFA therefore complements other approaches to food security improvement and climate change mitigation and adaptation, including smart agriculture and REDD+.

Planning and implementing reforestation measures and strengthening forest governance are further key elements of GFA consulting services. Moreover, GFA assists national forest certification initiatives, elaborates forest monitoring and timber tracking systems, develops supply chains for forest products and agricultural goods and supports ministries and government administrations in implementing national programs and regulations for forest rehabilitation and protection.



## RURAL DEVELOPMENT — INTEGRATING THE POOR



#### **CHALLENGES**

Economic development often entails high environmental costs and widening income gaps. Rural areas are mostly disadvantaged in their access to major markets. The majority of the rural population, in particular small farmers, women and minorities, are poor by national standards. These social groups only have limited options concerning their involvement in mainstream developments. Moreover, unsustainable production techniques threaten the prospects of future generations.

#### **GFA CONCEPTS AND SERVICES**

Sustainable development in rural areas requires a comprehensive and crosscutting approach to achieve "pro-poor" and "green" growth. Because of the variety of conditions regarding natural and human resources, there can be no blueprints. GFA concepts are therefore based on sound and specific situation analyses. Selecting from a diversity of state-of-the-art tools and methods, GFA services are tailor-made packages of interventions that best meet rural development needs. Depending on the situation, the services we offer are modular combinations of several of the following intervention options.

#### POVERTY REDUCTION AND SOCIAL DEVELOPMENT

Our teams of experts implement national poverty reduction and food security strategies at the local level. They integrate marginalised population groups and open gender-specific opportunities. GFA specialists foster participatory planning, community development, administrative decentralisation and democratic institution building.

#### **ENVIRONMENT AND NATURAL RESOURCES**

GFA experts strive for the protection and sustainable use of natural resources in conservation areas and buffer zones, land use planning, and land management. Sustainability principles also rule community forestry as well as climate change adaptation and mitigation measures at local levels.

#### TERRITORIAL DEVELOPMENT

Through participatory assessments of competitive advantages, GFA assists boosting regional competitiveness as well as local economic development. To our teams, planning and implementing needs-based, smallscale rural infrastructure often is a point of departure.

#### **ECONOMIC DEVELOPMENT**

GFA specialises in participatory agricultural extension, low-input strategies, and increasing agricultural productivity and market orientation in a sustainable fashion. Off-farm income opportunities and the processing of primary products from agriculture and forestry are crucial elements of our trade and marketing efforts. We also promote producer groups, associations and cooperatives by facilitating production clusters and local value chains and connecting these to international supply links. Similarly, GFA experts assist public and private service providers and small enterprises in rural areas, e.g. by facilitating small-scale credit programmes or providing microfinance.



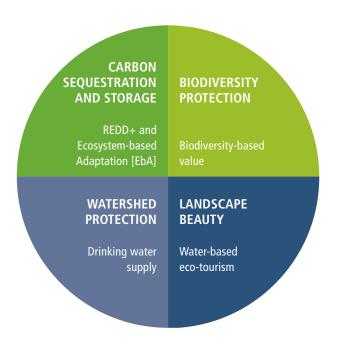
## PAYMENT FOR ENVIRONMENTAL SERVICES

## PRESERVING ECOSYSTEMS BY VALORISING ITS SERVICES

The degradation of habitats, the loss of biodiversity and the consequent deterioration in ecosystem services witnessed over the past 60 years ultimately reflect a historic failure to properly value the benefits we derive from nature. The imbalance, created by the valuation of some ecosystem services, such as food and timber, while others, like water protection and carbon sequestration that are equally vital to our continued well-being, have no financial value, which has led to a focus on short-term financial gains and overexploitation of many natural assets. However, in recent years significant advances have been made in our understanding of and capacity to communicate the benefits that ecosystem services provide for human well-being and to establish the values that people place on these services. Payments for environmental services (PES) confront the market failure problem of ecosystem services with the potential to meet the objectives under all three Rio Conventions and the sustainable development goals. Therefore, the growing interest in PES is driven in part by the general failure of command and control approaches and integrated conservation and development projects.



GFA has engaged in pioneering the development and implementation of PES schemes. Building on the working definition of PES as a voluntary, conditional transaction between at least one seller and one buyer over a well-defined





environmental service, GFA provides services in the following four PES types: Most of the PES projects supported by GFA have been designed to support conservation efforts in Africa, Asia, and Latin America. In accordance with the nature of GFA's main area of intervention, we have taken a practical approach to PES and mainly serve the governments of member countries with the efficient management of PES projects, while at the same time exploring mechanisms for the private and public sectors to invest in conservation and sustainable development. GFA's range of services includes the implementation of studies, as well as conceptual, strategic, and technical advice in:

- Building the human and institutional capacity to develop and implement PES schemes.
- Economic valuation of ecosystem services.
- Development and implementation of pilot PES schemes in all four PES types.
- Policy development and implementation to integrate and increase the relevance of PES in policy making.
- Design and establishment of sustainable financing mechanisms for biodiversity, water and carbon users (Conservation Trust Funds, REDD+, etc.).
- Mainstreaming PES schemes into land-use planning and management tools.
- Forest management and Chain of Custody certification according to FSC and PEFC standards.
- Design and implementation of awareness raising campaigns and training programs on PES.









Our department Agriculture, Natural Resources and Environment contributes to the following Sustainable Development Goals:

























#### **CONTACT**

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