



AMAZON COOPERATION TREATY ORGANIZATION - ACTO

CALL FOR APPLICATIONS

PROJECT: IMPLEMENTATION OF THE STRATEGIC ACTION PROGRAMME TO ENSURE INTEGRATED AND SUSTAINABLE MANAGEMENT OF THE TRANSBOUNDARY WATER RESOURCES OF THE AMAZON RIVER BASIN CONSIDERING CLIMATE VARIABILITY AND CHANGE.

MODALITY: Technical qualification

CALL FOR APPLICATIONS: (70% corresponds to the CV and motivation letter, 20% corresponds to the interview and 10% technical proposal)

1. OBJECT

Recruitment of a consultant Senior Specialist in Water Resources Monitoring to consolidate within the framework of the Amazon Regional Observatory (ORA) an Integrated Regional Platform on IWRM in the Amazon Basin, as well as its different operational monitoring systems, compatible and articulated, with agreed protocols for its operation that allows ACTO Member Countries to have regional data for decision-making, deepening South-South cooperation with a view to a basin-wide integrated environmental monitoring at the basin level, based on indicators from relevant international conventions and agreements.

2. STAGES OF THE SELECTION PROCESS

1. Reception of proposals: **from November 16 to December 12, 2022, until 6 p.m. Brasilia time**
1. Analysis and qualification of the candidates: **From December 13, 2022, to December 30, 2022**
1. Probable date of definition of the selected candidate: **January 16, 2023**
2. Likely date of release of results and contacting: **January 25, 2023.**

TIME REFERENCE: All time references in the announcement of the Call for Applications, in the advertisement and during the interview sessions will respect the Brasilia-DF time zone.

The PS/ACTO reserves the right to alter/adjust the deadlines for analysis of the proposals and final result at any time.

3. SELECTION COMMITTEE

To proceed with the stages of the selection process, the PS/ACTO will constitute a Selection Committee that will be composed of at least one executive officer and two institutional staff, according to the required profile.

4 . APPLICANTS QUALIFICATION CRITERIA

All qualification and qualification criteria related to this call are set out in points 6, 7 and 8 of the Terms of Reference of this Announcement.

5. TERMS OF REFERENCE

The Terms of Reference are presented in this Announcement.

6. TERM OF EXECUTION AND CONTRACTUAL TERM

The total duration of the services is 24 (twenty-four) months, counted from the signing of the contract and the planned products must be delivered according to the Execution Schedule of the Terms of Reference.

7. SUBMISSION OF DOCUMENTS AND DEADLINES

Those interested in participating must send all the documents described in these Terms of Reference in digital format, in Spanish, English or Portuguese, through the institutional e-mail: selecao@otca.org, indicating the name of the Project and the position of the application [*Amazon Basin Project - SAP - Senior Specialist in Water Resources Monitoring*].

The selected candidate must send all supporting documents in digital format, signed. When they are requested, they must be presented in original. Non-delivery or incomplete delivery of documents will result in disqualification of the candidate.



PROJECT: IMPLEMENTATION OF THE STRATEGIC ACTION PROGRAMME TO ENSURE INTEGRATED AND SUSTAINABLE MANAGEMENT OF THE TRANSBOUNDARY WATER RESOURCES OF THE AMAZON RIVER BASIN CONSIDERING CLIMATE VARIABILITY AND CHANGE

TERMS OF REFERENCE

FOR THE RECRUITMENT OF A SENIOR SPECIALIST IN WATER RESOURCES MONITORING FOR THE PROJECT IMPLEMENTATION OF THE STRATEGIC ACTION PROGRAM TO ENSURE INTEGRATED AND SUSTAINABLE MANAGEMENT OF THE TRANSBOUNDARY WATER RESOURCES OF THE AMAZON RIVER BASIN CONSIDERING CLIMATE VARIABILITY AND CHANGE

Funding Agency: Global Environment Facility (GEF)

Implementing Agency: UN Environment Programme

Executing Agency: Amazon Cooperation Treaty Organization (ACTO)

Duration of the project: 4 years



Brasilia, 2022

TERMS OF REFERENCE

SENIOR SPECIALIST IN WATER RESOURCES MONITORING FOR THE DEVELOPMENT AND IMPLEMENTATION OF AN INTEGRATED WATER RESOURCES MONITORING SYSTEM FOR THE AMAZON REGION WITHIN THE FRAMEWORK OF THE AMAZON STRATEGIC ACTION PROGRAM

I. BACKGROUND

The Amazon Basin faces numerous challenges for the Integrated Management of Transboundary Water Resources (IWRM) in the context of its socioeconomic development and in the face of anthropogenic and climatic impacts. The basin constitutes a single hydrological system that extends beyond the national borders of eight countries - Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela - that consider the need to establish a regional framework for IWRM, to meet the needs of the population and promote the sustainable development of the Amazon Region.

The eight countries of the basin signed the Amazon Cooperation Treaty (1978) and subsequently created the Amazon Cooperation Treaty Organization (ACTO) as a regional forum for political dialogue and regional cooperation, institutionally strengthening the process of cooperation, coordination, and joint actions of the Member Countries to promote the sustainable development of the Amazon.

The main roles and functions of the PS/ACTO are to facilitate the exchange, knowledge, cooperation, and joint projection among the Member Countries (MC) to fulfill the mandates of the Amazon Cooperation Treaty, generating consensus among the Member Countries to allow the realization of activities, programs and projects, establishing spaces for political and technical dialogue among the Member Countries, among other actions.

In this context and within its framework of regional action on water resources, ACTO has been implementing the Project “Implementation of the Strategic Action Programme to Ensure Integrated and Sustainable Management of the Transboundary Water Resources of the Amazon River Basin Considering Climate Variability and Change, which is financed by the Global Environment Facility (GEF), with the United Nations Environment Programme (UNEP) acting as the implementing agency and the PS/ACTO, as executing agency.

The main objective of this Project is to advance the implementation of the Strategic Action Program (SAP), promoting Integrated Water Resources Management (IWRM). The regional initiative will promote previous agreements of the Amazon countries that resulted in a shared vision and a common strategy for IWRM contained in the Strategic Actions Program-SAP. In this context, the project will support countries to strengthen national capacity and regional governance for IWRM, increase resilience to climate change, and ensure robust regional data to improve decision-making and coordination on water resources in the Amazon, all along from the river sources in the Andes to the delta in the Atlantic, for a healthier Amazon ecosystem.

Key results of the Project include:

- IWRM Permanent Regional Coordination Mechanism for the Amazon Basin, established in ACTO;
- National Water Authorities established in Guyana and Suriname;
- 15 national interventions and 2 bi/tri-national actions implemented in the basin reducing the vulnerability of the population and impacts on ecosystems to extreme hydroclimatic events and sea level rise;

- Training of 1,400 IWRM professionals and more than 10,000 members of local communities (at least 40% are women);
- Integrated environmental monitoring system covering an area of 600,000,000 ha.

The project activities are expected to benefit more than 7.8 million people corresponding to 20% of the population of the Basin (OTCA & UNEP, 2020).

The Project is implemented within the framework of four components:

- 1) Innovative community-to-cabinet governance model for Integrated Water Resources Management-IWRM in the Amazon Basin.
- 2) Building community resilience and protection of aquatic ecosystems to address the effects of climate variability and change in the Amazon Basin.
- 3) Integrated environmental monitoring and reporting based on indicators in response to indicators from relevant International Conventions and Agreements, and
- 4) Comprehensive model for monitoring, assessing and informing the progress of the overall implementation of the Amazon SAP.

The *Components 1 and 4* of the project are crosscutting, providing a political, institutional, and social environment conducive and catalyst for the implementation of the SAP. *Components 2 and 3* are interconnected and represent the basis for SAP implementation, carrying out interventions throughout the basin and providing comprehensive monitoring data to feed into and directly support the two cross-cutting components (Figure 1).

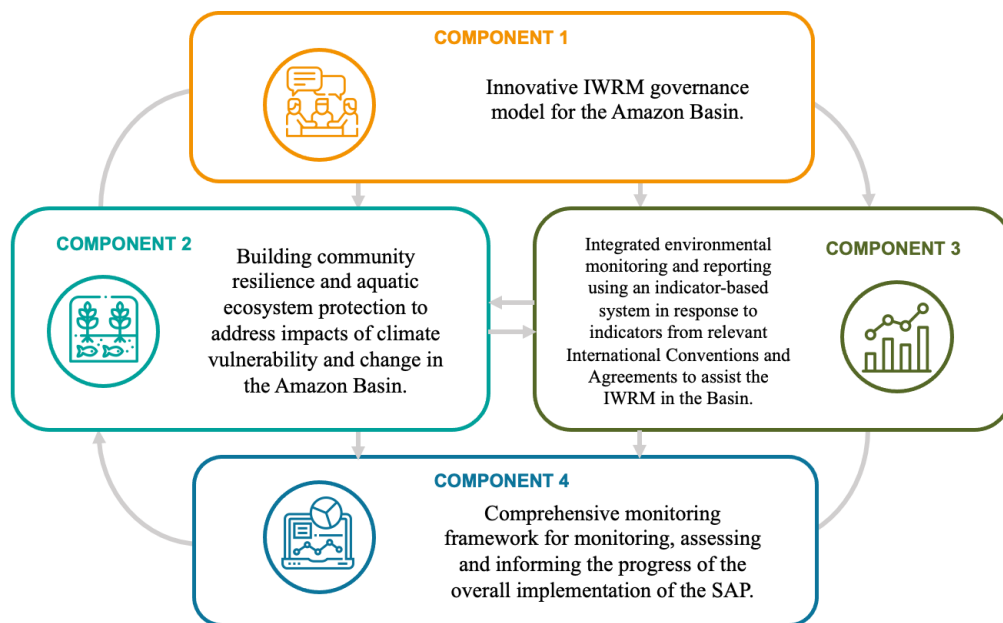


Figure 1. Interaction between Project components (Source: PS/ACTO/UNEP (2021). Initial Report)

Component 3 focuses on consolidating an integrated environmental monitoring and reporting system based on indicators in response to indicators from relevant International Conventions and Agreements. It will become a fundamental tool allowing to *assess the state and dynamics in time and space* of water resources in the basin and associated environmental services. Monitoring will also provide information to understand *trends in current and future changes and dynamics* through statistical modeling and provide early warnings of threats, evidence of change, and information, for sustainable and efficient management oriented towards the concepts and principles of *water security* in the region.

Moreover, integrated environmental monitoring will contribute to assessing progress towards meeting the targets of major international climate and environmental conventions and agreements, including the Sustainable Development Goals 2015-2030, the Convention on Biological Diversity (CDB) (Aichi Targets 2011-2020), the United Nations Convention to Combat Desertification (Plan 2010-2018) and the RAMSAR Convention on Wetlands.

II. CONTEXT AND SCOPE OF IMPLEMENTATION OF THE CONSULTANCY

There are currently several institutions and agencies, as well as different sources of information, dedicated to the collection of hydrological and environmental data, as well as other knowledge systems linked to the management of water resources in the Amazon Basin that can be a potential source of information for the *monitoring* systems in the context of ACTO. However, when using information from various sources and for the information generated to have the scientific technical rigor, two elements are essential: **a)** To have procedures for handling and integrating information (protocols agreed under minimum and internationally accepted standards) that guarantee the necessary robustness on the data and the comparison of these; and **(b)** Transparency about the generation of data and protocols used. Both elements are fundamental for the different actors and users involved in the systems (both producers and users of data and information) mainly when monitoring is oriented to the articulation of science and decision-making in processes and changes that occur at the global, continental, regional and even local levels.

In this sense, and in the context of the participatory Transboundary Diagnostic Analysis (TDA) and the development of the Strategic Action Program (SAP), ACTO Member Countries identified as a priority the need to promote and consolidate: a) A *regional monitoring and surveillance system for water resources* focused on the consolidation of two monitoring networks: i) hydrometeorological, and ii) water quality, and a monitoring program of iii) the processes of water Erosion, Sediment Transport and Sedimentation (ETS) and; b) An *Integrated Water Resources Information System*.

In order to have effective systems, the need for involvement, participation and commitment of public, private and civil society entities is essential, with the purpose of promoting research, the flow of information and the generation of knowledge for the management of water resources in transboundary basins.

Within the framework of the SAP and its implementation, the MC also agreed to develop, based on the existing regulations in the MC, protocols, procedures, techniques, and agreements for the exchange of information linked to monitoring and surveillance systems and the Integrated Information System and to monitor their respective application.

Advances in regional monitoring of water resources in the Amazon Basin

To date, the countries of the Amazon Basin have made significant progress in environmental monitoring, including the Amazon Regional Observatory (ORA) of ACTO, and the results of the regional *Amazonas Project: Regional Action in the Area of Water Resources* (ANA-ABC-ACTO). There is also data on other initiatives such as the Monitoring Project for the Hydrology and Geochemistry of the Amazon Basin (HYBAM; www.hybam.org) and the WHYCOS - World Meteorological Organization (WMO) Global Hydrological Cycle Observing System project.

Although there are advances in Water Resources that contribute significant information on the environmental health of the basin, to date there is no operational integrated regional system. In this sense, the Amazon Basin Project will aim to coordinate the consolidation and implementation of an integrated regional monitoring system based on existing initiatives that have advanced substantially. To this end, the following regional initiatives will be taken into account, including:

- **Amazonas Project: Regional Action in the Area of Water Resources** (since 2012) is developing technical cooperation among Amazonian countries in the field of integrated water resources management, especially in: a) the creation of regional monitoring networks and their protocols for hydrometric and water quality monitoring of the Amazon Basin; b) the Water Resources module anchored in the Amazon Regional Observatory, which provides tabular and documented information on the state of water situation in the basin; c) the Amazon Networks module that provides hydrometric information in real time; and d) the Water Resources Situation Room established in ACTO, as part of the ORA, which is developing a proposal for an operating manual that will delimit its functions, roles and scope. This project is an initiative of the National Water and Basic Sanitation Agency of Brazil (ANA / Brazil), the Brazilian Cooperation Agency (ABC), the Department of South America (DAS) of the Ministry of Foreign Affairs of Brazil, and the Amazon Cooperation Treaty Organization (ACTO), for the execution of technical cooperation actions aimed at strengthening the institutions responsible for water management in the Member Countries of the ACTO.
- The **Amazon Regional Observatory-ORA**, inaugurated in October 2021, constitutes a Reference Center for Information on the Amazon, promoting the flow and exchange of information between institutions, government authorities, scientific community, academia, and civil society of the Member Countries of the Amazon Cooperation Treaty Organization (ACTO). The conceptual basis and structure of the ORA, were developed within the framework of the Bioamazonia Project (KfW/ACTO) and approved by the ACTO MC.

The ORA is based on a computer structure, with access through a web portal, with modular architecture, which allows the acquisition, storage and publication of information on the different topics established by the Treaty and those prioritized by the Strategic Agenda for Amazon Cooperation (AECA) – biodiversity, CITES, water resources, forests, indigenous peoples.

The ORA's sources of information come from various government entities of the ACTO MC and also from external sources, regional and international organizations, which have a high level of recognition for their work in the Amazon Region.

The ORA modules are divided into integrative modules and thematic modules. The integrative modules are conceptualized to group information according to the same type of technological tool, and that attends to all the themes of the AECA.

MODULE	DESCRIPTION
Geomazonía*	Communicates information from maps that are received from national information systems or entities that officially have these maps in public systems. The module articulates official information with a regional approach.
Digital Amazon	Presents information resources of documentary base, data, multimedia. It articulates statistical information and official regional indicators, documents, legal framework, and other official documents on the Amazon.
Amazon Networks*	Articulates the specific cases of real-time monitoring on water resources management (Situation Room) with official data from the countries, such as the Amazon Hydrological Network (AHR), Water Quality Monitoring Network of the rivers of the Amazon Basin, Groundwater Monitoring Network. This module will present early warnings in water resources and fires.

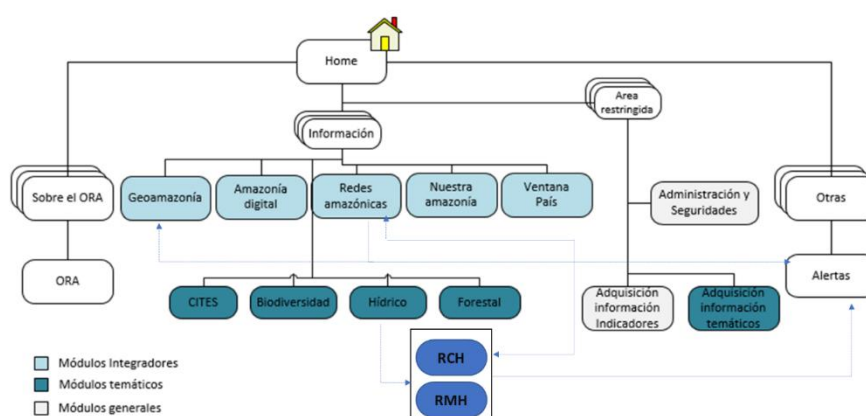
Our Amazon	Articulates documentary information on good practices and successful experiences in the Amazon Region in different areas, using official and unofficial information.
Country Window	The country window displays information in the form of relevant charts and graphs for each of the ACTO Member Countries — Bolivia, Brazil, Ecuador, Colombia, Guyana, Suriname, Peru and Venezuela — with a comparative approach, including social, economic and environmental issues.

On the other hand, the thematic modules specialize in each of the topics prioritized by the Member Countries for the ORA and that are part of the Strategic Agenda for Amazon Cooperation. Their added value is the degree of specificity in the information they contain, associated with their catalog of indicators.

MODULE	DESCRIPTION
CITES	Communicates information on central management issues related to the implementation of the CITES Convention.
Biodiversity	Offers a set of biodiversity information and data, as well as working tools to manage and share knowledge related to biodiversity.
Forests	Its purpose is to provide information contributing to the integral development of forests, for their conservation, management and use. The available data and indicators will strengthen follow-up, monitoring and early warning actions on deforestation, prevention and control of forest fires, sustainable forest management practices, etc.
Water resources	Seeks to provide information on the situational status (quality and quantity of surface and groundwater) and the management of water resources in the Amazon Basin, with a level of disaggregation of basins or hydrographic units based on a methodology (Pfafstetter).

Likewise, the Indigenous Peoples platform and soon, the Climate Change module are under development.

Under the explanation of each of the modules, the order of the architecture of the ORA is found in *scheme No. 2* with a focus on water resources.



Scheme 2. Current architecture of the ORA portal site with emphasis on the Amazon Networks modules and the Water Resources thematic module.

Additionally, it is also important to consider:

- The results of the **Technical Assistance** of the Inter-American Development Bank-IDB which includes: **i) Nexus Water-Food-Energy Study** that uses the HydroBID analytical tool for the hydrological balance in the basin and the What If tool for the definition of scenarios. **(ii) Study of structural gaps** (OTCA-ECLAC-IDB) that will provide socioeconomic information and appropriate indicators for the basin, including information at the local level, and **(iii) the Regional Transboundary Plan** on drinking water, basic sanitation and solid waste management in the Amazon.
- ACTO's Forest and Biodiversity Programs.

In addition, the countries of the Amazon Basin have networks of laboratories that carry out local and national monitoring programs. However, the compatibility of the data generated between countries has not yet been established.

On the other hand, ANA-Brazil implements hydrological monitoring by satellite through a technical cooperation agreement with the French Institute for Research for Development (IRD) within the framework of the project "Hydrological Monitoring of Rivers and Lakes through Satellites – HidroSat", with the participation of the Brazilian Cooperation Agency of the Ministry of Foreign Affairs (ABC/MRE). The objective of the project is to incorporate space remote sensing data for automated monitoring of hydrological processes.

IRD also works with institutions in several countries in the region within the framework of the Monitoring Project of the Hydrology and Geochemistry of the Amazon Basin (HYBAM, www.hybam.org), whose purpose is to improve the state of knowledge of the hydrology and geochemistry of the Basin. This network includes hydrological monitoring, water quality and sediment transport components.

III. GENERAL OBJECTIVE OF THE CONSULTANCY

Consolidate within the framework of the ORA an Integrated Regional Platform on IWRM in the Amazon Basin, as well as its different operational, compatible and articulated monitoring systems, with agreed basin-wide operation protocols, allowing MC/ACTO to have regional data for decision-making, deepening South-South cooperation towards integrated environmental monitoring at the basin level, based on indicators from relevant international conventions and agreements.

IV. SPECIFIC OBJECTIVES, ACTIVITIES and PRODUCTS

Specific objectives.

Specific objective 1. Conceptualize and implement an *Integrated Regional Information Platform on IWRM in the Amazon Basin*, based on regional Water Resources (WR) monitoring networks and integrating the National WR Information Systems, which provides compatible, articulated, complementary, sufficient, necessary, and robust information for an integrated environmental monitoring based on indicators and anchored in the ORA.

Specific objective 2. Consolidate and operationalize an Integrated Water Resources Monitoring System, including the consolidation of regional networks: Regional Water Quality Network and Amazon Hydro-meteorological Network, and the establishment of the ETS Monitoring Program and articulate, according to the proposed Conceptual Framework.

Specific objective 3. Promote the sustainability of the Integrated Water Resources Monitoring Systems at the national and regional levels through a training program and a sustainability plan.

Activities and Products by specific objective.

Specific objective 1. Conceptualize and implement an Integrated *Regional Information Platform on IWRM in the Amazon Basin*, based on regional Water Resources (WR) monitoring networks and integrating the National WR Information Systems, which provides compatible, articulated, complementary, sufficient, necessary, and robust information for an integrated environmental monitoring based on indicators and anchored in the ORA.

Activities:

- i. Under an adaptive, feedback and participatory approach, review, analyze and propose a methodological framework based on the TWAP methodology, to advance in criteria and common indicators, know the engineering and infrastructure of the information and data required for compliance. Likewise, identify other relevant indicators of the Multilateral Environmental Agenda.
- ii. On the basis of TWAP methodologies and indicators and other relevant indicators, prepare a methodology for developing a Strategic Matrix to understand and analyze progress on systems, platforms, portals, information and data sources (Information and data engineering and infrastructure) and others related to the monitoring of water resources in the Amazon Region with emphasis on hydrometric, meteorological, water quality, ETS, glaciers, and groundwater monitoring. This activity should be accompanied by interviews aimed at key actors/informants, including those related to hydrological and water quality monitoring networks.
- iii. The Strategic Matrix should contain guidelines for the articulation and inclusion in the conceptual framework of the operational monitoring networks of the intervention projects that will generate site-specific environmental monitoring data. In this regard, consideration should be given to interventions establishing early warning systems in the MAP border region and the Mantaro River basin in Peru (output 2.1); data provided from glacier monitoring in Bolivia and Peru (output 2.3) and groundwater monitoring data from interventions in Tabatinga/Leticia, Brazil, Guyana (product 2.4), in component 2.
- iv. With the information obtained and the analysis carried out, develop a Conceptual Framework of the Platform, and generate a proposal for the Concept of the Platform, which includes the reading of indices, indicators, information aggregation and dashboards, trend board and trend cards for environmental reporting in order to establish compatible science-to-policy decision-making throughout the basin.
- v. Identify the best option to anchor the Platform in the architecture of the ORA. Also develop the access menu according to the conceptual framework as well as the use of analytical tools.
- vi. Develop a technical and functional understanding of how the work being implemented by WMO in the Plata Basin with the tools WIGOS-WHOS, PROHMSAT and other strategic partners of the Project as well as other potential tools can be implemented in the Amazon Basin.
- vii. Prepare the ToR for the hiring of national consultants (1 per country) to support the management of information and data related to the Integrated Water Resources Monitoring System (Monitoring Networks).
- viii. Carry out a necessary and sufficient collection of information on the status of the ACTO situation room and the situation rooms of the MC, evaluate their current status, propose their updating and leveling, as well as their functions, products, scope and the protocols that should be complied with.

- ix. Generate a proposal for the installation and operation of the national situation rooms connected to the regional situation room.
- x. With the information systematized and analyzed in the indicators, and the situation rooms, elaborate an index of the content of the State of the Environment Report in the Amazon, the steps to follow, requirements, requirements, procedures and roadmaps for its online update using the Integrated Regional Platform of Information on IWRM.
- xi. Based on the elaborated concept, prepare the ToR of a Consultancy for the design and implementation of the Integrated Regional Platform including its anchoring in the ORA. The Platform should consider the main TWAP indicators, ensuring the articulation and contributions of the tools of the strategic alliances, the different systems, databases and information to these indicators and other relevant international indicators.
- xii. ToR should be coordinated with the ORA specialist and the ACTO situation room in order to include the minimum integration steps between the Platform and the ORA: Creation or reuse of INTRANET (if applicable according to the technology used), integrated search engine, Data Base integration, application integration, interoperability, resource reports, etc.).
- xiii. The ToR should include that the specialized firm must perform methodological guidelines for each monitoring network to identify inconsistencies about the data generated by the networks. These methodological guides will be for the use of the Regional and National Situation Rooms.
- xiv. Guide the consulting firm and ensure the articulation and inclusion in the conceptual framework of deliverable 1.1.3 (Data exchange protocols and legal instruments; common monitoring protocols; Capacity building of the Amazon Regional Observatory; establishment of a network of academic institutions).
- xv. Participate and support in the integration process that the consulting firm of the Platform will carry out with the ORA.

Products:

- 1.1.1 Work Plan and methodology for the implementation of the Integrated Platform, including analysis of TWAP indicators and others of relevant international conventions/agreements and evaluation of data and information requirements.
- 1.1.2 Matrix of information systems and analytical tools on Integrated Monitoring of Water Resources in the Amazon Region, as well as other program and project experiences (GEMS Water, World Water Quality Alliance) and other regions , based on the available diagnostics, identifying the progress and existing gaps regarding the systems, platforms, portals, data sources including disruptive technologies and others related to the monitoring of water resources in the Amazon Region with emphasis on hydrometric, meteorological, Water Quality, STS, Glaciers, and Groundwater monitoring .
- 1.1.3 Conceptual Framework on the Integrated Regional Platform of Information on IWRM of the Amazon Basin, including design architecture, indexes, interfaces, etc., in the context of the ORA and the articulation of the operational monitoring networks of the specific intervention projects.
- 1.1.4 MoU developed and technically agreed between the parties: with the WMO for cooperation in the use of the WIGOS-WHOS, PROHMSAT tools articulated to the Integrated Platform.
- 1.1.5 ToR for the hiring of national consultants (1 per country) to support the management of information and data related to the Integrated Water Resources Monitoring System (Monitoring Networks).
- 1.1.6 Installation and operation of national situation rooms connected to the regional situation room/ORA and periodic progress reports.

- 1.1.7 ToR Regional Consulting State of the Environment Report, including preliminary index of the Report on the State of the Environment in the Amazon prepared based on the analysis of the Strategic Matrix.
- 1.1.8 ToR of a Consultancy for the design of the Regional Platform Integrated in the ORA. ToR should be focused on compliance with the Conceptual Framework. The ToR should include the recommendation of the use of analytical tool(s) for data analysis and processing.
- 1.1.9 Reports on the monitoring (progress report) and quality control and implementation of the Regional Platform, the strategic alliances that integrate it, the distribution of the different systems and the use of integrated analytical tools.

Specific objective 2. Consolidate and operationalize an Integrated Water Resources Monitoring System, including the consolidation of regional networks: Regional Water Quality Network and Amazon Hydro-meteorological Network, and the establishment of the ETS Monitoring Program and articulate, according to the proposed Conceptual Framework.

General activities of direct responsibility of the consultant to consolidate and operationalize an Integrated Water Resources Monitoring System:

- i. Identify partners and actors, perform comprehensive analysis of data and information sources and develop politically acceptable, technically viable and economically bankable proposals to improve and optimize access to information from different sources (with a boost to satellite management) (HYBAM, World Water Quality Portal: Monitoring through remote sensing data (IHP UNESCO, etc.).
- ii. Discuss and prepare MoU with Project partners - UNEP GEMS Water, World Water Quality Alliance, HYBAM, PHI UNESCO and others identified potential partners to achieve the fulfillment of the consulting objectives and conceptual framework.
- iii. Develop a proposal for an annotated roadmap including technical bases for the hiring of three specialized companies (one company for each monitoring system), according to the general planning of Product 3.1. and its respective follow-up, ensuring the quality of the products.
- iv. Develop a national capacity building program based on the integrated monitoring to operate the water quality and quantity monitoring system, the sediment monitoring program, based on the integrated satellite monitoring and environmental monitoring system.
- v. Direct and carry out the quality control of the development and implementation of the Integrated Water Resources System.
- vi. Coordinate the installation of Situation Rooms and training in the MC and their articulation with the Situation Room of the ACTO/ORA.
- vii. Coordinate the work and contributions of the National Consultants for the consolidation of the networks.
- viii. Direct and present follow-up reports on the development of the State of the *Environment Report*, support the planning and realization of a Regional Workshop in order to agree on the Protocols for the Integrated Water Resources Monitoring System.

General products of direct responsibility of the consultant to consolidate and operationalize an Integrated Water Resources Monitoring System:

- 2.1.1. Set of MoUs discussed and technically agreed with Project partners: UNEP - GEMS Water, World Water Quality Alliance, HYBAM, PHI UNESCO and other potential partners identified to achieve compliance with the conceptual framework.

- 2.1.2. Annotated roadmap for the hiring of three specialized companies (one company for each monitoring system), according to general planning of Product 3.1. and its respective follow-up ensuring the quality of the products.
- 2.1.3. Progress reports and implementation of the training of technicians from all countries of the Amazon Basin in the operation of the sediment monitoring system, based on integrated satellite-based monitoring, to include at least three technicians per country in a 1-week training session (see 3.1.3).
- 2.1.4. An integrated Water Resources System available in the ORA with indicators and variables that allow knowing the state and trends of the Amazon Basin.
- 2.1.5. Report of the situation rooms established and interoperated with the Integrated Water Resources Monitoring System.
- 2.1.6. Publication of *the State of the Environment Report*.
- 2.1.7. Report of the Regional Workshop.

Regional Water Quality Network.

Building on existing progress, the Regional Water Quality Network will focus on creating a regional operational framework to protect and monitor rivers and aquatic systems, train relevant institutions and strengthen pollution risk management in the water/river systems of the Amazon basin. This Regional Water Quality Monitoring System will be based on a network of sampling points, sampling frequency and analysis of chemical parameters, and methodologies and protocols that will be agreed by the countries of the Amazon Basin.

Activities and scope to consolidate the Regional Water Quality Network with the support of a specialized firm:

- A. According to the roadmap, prepare the Terms of Reference (ToR) for the hiring of a company and carry out the technical guidelines and follow up as well as validate the work mainly for compliance with the following activities and scope:
 - a) Consolidate the Regional Water Quality Monitoring Network and make the results (from inter-calibrated laboratories) available on the IWRM Integrated Regional Platform.
 - b) Consolidate the regional water quality monitoring system (based on current national and regional systems) with standardized quality parameters in the rivers of the Amazon Basin, including:
 - ✓ Establish water quality monitoring and evaluation protocols (based on the protocols developed by the Amazonas Project) and System operation mechanisms, including:
 - i. Regional protocols for sample collection.
 - ii. Regional protocols for water quality analysis.
 - iii. Data exchange protocols.
 - iv. Water quality assessment protocols and reporting.
 - v. Mechanisms to operate the system at local and regional level within the framework of the Integrated Water Resources Monitoring System.
- B. Implementation of a comparison activity between laboratories, based on the background of the intercalibration exercise of the Amazon Project (ACTO-ANA), which includes:
 - a) Implement intercalibration procedures with selected laboratories, using equipment provided for each country, including:
 - i. Acquisition of equipment for selected laboratories (multiparameter field equipment; one per country).
 - ii. Performing joint monitoring tests and analysis of intercalibration samples in each laboratory.

- iii. Performing statistical analyses of the results.
 - iv. Integration and dialogue of intercalibration results.
- C. Integrate the results of ANA-ACTO monitoring campaigns and other national monitoring information into the IWRM Regional Integrated Information Platform in ACTO.
 - D. Feasibility analysis of the use of satellite information for surface water quality monitoring.
 - E. Based on the results of the feasibility analysis, generate a proposal for the use of satellite information, and its incorporation into the network and prepare training programs with the identification of partners.
 - F. Perform a mapping of the use of analytical tools regarding surface water quality monitoring, propose a multi-criteria analysis methodology that supports the decision for the identification and use of an analytical tool and carry out the procedures (roadmap) to interoperate/incorporate the tool with the ORA.
 - G. For the verification/calibration of the data of the analytical tool, develop an experimental design proposal that defines the quantity and locality of the permanent and random sampling points.
 - H. Propose harmonized water quality standards for the Amazon Basin based on monitoring and evaluation data from national water quality standards.
 - I. Guide and articulate actions with national interventions and deliverables 1.1.3.
 - J. Integrate and articulate results of the study/Mercury Pollution Overview.
 - K. Update the Panorama of Water Quality in the Amazon Basin.

Specific activities of direct responsibility of the consultant to consolidate the Regional Water Quality Network:

- i. Establish a Regional Group of Experts to provide ongoing support for the collection, analysis, and evaluation of monitoring data, etc., including coordination with the GEMS Programme and WWQA of UN Environment Programme.
- ii. Identify key partners and strategic orientations and essential contents to consolidate the Regional Water Quality Network in order to proceed with the signing of agreements and operationalization of work plans for access to information, interpolation, including satellite information and partners for the training of professionals.
- iii. Formalize a high-level institutional agreement for the implementation of the Regional Water Quality Monitoring Network, including the standardization of procedures and parameters for monitoring water quality (This activity will be carried out in coordination with PCU/PS/ACTO with the technical support of the specialized firm).
- iv. Develop data exchange, evaluation, and reporting structures. Consolidate a document to disseminate the status of progress of the monitoring system, based on the updated overview of the water quality monitoring system (This activity is with the technical support and inputs of the specialized firm).
- v. Formalize cooperation agreements for future activities related to the sustainability of the monitoring system at the regional level (This activity will be carried out in coordination with PCU/PS/ACTO with the technical support of the specialized firm).
- vi. Establish future actions to provide ongoing support for monitoring data collection, analysis, and evaluation, etc., in the IWRM Integrated Regional Information Platform.
- vii. Coordinate the development or updating of the Water Quality Panorama.

Products of direct responsibility of the consultant – Regional Water Quality Network.

- 1. ToR for the hiring of a consulting company for the development of the activities and scope described in the corresponding session.
- 2. Report on the establishment of a Regional Group of Experts for the MC, Continuous Support Plan and activities carried out and coordination with the competent institutions and agreed protocols/mechanisms of operation.

3. Final and progress report on the consolidation and implementation of the Regional Water Quality Monitoring Network with harmonized methods of sampling and analysis on water quality parameters and agreed data treatment and exchange procedures, assessment, and reporting in the rivers of the Amazon basin (covering at least 12 main tributaries with annual measurement of up to 10 parameters).
4. Negotiated proposal for an agreement on the adoption of water quality monitoring protocols in the Amazon Basin.
5. Updated Water Quality Panorama and integration of information and data to the ORA.
6. Document (publication) on the progress in implementation of the Regional Water Quality Monitoring Network and cooperation agreements on the sustainability of the system.

Amazon Hydrometeorological Network.

Based on the progress made in the construction of the Amazon Hydrological Network established in ACTO with the support of the Amazonas Project (ACTO/ANA/ABC), it will be complemented by meteorological monitoring, implementing the Amazon Hydrometeorological Network. The production and exchange of reliable, updated, and relevant data among the Amazon countries will allow planning, monitoring, evaluation, prevention and early warning activities, subsidizing the processes of adaptation to extreme climatic events in the Amazon Basin.

Activities and scope to consolidate the Amazon Hydrometeorological Network with the support of a specialized firm:

- A) According to the roadmap, develop Terms of Reference (ToR) for the hiring of a specialized company, carry out the orientations and technical support, validate their work mainly for compliance with the following activities and scope to consolidate the regional hydrometeorological monitoring network planned for the Amazon Basin:
 - a. Feasibility analysis of the use of satellite information for hydrometeorological monitoring.
 - b. On the results of the feasibility analysis, generate a proposal for the use of satellite information and its incorporation into the network and prepare training programs with the identification of partners.
 - c. Implementation of the Hydrometeorological Monitoring System under the Integrated Water Resources Monitoring System to promote the exchange and dissemination of information, including:
 - d. Consolidate system data at national and regional (ACTO) level;
 - e. Perform a mapping of the use of analytical tools regarding hydrometeorological monitoring, propose a multi-criteria analysis that supports the decision to use an analytical tool and carry out the procedures (roadmap) to interoperate / incorporate the tool with the ORA.
 - f. For the verification/calibration of the data of the analytical tool, develop an experimental design proposal that defines the quantity and locality of the permanent and random sampling points.
 - g. Develop and implement the national operational capacity of the system, the analytical tools to be used, including gender-sensitive indicators; and
 - h. Include information at national and regional levels in the system and develop a public interface as a basis for a decision support system at the regional level.
 - i. Interoperability with Situation Rooms in the MC.

Specific activities of direct responsibility of the consultant to consolidate the Amazon Hydrometeorological Network:

- i. Establish a regional group of experts for the regional network composed of representatives of all the countries of the Amazon Basin, focusing on the exchange

- of information and experiences, including a Plan of continuous support and report of the activities carried out.
- ii. Formalize agreements with national institutes (under the coordination of ACTO) to consolidate the implementation and operation of the Amazon Hydrometeorological Network planned for the Amazon Basin.
 - iii. Develop and implement a capacity building program for MC including gender-sensitive indicators.
 - iv. Following the results of the Amazon Project, agree with ACTO countries on operating protocols for the regional network of monitoring sampling stations, focusing on the standardization of procedures; and
 - v. Consolidation of the institutional and operational framework for the implementation of the Amazon Hydrometeorological Network under the Integrated Regional Information Platform on IWRM in ACTO, including:
 - Formalize agreements with national institutes (under coordination of ACTO) to consolidate protocols and agreements for the exchange of hydrometeorological information for the regional network and guarantee the publicity of the data.
 - vi. The consultant shall articulate this activity with Component 1. 1.3, the Amazon Regional Observatory (ORA), and regional projects such as Regional Action in the Area of Water Resources (ANA-ABC-ACTO) and Monitoring Project of the Hydrology and Geochemistry of the Amazon Basin (HYBAM; www.hybam.org). Also, with the initiatives of the World Meteorological Organization (WMO) regarding the WHYCOS project - Global Hydrological Cycle Observing System.
 - vii. Disseminate the results and formalize cooperation agreements for future activities related to the monitoring system at the regional level.
 - viii. Consolidate a document to disseminate the progress status of the monitoring system; and
 - ix. Definition of future operational activities for the monitoring system and its financial support in the framework of the development of the Integrated Regional Information Platform on IWRM in ACTO.

Products of direct responsibility of the consultant - Amazon Hydrometeorological Network.

1. ToR for the hiring of a company for the development of the activities of the Hydrometeorological Network.
2. Report on the constitution of a Regional Group of Experts of the MC, coordination with the competent institutions and agreed protocols/mechanisms of operation, in addition to a continuous support plan and report of activities carried out.
3. Document for the exchange of information and experiences of the expert group for the regional network composed of representatives of all ACTO countries.
4. Amazon Hydrometeorological Network integrated to the Integrated Water Resources Monitoring System.
5. Program and implementation of capacity building to MC including gender-sensitive indicators.
6. Progress and final report on Network Interoperability with Situation Rooms in MC.
7. Progress report on protocols and agreements for the exchange of hydrometeorological information.
8. Progress report and final implementation of the Amazon Hydrometeorological Network in the Amazon Basin (network of more than 110 stations established at the end of the project) including the use of satellite information.
9. Document (publication) on the progress in implementation of the hydrometeorological monitoring network and cooperation agreements on the sustainability of the system.

Monitoring program of Erosion, Sediment Transport and Sedimentation (ETS) processes in the Amazon Basin.

The Amazon Basin contributes a flow of 800 million to just over 1,000 million tons of sediment per year that reaches the Atlantic Ocean through rivers. The change in the natural patterns of sedimentation in the rivers generates hydrological changes and changes in the natural dynamics of the ecosystem. In this sense, the Strategic Action Program (SAP) includes a specific strategic action to support the MC in carrying out activities to monitor, control and mitigate the problems caused by ETS processes in the Basin, assessing the respective positive effects (ACTO, PAE: 2018).

Currently, the region has continuous satellite hydrological monitoring activities through bilateral technical cooperation agreements with the French Institute for Development and Research (IRD), within the framework of the HYBAM project (www.hybam.org), whose purpose is to improve the state of knowledge of the hydrology and geochemistry in the Amazon Basin. This activity is based on the results and recommendations of the specific study of ETS carried out within the framework of the GEF Amazons Project, and on regional monitoring experiences.

Activities and scope to consolidate a regional monitoring program of Erosion, Sediment Transport and Sedimentation (ETS) processes in the Amazon Basin with the support of a specialized firm:

- A) According to the roadmap, prepare Terms of Reference (ToR) for the recruitment of a specialized company, provide orientation and technical support, validate their work mainly for compliance with the following activities and scope:
 - a. Consolidation of baseline information on erosion, sediment transport and sedimentation (ETS) processes in the Amazon basin, including:
 - Collect ETS information, consider background data, develop an ETS database on the Regional Platform and generate a baseline based on existing information, as well as consider information from other initiatives and national experiences and progress with IRD (HYBAM Network); and
 - Analyze ETS reference information and identify regional ETS hotspots in coordination and agreement with the ACTO MC, to develop and implement the ETS monitoring program.
 - Identify indicators for monitoring ETS processes.
 - Generate a cartographic, documented, and tabulated database for incorporation into the ACTO ORA.
- B) Develop a sediment monitoring protocol, procedures and techniques considering the use of integrated satellite-based monitoring, including:
 - Generate a protocol proposal to implement and validate satellite data, based on the methodology available for the processing of information and counting experiences of the Amazon Basin acquired bilaterally with the HYBAM monitoring project.
 - Present the proposed protocol to consolidate the agreement and define ground stations to validate the data collected.
 - Provide training for all countries of the Amazon Region at the operational level on monitoring, based on satellite data.
 - Implement the protocol for the stations indicated by each country of the Amazon Basin.
 - Generate the regional monitoring program of the ETS process in the Amazon and define an appropriate and possible multilateral instrument to make access to data freely available at the regional level in the Integrated Regional Information Platform on IWRM in ACTO; and

- Perform a mapping of the use of analytical tools regarding ETS monitoring, propose a multi-criteria analysis methodology that supports the decision for the identification and use of an analytical tool and carry out the procedures (roadmap) to interoperate / incorporate the tool with the ORA.
- For the verification/calibration of the data of the analytical tool, develop an experimental design proposal that defines the quantity and locality of the permanent and random sampling points.
- Define and agree on execution actions with priorities (short, medium and long term).

Direct activities of the consultant to consolidate an Erosion, Sediment Transport and Sedimentation (ETS) Monitoring Program in the Amazon basin:

- A) Develop cooperative arrangements for future activities related to the ETS monitoring system at regional level, including sustainability.
- B) Implement specific training programs for national technical staff, etc.
- C) Disseminate the results and status of progress of the ETS monitoring system; and
- D) Define the future operational activities of the monitoring system and its financing.

Deliverables Monitoring program of the processes of Erosion, Transport of Sediments and Sedimentation (ETS) in the Amazon Basin:

1. ToR for the hiring of a company that will be responsible for the development of the Erosion Monitoring, Sediment Transport and Sedimentation (ETS) Program.
2. Baseline and monitoring indicators on erosion, sediment transport and sedimentation (ETS) processes in the Amazon Basin.
3. Sediment monitoring protocols, procedures and techniques considering the use of integrated satellite-based monitoring.
4. Cooperation arrangements through appropriate instruments for future activities related to the ETS monitoring system at regional level, including sustainability.
5. Publication of dissemination of results.
6. Data and information available in the ORA.

Specific objective 3. Promote the sustainability of the Integrated Water Resources Monitoring System at the national and regional levels through a training program and a sustainability plan.

Activities.

- A) Develop a training program to increase national and regional capacities for the management of the Integrated Water Resources Monitoring System and Environmental Reports in the Amazon Basin, promoting gender balance in the different stages of development.
 - Develop a strategy for training and sustainability, administration and management of information related to the Integrated Water Resources Monitoring System at the national level.
 - Develop a training program to build national capacities to operate and feed the Integrated Water Resources Monitoring System, including water quality and quantity monitoring and sediment monitoring program, including satellite monitoring and environmental monitoring.
- B) Dissemination of results and formalization of agreements for future work to continue with the monitoring program, including:
 - Periodically consolidate progress reports, including results of training programs, including the preparation of a document to disseminate consolidated results in the ACTO monitoring system.

- Develop and present gender-sensitive indicators for training implementation; and.
- Define the future operational activities of the monitoring system and its financial support.

Products:

1. Program to increase national and regional capacities for the management of the Integrated Water Resources Monitoring System.
2. Set of gender-sensitive indicators related to training and operational capacity.
3. Sustainability strategy in administration and management of related information in the Integrated Water Resources Monitoring System at the national and regional levels.

V. PAYMENT SCHEDULE EXPRESSED BY OBJECTIVE, PRODUCTS AND DEADLINES

Objective No.	Main Products	% of the value of the product delivered
1	Integrated Regional Information Platform on IWRM operational and integrated in the ORA.	15%
2	Integrated Water Resources Monitoring System in operation based on networks that provide data and information to the Integrated Platform.	10%
	1.Regional Water Quality Monitoring Network operating and integrated into the Integrated Water Resources Monitoring System. 2.Integrated Hydrometeorological Monitoring Network operating and integrated into the Integrated Water Resources Monitoring System. 3.Erosion, Sediment Transport and Sedimentation (ETS) Monitoring Program operating and integrated into the Integrated Water Resources Monitoring System.	25%
	National situation rooms installed, operating and connected to the regional situation room.	15%
	Training Program.	5%
	Report on the State of the Environment in the Amazon prepared and presented in a Workshop.	10%
3	Sustainability plan and publication of results	10%
	1. <i>Water Quality Network</i> : Update Water Quality Panorama and integration of information and data to the ORA. Document (publication) on progress in implementation of the Water Quality Monitoring Network and cooperation agreements on the sustainability of the system.	10%
	2. <i>Hydrometeorological Monitoring Network</i> : Document (publication) on the progress in implementation of the hydrometeorological monitoring network and cooperation agreements on the sustainability of the system.	
	3. <i>Erosion, Sediment Transport and Sedimentation (ETS) Monitoring Program</i> : Publication of dissemination of results.	

VI. CONSULTANT PROFILE AND TECHNICAL PROPOSAL

Academic Profile

- University degree (preferably Master's or PhD degree) associated with the fields of Water Resources, Environmental Management, or Ecology, with specialization in water resources monitoring systems.

Experience

- General experience of at least 7 years related to water resources management, environmental management, or ecology with focus on water resources monitoring systems.
- Experience in at least 5 work assignments as a team leader, coordinator or equivalent in projects related to the design, implementation, and operation of management by organizational processes.
- Experience of at least 5 years in Project Management, preference will be given to experience on the topics of this TOR (water resources monitoring system, use and treatment of satellite data related to water resources) in one or more Amazonian countries.
- At least 2 works related to the implementation of operational technical practices related to the operation of environmental data collection networks and / or water resources.
- At least 2 works in projects of integration of practices of collection, analysis, and publication of environmental data.
- Experience in designing and conducting training courses.
- Professional knowledge of the Amazon Basin.
- Professional experience relevant to ToR in the Amazon Region will be considered as an advantage.
- Full command of Portuguese/Spanish and working knowledge of English.

VII. CLASSIFICATION CRITERIA

The classification will be carried out considering the following parameters:

Professional experience	70 points
Technical proposal	10 points
Interview	20 points

Qualification requirements (eliminary):

No.	Criterion (Yes/No)
1	University degree (preferably Master's or PhD degree) associated with the topic of water resources, environmental management, or ecology, with specialization in monitoring systems related to water resources.
2	General experience of at least 7 years associated with water resources management, environmental management, or ecology with focus on water resources monitoring systems.

VIII. TRAINING, QUALIFICATIONS AND EXPERIENCE OF THE CONSULTANT

Professional experience (80 points)

Specialization/Experience	Points
University degree (preferably Master's or PhD) associated with the topic of water resources, environmental management, or ecology, with specialization in monitoring systems related to water resources. (Bachelor = 7 points; Master = 10 points, PhD = 15 points)	15
Experience in at least (5) work assignments as a team leader, coordinator or equivalent in projects related to the design, implementation, and operation of management by organizational processes. (5 jobs = 7 points, for each additional contract + 1 point up to 3 additional points).	10
Experience of at least 5 years in Project Management, preference will be given to experience on the topics of this TOR (system for monitoring, use and processing of satellite data related to water resources) in one or more Amazonian countries. (5 years in Project Management = 5 points) (Project management experience in an Amazonian country + 2 points, and for each additional Amazonian country + 1 point reaching up to a total of 5 additional points).	10
Experience in at least 3 work assignments on issues related to environmental and/or water resources projects (3 jobs = 3 points, for each additional contract 1 point reaching up to 2 additional points).	5
At least 2 works related to the implementation of operational technical practices related to the operation of water and environmental resources data collection networks. (2 jobs = 6 points. For each additional job + 1 point reaching up to 4 additional points).	10
At least 2 work assignments in projects of integration of practices of collection, analysis, and publication of environmental data. (2 jobs = 5 points).	5
Experience in designing and conducting training courses. (For each course 1 point for a maximum of 5 points)	5
Relevant publications demonstrating skills in information management, data management and monitoring systems related to water resources and/or environmental management. (1 point per publication for a maximum of 5 points).	5
Full command of Portuguese/Spanish and working knowledge of English	5
TOTAL	70

IX. DEPENDENCY AND SUPERVISION:

The implementation of the Project will be coordinated by a Regional Project Coordination Unit (PCU), based in PS/ACTO, and the National Project Coordination Units (NPCU) in the Member Countries. In this regard, the PRU will provide support and regional planning and management services to implement this project and must also supervise and coordinate the activities of the consultancies and the production of all reports and products that will be prepared within the framework of the Project. The PCU will serve as the focal point for the activities and execution of the project, as well as liaison between the Implementing Agency, UNEP, the Executing Agency, ACTO, and the 8 countries of the Basin through the NPCU.

For their part, the NPCU will be responsible for the execution of the project in each of the 8 countries of the Basin. In this sense, each Member Country has appointed a National Coordinator of the respective national technical institution in charge of the project (National Focal Point). The National Coordinator will be responsible for the in-country coordination of project activities.

The consultant will coordinate and report to the Regional Project Coordination Unit, which will provide guidance, review and validate all consulting products, as well as ensure consistency of the reports with the regional objectives and work plan of the Amazon Basin SAP Implementation Project (ACT/UNEP/GEF). PS/ACTO will approve the consulting products.

The consultant shall perform his or her duties within the framework of the annual work plan.

X. ADDITIONAL INFORMATION:

- Candidates must be available to begin work on signing the contract.
- Candidates must be willing and able to travel if necessary.
- Consulting Fees: USD 72,000
- Contract duration: 24 months
- The amount of the fees corresponds to the total to be paid for the consultancy, without leaving a balance.
- The Consultant will provide the consulting services from his place of residence and in Brasilia, for the coordination of activities with the PCU of the Project.
- This consulting contract does not establish or imply any relationship of dependency with PS/ACTO.

XI. SUBMISSION OF THE APPLICATION

- Candidates must send their applications by email attaching a Letter of Expression of Interest, an updated Curriculum Vitae (CV) and a technical proposal (up to 5 pages) that includes approach, methodological proposal and implementation schedule.
- Applications must be sent exclusively to the following ACTO email address: selecao@otca.org. The subject of the email should refer to: SPECIALIST IN MONITORING SYSTEMS – IMPLEMENTATION OF THE PAE
- Only applications submitted until..., until 6:00 p.m. Brasilia will be accepted.

XII. DECLARATION OF COMMITMENT