TC Document

I. Basic Information for TC

▪ Country/Region:	SURINAME
▪ TC Name:	Enhancing Scientific Foundations for Sustainable Fisheries Management in Suriname
▪ TC Number:	SU-T1176
▪ Team Leader/Members:	Bucaram Villacis, Santiago Junior (CSD/RND) Team Leader; Adam Mehl (CSD/ACU); Bonilla Merino Arturo Francisco (LEG/SGO); Chavez, Elizabeth (CSD/RND)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	NA
▪ Date of TC Abstract authorization:	26 Jul 2024.
▪ Beneficiary:	Ministerie van Landbouw, Veeteelt en Visserij
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Green Climate Fund(GRN)
▪ IDB Funding Requested:	US$250,000.00
▪ Local counterpart funding, if any:	US$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	January 2025
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	CSD/RND-Env, Rural Dev & Disaster Risk
▪ Unit of Disbursement Responsibility:	CCB/CSU-Country Office Suriname
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Institutional Strategy 2024-2030:	Environmental sustainability; Productivity and innovation

II. Objectives and Justification of the TC

2.1 The objective of this technical cooperation is to strengthen the scientific foundation for fisheries management in Suriname. This will be achieved through three main goals: (1) conducting comprehensive stock assessments using multiple methods and integrating new and historical data to establish reference points for key commercial species, specifically the acoupa weakfish (Cynoscion acoupa) and green weakfish (Cynoscion virescens); (2) quantifying the socio-economic impacts of Illegal, Unreported, and Unregulated (IUU) fishing on these target species; and (3) developing species-specific management recommendations based on robust assessment results to ensure sustainable exploitation of these economically important fish stocks. By addressing critical knowledge gaps in Suriname's fisheries sector, particularly regarding the status of commercially exploited stocks and the extent of IUU fishing impacts, this TC will provide crucial support for implementing an Ecosystem Approach to Fisheries (EAF), as outlined in Suriname's Fisheries Management Plan 2021-2025, and inform evidence-based policies that balance economic gains with long-term sustainability of the fishery.

2.2 Suriname's marine ecosystems, part of the Amazon-Guianas ecoregion, are characterized by highly productive waters influenced by the Amazon River outflow (Spalding et al. 2007[1]). This unique environment supports diverse fish populations across distinct inshore-offshore zones, from turbid coastal waters to the nutrient-rich green-water zone and the deeper blue-water areas (Lowe-McConnel 1962[2], Willems 2015a[3], Willems 2015b[4]). These ecosystems form the basis for Suriname's varied fisheries sector, encompassing artisanal inland and coastal fisheries, as well as industrial offshore operations.

2.3 The fisheries sector is a vital component of Suriname's economy, contributing 2.3% to the country's GDP and employing over 6,000 people directly and indirectly (Smith and Burkhardt 2017). In 2022, the total catch from vessels operating in Surinamese waters reached 30,847 tons of fish and 2,117 tons of shrimp (MAAHF, pers. comm.). However, the sector faces significant challenges that threaten its sustainability and the livelihoods it supports.

2.4 Key issues plaguing Suriname's fishing sector include: (i) high levels of poverty among artisanal fishermen; (ii) piracy incidents in Suriname's EEZ; (iii) illegal, unregulated and unreported (IUU) fishing; (iv) lack of recent stock assessments for key commercial species; (v) poor value chain integration for artisanal fishers; (vi) limited access to capital for artisanal fisheries; (vii) weak governance structures; and (viii) absence of a comprehensive Fisheries Information System (Smith and Burkhardt 2017[5]; FAO 2019[6]). These challenges underscore the urgent need for a robust, science-based approach to fisheries management.

2.5 In response to these challenges, the Fisheries Department has adopted an Ecosystem Approach to Fisheries (EAF), as outlined in the Fisheries Management Plan 2021-2025 (MAAHF, 2021[7]). However, the effective implementation of EAF is severely hindered by significant knowledge gaps. The health of nearly all commercially exploited fish stocks is unknown, with limited information on their lifecycles, spawning patterns, and growth rates. Moreover, the impact of IUU fishing on these stocks remains poorly understood.

2.6 This lack of scientific data poses a substantial risk of overexploitation. There are already concerning signs of declining catches and fish sizes in several key commercial species, despite increasing fishing efforts. Current management decisions, such as determining the allowed number of vessels targeting certain species, are not backed

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1 Spalding, M.D., Fox, H., Allen, G. et al. 2007. Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. Bioscience 57, 573-583.

2 Lowe-McConnell, R.H. 1962. The fishes of the British Guiana continental shelf, Atlantic coast of South America, with notes on their natural history. Zoological Journal of the Linnean Society 44, 669-700.

3 Willems, T., De Backer, A., Mol, J.H., Vincx, M., & Hostens, K. 2015. Distribution patterns of the demersal fish fauna on the inner continental shelf of Suriname. Regional Studies in Marine Science 2, 177-188.

4 Willems, T., De Backer, A., Wan Tong You, K., Vincx, M., & Hostens, K. 2015. Spatio-temporal distribution patterns of the epibenthic community in the coastal waters of Suriname. Continental Shelf Research 108, 25-40.

5 FAO Fisheries and Aquaculture. 2019. Country report.

6 Smith G. & Burkhardt. 2017. Socio-economic study of the fisheries sector in Suriname. World Wildlife Fund Guianas.

7 MAAHF, 2021. Visserij management plan voor Suriname 2021 – 2025 (Deel A, B en C). Directoraat Visserij, Ministerie van Landbouw, Veeteelt en Visserij. Maart 2021

by robust scientific assessments. This situation underscores the urgent need for comprehensive studies to establish a solid scientific foundation for sustainable fisheries management in Suriname.

2.7 Given the resource constraints and the need to maximize impact, this TC will focus on two key commercial species: the acoupa weakfish (Cynoscion acoupa) and green weakfish (Cynoscion virescens). These species were selected based on their significant economic importance and their role as target species for both artisanal and industrial fisheries in Suriname. By concentrating on these species, the project aims to establish a cost-effective methodological framework that can be extended to other commercially important species in the future.

2.8 The TC addresses the identified knowledge gaps through three interconnected components: Component 1 focuses on comprehensive data collection and integration for the selected species; Component 2 will conduct rigorous stock assessments using state-of-the-art methodologies and include Management Strategy Evaluation simulations; and Component 3 quantifies the socio-economic impacts of IUU fishing on the target species.

2.9 This focused approach on two Cynoscion species aligns with the adopted EAF, providing crucial data on key components of the marine ecosystem. The research will encompass various aspects of their biology, including growth rates, reproductive patterns, and population dynamics, as well as their interaction with different fishing gear types. This comprehensive approach will not only contribute to the sustainable management of these specific stocks but also provide valuable insights into the broader ecosystem functioning and the impacts of various fishing practices.

2.10 The outcomes of this TC will be instrumental in implementing sustainable fisheries management in Suriname. By providing a comprehensive understanding of stock status, fishing impacts, and potential management strategies, this TC will enable evidence-based decision-making in areas such as fishing effort control, gear restrictions, and spatial or temporal closures. This scientific foundation is essential for balancing economic gains with long-term sustainability of the fishery, ultimately contributing to poverty alleviation among fishing communities and ensuring the sector's continued contribution to Suriname's economy.

2.11 To ensure sustainability beyond the TC timeline, the project will develop standardized data collection protocols and train local stakeholders in their implementation. These protocols will be designed to be cost-effective and integrated into existing institutional processes at the Fisheries Department, enabling periodic assessments of the target species to continue after project completion. This approach will allow for monitoring of management effectiveness and policy impacts over time, while building local capacity for sustained fisheries data collection and analysis.

2.12 In conclusion, this TC represents a critical step towards addressing the challenges facing Suriname's fisheries sector. By filling key knowledge gaps for two economically important species, it will provide the scientific basis necessary for implementing effective, sustainable management practices, in line with the country's commitment to an Ecosystem Approach to Fisheries. The results will not only benefit the management of the target species but also serve as a model for future assessments, contributing to the overall health and sustainability of Suriname's marine resources.

2.13 This TC is strategically designed as an initial building block towards a broader regional marine fisheries initiative between Suriname and Guyana. The scientific rationale for

such collaboration is compelling, as both countries share the North Brazil Shelf Large Marine Ecosystem (NBSLME), with common fish populations—including the target species of this TC—and similar challenges in implementing the Ecosystem Approach to Fisheries (EAF), including overlapping commercial fishing grounds and significant IUU fishing threats (CRFM 2021). The methodologies and frameworks developed in this TC—particularly for stock assessment and IUU fishing impact analysis—are deliberately designed to be scalable and adaptable for future regional implementation. Building upon this foundation, potential areas for regional cooperation could include joint stock assessments, harmonized management measures, and coordinated enforcement strategies. This forward-looking approach ensures that investments in national capacity through this TC can effectively support future regional fisheries management initiatives across the Guianas region.

2.14 The direct beneficiaries of this TC include: (i) the Fisheries Department of the Ministry of Agriculture, Animal Husbandry and Fisheries (LVV), which will utilize the comprehensive stock assessments and IUU fishing impact analyses to develop evidence-based fisheries management policies and adapt their monitoring and enforcement strategies; (ii) commercial fishing operators, both industrial and artisanal, who will benefit from improved scientific data for sustainable resource exploitation and long-term business planning; (iii) coastal fishing communities, whose livelihoods depend on the sustainable management of these fish stocks; and (iv) regional fisheries management bodies that can leverage the methodologies and findings for similar assessments in other Caribbean nations.

2.15 The data and analyses generated through this TC will directly inform decision-making processes through: (i) establishment of science-based reference points and harvest control rules for key commercial species, enabling the Fisheries Department to set sustainable catch limits and fishing effort controls; (ii) development of species-specific management recommendations based on stock assessment results, which will guide the implementation of temporal or spatial fishing restrictions and gear modifications; (iii) quantification of IUU fishing impacts, which will support the strengthening of monitoring, control and surveillance systems, and inform inter-agency coordination for combating fisheries-related environmental crimes; and (iv) creation of standardized data collection protocols that will enable the Fisheries Department to maintain long-term monitoring of stock status and management effectiveness. These outputs will directly contribute to the implementation of Suriname's Fisheries Management Plan 2021-2025 and strengthen the country's capacity to fulfill its regional and international fisheries management commitments

2.16 This TC is consistent with the IDB Group Institutional Strategy: Transforming for Scale and Impact (CA-631) and is aligned with the objectives of: (i) reduce poverty and inequality; and (ii) address climate change. It supports these objectives by assessing and promoting sustainable management of key commercial fish stocks, which can help protect livelihoods of fishing communities and contribute to food security. Additionally, the Program fosters evidence-based fisheries management practices that can enhance the region's ability to mitigate and adapt to climate impacts on marine ecosystems. The Program is also aligned with the operational focus areas of: (i) biodiversity, natural capital and climate action; and (ii) institutional capacity, rule of law, and citizen security. By assessing commercial fish stocks and the impacts of illegal, unreported, and unregulated (IUU) fishing, the program will directly contribute to biodiversity protection and sustainable management of marine resources.

Additionally, it will strengthen institutional capacity for fisheries management and governance in Suriname, including efforts to combat IUU fishing.

2.17 The TC is also aligned with the Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (GN-2609-3), as well as the Sectoral Framework Documents for Environment and Biodiversity (GN-2827-8), and Climate Change (GN-2835-13).

2.18 The TC is also consistent with the ONE Caribbean strategic framework and aligns with the following pillars: (i) climate adaptation, disaster risk management and resilience through improving climate resilience of key commercial fish stocks and their sustainable management; (ii) citizen security through addressing illegal, unreported and unregulated (IUU) fishing activities; (iii) private sector engagement through providing critical market intelligence and scientific data for investment decisions, implementing vessel census methodologies that involve direct private sector participation, and developing management frameworks that enable sustainable commercial fishing operations; and (iv) food security by strengthening the scientific foundation for sustainable management of economically and nutritionally important fish species that are crucial for regional food security. The TC will strengthen institutional capacity through improved data collection, analysis and management systems, while promoting regional knowledge sharing that can benefit other Caribbean nations facing similar fisheries management challenges. The TC's approach to integrating scientific assessment with private sector engagement and food security considerations provides a replicable model for sustainable fisheries management across the Caribbean region.

2.19 In addition, the TC is aligned with the IDB Group Natural Capital and Biodiversity Mainstreaming Action Plan 2024-2025 (NCBMAP) by contributing to the conservation, restoration, and sustainable management of marine ecosystems and reducing biodiversity loss. Specifically, it aligns with Component 1 of the NCBMAP by supporting the integration of biodiversity considerations into country policies and planning processes through the assessment of key commercial fish stocks and the impacts of illegal, unreported, and unregulated (IUU) fishing in Suriname. This will provide critical data to inform sustainable fisheries management policies. The Program also aligns with Component 2 by increasing biodiversity mainstreaming across operations, as it directly incorporates biodiversity and natural capital considerations into the project design. Furthermore, it supports Component 3 by generating country-specific knowledge on marine biodiversity and fisheries management, which will build capacity for effective biodiversity mainstreaming in Suriname. This alignment is justified by the Program's focus on assessing and promoting sustainable management of marine resources, which is a key priority area identified in the NCBMAP for conserving biodiversity and supporting sustainable development in the region.

2.20 The Program is consistent with the IDB Group Amazonia Forever Program and is aligned with the pillar of: (i) bioeconomy and creative economy by supporting sustainable management and economic valorization of marine fisheries resources through evidence-based stock assessments of key commercial species that contribute to local economies and livelihoods. The Program is also aligned with the transversal areas of action of: (i) climate, biodiversity and forest conservation; and (ii) institutional capacities & rule of law through its focus on promoting marine biodiversity conservation through scientific assessment of fish stocks and sustainable management recommendations and strengthening institutional capacity for evidence-based fisheries governance.

2.21 The Program is also aligned with the Green Climate Fund's institutional and regulatory environment focus area by supporting: (i) assessment and drafting of regulation in bioeconomy areas through the development of evidence-based fisheries stock assessments and management recommendations for key commercial species; and (ii) articulation of regional and national strategies with conservation practices within fishing communities through the evaluation of sustainable exploitation levels and IUU fishing impacts. These contributions will provide scientific foundations for informed decision-making in marine resource management.

2.22 This TC is also strategically aligned with the IDB Group Country Strategy with Suriname 2021-2025 (GN-3065), particularly with the strategic area of “Promoting Private Sector Competitiveness.” The TC's objectives directly contribute to strengthening the enabling environment for private sector development by providing scientific evidence for sustainable fisheries management and supporting the effective implementation of an Ecosystem Approach to Fisheries. The comprehensive stock assessments and analysis of IUU fishing impacts will enhance the private sector's ability to participate sustainably in the fisheries sector. Furthermore, the TC aligns with two cross-cutting themes identified in the Country Strategy: (i) climate change resilience, through its support for sustainable resource management and ecosystem preservation; and (ii) institutional capacity and rule of law, by strengthening the country's capacity for evidence-based fisheries management and governance. The project's emphasis on data collection, analysis, and knowledge generation also supports the Country Strategy's focus on improving evidence-based policymaking and institutional strengthening in Suriname

2.23 Finally, the TC aligns with several United Nations Sustainable Development Goals (SDGs). It primarily supports SDG 14 (Life Below Water) by promoting the conservation and sustainable use of marine resources through the assessment of key commercial fish stocks and efforts to combat illegal, unreported, and unregulated fishing. In particular, the outcomes of the TC will help Suriname in assessing and reporting progress against SDG Indicator 14.4.1 (Fish Stock Sustainability). The Program also contributes to SDG 1 (No Poverty) and SDG 2 (Zero Hunger) by supporting sustainable fisheries management, which is crucial for food security and livelihoods in coastal communities. Additionally, it indirectly supports SDG 13 (Climate Action) by promoting the resilience of marine ecosystems, which play a vital role in climate regulation. By focusing on institutional capacity building for fisheries management, the Program also aligns with SDG 16 (Peace, Justice and Strong Institutions). Lastly, the project's emphasis on evidence-based policymaking and international cooperation in fisheries management contributes to SDG 17 (Partnerships for the Goals).

III. Description of components and budget

3.1 **Component 1: Comprehensive data collection and integration for key commercial fisheries stocks.** This component aims to establish a robust, species-specific dataset for two critical commercial fish stocks in Suriname: the acoupa weakfish (Cynoscion acoupa, locally known as "bang bang") and the green weakfish (Cynoscion virescens, locally known as "kandratiki"). The objective is to consolidate existing information and gather new data to support evidence-based stock assessments (Component 2). The approach encompasses historical data retrieval, contemporary biological sampling, and literature synthesis. The process will involve systematic collation of fragmented historical data from various sources, including government archives, research institutions, and fishing industry records. This historical

data, often in diverse formats (digital and hard copy), will undergo rigorous validation, standardization, and digital integration to reconstruct long-term catch trends for both species. Concurrently, a targeted biological sampling program will be implemented to address critical data gaps, particularly regarding population structure and reproductive biology. This will involve collecting length-frequency distributions and determining size-at-maturity for both C. acoupa and C. virescens. The sampling design will ensure adequate spatial and temporal coverage to capture potential variability in these parameters across the species' ranges and seasons. To complement field-collected data, a comprehensive literature review will be conducted to gather information on life history parameters crucial for stock assessment models, such as growth rates, natural mortality estimates, and any available data on stock-recruitment relationships. All collected and derived data will be integrated into a custom-designed, relational database to facilitate efficient data management, quality control, and accessibility for subsequent analyses. This database will be structured to allow easy integration of future data, ensuring its long-term utility for fisheries management in Suriname.

3.2 The following activities will be financed: (i) Systematic identification and acquisition of historical data sources pertaining to C. acoupa and C. virescens from governmental, institutional, and industry archives; (ii) Data validation, standardization, and digital integration of historical fisheries data to reconstruct long-term catch trends for both species; (iii) Development and implementation of a statistically robust sampling protocol for collecting contemporary biological data on C. acoupa and C. virescens; (iv) Execution of field sampling to gather length-frequency distributions and size-at-maturity data for both species, ensuring adequate spatiotemporal coverage; (v) Comprehensive literature review to compile and synthesize published information on life history parameters and population dynamics of C. acoupa and C. virescens; (vi) Design and implementation of a relational database to integrate historical, field-collected, and literature-derived data for both species, with capacity for future expansion.

3.3 This refined approach ensures a comprehensive, species-specific data foundation, critical for informed fisheries management decisions and the long-term sustainability of these economically important fish stocks in Suriname.

3.4 **Component 2: Comprehensive stock assessment and management strategy evaluation for key commercial species.** This component aims to conduct rigorous, species-specific stock assessments for Cynoscion acoupa (acoupa weakfish) and Cynoscion virescens (green weakfish), utilizing the integrated datasets developed in Component 1. The objective is to determine the status of these stocks and develop tailored, sustainable management strategies. In addition, outreach and capacity building activities will take place and disseminate both the assessment methodologies and outcomes to the relevant stakeholders.

3.5 In line with the latest advancements in data-limited and tropical fish stock assessment methodologies, the most appropriate models will be applied based on the available data for each species. Key approaches include the Length-Based Spawning Potential Ratio (LBSPR) and the Catch-based Maximum Sustainable Yield (CMSY) methods. LBSPR is a well-established methodology for estimating the Spawning Potential Ratio (SPR), an internationally recognized indicator of stock status (e.g., Hordyk et al.,

2015[8]). The CMSY model is particularly suited for scenarios with limited data availability, requiring only historical catch data and qualitative information on stock resilience. These methods, among others, will be evaluated and applied as appropriate to provide robust assessments of the status of the two studied species: C. acoupa and C. virescens.

3.6 Management Strategy Evaluation (MSE) simulations will also be conducted to test the performance of alternative management measures under various scenarios of stock productivity and fishing pressure. This approach will help identify strategies that are robust to uncertainties in data and stock dynamics. Based on these analyses, species-specific management recommendations will be formulated, including: (a) Total Allowable Catch (TAC) or effort limits; (b) Size-based harvesting restrictions; (c) Temporal or spatial closures to protect critical life stages; and (d) Gear modifications to improve selectivity.

3.7 The following activities will be financed: (i) Selection and application of appropriate stock assessment models for C. acoupa and C. virescens, based on the data compiled in Component 1; (ii) Rigorous interpretation of model outputs, including sensitivity analyses to account for data uncertainties, and determination of stock status relative to established biological reference points for each species; (iii) Formulation of species-specific recommendations for sustainable exploitation of C. acoupa and C. virescens, taking into account their distinct biological characteristics and the fisheries targeting them; (iv) Development and dissemination of comprehensive stock assessment reports for each species, including detailed methodologies, results, and management recommendations; (v) Development and execution of targeted knowledge transfer activities, including: (a) technical workshops with Fisheries Department staff on data collection protocols and stock assessment methodologies; (b) preparation of communication materials targeting a wide audience; and (c) meetings to disseminate key findings and discuss implementation of management recommendations with relevant stakeholders.

3.8 This component will provide a scientifically robust, species-specific evaluation of stock status and potential management strategies for C. acoupa and C. virescens. By employing advanced quantitative methods and explicitly accounting for uncertainties, this approach will support the development of adaptive, evidence-based fisheries management policies in Suriname. The species-specific focus ensures that resulting management strategies are tailored to the unique biological characteristics and fishery dynamics of each stock.

3.9 **Component 3: Assessment of illegal, unreported, and unregulated (IUU) fishing socio-economic impact on key commercial species.** This component aims to quantify the socio-economic impacts of Illegal, Unreported, and Unregulated (IUU) fishing activities specifically on the acoupa weakfish (Cynoscion acoupa) and green weakfish (Cynoscion virescens) stocks in Suriname. The objective is to provide a comprehensive understanding of how IUU fishing affects these key species, their associated fisheries, and the broader ecosystem.

[8] Hordyk A., K. Ono, S. Valencia, N. Loneragan and J. Prince. 2015. A novel length-based empirical estimation method of spawning potential ratio (SPR), and tests of its performance, for small-scale, data-poor fisheries. Ices Journal of Marine Science 72: 217-231.

3.10 The following activities will be financed: (i) Development and implementation of a comprehensive vessel census methodology, focusing on vessels targeting C. acoupa and C. virescens; (ii) Execution of simultaneous at-sea and on-land vessel counts to identify all fishing vessels actively targeting the two focus species; (iii) Catch reconstruction analysis to estimate unreported catches of C. acoupa and C. virescens; (iv) Economic modeling to estimate financial losses due to IUU fishing of C. acoupa and C. virescens; (v) Data analysis and interpretation, synthesizing all collected information to provide a comprehensive view of IUU fishing impacts on these two key species; (vi) Production of a detailed IUU fishing impact assessment report for C. acoupa and C. virescens, including species-specific recommendations for mitigation strategies.

3.11 This component will provide crucial insights into the scale and impact of IUU fishing on C. acoupa and C. virescens, complementing the stock assessments from Component 2. By focusing on these two key species, we can develop targeted strategies to combat IUU fishing, enhancing the effectiveness of the management recommendations developed in Component 2. This species-specific approach to IUU assessment will contribute to more robust and comprehensive fisheries management policies in Suriname, promoting the sustainable exploitation of these economically important species while addressing the challenges posed by illegal fishing activities.

3.12 The total budget allocated for this Technical Cooperation (TC) is US$250,000, which will be exclusively financed by the Green Climate Fund (GNR). There is no requirement for counterpart funding in this TC.

Indicative Budget

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 1: Comprehensive data collection and integration for key commercial fisheries stocks	Data collection and integration for acoupa and green weakfish stocks. Compiles historical data, conducts biological sampling, and integrates literature findings.	115,000	115,000
Component 2: Comprehensive stock assessment and management strategy evaluation for key commercial species.	Stock assessment and management strategy evaluation for acoupa and green weakfish. Applies assessment models, evaluates management strategies, develops species-specific recommendations and implements outreach and capacity building activities.	93,000	93,000
Component 3: Assessment of illegal, unreported, and unregulated (IUU) fishing socio-economic impact on key commercial species	Assessment of IUU fishing impact on acoupa and green weakfish. Quantifies socio-economic impacts through vessel census, catch reconstruction, and economic modeling.	42,000	42,000
Total		**250,000**	**250,000**

IV. Executing agency and execution structure

4.1. This Technical Cooperation (TC) will be executed and supervised by the IDB, as formally requested by the Government of Suriname through official communications from the Ministry of Finance and Planning and the Ministry of Agriculture, Animal Husbandry and Fisheries. The TC will be overseen by the Environment, Rural Development, and Disaster Risk Management Division (CSD/RND). A Sector Specialist from RND will serve as the focal point for this project. The execution timeline for the project is established at 24 months. In accordance with OP-619-4 (Annex II, Section II.C.2.2), Bank execution is justified based on: (i) institutional capacity considerations - Suriname's Fisheries Department lacks the technical capacity to conduct complex stock assessments and IUU fishing analyses using advanced methodologies; (ii) impartiality requirements - given the need for objective analysis that will inform national policy decisions; and (iii) technical complexity - requiring specialized expertise in statistical modeling and stock assessment methodologies. The Bank will follow all applicable policies and procedures for the selection and contracting of consulting services.

4.2. The Bank will manage and administer the consulting contracts under this TC. Additionally, it will supervise and approve the products derived from the consulting services jointly and in coordination with LVV (Ministry of Agriculture, Animal Husbandry and Fisheries), who will provide support through inputs, information, execution, and technical review of activities. It should be noted that LVV will accompany the project results evaluation process, actively participating in the review of the terms of reference and the results achieved by the contracted services. Furthermore, if the Bank requests technical validation from the Fisheries Department and corresponding LVV fisheries authorities and technicians for the approval of a product from this TC, it may do so without prejudice to the Bank's final decision on any matter related to said product.

4.3. The IDB, as executing agency, will be responsible for meeting the proposed targets in the results matrix of this TC. To ensure proper execution, the project team will organize virtual meetings/conferences for the launch, mid-term review, and final review in coordination with LVV authorities and technicians, beneficiary entities, and consultants for each planned phase. The Team Leader will be responsible for preparing and submitting monitoring reports through the appropriate system, including annual progress updates and a final project report. These reports will detail progress made, results achieved, status of activities, challenges encountered, and recommendations for adjustments. Additionally, an evaluation report at the close of the TC will identify achievements and lessons learned. No supervision costs are foreseen since CSD/RND will carry out these activities directly. All monitoring and reporting activities will follow the policies established by the Technical Cooperation Monitoring and Reporting System (OP-1385-4).

4.4. All procurement activities to be carried out under this operation have been included in the Procurement Plan (Annex IV) and will be contracted in accordance with the applicable policies and regulations of the Bank as follows: (a) Hiring of individual consultants, as established in the Complementary Workforce Policy (AM-650); and

(b) Hiring of services provided by consulting firms in accordance with the Institutional Procurement Policy (GN-2303-33) and its Guidelines.

4.5. The knowledge products generated from this TC will be Bank property and made available to the public under a creative commons license, including: (i) all final reports and assessments; (ii) raw and processed datasets in standardized digital formats; (iii) data collection protocols and methodologies; and (iv) analytical scripts and tools developed during the project. These resources will be hosted on an open-access platform to facilitate use by academic institutions, researchers, and other stakeholders. However, at the request of a beneficiary country, in accordance with the provisions of Regulation AM-331 "Procedures for the publication of knowledge products", the intellectual property of said products may also be licensed to one or more beneficiaries through specific contractual commitments that shall be prepared with the advice of the Legal Department. Furthermore, all publications and socializing material must obey the IDB's institutional image and if any personal data is gathered it must follow the IDB guidelines to the personal data privacy policy.

V. Major issues

5.1. The following risks and their corresponding mitigation measures have been identified:

5.2. **Low participation of beneficiaries in project activities.** *Description:* Potential resistance from stakeholders to provide accurate information during data collection processes, particularly in survey activities. *Mitigation Measure:* Implement a comprehensive stakeholder engagement strategy, including: (i) conduct extensive community outreach programs to clearly communicate the project's objectives and the significance of the data being collected; (ii) employ participatory approaches in data collection methodologies to foster trust and encourage active involvement; and (iii) Provide training to local enumerators on effective communication and data collection techniques.

5.3. **Unrealistic expectations among stakeholders.** *Description:* Stakeholders may develop expectations beyond the scope and capabilities of the project. *Mitigation Measure:* Implement a clear communication strategy: (i) conduct stakeholder consultation workshops to explicitly delineate the project's scope, objectives, and limitations; (ii) develop and disseminate comprehensive information materials that clearly articulate the purpose and expected outcomes of the TC's final products; and (iii) establish a feedback mechanism to address stakeholder concerns and manage expectations throughout the project lifecycle.

5.4. **Duplication of efforts with existing initiatives.** *Description:* Potential overlap with activities undertaken by other agencies such as the Global Environment Facility, World Wildlife Fund, and European Union. *Mitigation Measure:* Enhance coordination and leverage existing work: (i) conduct a comprehensive mapping exercise of ongoing and completed projects in the sector to identify potential synergies and avoid duplication; (ii) establish a coordination mechanism with relevant agencies to facilitate regular information exchange and alignment of activities; and (iv) develop a stakeholder engagement plan that includes key personnel from other agencies to ensure complementarity of efforts.

5.5. **Data quality and availability issues.** *Description:* Potential challenges in acquiring high-quality, comprehensive data for stock assessments and IUU fishing impact analysis. *Mitigation Measure:* Implement robust data management and quality assurance protocols: (i) develop a data quality assurance plan that includes validation mechanisms and data cleaning procedures; (ii) establish partnerships with local research institutions and fisheries agencies to access additional data sources; and (iii) employ multiple data collection methodologies to cross-validate findings and fill data gaps.

5.6. **Limited institutional capacity for project implementation.** *Description:* Potential constraints in local institutional capacity to fully engage in and benefit from the technical aspects of the project. *Mitigation Measure:* Implement capacity building initiatives: (i) conduct a capacity needs assessment of key institutional stakeholders; (ii) develop and deliver targeted training programs on stock assessment methodologies and IUU fishing impact analysis; and (iii) implement a knowledge transfer strategy to ensure sustainability of project outcomes beyond the TC timeframe.

5.7. **Limited uptake and sustainability of monitoring systems.** *Description:* Risk that the data collection and monitoring systems established during the TC may not be maintained after project completion. *Mitigation Measure:* Implement sustainability strategy: (i) develop user-friendly, cost-effective monitoring protocols that can be easily integrated into existing institutional workflows; (ii) provide comprehensive documentation and training materials for all tools and methodologies; (iii) establish formal agreements with local institutions for long-term data collection and monitoring; and (iv) identify potential funding sources for continued monitoring activities.

5.8. By proactively addressing these risks through the outlined mitigation measures, the project aims to enhance its effectiveness and ensure the successful achievement of its objectives.

VI. Exceptions to Bank policy

6.1 None

VII. Environmental and Social Aspects

7.1 This Technical Cooperation is not intended to finance pre-feasibility or feasibility studies of specific investment projects or environmental and social studies associated with them; therefore, this TC does not have applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

Request from the Client_33153.pdf

Results Matrix_91535.pdf

Terms of Reference_46745.pdf

Procurement Plan_66404.pdf