TECHNICAL ASSISTANCE REPORT

THE BAHAMAS

Technical Assistance Project on Debt-Investment-Growth and Natural Disasters (DIGNAD)

April 2026

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TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS 3

PREFACE 4

SUMMARY 5

SECTION I. BACKGROUND INFORMATION 6

A. The Bahamas' Macroeconomicl Context 6

B. The Authorities' Technical Assistance Request 7

SECTION II. SCOPING MISSION FINDINGS AND CONCLUSIONS 8

A. Introduction 8

B. Institutional setup 8

C. The TA Beneficiary 9

Material resources and Software 10

Existing Disaster-Related Tools and Practices 10

SECTION III. PROPOSED ACTION PLAN 11

APPENDICES 17

Appendix A: Preliminary Action Plan 17

Appendix B: The Results Framework 17

Appendix C: Agenda 20

Appendix D: List of Training Participants 20

ACRONYMS AND ABBREVIATIONS

CAEM	Comprehensive Adaptive Expectations Model
CBoB	Central Bank of The Bahamas
CD	Capacity Development
DIG	Debt-Investment-Growth
DIGNAD	Debt-Investment-Growth and Natural Disasters
DRM	Disaster Risk Management
DSGE	Dynamic Stochastic General Equilibrium
GDP	Gross Domestic Product
ICD	Institute for Capacity Development
IMF	International Monetary Fund
MoF	Ministry of Finance
TA	Technical Assistance

PREFACE

This report marks the beginning of a capacity development (CD) project between the Institute for Capacity Development (ICD) of the International Monetary Fund (IMF) and the authorities of The Bahamas. Initiated at the request of the Central Bank of The Bahamas (CBoB), the project aims to operationalize the use of the Debt-Investment-Growth and Natural Disasters (DIGNAD) model to assess the macroeconomic and sectoral impacts of natural disasters and to evaluate policy responses, including trade-offs between adaptation and regular public investment, as well as broader policy reforms.

The report's objectives are twofold: first, to convey to the authorities the mission team's assessment of the current toolkit, capacity, and institutional mechanisms for analyzing the macroeconomic impacts of natural disasters; and second, to record the action plan agreed with the authorities during the mission, which will guide the delivery of technical assistance (TA) and set out work commitments on both the Fund's and the authorities' sides.

A scoping TA mission was conducted in Nassau, The Bahamas, from November 17 to 21, 2025. The mission team comprised Mr. Karim Barhoumi (mission chief), Mr. Ha Nguyen (senior economist), and Mr. Tolga Tiryaki (senior economist).

The team met with Mr. John A. Rolle (Governor of the CBoB), Mr. Allan S. Wright (Head of the Research Department), and the core team from the CBoB and the Ministry of Finance (MoF) involved in macroeconomic forecasting and policy formulation. The mission also delivered a two-day hands-on training workshop on the DIGNAD model to the core team.

The findings and recommendations presented in this report are based on information available at the time of the mission in November 2025. They reflect the views and assessments of the IMF mission team and do not necessarily represent those of the authorities. The mission presented its main conclusions and recommendations to senior officials of the CBoB during the concluding meeting and reached an *ad referendum* agreement on a set of next steps to further strengthen macroeconomic analysis and policy decision-making. This report has been shared with the authorities for their input and comments.

The mission team would like to express its sincere gratitude to the authorities for their warm welcome, excellent collaboration, and constructive discussions. The team also wishes to thank the CBoB for its outstanding organization and support throughout the mission. The mission further benefited from the excellent administrative assistance of Ms. Fatma Ibrahim (ICD) and from the guidance and support of the IMF Bahamas country team.

SUMMARY

At the request of the CBoB, a TA scoping mission was conducted in Nassau from November 17 to 21, 2025. The mission assessed the authorities' capacity to incorporate climate and natural disaster risks into macroeconomic and macro-fiscal projections, evaluated the existing analytical toolkit and institutional mechanisms, and provided initial training on the DIGNAD model.

The mission also engaged with the CBoB and the MoF to identify institutional and capacity-development needs and to propose an action plan for a structured capacity-development project.

The project responds to the authorities' objectives of strengthening their capacity to: (i) assess the macroeconomic impacts of debt-financed public infrastructure investment following natural disaster shocks; and (ii) evaluate macroeconomic sustainability and growth trade-offs under alternative scenarios. These enhancements will improve macroeconomic analysis, climate-resilience policy design, and reporting for IMF consultations and domestic forecasting. Given that tourism and financial services account for about 85 percent of gross domestic product (GDP) and that The Bahamas is highly vulnerable to natural disasters, the ability to simulate and evaluate disaster-related scenarios is central to designing resilient and sustainable growth strategies.

There is scope to further strengthen the institutional framework for macroeconomic forecasting and policy analysis in The Bahamas by formalizing regular collaboration between the Central Bank's Research Department and the Ministry of Finance, potentially through the establishment of a joint working group. While the Central Bank maintains a full-fledged macroeconomic framework, based on the IMF's Comprehensive Adaptive Expectations Model (CAEM), and has made progress in DSGE modeling and nowcasting, the current toolkit does not systematically capture disaster shocks, parameter calibration, or debt-investment-growth linkages. Staff have a low to intermediate level of familiarity with DSGE models, and MATLAB is available for modeling; however, the authorities noted a preference for spreadsheet-based tools that are more easily understood across agencies. The MoF has a medium-term fiscal framework; however, macroeconomic projections for fiscal aggregates are prepared using Excel-based partial equilibrium tools. Similar to the Central Bank, the MoF's fiscal projections do not incorporate natural disaster shocks.

This project marks the beginning of a multi-stage engagement between ICD and The Bahamas. The first mission served both scoping and training purposes, laying the groundwork for the adoption of the DIGNAD model. A second, virtual mission is planned for February 2026 to support the calibration of the model using Bahamian data and institutional inputs. A third in-person mission is envisaged later in 2026 to finalize the model, produce a user manual customized for The Bahamas, and assist the authorities in presenting the results to policymakers. In addition, the work plan includes mission buffers to follow up on the institutionalization of the DIGNAD tool. This sequence of missions is designed to ensure that the model is technically robust, tailored to The Bahamas' policy needs, and fully embedded within the macroeconomic policy analysis process.

Furthermore, it was agreed with the CBoB that the DIGNAD model will serve as a satellite tool to the CAEM framework—which is currently being developed through a separate ICD TA project. This alignment ensures that DIGNAD provides specialized disaster-risk inputs that inform the CBoB's medium-term forecasts and broader macroeconomic policy decisions in a unified and consistent manner.

The mission reached an *ad referendum* agreement with the authorities on an action plan and a results-based framework to guide the TA program. The plan envisions a progressive strengthening of technical capacity through workshops, virtual follow-up, and in-person training, with clear deliverables at each stage. By May 2026, the authorities are expected to be able to independently produce baseline and disaster scenarios using DIGNAD, supported by a customized user manual.

The TA program will include: (i) hands-on training on DIGNAD for staff from the CBOB and the MoF; (ii) a virtual mission to support model calibration and shock scenario design; and (iii) a final in-person mission to finalize the model, deliver a user manual, and prepare the authorities for independent use of the tool. The expected outcomes and result indicators are summarized in the results framework (Appendix B). The program is expected to be completed in 2026.

SECTION I. BACKGROUND INFORMATION

A. THE BAHAMAS' MACROECONOMIC CONTEXT

1. The Bahamas, a small island state, is highly dependent on tourism and financial services, which together account for about 85 percent of GDP. This narrow base makes the economy highly vulnerable to external shocks, including shifts in global travel demand and natural disasters. Climate risks are particularly acute: over the past decade, natural disasters have caused damages averaging 3.2 percent of GDP annually, with projections suggesting damages could increase by over 30 percent under higher global warming scenarios (The Bahamas: 2024 Article IV Staff Report). Rising sea levels further threaten the country's beaches, coral reefs, and mangroves, which are central to tourism and fisheries.

2. Following a sharp rebound after Hurricane Dorian and the COVID-19 pandemic, GDP growth reached 3.0 percent in 2023 and 3.4 percent in 2024, supported by record tourist arrivals (9.7 million visitors in 2023) and robust construction activity. Inflation has fallen sharply with global energy and food prices, even turning slightly negative in mid-2024. Labor market conditions have improved markedly, with unemployment falling to single digits for the first time since 2008.

3. The fiscal position has strengthened, with the overall deficit narrowing to 1.2 percent of GDP in FY24 from 3.7 percent in FY23, and government debt declining to below 80 percent of GDP. The authorities aim to reduce debt further to 50 percent of GDP by FY31. Achieving this target will require sustained fiscal consolidation, including new revenue measures (such as the recently approved 15 percent Qualified Domestic Minimum Top-Up Tax on multinationals) and pension reform. Gross financing needs remain elevated, reflecting short maturities and high borrowing costs.

4. Natural disasters represent the most pressing macroeconomic risk. Meeting resilience investment needs is estimated to require an additional 1.8 percent of GDP annually in capital spending through 2030, well above current allocations (The Bahamas: 2024 Article IV Staff Report). Without greater revenue mobilization and access to concessional climate finance (such as debt-for-nature swaps), these needs will be difficult to reconcile with fiscal sustainability targets.

B. THE AUTHORITIES' TECHNICAL ASSISTANCE REQUEST

5. The CBoB formally requested TA from ICD in June 2025 to develop and operationalize the DIGNAD model for The Bahamas. The authorities emphasized that the model would provide critical insights into the macroeconomic implications of natural disasters, a key policy priority given the country's high vulnerability to such shocks and its heavy reliance on tourism and financial services. While the Research Department of the CBoB had initiated preliminary work using MATLAB and Excel interfaces, it recognized the need for IMF support to further build staff capacity and to calibrate and adapt the toolkit to country-specific data, structural characteristics, and policy priorities.

6. The authorities highlighted that the DIGNAD model, developed by the IMF's Research Department, provides a valuable framework for countries facing frequent natural disasters and large infrastructure gaps. The model allows for calibration to country-specific macroeconomic indicators and enables users to simulate the size, timing, and transmission channels of natural disasters. For The Bahamas, these features are particularly relevant for assessing the trade-offs between debt-financed public infrastructure investment, fiscal sustainability, and growth resilience.

7. In their request, the authorities noted that DIGNAD would enhance the Central Bank's ongoing macroeconomic analysis and complement existing forecasting frameworks. By providing a structured tool for disaster scenario analysis, the model is expected to strengthen policy design for resilience to natural disasters, build capacity in macro-fiscal modeling, and support both IMF consultations and domestic policy discussions. The authorities therefore requested a multi-phase TA program, beginning with scoping and training, followed by calibration support, and culminating in the delivery of a fully customized model and user manual to be integrated into their policy framework.

8. In August 2025, the IMF confirmed its support for The Bahamas' request to develop and customize the DIGNAD model. A technical team led by ICD will work closely with the Central Bank to establish a timetable and work program for the project.

SECTION II. SCOPING MISSION FINDINGS AND CONCLUSIONS

A. INTRODUCTION

9. The findings from a five-day scoping mission conducted in Nassau between November 17–21, 2025, shaped the design of the CD project and its associated action plan. The mission gathered valuable insights through questionnaires provided by the CBoB, discussions with counterparts, and feedback from participating institutions (refer to Annex C for the scoping mission meeting agenda). This input was crucial in informing the draft action plan, which integrates the mission's observations and the authorities' stated objectives.

10. The scoping mission focused on assessing the capacity of the authorities to quantify the macroeconomic and sectoral costs of natural disasters and to evaluate policy trade-offs in building resilience. The discussions emphasized the role of the DIGNAD model in simulating the economic and fiscal consequences of disasters, including impacts on GDP, debt, deficits, and investment dynamics. The mission also examined how the model could be used to compare alternative policy responses, such as standard versus resilient public infrastructure investment, efficiency-enhancing reforms, and different financing mixes (grants, taxes, concessional borrowing, or commercial debt).

11. To further assess the institutional setup and the practical use of the model, the mission held consultations with staff from the CBoB's Research Department and the MoF. These discussions provided valuable insights into the authorities' analytical priorities, including the evaluation of debt-financed reconstruction, fiscal sustainability under disaster scenarios, and the trade-offs between adaptation investment and regular public spending. The consultations also underscored the need to customize DIGNAD to better capture Bahamas-specific characteristics, such as the economy's reliance on tourism, its high vulnerability to hurricanes, and the challenges associated with reconstruction efficiency.

B. INSTITUTIONAL SETUP

12. The institutional framework for assessing the macroeconomic impact of natural disasters in The Bahamas is still evolving. Although the CBoB and the MoF are the main institutions involved, there is no formal coordinating body with a mandate comparable to a technical committee for disaster-related macroeconomic and fiscal analysis. At present, the CBoB's Research Department leads the development of analytical tools, such as DIGNAD to be used for CBoB forecasts/projections and publications, while the MoF is responsible for fiscal policy formulation, budget preparation, and the tagging of climate-related expenditures.

13. The CBoB's Research Department has developed a macroeconomic framework based on the IMF's CAEM, which it uses to produce macroeconomic forecasts. The forecasts generated through the CAEM framework are expected to be published in the near future. In addition, the Research

Department has developed a nowcasting framework using a factor model and a BVAR approach to support its role in monitoring in-year economic activity.

14. The MoF has a medium-term fiscal framework that incorporates climate and natural disaster mitigation and adaptation strategies. Fiscal projections for revenues, expenditures, and financing are prepared using Excel-based partial equilibrium tools.

15. The Research Department of the CBoB publishes the Quarterly Economic Review, one of the Bank's flagship publications, as well as the Monthly Economic and Financial Development Report. The MoF produces three main publications: the monthly and quarterly fiscal reports, and the annual fiscal strategy report. The Fiscal Strategy Reports can be found on the www.bahamasbudget.gov.bs website.

16. There is currently no macroeconomic working group that brings together the CBoB and the MoF. Moreover, formal cooperation and structured discussions during forecasting rounds are limited. Inputs for macroeconomic forecasts at both institutions are generally exchanged informally via email rather than through an established coordination mechanism.

17. Within CBoB, the Research Department is the main custodian of macroeconomic modeling capacity. Staff have some uneven experience with DSGE modeling and nowcasting and have initiated preliminary work to adapt the DIGNAD framework using MATLAB and Excel. However, full operationalization requires broader institutional buy-in, greater cross-agency collaboration, and adjustments to ensure accessibility for non-technical users, particularly through spreadsheet-based applications.

18. The institutional framework for disaster-related macroeconomic analysis could be further strengthened through greater integration and coordination. At present, there is scope to establish a more unified process that systematically links natural disaster shocks, resilience investments, and macroeconomic sustainability assessments. Enhancing collaboration across agencies would help ensure that debt projections, disaster risk analysis, and resilience planning are undertaken within a consistent and coordinated analytical framework.

C. THE TA BENEFICIARY

19. Existing analytical tools are not yet tailored to disaster analysis. The CBoB's Research Department has developed elements of an integrated, full-fledged macroeconomic framework, but this framework is not calibrated to capture disaster-related shocks. Preliminary work has been undertaken using MATLAB and Excel to adapt the DIGNAD model, but the tool has not yet been operationalized for policy use and is not integrated with official data systems.

20. The Central Bank's Research Department operates the preliminary setup internally, but broader institutional participation remains limited. Meetings of an informal macroeconomic working group, particularly those focused on disaster-related scenarios, do not currently exist. As a result, coordination across institutions is absent, with no shared methodology for incorporating natural disasters into fiscal and debt projections.

21. The primary beneficiaries of the TA will be the Research Department of the CBoB and the MoF. Strengthening the capacity of these institutions to apply the DIGNAD model will also enhance cross-agency collaboration on disaster costing and macroeconomic risk analysis. Moreover, staff from both institutions are expected to benefit from CD in scenario design, model-based policy analysis, and the assessment of climate-related macroeconomic risks.

22. Close coordination with the MoF is essential. As the institution responsible for fiscal policy and debt management, the Ministry will need to integrate DIGNAD outputs into macroeconomic planning and assessments. In addition, coordination with external partners such as the IDB and the World Bank will be important, as these institutions have ongoing initiatives related to climate-resilience financing and disaster risk management in The Bahamas.

23. The Central Bank's Research Department plans to manage the preliminary DIGNAD setup with a small team of economists. Staffing remains limited, and specialized expertise in disaster modeling is still developing. The MoF provides fiscal projections but does not yet have dedicated staff working on disaster-related scenarios. Expanding staff capacity, particularly through training in applied macroeconomic modeling and climate economics, will be essential to sustaining the use of DIGNAD. The authorities have expressed interest in strengthening staffing resources over the course of the project, subject to budgetary and administrative approvals.

Material resources and Software

24. The availability of MATLAB software is essential for conducting and executing simulation analyses using the DIGNAD toolkit. While CBoB staff have access to various numerical packages, including MATLAB, staff at the MoF primarily use Excel for data management and forecasting and do not currently have access to MATLAB. In addition, both agencies reported no issues regarding access to computer hardware, meeting rooms, or workstations.

Existing Disaster-Related Tools and Practices

25. The CBoB and the MoF do not currently use a standardized tool to quantify the macroeconomic costs of natural disasters. Damage assessments are typically undertaken by the Disaster Risk Management Authority after major hurricanes using ad hoc methods or externally provided estimates. A team is dispatched to assess loss and damage after every natural disaster and estimates are reported to the Government to inform response and recovery efforts. While these assessments offer valuable information on damages and losses, they are not systematically incorporated into a forward-looking model to evaluate the macroeconomic consequences of natural disasters.

26. A major limitation of existing practices is the absence of a structured framework to distinguish between baseline projections, disaster shocks, and policy responses. This gap makes it difficult to assess the incremental fiscal costs of disasters or to compare alternative resilience strategies. For example, while infrastructure damages are sometimes quantified in physical terms, the translation of these losses into debt dynamics, fiscal balances, and growth trajectories remains inconsistent across institutions.

27. Current tools do not systematically capture the policy trade-offs involved in disaster response and adaptation. In particular, there is no framework to compare standard reconstruction with

resilient investment options, nor to assess the efficiency of different financing mixes (e.g., grants, concessional loans, domestic borrowing, or revenue mobilization). As a result, the authorities cannot easily quantify how policy choices affect macroeconomic sustainability, or medium-term growth.

28. Institutional processes for the use of disaster-related data could be further strengthened through enhanced coordination and standardization. There is scope to align post-disaster assessments, macroeconomic projections, and fiscal planning within a more integrated framework, supported by a central repository and a commonly agreed methodology. Streamlining data flows, clarifying institutional responsibilities, and embedding disaster scenarios within a unified analytical tool would help improve efficiency, facilitate institutional learning from past events, and strengthen ownership and policy usability.

29. The fiscal framework is not yet systematically informed by disaster scenarios. While the MoF prepares debt sustainability analyses and fiscal projections, these assessments do not currently incorporate probabilistic disaster risks or resilience investment needs. Integrating DIGNAD outputs into the medium-term fiscal framework would enable the government to better align macroeconomic planning with climate-resilience objectives.

30. Sectoral inputs relevant for disaster analysis, particularly for tourism, construction, and financial services, are primarily trend-based and do not incorporate potential shocks. Tourism, which accounts for roughly 50 percent of GDP directly and indirectly, is especially vulnerable to hurricanes and storm surges; however, this exposure is not explicitly modeled in current projections. Strengthening sectoral forecasts by integrating disaster scenarios will be essential for applying DIGNAD effectively in The Bahamas. It is also worth noting that the Department of Tourism collects monthly tourist-arrival data, which can support more dynamic and shock-responsive forecasting

SECTION III. PROPOSED ACTION PLAN

31. Based on the identified needs and capacity, the mission team reached an agreement with the Bahamian authorities to implement a structured capacity-development program centered on the Disaster-Investment-Growth-Natural Disasters (DIGNAD) model. The program will span November 2025 to May 2026 and will consist of three missions. In addition, the work plan includes buffer missions to follow up on the institutionalization of the DIGNAD tool. Table 1 below summarizes the preliminary delivery schedule.

TABLE 1: PRELIMINARY ACTION PLAN SCHEDULE

Action	Details	Objective

Mission 1: Scoping and Diagnostic	November 17-21, 2025	• Assess the current practices for quantifying disaster-related costs and evaluating policy trade-offs, including
		  • Existing use of post-disaster assessments and macroeconomic risk reporting
		  • Data quality and availability (e.g., GDP, debt, fiscal accounts, disaster damages
		  • Institutional setup and capacity of officials in charge of macroeconomic analysis
		  • Coordination and information-sharing mechanisms between the CBoB, MoF, Department of Statistics, and Ministry of Disaster Preparedness, Management and Reconstruction (or, disaster risk management (DRM) authority)
		  • Integration of disaster analysis into policy formulation and decision-making.
		• Deliver a two-day introductory training on the DIGNAD toolkit, with hands-on exercises using sample data.
		• **Expected outcome**: agreement on a time-bound action plan detailing the commitments of the authorities and IMF–ICD, including:
		  • Appointment of a core counterpart team within CBoB and MoF to operate and curate the DIGNAD model, with a designated project lead
		  • Consensus on the scope of customization needed for The Bahamas
		  • Identification of resource requirements, including data access, software, and connectivity
		  • Tentative schedule of virtual and on-site assistance through end-2026.

Mission 2: Calibration and policy analyses	February 2026, 1-week virtual mission	• Support calibration of the DIGNAD model to The Bahamas economy using historical macroeconomic, fiscal, and disaster damage data.
		  • Develop baseline and initial disaster scenarios, including standard reconstruction versus resilient adaptation options.
		  • Provide guidance on incorporating Bahamian-specific extensions, such as tourism shocks, financing constraints, and donor support.
		  • Initiate the development of the user manual tailored to The Bahamas (led by authority).
		• **Expected outcome:** a preliminary calibrated DIGNAD model producing preliminary results; agreement on additional customization needs; strengthened technical capacity of the counterpart team.

Mission 3: Finalization, Manual, and Policy Presentation	May 2026, 1-week in-person mission	• Finalize calibration and customization of the DIGNAD model, incorporating agreed extensions and refinements. • Finalize the development a user manual tailored to The Bahamas (led by authority). • Support the authorities in preparing a policy presentation of DIGNAD results for senior policymakers and stakeholders. • **Expected outcome:** operationalized DIGNAD model institutionalized within the CBoB and MoF; trained staff able to run scenarios independently; manual delivered; and policy results presented to decision-makers.
Buffer Time	Nov –Dec 2026,	• Resolution of additional difficulties in the operation of the tool • Follow-up on the institutionalization of the tool • Possible additional missions

32. During in-between missions, the team will provide remote support through videoconferences and written exchanges. This phased approach entails commitments by the authorities to provide data, allocate staff, and coordinate across agencies, and by the IMF ICD TA team to deliver training, calibration support, and ongoing customization.

33. The DIGNAD model is an extension of the IMF's Debt-Investment-Growth (DIG) model, specifically designed for small economies prone to natural disasters. It quantifies how disasters affect macroeconomic dynamics through damages to private and public capital, temporary productivity losses, declines in investment efficiency, and reductions in creditworthiness. It allows the simulation of GDP, debt, fiscal balances, and investment outcomes under alternative scenarios, such as standard versus resilient infrastructure investment, efficiency-enhancing reforms, and different financing mixes (donor grants, concessional or commercial debt, or domestic revenue mobilization). For The Bahamas, the model can be customized to account for the economy's reliance on tourism, vulnerability to hurricanes, and potential financing constraints.

34. A key strength of DIGNAD is its policy relevance. It enables authorities to compare the costs and benefits of investing in resilience ex-ante versus financing reconstruction ex-post. It also captures critical trade-offs, such as protecting output versus maintaining debt sustainability, or balancing higher debt now against potentially higher debt later if disasters strike. Recent applications for IMF analyses in small states such as Vanuatu, St. Lucia, Samoa, and Seychelles have shown how DIGNAD can guide climate policy, donor engagement, and debt sustainability analysis. For The Bahamas, where disasters can cause losses averaging over 3 percent of GDP annually, embedding such a framework into the policy toolkit is essential.

35. The DIGNAD toolkit complements the authorities' existing analytical suite by providing a user-friendly interface for calibration and scenario analysis. Operating via an Excel front-end supported by a MATLAB/Dynare back-end, the toolkit includes specialized modules to validate the realism of assumptions, align projections with historical patterns, and simulate public investment efficiency reforms. It also features a unique module to quantify potential donor savings resulting from ex-ante resilience investments. These capabilities enable Bahamian policymakers to design customized scenarios, perform rigorous robustness checks, and communicate policy trade-offs more effectively to both domestic and international stakeholders.

36. Furthermore, it was agreed with the CBoB that the DIGNAD model will serve as a satellite tool to the CAEM framework—which is currently being developed through a separate ICD TA project. This alignment ensures that DIGNAD provides specialized disaster-risk inputs that inform the CBoB's medium-term forecasts and broader macroeconomic policy decisions in a unified and consistent manner.

37. It was also agreed with the CBoB that the size and composition of the core group would be determined during the scoping mission. The introductory training delivered during the mission included nine staff members from the CBoB and the MoF. Based on the capacity assessment conducted by the mission team, as well as the level of engagement demonstrated during the training, it was agreed that the core team will consist of ten staff members (including one from the MoF) and will be coordinated by Mr. Allan Wright. The list of the core team is included in Appendix D.

38. Commitments:

IMF–ICD team commitments. The TA team will:

39. Assist a core team from the CBoB and the MoF in calibrating, operating, documenting, and institutionalizing the DIGNAD model tailored to the Bahamian economy. This assistance will be delivered through a one-year and half TA program encompassing three missions (two in-person and one virtual), combined with remote training and frequent virtual engagements. The program includes operationalizing DIGNAD to obtain baseline disaster scenarios and the design of customized calibrations and simulations that reflect the structure of the Bahamian economy, with particular attention to tourism, external financing constraints, and disaster vulnerability.

40. Organize and oversee hands-on training for staff of CBoB and MoF in applying the Excel-based DIGNAD toolkit. This training will cover scenario design (baseline, adaptation, efficiency reforms), calibration methods, data handling, and communication of results. Once the model is sufficiently developed, the team will organize a final training mission to guide the authorities in producing and presenting policy scenarios using DIGNAD.

41. Provide guidance in customizing the reporting capabilities of DIGNAD to support both internal policy discussions and external reporting (e.g., IMF Article IV consultations, macroeconomic assessment, and climate finance negotiations). The IMF–ICD team will also assist in strengthening the policy analysis process, embedding disaster scenarios into macroeconomic frameworks, and institutionalizing the use of DIGNAD as a decision-making tool.

42. Ensure timely delivery of the agreed action plan. The details of the IMF–ICD team commitments, including training, customization, documentation, outputs, and integration into policy processes, are described in the time-bound Action Plan presented in Table 1.

Authorities' commitments. The Bahamian authorities commit to:

43. Ensure the retention of essential staff for the success of the project, including the designation of a core counterpart group within the CBoB Research Department and the MoF. This group will allocate sufficient time and resources to develop and operate DIGNAD in alignment with the agreed Action Plan (Appendix A). Members of the core group should participate fully in training sessions, virtual missions, and TA missions scheduled for February and later in 2026.

44. Provide the necessary hardware, software, and data resources to support the project. This includes ensuring access to recent licensed versions of Microsoft Excel, MATLAB and other tools, compatible with the Excel-based DIGNAD toolkit, and facilitating reliable internet connections for virtual missions.

45. Ensure that all relevant data for calibrating and operating DIGNAD are shared in a timely manner, including national accounts, fiscal accounts, debt statistics, and sectoral information related to tourism, construction, and disaster damages. Inter-institutional coordination will be fostered to facilitate timely input of assumptions and data. Responsibilities across institutions will be clearly defined, and procedures for information sharing are established.

46. Review progress in the development of the customized DIGNAD and provide feedback to the core group and the TA team at key steps of the process, including calibration, scenario testing, and reporting outputs.

Sustainability commitments.

47. DIGNAD documentation. The IMF–ICD team will guide the core team in preparing a complete set of manuals, including a "developer's manual" and an "operations manual," documenting how DIGNAD has been tailored to the Bahamian economy and how it can be further updated in the future. The manuals will include guidance for scheduling disaster scenario rounds, from the point of receiving new data to the production of final outputs for policymakers.

48. Integration into the policy analysis system. At the conclusion of the project, the Bahamian authorities will validate the customized DIGNAD and commit to integrating it into their macroeconomic decision-making processes. This includes defining a process for scenario analysis and specifying outputs to inform policy debates, and macroeconomic planning.

49. Further TA and training. IMF–ICD will endeavor to provide follow-up TA for further extensions and applications of the toolkit, at the request of the authorities and subject to prioritization by the Western Hemisphere Department of the IMF (WHD), to ensure that the DIGNAD model remains operational and adapted to evolving climate and fiscal challenges.

50. Risks. A preliminary assessment allows us to identify two main risks at this stage:

Low staff skills. Given that the core team is composed of staff from CBoB and MoF with diverse backgrounds and skills, particularly with limited prior experience in DSGE models, there may be some disincentives and lack of motivation that could hamper their commitment to the workload required throughout the entire TA project cycle, potentially affecting the successful delivery of the project.

Mitigation measures: (i) A careful selection of core team members based on their backgrounds and demonstrated skills during the introductory training could reduce the number of dropouts later in the project. (ii) Several hands-on trainings will be delivered to core team members starting from the scoping mission, along with follow-up virtual sessions, to help them acquire a solid understanding of the DIGNAD model before beginning the customization phase.

Staff turnover. Even if turnover is not particularly high, the technical nature of the project may create significant entry barriers for new staff joining the core group or for those operating the model after the project's conclusion.

Mitigation measures. The economic foundations, calibration rationale, and operating procedures of the model will be documented throughout the project. The resulting manual should facilitate the integration of new core group members, should this contingency occur. To this end, it will be critical to begin documentation from the first technical mission, review progress, and provide feedback to the core team after each mission to effectively minimize the risk of work disruption. Additionally, the introductory training delivered during the scoping session will be recorded.

Data availability and quality. While the authorities have committed to ensuring access to all relevant datasets, some data gaps may remain. These gaps could constrain calibration choices or delay certain customization steps of the DIGNAD model if not identified early in the project cycle.

Mitigation measures. Data requirements were discussed and agreed with the authorities at an early stage, starting from the scoping mission, to allow sufficient time for data collection and validation. Where key series are unavailable or incomplete, reasonable proxies will be used, including data from comparable or neighboring countries, regional averages, or standard values drawn from the literature, with clear documentation of assumptions. Sensitivity analysis will be used to assess the robustness of results to alternative calibration choices.

APPENDICES

APPENDIX A: PRELIMINARY ACTION PLAN

Action	Details	Objective
Mission 1: Scoping and Diagnostic	November 17-21, 2025	• Assess the current practices for quantifying disaster-related costs and evaluating policy trade-offs, including • Existing use of post-disaster assessments and fiscal risk reporting • Data quality and availability (e.g., GDP, debt, fiscal accounts, disaster damages) ✓ Institutional setup and capacity of officials in charge of macro-fiscal analysis • Coordination and information-sharing mechanisms between the CBoB, MoF, Department of Statistics, and Ministry of Disaster Preparedness, Management and Reconstruction (or, DRM authority) ✓ Integration of disaster analysis into policy formulation and decision-making. • Deliver a two-day introductory training on the DIGNAD toolkit, with hands-on exercises using sample data. • **Expected outcome**: agreement on a time-bound action plan detailing the commitments of the authorities and IMF–ICD, including: ✓ Appointment of a core counterpart team within CBoB and MoF to operate and curate the DIGNAD model, with a designated project lead ✓ Consensus on the scope of customization needed for The Bahamas ✓ Identification of resource requirements, including data access, software, and connectivity ✓ Tentative schedule of virtual and on-site assistance through end-2026.
Mission 2: Calibration and policy analyses	February 2026, 1-week virtual mission	• Support calibration of the DIGNAD model to The Bahamas using historical macroeconomic, fiscal, and disaster damage data. • Develop baseline and initial disaster scenarios, including standard reconstruction versus resilient adaptation options. • Provide guidance on incorporating Bahamian-specific extensions, such as tourism shocks, financing constraints, and donor support. • **Expected outcome:** a calibrated draft DIGNAD model producing preliminary results; agreement on additional customization needs; strengthened technical capacity of the counterpart team.
Mission 3: Finalization, Manual, and Policy Presentation	May 2026, 1-week in-person mission	• Finalize calibration and customization of the DIGNAD model, incorporating agreed extensions and refinements. • Develop a user manual tailored to The Bahamas (led by authority). • Support the authorities in preparing a policy presentation of DIGNAD results for senior policymakers and stakeholders. • **Expected outcome:** operationalized DIGNAD model institutionalized within the CBoB and MoF; trained staff able to run scenarios independently; manual delivered; and policy results presented to decision-makers.
Buffer time	Nov –Dec 2026,	• Resolution of additional difficulties in the operation of the tool • Follow-up on the institutionalization of the tool • Possible additional missions

APPENDIX B: RESULTS FRAMEWORK (LOGFRAME)

Objective: **Develop capacity in macroeconomic forecasting and policy analysis to support policy decision making and communications - MFR**			
Outcome: **Analytical models and forecasting tools are developed and operational**			
Annual Assessment Rating:			
Outcome Rating Date: 6/26/2025			
Outcome Indicator	**Baseline Value**	**Target Value**	**Current Assessment Value**
Macroeconomic Projection Tool (MPT) is developed in the form of a fully structural DSGE model	1 - There is not an institutionalized DIGNAD model	4 - Customized within the DIGNAD scope, calibrated, and operationalized DIGNAD model tailored to the economy of the Bahamas	1
Milestone Name	**Target Completion Date**	**Milestone Actual Completion Date**	**Milestone Rating**
DIGNAD model is customized to account for the specific characteristics of the Bahamian economy	11/30/2026		1
DIGNAD model calibration is completed	11/30/2026		1
Outcome: **Authorities have a baseline understanding of their existing forecasting and analytical capabilities and opportunities for improvement**			
Annual Assessment Rating:			
Outcome Rating Date: 6/26/2025			
Outcome Indicator	**Baseline Value**	**Target Value**	**Current Assessment Value**
Diagnostic/scoping produced a baseline workplan of CD engagement, including a tentative timeline for the CD	No diagnostic in place	CBoB and the IMF team agree on the scope and timeline of the project	1

project, indicative schedule for training and TA missions, and expected key outcomes and deliverables			
Milestone Name	**Target Completion Date**	**Milestone Actual Completion Date**	**Milestone Rating**
Authorities discuss the capacity assessment with the scoping mission team and agree on an action plan	11/21/2025		1 Not Achieved
Outcome: **Improved analytical skills, and better macroeconomic forecasting and policy analysis capacity**			
Annual Assessment Rating:			
Outcome Rating Date: 10/1/2025			
Outcome Indicator	**Baseline Value**	**Target Value**	**Current Assessment Value**
Relevant staff have successfully completed agreed training delivered via various modalities (online, classroom courses, workshops)	The main point of contact has basic knowledge of the DIGNAD tool while others are not familiar	4 - All relevant staff have improved knowledge of the DIGNAD tool	1
Milestone Name	**Target Completion Date**	**Milestone Actual Completion Date**	**Milestone Rating**
Core team members demonstrate their ability to produce several alternative policy scenarios using the DIGNAD model	11/30/2026		1
Core team members demonstrate their ability in maintaining, updating and customizing the DIGNAD model	11/30/2026		1
Core team presents the DIGNAD model to its management, and shows its functionalities for policy scenario analysis	11/30/2026		1

APPENDIX C: AGENDA

Institute for Capacity Development Scoping Mission to the Central Bank of the Bahamas (CBoB) November 17–21, 2025 (Nassau Time)	
Monday, November 17	
9.00 am – 10.00 am	**Introductory Meeting with Senior Officials and staff from Research Department of the CBoB and Ministry of Finance (MoF)** • Overview of mission tasks by mission team • Objectives of technical assistance in the area of macro-frameworks • Needs and expectations of the Central Bank of the Bahamas and other government agencies
10.30 am – 5.00 pm	**Meeting with Senior Officials and staff from Research Department of the CBoB and MoF** • Intended use of the DIGNAD Toolkit • Presentation of current modeling approach and toolkit being used • Staffing and analytical capacity of staff • Recent work in macro analysis and forecasting • Data gaps and database management • Coordination mechanism (data and macroeconomic forecasting) between CBoB and other Government agencies, including MoF, Insurance Commission, and Ministry of Disaster Preparedness, Management and Reconstruction (or, DRM authority). • Calendar of the forecasts • Reporting of the forecast results and policy recommendations based on the analysis, frequency of reporting • Challenges and possible solutions
Tuesday, November 18	

9.00 am –10:30 pm	**Training Session 1:**
	• Introduction to DSGE models
	  ○ Overview
	  ○ Basic real business cycle model.
	  ○ Key building blocks of the model in Dynare

11:00 am – 12:30 pm	• Lecture: Introduction to the DIGNAD model and toolkit
	  ○ Key building blocks of the model
	  ○ DIGNAD toolkit
	  ○ Past country applications in the IMF

12:30 pm – 1:45 pm	**Lunch Break**

1:45 pm – 3:30 pm	**Training Session 1 (cont.)**
	• Hands on session of the DIGNAD toolkit
	  ○ Introduction to the excel template
	  ○ Illustration and discussion of DIGNAD outputs using the toolkit's default parameters
	  ○ Discussion of parameters to the Bahamian economy

4:00 pm – 5:00 pm	Lecture: DIGNAD deep dive

Wednesday, November 19	
9:00 am –12:30 pm	**Training Session 2** • Participant-led hands-on exercises • Preparation for a short presentation of the exercises
12:30 pm– 1:45 pm	**Lunch Break**
1:45 pm – 3:00 pm	**Training Session 2 (cont.)** • Participant presentation and discussion of the exercises
3:30 pm – 5:00 pm	• Discussion of the MATLAB files of the toolkit • Q&A
Thursday, November 20	
AM	**Follow up Meetings (as needed)**
PM	**Compilation of preliminary findings and draft Action Plan**
Friday, November 21	
9.00 am – 12:00 pm	**Closing Session with Senior Officials and staff from Research Department of the CBoB, MoF and Insurance Committee (IC)** • Overview of the scoping mission: main findings • Agreement "ad referendum" on the draft action plan and log-frame's milestones • Dates of the next missions and tasks
PM (time to be determined)	**Possible additional meetings**

APPENDIX D: LIST OF TRAINING PARTICIPANTS

Allan Wright	Central Bank, Manager, Research Department
Sharon Branch	Central Bank
Serena Bethell	Central Bank
DeAndre Bethell	Central Bank
Celina Gomez	Central Bank
Ras Delancy	Central Bank
Martiniqua Davis	Central Bank
Lynsey Ward	Central Bank
Clinton Brennen	Central Bank
Etosha Rahming	Ministry of Finance