PPP Project Screening and Analytics Tool (PSAT) 2.0

User Guide 2023

PPIAF
Enabling Infrastructure Investment

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Table of Contents

Table of Tables

Table of Figures

Acknowledgments

This User Guide was prepared as an accompaniment to the PPP Project Screening and Analytics Tool 2.0 (PSAT 2.0) by a team led by Shyamala Shukla, Task Team Leader and Senior Public-Private Partnerships Specialist, and consisting of Elena Timusheva, co-Task Team Leader and Public-Private Partnerships Specialist; Rakesh Bangera, Senior Consultant; Amandeep Singh Virk, Senior Consultant; Tobias Schulze Frenking, Consultant; and Razin Naik, IT Consultant.

Imad Fakhoury, Director, Infrastructure Finance, Public-Private Partnerships and Guarantees (IPG), and Fatouma Toure Ibrahima, Practice Manager, Public-Private Partnerships Group, provided valuable guidance.

The World Bank team would like to thank the various stakeholders from Rwanda, Kenya, Uganda and other countries whose feedback on the first iteration of the User Guide during hands-on sessions provided key inputs to the development of the PSAT 2.0 as well as this iteration of the User Guide. The team also thanks Sandra Gain and Luba Vangelova for editorial assistance; Pablo Armando Alfaro Chavez for layout and formatting; and Prashant Sharma for guidance on overall presentation. The work is funded by IPG and the Public-Private Infrastructure Advisory Facility (PPIAF), which is a multi-donor trust fund that helps developing-country governments strengthen policies, regulations, and institutions that enable sustainable infrastructure with private-sector participation. For more information on PPIAF, visit: http://ppiaf.org.

Abbreviations and Acronyms

capex	capital expenditure
CCVA	Climate Change Vulnerability Assessment
DSCR	debt service coverage ratio
EPC	engineering procurement and construction
eIRR	economic internal rate of return
GDP	gross domestic product
GHG	greenhouse gas
IRR	internal rate of return
ISO	International Organization for Standardization
N/A	not applicable
NPV	net present value
O&M	operations and maintenance
PFS	preliminary feasibility study
PPP	public-private partnerships
PSAT 2.0	PPP Project Screening and Analytics Tool 2.0
PSB	public sector benchmark
VFM	value for money

1 Introduction

Lack of fiscal space and the quest for better efficiency in projects and programs have led to increasing interest in public-private partnerships (PPPs) globally. PPPs are more complex than similar publicly procured projects and require upfront project development expenses that could be significant. Therefore, public entities seek to understand as much as possible about each project before undertaking expensive studies, project structuring, and procurement, which brings to the fore the need for good upstream project selection techniques and methodologies.

A review of early-stage PPP screening practices in various countries indicates that a mix of drivers determines PPP project success, often making it difficult for policy makers and practitioners to understand and select projects for further development as PPPs. Complete reliance on quantitative criteria has not worked well, with the result that in the past few years, countries have been opting to combine these with qualitative aspects. Often, screening methodologies have been created based on a country's policy drivers and areas of focus. Although countries follow different methodologies for screening projects, there are certain common principles used by all.

The PPP Project Screening and Analytics Tool (PSAT, or Tool) 2.0 is a Microsoft Excel Visual Basic–based decision-making tool that can be used by countries for the screening and prioritizing of climate resilient PPP projects. The Tool was developed by the Infrastructure Finance, Public-Private Partnerships and Guarantees global practice (IPG) at the World Bank. In 2023 climate change parameters were integrated into the tool and this user manual was updated accordingly. The Tool builds on an earlier version of the PPP Screening Tool (PST) developed by IPG in 2017 and updated in 2021 with Pipeline Analytics functionality. It can compare, analyze, and prioritize several hundred projects. The PSAT 2.0 is a reasonably robust early screening mechanism to help countries that currently do not use any methodology or use more unstructured or highly subjective assessments determine whether a project is suitable for potential procurement as a PPP. The PSAT 2.0 can analyze and store information on a large number of projects forming a PSAT 2.0 database. The PSAT 2.0 can also be used as a checklist at any stage of project development prior to initiation of procurement, to ensure the soundness of the project.

9.7 Key Features

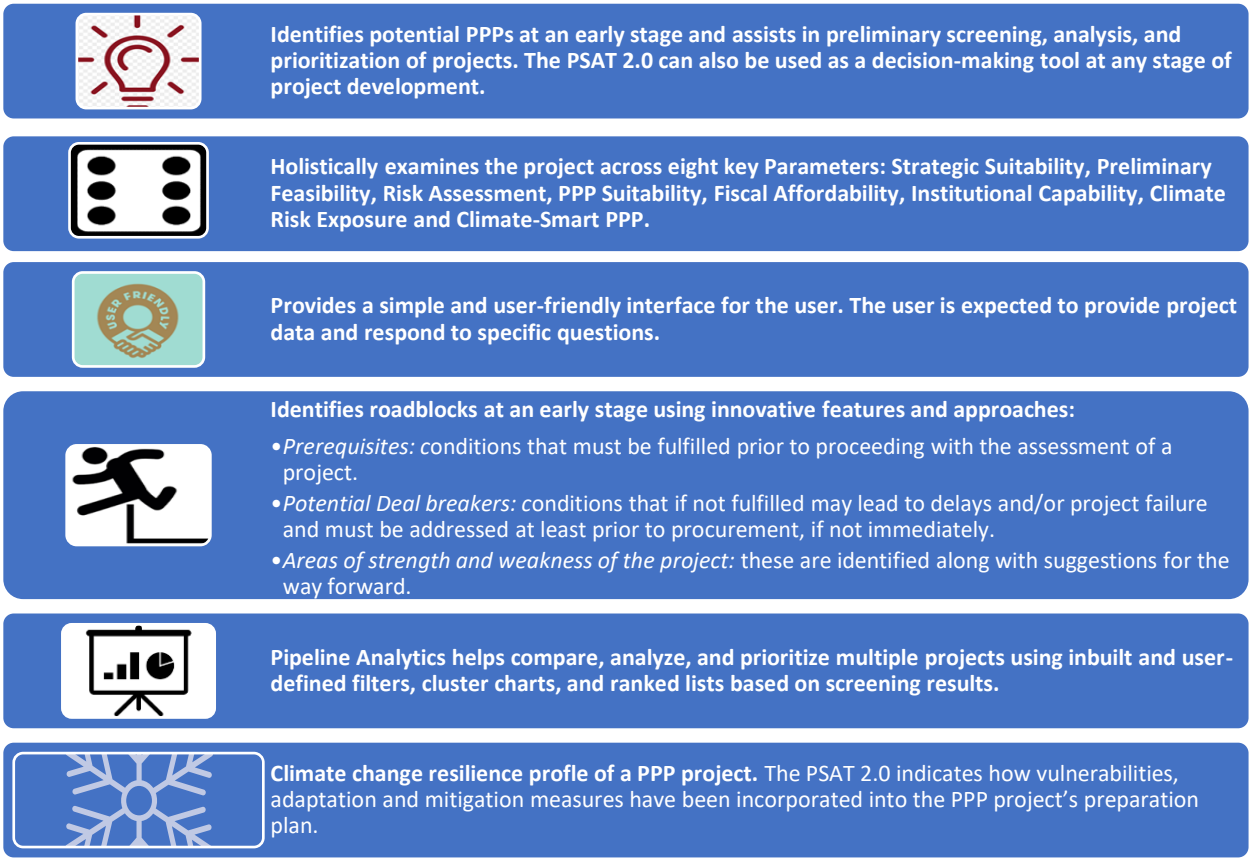
The PSAT 2.0 is a Microsoft Excel Visual Basic–based tool for screening and prioritizing projects to determine their potential suitability for climate resilient PPP procurement (figure 1). The PSAT 2.0 evaluates a project on eight Parameters: Strategic Suitability, Preliminary Feasibility, Risk Assessment, PPP Suitability, Fiscal Affordability, Institutional Capability, Climate Change Risk Exposure, and Climate-Smart PPP Suitability. The PSAT 2.0 contains structured questions organized under 36 Sub-parameters within the eight Parameters. The user can record responses to questions based on available project information, preferably based on prefeasibility studies or an outline business case prepared for the project. In the absence of such studies, initial concept–level information can also be used. The PSAT 2.0 is based on decision tree logic, which generates questions based on the inputs provided in the Basic Project Data screen. The PSAT 2.0 has the capability to assess the project using a combination of qualitative and quantitative information where such information is provided.

The PSAT 2.0 can store information on a large number of projects. The screening results for these projects can be retrieved and modified as project preparation progresses and updates become available. The Pipeline Analytics functionality of the PSAT 2.0 helps compare, analyze, and prioritize multiple projects based on the screening results.

The following are some of the key features of the PSAT 2.0:

- ✓ Pre-calibrated tool. The PSAT 2.0 is a pre-calibrated tool that can be operated easily by users. The User Guide provides easy-to-understand guidance on operating it. The Tool is also supported by an online e-learning course that discusses the key principles for PPP Suitability and demonstrates the use of the PSAT 2.0 for screening, analyzing, and prioritizing PPP projects with examples and case studies.
- ✓ Structured in question and answer format. The user provides responses to simple questions based on available project information. Every question is assigned a default weight that, among others, determines the Overall project score.
- ✓ Qualitative and quantitative assessment. The PSAT 2.0 uses a combination of qualitative and quantitative inputs to evaluate projects for their potential for development and implementation as PPPs. The PSAT 2.0 is best applied at the concept stage or after a prefeasibility study has been conducted. However, it can also be used at the feasibility stage as a readiness checklist to ensure that the project is ready to go to tender.
- ✓ Composite variables. The PSAT 2.0 combines key Parameters and Sub-parameters to provide an indication of the viability of the project from various project development perspectives.
- ✓ Compare, analyze, and prioritize projects. The PSAT 2.0 stores information on screened projects and helps compare, analyze, and prioritize projects in the portfolio through its Pipeline Analytics functionality.
- ✓ Flexibility to customize. The PSAT 2.0 screening algorithm can be customized to cater to specific requirements. The default settings should be used to the greatest extent possible because these are tried and tested and have been set based on experts' views.
- ✓ Strengthened project preparation. The PSAT 2.0 ensures that all major preparatory activities and actions needed for a successful PPP are evaluated and concerns are highlighted to strengthen the project preparation process.
- ✓ Improved quality and success rate of PPPs. The PSAT 2.0 can improve the quality and success rate of projects by ensuring that only suitable projects enter the detailed feasibility stage.
- ✓ Climate change resilience profile of a PPP project. The PSAT 2.0 indicates how vulnerabilities, adaptations and mitigation measures have been incorporated in the PPP project's preparation plan.

Figure 1. PPP Project Screening and Analytics Tool 2.0 Features



Although it comes with multiple features, the PSAT 2.0 does not do the following:

1. **The PSAT 2.0 is not a substitute for a full feasibility analysis.**

   The PSAT 2.0 helps users screen projects during the early stages of the project, using available project information. A favorable score indicated by the Tool should be followed up with detailed studies.

2. **The PSAT 2.0 does not compute economic or financial viability, value for money (VFM), or greenhouse gas (GHG) emissions, or conduct a Climate Change Vulnerability Assessment (CCVA).**

   The Tool cannot be used for calculating the economic or financial viability indicators of the project, or the amount of GHG emissions, or for assessing the likelihood or impact of climate change events. These assessments will be carried out separately and feed into the Tool for the purpose of assessing the suitability of the project as a potential PPP.

3. **The PSAT 2.0 does not verify the information provided by the user.**

   The Tool cannot substantiate, verify, or validate the information provided by the user. The accuracy of the analysis will depend on the accuracy of user inputs.

9.8 Overview of the PSAT 2.0 Outputs

Based on the responses to the questions in the nine input screens (Basic Project Data and eight Parameters), the PSAT 2.0 generates various outputs at the individual project and portfolio levels. At the project level, the PSAT 2.0 delivers outputs in the form of scores for each Parameter, Sub-parameter, Composite variable (such as Ease of Implementation, Environmental and Social Sustainability, and Commercial Potential and Fiscal Affordability), as well as the PSAT 2.0 Overall score. The PSAT 2.0 Overall score ranges from 0 to 5 and includes a descriptor, such as deficient, weak, adequate, or strong, along with modified result types, for example, "moderately weak" or "very weak." Projects with PSAT 2.0 Overall scores between 2.5 and 5, inclusively, are considered suitable for a PPP. However, the score is only an indicator. A user should carefully consider all the project outputs holistically (that is, by paying attention to the identified deficiencies in the project, connected with potential Deal breakers and questions with the responses "uncertain" and/or "skip," which suggest areas for improving the project) to reach a conclusion on the suitability of the project for a PPP. These outputs are captured in reports (Project Summary Report and Detailed Project Report) that the PSAT 2.0 allows for downloading in PDF, Word, and Excel formats.

At the portfolio level, the PSAT 2.0 delivers insights into the portfolio composition and dynamics, allowing users to filter, sort, rank, and prioritize the projects by different variables. The results are visually supported by charts and graphs. The lists of ranked and prioritized projects, as well as the entire portfolio of projects entered into the PSAT 2.0, can be exported into an Excel file for further analysis.

9.9 Data Sources

The user will need to access the following sources of information to respond to the questions in the PSAT 2.0:

- Preliminary Feasibility study reports, outline business cases, or project concept notes
- Sector practices and institutional information
- PPP-related policies, laws, and regulations in the country
- Information on similar projects implemented in the past in the country or region
- Information on banking and lending regulations and practices
- Information on key macroeconomic variables
- Responses from the Climate Change Vulnerability Assessment (CCVA) tool or other methodologies (such as ThinkHazard!, United States Agency for International Development's (USAID's) Climate links, the World Bank's screening tools, Climate-Adapt, GHG Protocol tools or country specific tools/methodologies)
- Sustainable Development Goals (SDGs) and the Paris Agreement 2015
- Nationally Determined Contributions (NDCs) and National Adaptation Plan (NAP)

9.10 Guidance Material

The PSAT 2.0 is supported by step-by-step guidance with substantive explanations for the eight Parameters, the rationale behind their use, as well as detailed guidance on the use of the Tool:

User Guide. This document is a detailed guide that provides step-by-step instructions on the use of the PSAT 2.0. The User Guide also delves into the mechanics of the PSAT 2.0 and guides the user to customize the Tool to cater to specific requirements.

Online e-learning course. Users can also take an online e-learning course, which is available on the World Bank Group Open Learning Campus webpage. The course discusses the key principles for PPP Suitability and demonstrates the use of the PSAT 2.0 for screening, analyzing, and prioritizing PPP projects with detailed examples and case studies.

9.11 Structure of the User Guide

This User Guide is organized in six sections:

- **Section 1: Introduction:** discusses the objective and context of the PSAT 2.0 and defines the contents and structure of the User Guide.
- **Section 2: Entering Project Information and Reading the Outputs:** provides guidance on using the Tool to screen a project.
- **Section 3: Pipeline Analytics:** provides guidance on using the Pipeline Analytics functionality of the PSAT 2.0 to compare, analyze, and prioritize multiple projects.
- **Section 4: Scoring Methodology:** provides the details of the scoring methodology**.**
- **Section 5: Customizing the Tool:** provides guidance on customizing the PSAT 2.0.
- **Section 6: Annex:** includes notes for users, detailed instructions for entering data in the Basic Project Data screen, explanation of the Parameters, data tables with information on the pre-calibrated values in the scoring algorithm, troubleshooting tips for addressing commonly observed issues, and so forth.

2 Entering Project Information and Reading the Outputs

The Tool has a main menu (figure 2) that includes the following options:

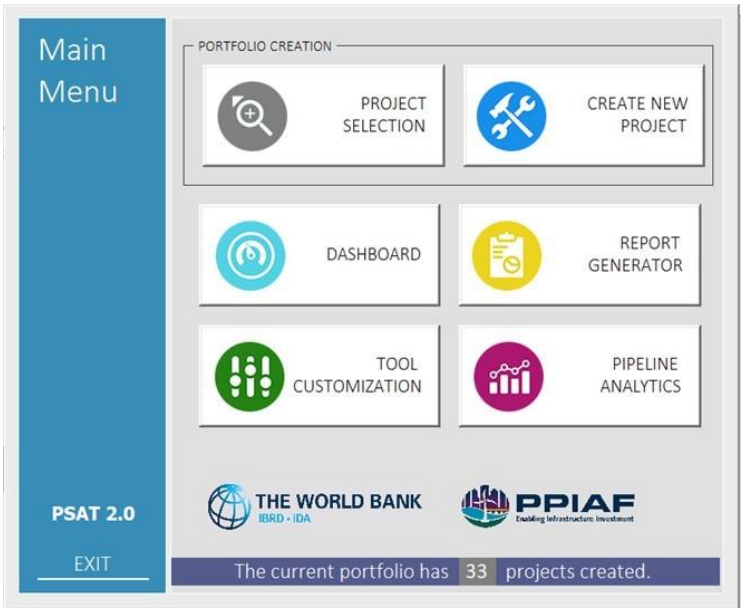
1. **Portfolio Creation.** This allows the user to enter information on a new project (under "Create New Project") or select a project from the PSAT 2.0 database to review the inputs or update them (under "Project Selection").
2. **Outputs.** Following completion of project inputs, the results for each project can be displayed using the "Dashboard" and "Report Generator" tabs.
3. **Pipeline Analytics.** This provides the option for the user to compare, analyze, and rank the portfolio of projects.
4. **Tool Customization.** This menu option provides access to the hidden Excel sheets of the PSAT 2.0 where a user can customize the Tool. The central coordinating unit or PPP unit in each country can customize the Tool based on their policy priorities if these are different from the default version. There is also the option to lock the selected (default or customized) version of the Tool prior to use.

The following subsections delineate the composition, interface, and working of the Tool.

9.12 Portfolio Creation

The "Create New Project" and "Project Selection" menu options, as shown in figure 2, allow the creation of new projects and selection of existing projects for data entry and evaluation, respectively.

Figure 2. Main Menu



1. **Project Selection**

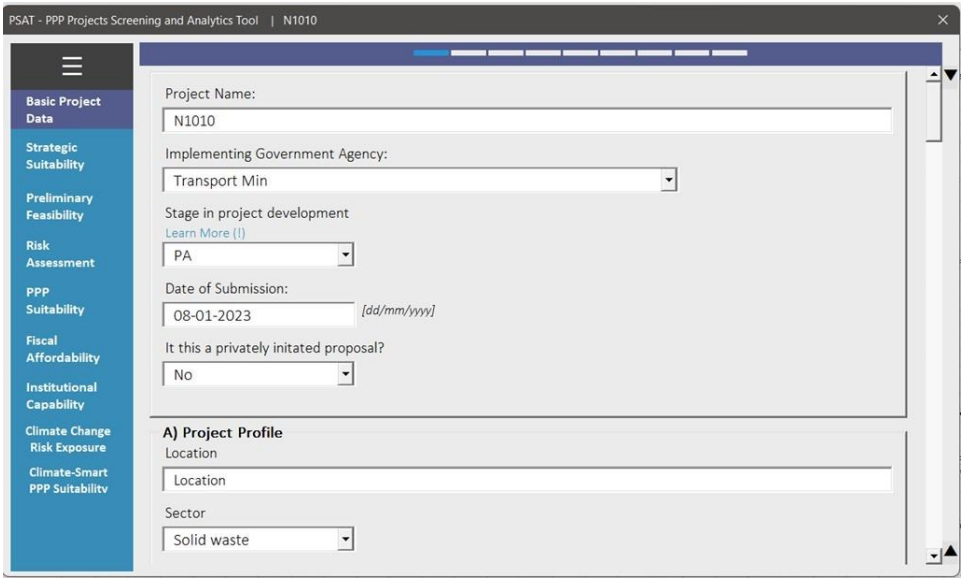
   This option allows the user to select any existing project from the PSAT 2.0 to review or update the information. On clicking the option, a drop-down list will be displayed from which the user can select the desired project by scrolling down. Alternatively, the user can type the first letter of the project name to find the project. The drop-down list displays project names that start with numerals followed by project names that start with letters.

   The user must select a project and choose “Enter” to access the project. The user can also delete projects saved in the PSAT 2.0 using this option.

2. **Create New Project**

   This option allows the user to create a new project and add it to the portfolio. The user types in the name of the project in the dialogue box and selects “Enter” to access the screens for entering information on the project (figure 3).

Figure 3. Creating a New Project



9.13 Project Input Screens

The Basic Project Data and the eight Parameters are the input screens for the project. The Basic Project Data screen seeks basic information about the project on nine major aspects. Its fields are linked to decision trees that adapt the questions in the Parameter screens for the project. Hence, the Basic Project Data screen must be filled in completely before accessing the Parameter screens.

The eight Parameter screens are organized as follows:

I. **Strategic Suitability:** assesses the suitability of the project in terms of the country's national agenda, service need, service delivery options, and scoping.
II. **Preliminary Feasibility:** analyzes the Technical, Environmental, Social, Economic, Financial, and Legal Prefeasibility of the project.
III. **Risk Assessment:** assesses the major risks applicable to the project. These include Land Acquisition Risk, Financing Risk, Design and Construction Risk, Operations and Maintenance Risk, Market and Demand Risk, Offtaker Risk, Foreign Exchange Risk, and Environmental and Social Risk.
IV. **PPP Suitability:** assesses the value for money (VFM) and market appetite for the project.
V. **Fiscal Affordability:** assesses the affordability of the project from the government's perspective based on the extent and nature of fiscal support and its quantification.
VI. **Institutional Capability:** assesses the institutional capacity, preparedness, and project execution capability of the contracting agency responsible for the project.
VII. **Climate Change Risk Exposure:** assesses the exposure of the project to climate change risks.

VIII. **Climate-Smart PPP Suitability:** assesses adaptability of the project to withstand climate change impacts.

The questions under the eight Parameters are organized under 36 thematic Sub-parameters and generated based on information provided by the user in the Basic Project Data screen. The user must select the appropriate response to each question from a list of responses that includes yes, no, uncertain, skip, and N/A.

For guidance on providing inputs, please refer to the explanatory notes in section **Error! Reference source not found.** of this User Guide. Explanatory notes with guidance for answering questions are also included in the Tool and they can be accessed by clicking on the "Learn More (!)" link displayed below the questions.

9.14 Entering Project Information

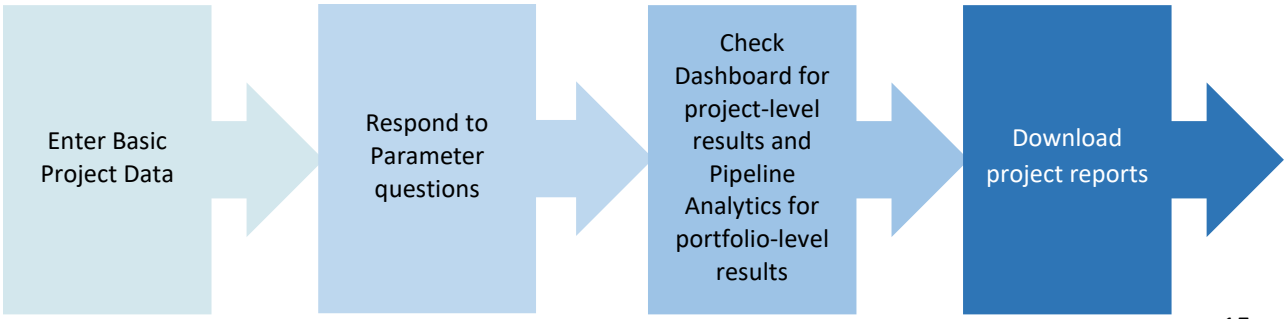
The design of the Tool presumes that a fair level of work on the project has already been done, including but not limited to prefeasibility-level studies, such as technical, economic, financial, legal, climate change, environmental and social prefeasibility assessments; site checks; fiscal and budget checks; political economy considerations; articulation of need for the project; market sounding; preliminary risk analysis; vulnerability assessment; qualitative VFM check; and so on. Prior to applying the PSAT 2.0 to a project, the user must study project-related documentation and conduct interviews with the contracting agency and other stakeholders to obtain complete understanding of the project.

The user will need to access a wide range of project-related information that may not be available to a single person. The user could form an expert group or committee of relevant officials to undertake the screening exercise. The expert group could include senior officials from the contracting agency; PPP unit; finance ministry; budget, debt, and risk management units; and technical experts, advisors, economists, environment and procurement experts, and consultant teams with a variety of expertise, among others.

As a first step, the user could perform a pilot run on the PSAT 2.0 by entering project-related information in the Basic Project Data screen and generating the Detailed Output Report using the Report Generator option. The user could use the questions in the Detailed Output Report for discussions with the expert group and/or project stakeholders to obtain more information.

After entering responses in all the fields of the Basic Project Data and Parameter screens, the user can undertake the project screening exercise. The steps for screening a project using the PSAT 2.0 are displayed in figure 4.

Figure 4. Steps for Screening a Project Using the PSAT 2.0



9.15 Filling in the Basic Project Data

The user can start entering the data in the Basic Project Data screen (figure 5) after creating the project. The initial section of the Basic Project Data screen consists of the following generic project information:

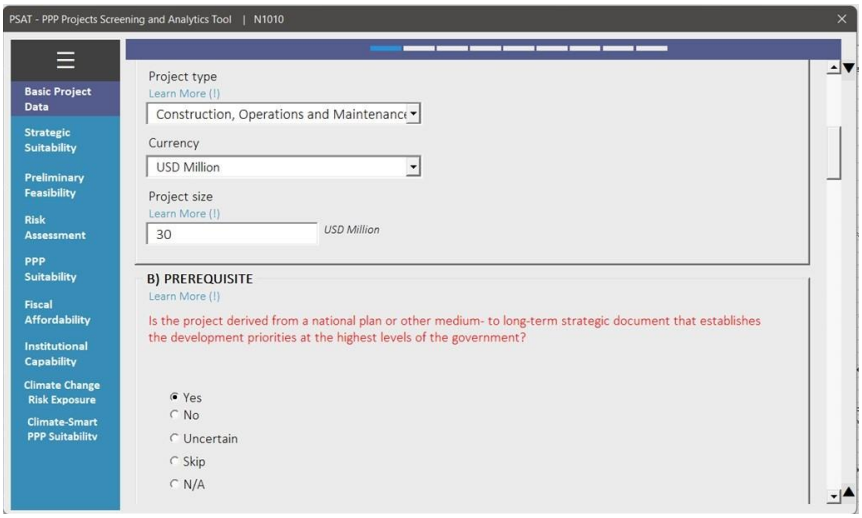
- Name of the implementing agency
- Stage in project development: use the drop-down menu and select CN for concept note, PA for preliminary analysis, PFS for prefeasibility study, or FS for feasibility study stages
- Date of submission of the project for screening
- Whether the project is a privately initiated proposal, that is, an unsolicited project, or is being proposed for development by the implementing agency.

The user must fill in the project-related information and scroll down to complete all the input fields from A to J on the screen. The user may refer to the explanatory notes in the annex, section 9.37, for detailed instructions on filling in the Basic Project Data screen.

A. Project Profile. The following information should be provided based on the studies available for the project and the user's knowledge of the project from other available sources:

- Project location
- Sector (selected from the options in the drop-down menu according to the convention for classifying projects in the country)
- Project type (selected from the drop-down menu consisting of the following options: Construction; Construction, Operations and Maintenance; and Operations and Maintenance)
- Currency (choose between USD, Euro or Local currency from the drop-down list)
- Estimated cost of the project in the selected currency.

Figure 5. Filling in the Basic Project Data



B. Prerequisites. These are conditions that relate to Strategic Suitability, Economic Prefeasibility, and Legal Prefeasibility and need to be fulfilled prior to proceeding with the assessment of a project. Providing a "no" response to any of the Prerequisites will trigger a warning and limit the PSAT 2.0 Overall score to zero. The user must address the issue before proceeding with the screening process. The user will be able to proceed with the evaluation of the project and view the Parameter scores but will not be able to obtain an Overall score. The objective behind enabling the Parameter scores is to give the user an indication of the strengths and weaknesses of the project and allow the user to identify other areas of concern that could be addressed at an early stage.

C. Revenue Profile. Seeks information on the main source of revenues for the project—user charges, availability payments, or a combination of user charges and availability payments (hybrid payments). The user must indicate the share (in percent) of availability payments in the total revenue from the project if the option of hybrid payments is selected.

D. Government Support. Checks for the applicability of government support for the project and evaluates the impact of direct fiscal commitments and contingent liabilities on the Fiscal Affordability of the project from the perspective of the government. The user must select a yes/no response from the options, depending on the estimation or expectation of government support for the project. The user must indicate direct commitments by the government and contingent liabilities as a percentage of gross domestic product (GDP) if "yes" is selected.

E. Land Status. Seeks information on the land required for the project, such as the status of availability of land, amount of land to be procured, number of potential landowners for the balance of land to be procured, and information on the agency responsible for procuring the land.

F. Value for Money–Quantitative Assessment. The user must provide the results of the VFM assessment of the project in this section. The user must provide the project's VFM and threshold VFM as a percentage.

G. **Return Expectations.** The user must provide the return expectations from the project in terms of its internal rate of return (IRR), debt service coverage ratio (DSCR), and economic internal rate of return (eIRR), along with their respective stress and threshold numbers, in this section.

H. **Foreign Exchange Risk Profile.** This section checks for the applicability of foreign exchange risk in the project. It also requires information on the depreciation of national currency in the preceding five-year period with respect to the benchmark currency.[1]

I. **Climate Change and Resilience Profile.** The user must provide the top five categories of climate change vulnerabilities that the infrastructure project location is exposed to in a descending order of exposure from high to low. The drop-down options include: 1. Coastal Flood; 2. Cloudbursts; 3. Cyclone / Typhoon / Hurricane; 4. Droughts; 5. Earthquake; 6. Extreme Heat; 7. Extreme Snowfall / Cold; 8. Landslide; 9. River Flood; 10. Tsunami; 11. Urban Flood; 12. Volcano; 13. Water Scarcity; 14. Wildfires; 15. Others.

J. **Greenhouse Gas (GHG) Emissions Profile.** This section captures the information regarding average annual GHG emissions from the project activities/operations, as well as reduction in GHG emissions from the project activities through carbon offset measures.

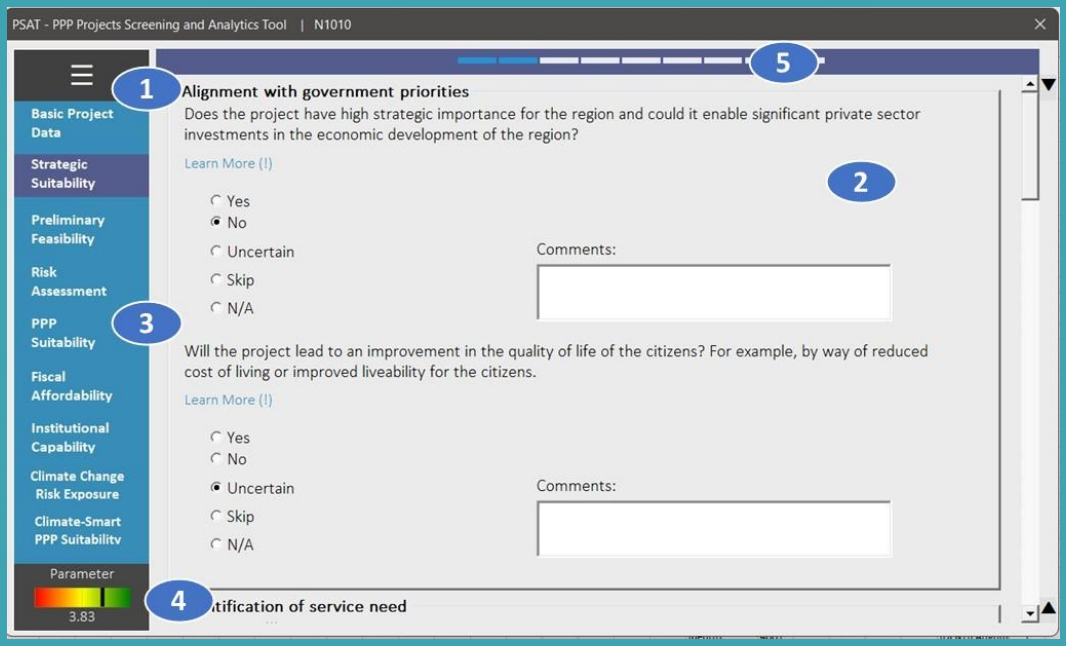
The user must provide quantitative data in sections D, E, F, G, H, and J. This information needs to be retrieved from available project studies and reports. The user must provide "0" as input into these cells if information is not available. The PSAT 2.0 will screen the project based on qualitative information only if quantitative information is not provided by the user. After completing all the data fields in the Basic Project Data, click "Next" to enter the Parameter screens for the project.

9.16 Answering the Parameter Questions

The user needs to become familiar with the layout of the Parameter screen before filling in the responses to the questions. The Parameter screen is organized as shown in figure 6.

[1] The benchmark currency is assumed to be the currency in which the project is expected to be financed. When financing is expected as a combination of foreign currencies, it is good practice to use historical estimates based on a basket of currencies.

Figure 6. Layout of the Parameter Screen



1. Menu (three parallel bars)
2. Multiple-choice questions section
3. Parameter tabs
4. Real-time scores: Parameter and Sub-parameter (once a user hovers over the thermal bar)
5. Position indicator

Menu

The three parallel bars in the top left corner contain the menu options of useful links. To access them, a user should hover the mouse over the bars. The menu includes operational links such as save and exit from the screen. The user can access the Dashboard for the project by clicking on the Parameter results link on the menu. The operating instructions for screening a project will be displayed when the user clicks on the instructions link.

Multiple-Choice Questions Section

This section displays the questions for the Parameter. The questions are arranged under Sub-parameters. The user must respond to the questions only after filling in the Basic Project Data screen. The user must do the following:

(i) Sequentially answer the questions starting from the top and cover all questions. The user can scroll down using the right side of the screen to access all the questions.

(ii) Choose the most appropriate responses to questions from the options available. The user must provide a response to each question based on the rules in table 1.

Table 1. Rules for Answering Questions

Response	Meaning
Yes	User agrees with the statement.
No	User disagrees with the statement.
Uncertain	Data and analysis may be available; however, the response to the question is neither a definite no nor a definite yes.
Skip	Implies that the question applies to the project, but there is insufficient information to make an informed response.
N/A	Implies that the question does not apply to the project.

(iii) Questions in red font are potential Deal breaker questions. Skipping any of the Deal breaker questions, marking them as uncertain, or responding to them in the negative will reduce the Overall score.

(iv) Optional: the user may add notes or comments (in addition to responding to the question) in the comments box next to the multiple-choice responses. It is highly desirable that users add notes with substantiating information for each response.

(v) Click on the “Next” button at the end of the Parameter questions to access the questions under the next Parameter or click on the relevant Parameter listed on the left panel of the screen (see the next section, on Parameter tabs).

The user must follow steps (i) to (v) above for all Parameters listed on the left panel of the screen. A full list of Parameters is as follows:

I. Strategic Suitability
II. Preliminary Feasibility
III. Risk Assessment
IV. PPP Suitability
V. Fiscal Affordability
VI. Institutional Capability
VII. Climate Change Risk Exposure
VIII. Climate-Smart PPP Suitability.

Parameter Tabs

The Parameter tabs on the left panel of the screen allow the user the flexibility to move from one Parameter to another. A dark color background under the Parameter name indicates the current Parameter displayed on the screen. The user ideally must move sequentially from the first Parameter to the last Parameter. This will ensure that all questions are answered. The user may miss answering some questions if they hop from one Parameter to another while screening the project for the first time. Responses to all questions in the Parameter screens must be reviewed if a change is made to any of the entries in the Basic Project Data.

Parameter Score

The thermal bar at the bottom left panel displays the Parameter score in real time, allowing a user to assess the impact of each response on the Parameter and Sub-parameter scores. Hovering the mouse over the score will display the Sub-parameter scores along with thermal bars, as shown in figure 7.

Figure 7. Sub-parameter Scores with Thermal Bars

Clicking on the link “Click for areas that need improvement” displays the questions that have scored low in the screening. This link is displayed only if any question has scored low, to help the user understand the areas for improving the suitability of the project for a PPP.

Position Indicator

The nine-step, color-coded position indicator changes to blue as the user moves from the Basic Project Data screen to the Parameter screens. The position indicator is read along with the highlighted Parameter on the left panel of the screen. For example, three colored steps on the top panel indicates that the user is on the Preliminary Feasibility screen.

Examples: Selecting the Right Responses to the Questions

This section provides two examples to guide the user in responding to questions in the PSAT 2.0. The user must carefully read each question and provide a response; answering “yes” is considered a positive

answer for most of the questions in the PSAT 2.0. However, there are some questions for which answering "no" is considered a positive response. The user shall provide responses according to the rules listed in table 1, that is, answer "yes" if the user agrees with the statement, and answer "no" if the user disagrees with the statement, and so on. The algorithm in the PSAT 2.0 normalizes the response and will score it appropriately in the context of the question.

EXAMPLE 1. Have similar PPP projects been financially closed in the country or region?

This question is from the Sub-parameter **Financing Risk** under the **Risk Assessment** Parameter. To get clarity on the question, the user may refer to the explanatory note by clicking on Learn More (!) below the question.

Explanatory Note: Financing Risk

Financing Risk refers to the risk that sufficient finance will not be available for the project at reasonable cost (for example, due to changes in market conditions or credit availability), resulting in delays in a project's financial closure. This will involve an assessment of financial closure of similar projects in the country or region, financiers who may be interested in PPPs, and appraisal of other potential factors that may delay or impact raising finances for the project in a timely manner.

Based on the explanatory note, the user may select their response from table 2.

Table 2: Sample Responses to a Question on Financing Risk

Question: Have similar PPP projects been financially closed in the country or region?

Response	Basis for selecting the response
Yes	If similar projects in the country or region have been financially closed successfully.
No	If similar projects have not been financially closed in the country or region.
Uncertain	If the user has mixed information on financial closure of similar projects and is unable to answer the question as a definite "yes" or definite "no."
Skip	The user does not have any information on financial closure of similar projects and is unable to provide a response.
N/A	If the project does not require financing from the PPP partner.

EXAMPLE 2. Will the project have any significant negative impact on natural resources or protected land?

This question is from the Sub-parameter **Environmental Sustainability** under the **Preliminary Feasibility** Parameter. This question is also a potential Deal breaker question; hence, a negative response, that is, a "yes" response in this case, will trigger a warning on the Dashboard. To get clarity on the question, the user may refer to the explanatory note by clicking on Learn More (!) below the question.

Explanatory Note: Environmental Sustainability

Any potential negative impact on the environment, especially on natural resources such as bodies of water or protected land such as forests, and impact on the air, including potential unmanageable emissions,

must be identified early. Delays in obtaining forest, environmental, and wildlife clearances and so forth from the respective departments should also be factored in, as they may lead to significant delays during the implementation stage. Environmental prefeasibility is particularly critical in the case of development of power plants based on conventional fuels, setting up ports to handle hazardous or chemical cargo, or industrial parks or waste treatment facilities.

Based on the explanatory note, the user may select their response from table 3.

Question: Will the project have any significant negative impact on natural resources or protected land?

Table 3. Sample Responses to a Question on Environmental Sustainability

Response	Basis for selecting the response
Yes	If the project is likely to have a significant negative impact on the environment based on the initial environmental impact assessment and it may lead to significant delays during the implementation stage.
No	If the project would not have any significant negative impact on the environment based on the initial environmental impact assessment and no delays are expected during the implementation stage. Note that answering "no" is a positive response to this question.
Uncertain	If the user has information on the environmental impact but is unable to answer the question with a definite "yes" or "no," as the information is inadequate or they are unable to reach a conclusion on significant negative impact and delays during the implementation stage.
Skip	If no initial environmental impact assessment has been conducted for the project and/or there is very low understanding of the negative impact on the environment.
N/A	If existing government notifications do not require environmental impact assessments to be conducted on the project. For example, approved development plan roads in urban areas do not require environmental approvals, as the development plan approval process includes environmental impact assessments at the city level. Another example is housing or township projects below a threshold size in urban areas that are exempted from environmental approvals.

Helpful Tip. The default response to a question in the PSAT 2.0 is the response that will provide the best score for the question. Hence, it is very important not to miss answering any question, as the user may risk presenting a higher screening score for the project.

9.17 Reading the PSAT 2.0 Outputs

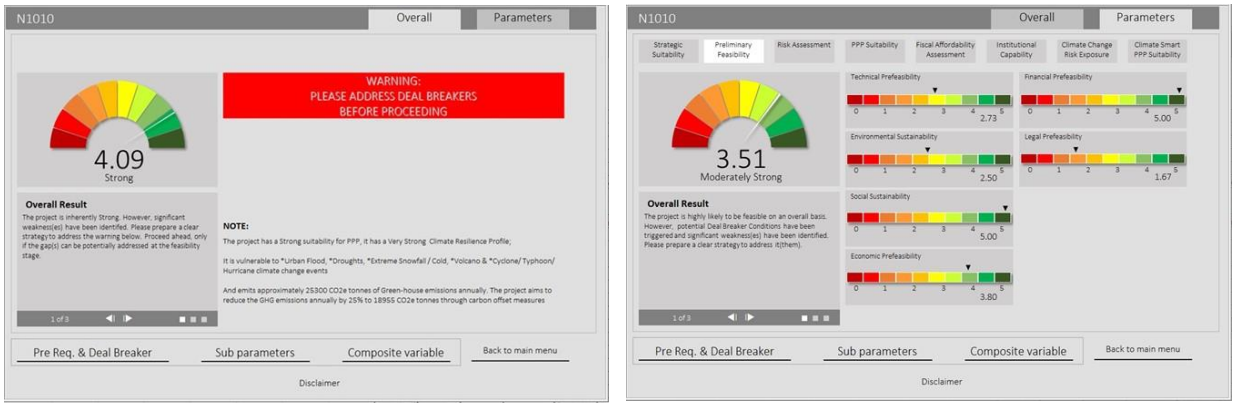
Following completion of inputs into the Basic Project Data and Parameter screens, the summary of project results can be accessed using the "Dashboard" and "Report Generator" options in the main menu (figure 8).

Dashboard

The Dashboard summarizes the project analysis and displays the results, as shown in figure 8. The output includes three sets of scores: Overall score, Parameter scores, and Sub-parameter scores. In addition, the

Dashboard provides an overall assessment of the project, displaying the areas (Sub-parameters) that need to be addressed under each Parameter. It also displays a summary of the Prerequisites and potential Deal breakers, with color-coded responses. The user can access the Dashboard for the project from the main menu or the Parameter screen by using the “Parameter results” link by hovering over the three parallel bars in the top left corner.

Figure 8. Overall and Parameter Results



Report Generator

The Report Generator option provides two types of reports: the Project Summary Report, which aggregates the Dashboard information for the project, and the Detailed Output Report, which aggregates all the responses and inputs provided by the user, including any comments to substantiate or qualify the answers. These reports can be printed in Word, Excel, and PDF formats.

9.18 Approach to Interpreting Results

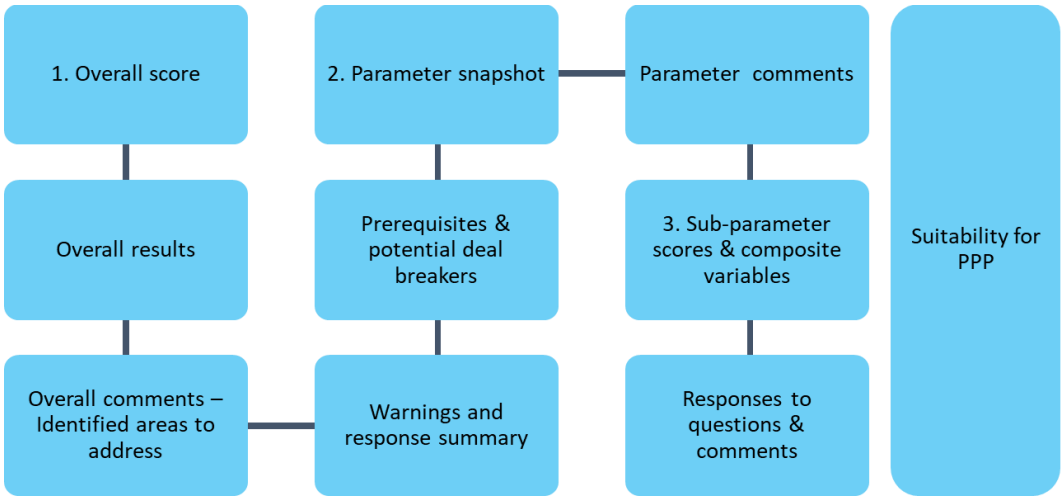
The PSAT 2.0 outputs include a large set of information that is useful for analyzing a project. The information needs to be analyzed in detail to conclude on the suitability of a project for a PPP. The approach to interpreting results includes the following:

- Understanding the Overall score and comments
- Analyzing the Parameter scores
- Assessing Sub-parameter scores and Composite variables (Composite viability indicators) to understand the viability of the project.

When reading the PSAT 2.0 outputs, keep in mind that the quality of the inputs impacts the quality of the outputs. The outputs will be impacted by factors such as the number of skipped answers, questions

marked uncertain, and so forth. The flowchart in figure 9 displays the process of reading the PSAT 2.0 outputs.

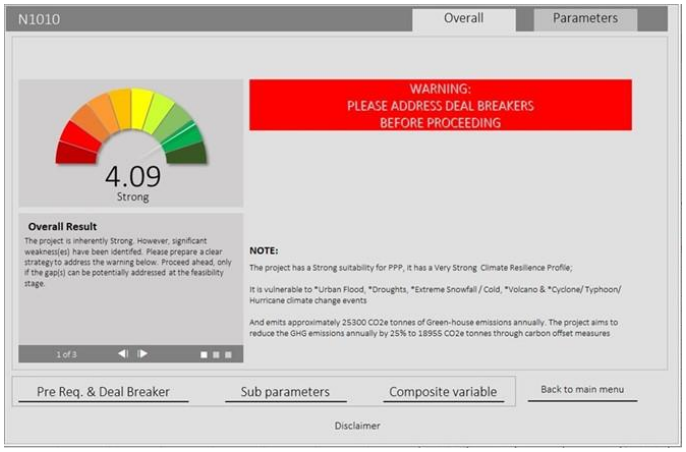
Figure 9. Flowchart for Reading the PSAT 2.0 Outputs



2.1.1 Understanding the Overall Scores and Comments

The overall screening results are displayed in the Overall tab of the Dashboard. Interpretation and analysis of the results should start from the Overall tab. The Overall score for the project is displayed in the top right corner of the Dashboard (figure 10). It includes a speedometer with the score and overall result on the suitability of the project for PPP.

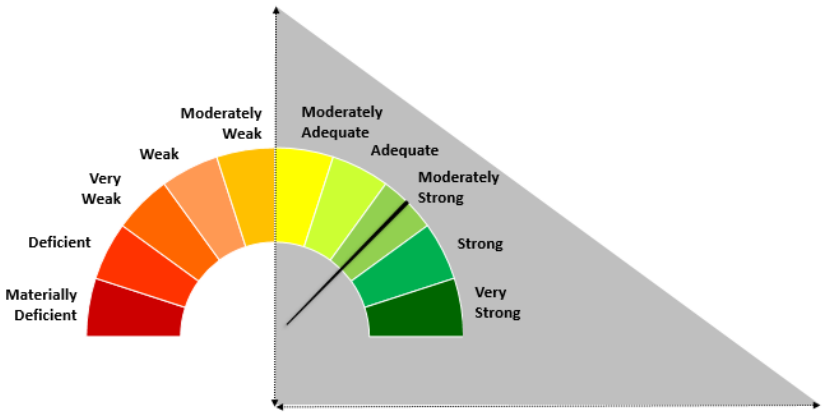
Figure 10. Dashboard: Overall Tab



The speedometer is a color dial ranging from red to yellow to green. The color coding indicates the strength of the project, with red indicating the lowest score possible and dark green indicating the highest score possible (figure 11). The speedometer grades the project on a scale of 0 to 5. The range of scores

includes the main results—deficient, weak, adequate, and strong—along with modified result types, for example “moderately weak” or “very weak.”

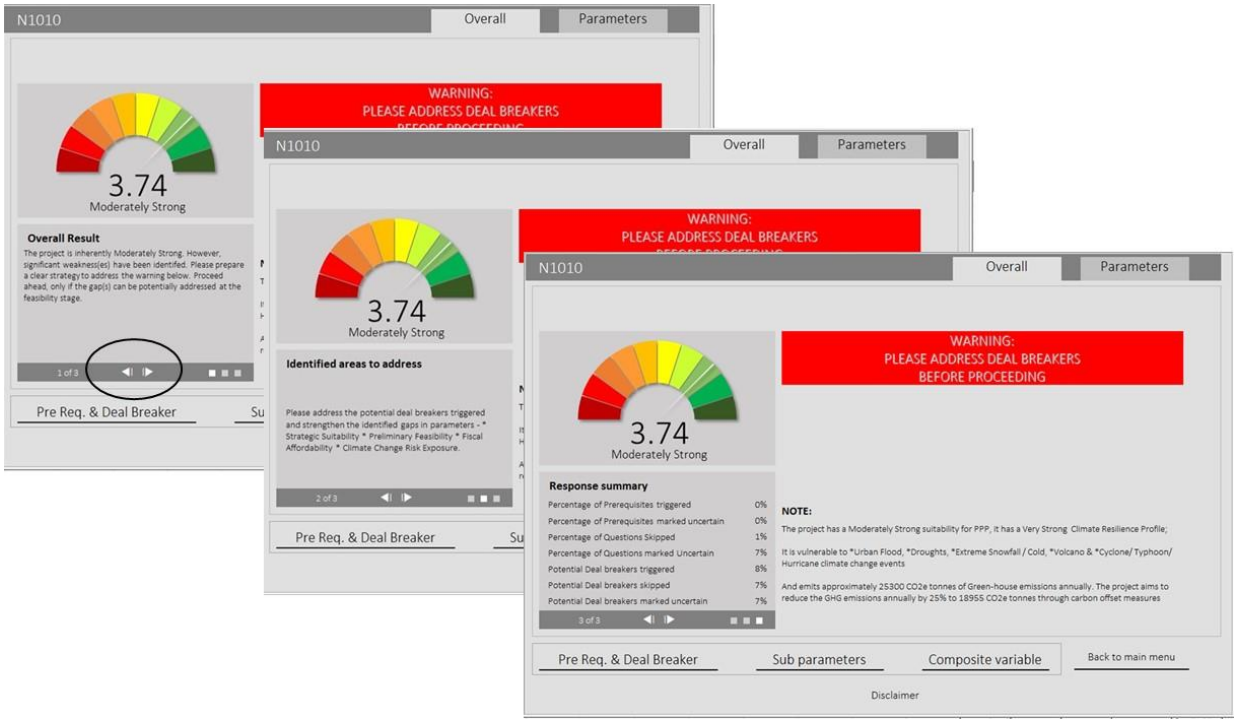
Figure 11. Color Coding of the Speedometer Dial



Projects with Overall scores greater than 2.5, classified as moderately adequate, going all the way to 5 (very strong) are considered suitable for a PPP. However, the score is only an indicator. A user will need to pay attention to the identified areas to address deficiencies connected with potential Deal breakers, and to questions with the response “uncertain” and/or “skip.” The next stage of project development must address these gaps identified in the screening.

The project comments are displayed below the speedometer and are in three categories: *overall result*, *identified areas to address*, and *response summary* (figure 12). The arrow button is used to move from one category of comments to another.

Figure 12. Dashboard: Overall Tab, Screening Comments



The first category is *overall results*. It indicates how likely the project is to succeed as a PPP. To draw the user's attention to issues that could jeopardize the project, the PSAT 2.0 also displays a warning in a red box on the right side next to the speedometer if a potential Deal breaker or Prerequisite is triggered.

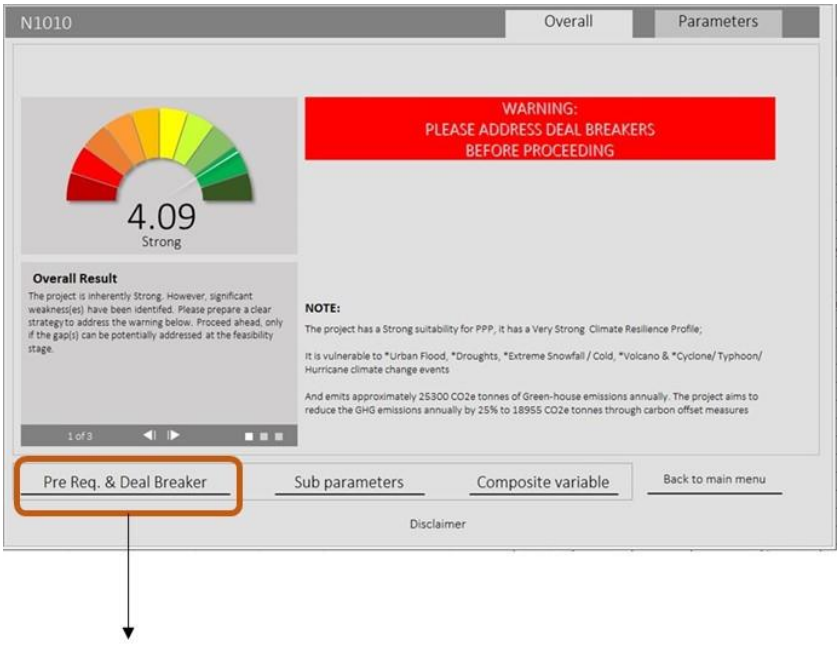
The second category of comments is *identified areas to address*. This category offers information on Deal breakers, Prerequisites triggered by the project, and the Parameters that need to be strengthened.

The third category is the *response summary*, which displays statistics for the data provided for the project, that is, the percentage of Prerequisites and potential Deal breakers triggered: Prerequisite questions, potential Deal breaker questions, and other questions marked "uncertain" or "skip." Triggered Prerequisites and potential Deal breakers showcase areas of concern for the project. The percentage indicates the magnitude of the problem. The percentage of questions marked "skip" and "uncertain" indicates that the project has not been able to provide satisfactory answers to the questions on the Parameter screens. The percentages are clickable and present a breakdown of each type of question that needs to be addressed to improve the Overall project score.

A red box with a warning will be displayed next to the speedometer if any potential Deal breakers or Prerequisites are triggered for the project. The section with notes below the red box summarizes the project's PPP suitability along with its Climate Change Resilience Profile. It also indicates the project's vulnerability to climate change events. If information on the project's estimated annual GHG emissions and the annual reduction planned through carbon offset measures is provided by the user during project screening, the last statement in this notes section will include it.

In addition, a list of responses to all Prerequisites and Deal breakers is available at the bottom left side of the Dashboard tab (figure 13).

Figure 13. Dashboard: Prerequisites and Deal breakers



Prerequisites:	Response
Is the project derived from a national plan or other medium- to long-term strategic document that establishes the development priorities at the highest levels of the government?	Yes
Is the project likely to be economically sound and have direct benefits that are significantly greater than the costs?	Yes
Do sector laws, regulations or policies allow private sector participation in the project?	Yes
Potential Deal breakers:	**Response**
Is there clear articulation and substantiation of the service deficiency?	Uncertain
Has there been an assessment of all possible technical solutions to address the identified need?	Yes
Are the technical cost estimates in line with required output specifications?	Yes
Is the proposed site accessible with any potential challenges during construction being manageable?	No
Will the project have any significant negative impact on any natural resources or protected land?	No
Is the project likely to be socially sustainable or have manageable social impacts?	Yes
Is there support for the project from affected communities and key stakeholders?	Yes
Will the impacts of direct and contingent liabilities of the project be within an acceptable level for the government?	Yes
Are the life cycle costs for major components of the project reasonable and affordable?	Yes
Will the project have a significant adverse impact on the health or quality of life of users, workers, or the local population?	No
If applicable, Is there a plan to address legal barriers through appropriate executive action or legislative reforms?	Yes
Are there financiers who will express or have expressed interest in the PPP?	Yes
Does the project's scope align with the national agenda on climate change including Nationally Determined Contributions (NDCs); Long-Term Strategy (LTS) and National Adaptation Plan (NAP)?	Yes
Has exisitng climate change related legislation or sector regulations been considered while preparing the project?	Skip
Will the Project performance standards/ KPIs includes the accounting of GHG emissions and targets?	Yes

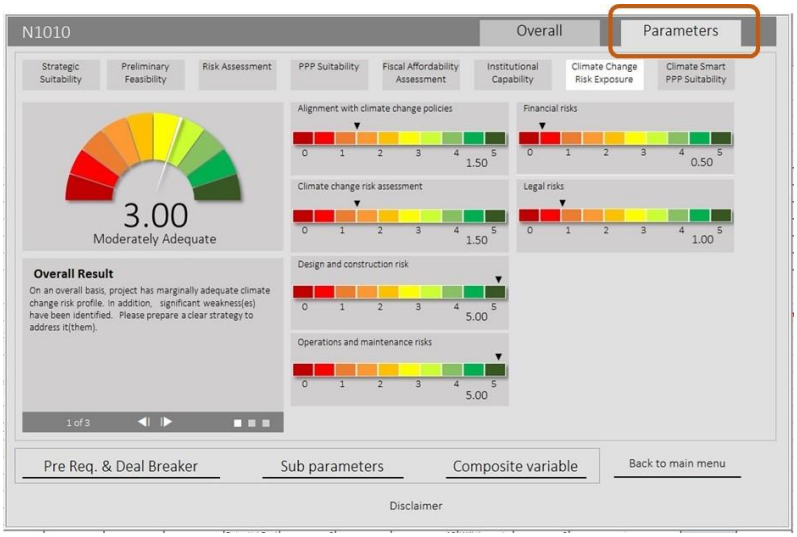
BACK

The status of the responses to the Prerequisites and potential Deal breakers is color coded: red indicates that the condition has been triggered; yellow indicates that the question has been marked with a “skip” or “uncertain”; and green indicates that the project meets good practices on that question. It is recommended to check the responses to these conditions, especially if they are displayed in red or yellow. The user can also refer to the Detailed Output Report to read the comments entered while responding to these questions.

2.1.2 Analyzing Parameter Scores

The Parameter snapshot and comments for the six Parameters are presented under the Parameter tab of the Dashboard (figure 14). The structure of the Parameter-level results is similar to that for the Overall results, apart from the warning functionality.

Figure 14. Dashboard: Parameter Tab



The score displayed below the speedometer relays the strength of the particular Parameter under review (selected above the speedometer). The comments on the Parameter are displayed below the speedometer. Similar to the comments displayed in the overall project results section, the Parameter-level comments are broken into three parts: overall Parameter comment, identified areas to address within the Parameter, and response summary. The identified areas to address indicate the Sub-parameters that need to be strengthened. The thermal bars to the right of the speedometer display the scores for each Sub-parameter.

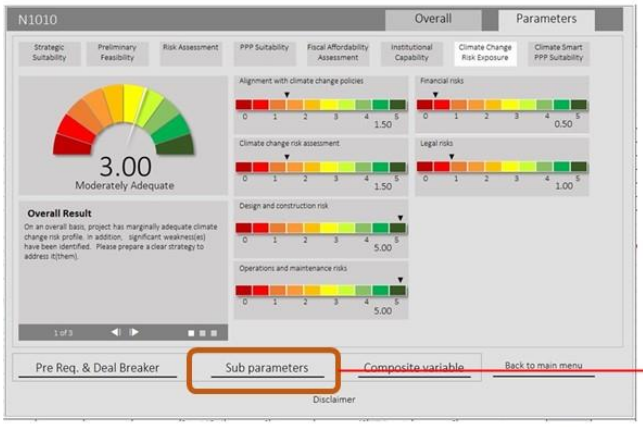
2.1.3 Understanding Sub-Parameter Scores and Composite Variables

Analyzing Sub-parameter scores and Composite variables is a very important component of the analysis of the PSAT 2.0 results. A complete list of the eight Parameter and 36 Sub-parameter scores can be accessed at the bottom of the Dashboard (figure 15). The list includes the weights for each Parameter and Sub-parameter. The Parameter tab also displays the Sub-parameter scores in thermal bars in the center section; however, they are only displayed for the corresponding Parameter.

These scores help in understanding the impact of the Sub-parameter score on the Parameter score. It helps to drill down the PPP Suitability analysis at the Sub-parameter level for a better understanding of the project. The approach to the analysis of Sub-parameters is as follows:

- Identify the Sub-parameter that has scored low (below a score of 2.5) and revisit the relevant sections in the Detailed Project Reports to review the reasons for the low score.
- Revisit Sub-parameters with high scores to confirm that the responses to the questions are backed with adequate evidence.

Figure 15. Dashboard: Sub-Parameter Scores

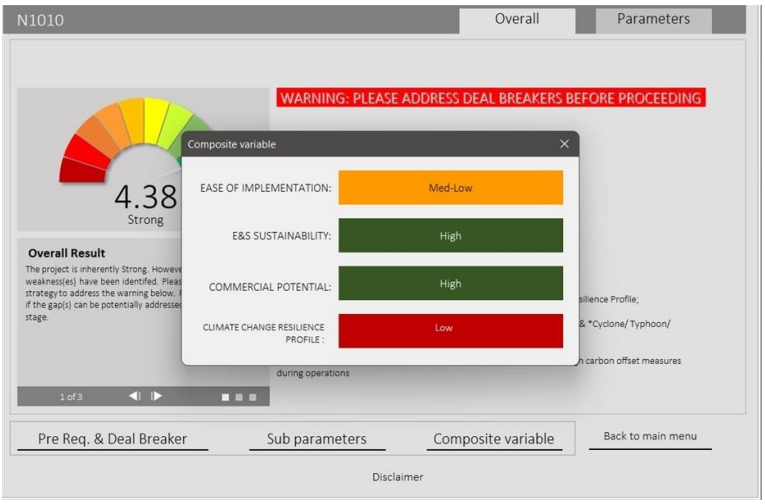


I	Strategic Suitability	10%		3.83
1	Alignment with government priorities	25%	3.33	
2	Identification of service need	25%	2.00	
3	Assessment of service delivery options	25%	5.00	
4	Scoping of the project	25%	5.00	
II	Preliminary Feasibility	30%		3.51
1	Technical Prefeasibility	20%	2.73	
2	Environmental Sustainability	10%	2.50	
3	Social Sustainability	10%	5.00	
4	Economic Prefeasibility	10%	3.80	
5	Financial Prefeasibility	30%	5.00	
6	Legal Prefeasibility	20%	1.67	
III	Risk Assessment	20%		4.53
1	Not Applicable	0%	0.00	
2	Financing Risk	20%	3.50	
3	Design and Construction Risk	20%	5.00	
4	Operations and Maintenance Risk	20%	5.00	
5	Market Risk and Demand Risk	20%	5.00	
6	Not Applicable	0%	0.00	
7	Not Applicable	0%	0.00	
8	Environmental and Social Risk	20%	4.17	
IV	PPP Suitability	10%		5.00
1	Value for Money	60%	5.00	
2	Market appetite	40%	5.00	
V	Fiscal Affordability	20%		2.00
1	Extent and Nature of Government Fiscal Support	40%	1.00	
2	Quantification of Fiscal Support	60%	2.93	
VI	Institutional Capability	10%		5.00
1	Institutional Capacity	33%	5.00	
2	Preparedness of the Contracting Agency for the Project	33%	5.00	
3	Project Execution Capability of the Contracting Agency	33%	5.00	
VII	Climate Change Risk Exposure	•		3.00
1	Alignment with climate change policies	30%	1.50	
2	Climate change risk assessment	10%	1.50	
3	Design and construction risk	10%	5.00	
4	Operations and maintenance risks	10%	5.00	
5	Financial risks	10%	0.50	
6	Legal risks	30%	1.00	
VIII	Climate-Smart PPP Suitability	•		4.64
1	Climate-smart Project scoping	20%	5.00	
2	Design, construction and O&M	40%	4.10	
3	Economic and Social sustainability	15%	5.00	
4	Financial analysis	10%	5.00	
5	Procurement process	15%	5.00	

BACK

Composite variables combine key Parameters and Sub-parameters to give an indication of the viability of the project in terms of its Ease of Implementation, Environmental and Social Sustainability, Commercial Potential and Climate Change Resilience Profile (figure 16).

Figure 16. Dashboard: Composite Variable



Ease of Implementation indicates how fast the project can be taken to the transaction structuring stage. It classifies a project into categories of high, medium-high, medium, medium-low, and low Ease of Implementation for a contracting authority. Projects that are categorized as high, medium-high, or medium are likely to face fewer hurdles to close a PPP transaction with a private partner vis-à-vis projects grouped into the medium-low or low categories.

A project is grouped into a category if prespecified conditions related to the following are met for that category: (1) Parameter scores for Risk Assessment and Fiscal Affordability; (2) Sub-parameter scores for Environmental Sustainability, Social Sustainability, Economic Prefeasibility, Financial Prefeasibility, and Market Appetite; (3) the balance of land to be acquired by a contracting authority and the number of potential landowners and project-affected parties; and (4) responses to Deal breaker questions on environmental and social impacts of the project.

Environmental and Social Sustainability indicates the impact and interaction of the project with the environment and society around it. It classifies the Environmental and Social Sustainability of the project into high, medium, and low categories. Projects with high and medium Environmental and Social Sustainability scores are more suitable than projects with low scores.

A project is grouped into a category if prespecified conditions related to the following are met for that category: Sub-parameter scores of Environmental Sustainability, Social Sustainability, Environmental and Social Risk.

Commercial Potential indicates the project's level of attractiveness for the private sector. It classifies the commercial potential of a project from the perspective of a private sector partner. Projects with high and medium commercial potential scores may attract higher interest from the private sector than projects with low scores.

A project is grouped into a category if prespecified conditions related to the following are met for that category: (1) Parameter scores of PPP Suitability and Fiscal Affordability, and (2) Sub-parameter scores of Economic Prefeasibility, Financial Prefeasibility, Market and Demand Risk, Offtaker Risk, and Foreign Exchange Risk.

Climate Change Resilience Profile indicates the project's resilience to climate change events. It classifies the project into the high, medium, or low category based on combined scores for the Climate Change Risk Exposure and Climate-Smart PPP Suitability Parameters. Projects with high or medium Climate Change Resilience Profile scores are more climate resilient than projects with low scores.

2.1.4 Responses to Questions and Comments

The last step involves analyzing the question-level responses and comments input into the PSAT 2.0. These details are displayed in the Detailed Project Report available in the Report Generator option of the main menu. Read the responses to the questions and confirm them before concluding on the suitability of the project for a PPP.

9.19 Concluding on the Suitability of a Project

A project is considered suitable for a PPP if the following conditions are met:

- All Prerequisites are met.
- The project scores are between "moderately adequate" and "very strong" (that is, between 2.5 and 5).
- None of the Deal breakers is triggered.
- Overall project and Parameter comments indicate that the project can be taken ahead to the next stage of development.
- Identified areas for improvement are manageable in the next stage of development.
- Percentages of questions marked "skip" and "uncertain" are acceptable.[2]

If some or none of these conditions are met, it is recommended to rework the project comprehensively, address the gaps identified by the Tool, and screen anew. If, despite multiple attempts at improving the deficiencies indicated by the PSAT 2.0 results, a project fails to meet the above-mentioned conditions, it is recommended to consider developing the project through the conventional procurement route.

Explanatory Note:

Although the PSAT 2.0 will give an indication of the suitability of a project on the basis of the limited information obtained from the prefeasibility studies and other project documentation, the user is

[2] The PSAT 2.0 algorithm constrains the score when the questions in a Sub-parameter that are marked negative/ uncertain/ skip exceed 60 percent. Hence, an acceptable percentage could be a value below 60 percent, depending on the quality of the project reports expected by country governments implementing the PSAT 2.0.

encouraged to substantiate the results generated by the PSAT 2.0 with detailed feasibility studies before taking a decision to procure the project as a PPP. The presumption is that the user provides honest and accurate responses to the extent possible. The user must pay attention to the areas of concern highlighted by the PSAT 2.0, in addition to the score, even if the score indicates that the project is suitable for PPP, and take suitable steps to address these areas of concern as these can become potential roadblocks at subsequent stages in the process.

3 Pipeline Analytics

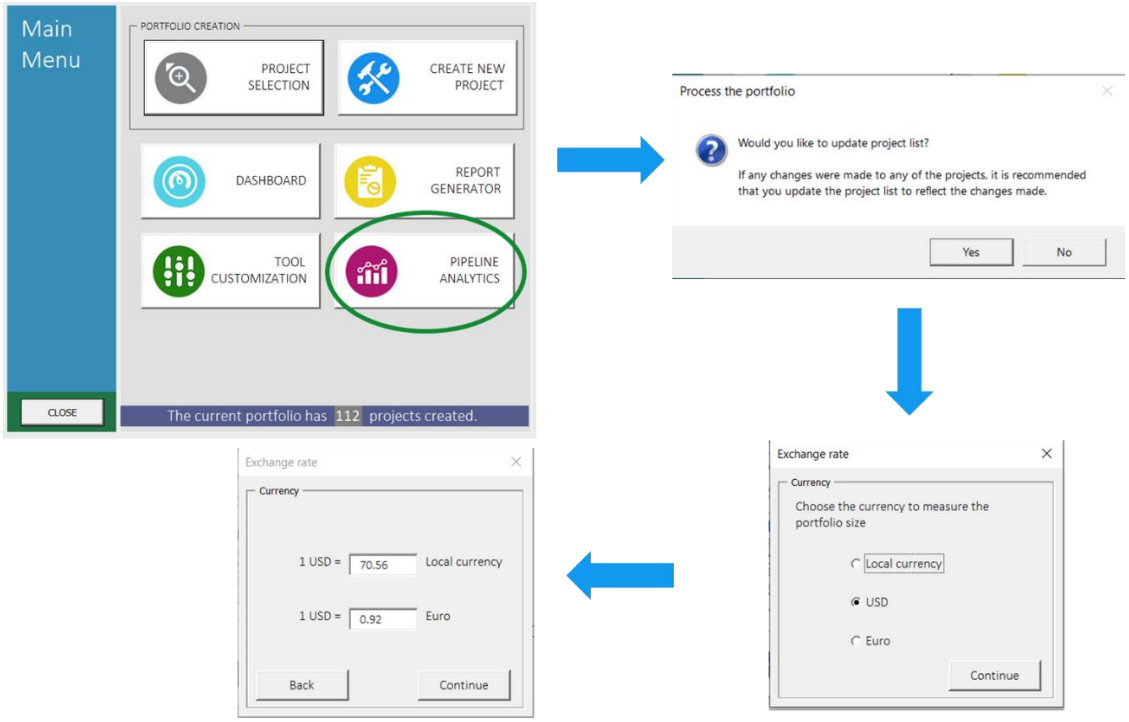
The PSAT 2.0 screening exercise will result in the selection of eligible candidate projects that are suitable for implementation as PPPs. PSAT 2.0 scores indicate the suitability of a project on a stand-alone basis. However, governments may not wish to go ahead with all projects found suitable for PPPs during the screening exercise due to limitations in institutional capabilities and the availability of project funding. The Pipeline Analytics feature of the PSAT 2.0 can help in the prioritization of a long list of screened projects found suitable for PPPs.

The Pipeline Analytics feature allows the user to compare, analyze, and prioritize screened projects in the PSAT 2.0 database through portfolio-level summary and viability-level indicators. It supports customized analysis of projects using filters and cluster charts. It also supports ranking projects across variables. The key functionalities of Pipeline Analytics are summarized under seven tabs:

1. Dashboard – consists of a portfolio-level summary
2. Climate Change Risk Exposure
3. Climate Change Resilience
4. GHG Profile
5. Viability analysis – consists of Composite variables
6. Customized analysis – provides project grouping and analysis using filters and cluster charts
7. Ranking – provides ranking projects across variables.

The user must select the Pipeline Analytics tab in the main menu (figure 17) to access this functionality.

Figure 17. Access Pipeline Analytics

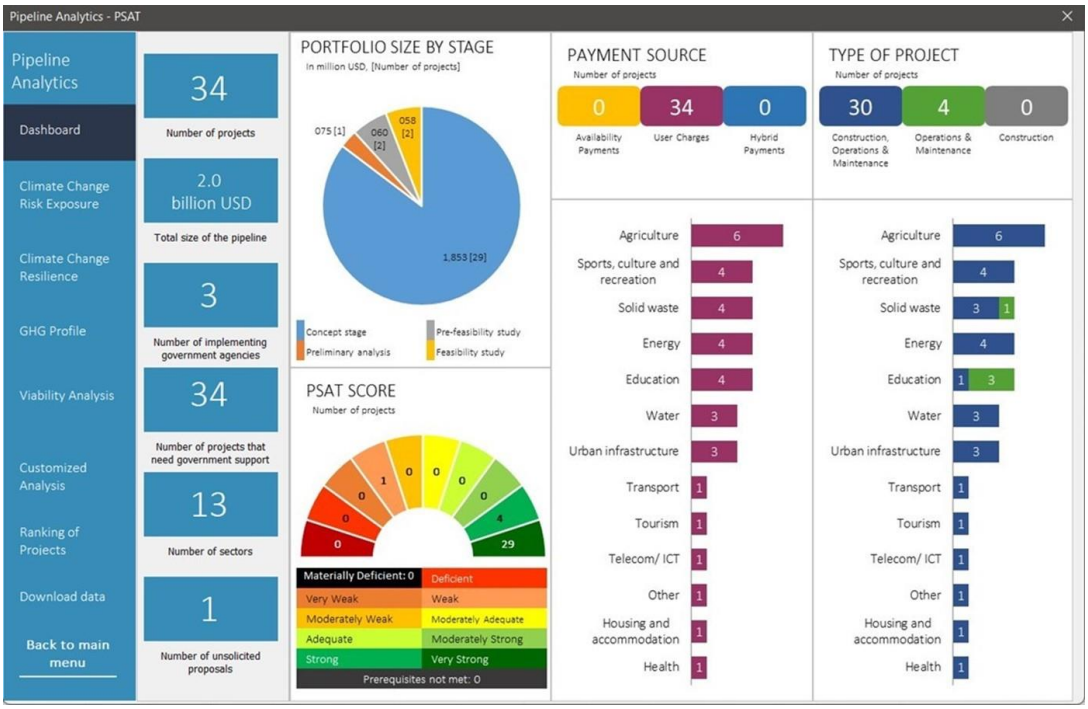


Before entering Pipeline Analytics, the user will be asked if they wish to update the project list. The user must select "yes" if modifications were made to an existing project in the PSAT 2.0, to allow the Tool to update the portfolio, and "no" if no modifications were made following the last screening session. Thereafter, the user must select the currency for the analysis and enter the currency conversion rates for converting project cost values to the selected currency.

9.20 Dashboard

The Dashboard is the first section of Pipeline Analytics (figure 18). It displays a summary of the PSAT 2.0 database on the screen, providing the user with data insights.

Figure 18. Pipeline Analytics Dashboard



The content of the Dashboard is organized in panels. The first panel displays PSAT 2.0 portfolio statistics highlighting the number of projects, size of the portfolio, number of implementing government agencies, number of projects that need government support, number of sectors represented in the portfolio, and number of projects originated by the private sector (unsolicited proposals).

The pie chart displays the portfolio by stage of project preparation, namely concept note, preliminary analysis, prefeasibility study, and feasibility study, with information on the total value of projects and the number of projects (in square brackets).

The speedometer below the pie chart displays the distribution of projects across score categories. The legend underneath explains the color coding. The bottom row titled “Prerequisites not met” displays the number of projects that failed to meet any or all of the PSAT 2.0 Prerequisites.

The top right section of the Dashboard displays the projects in the database by payment source and type of project and further breaks them down by sector.

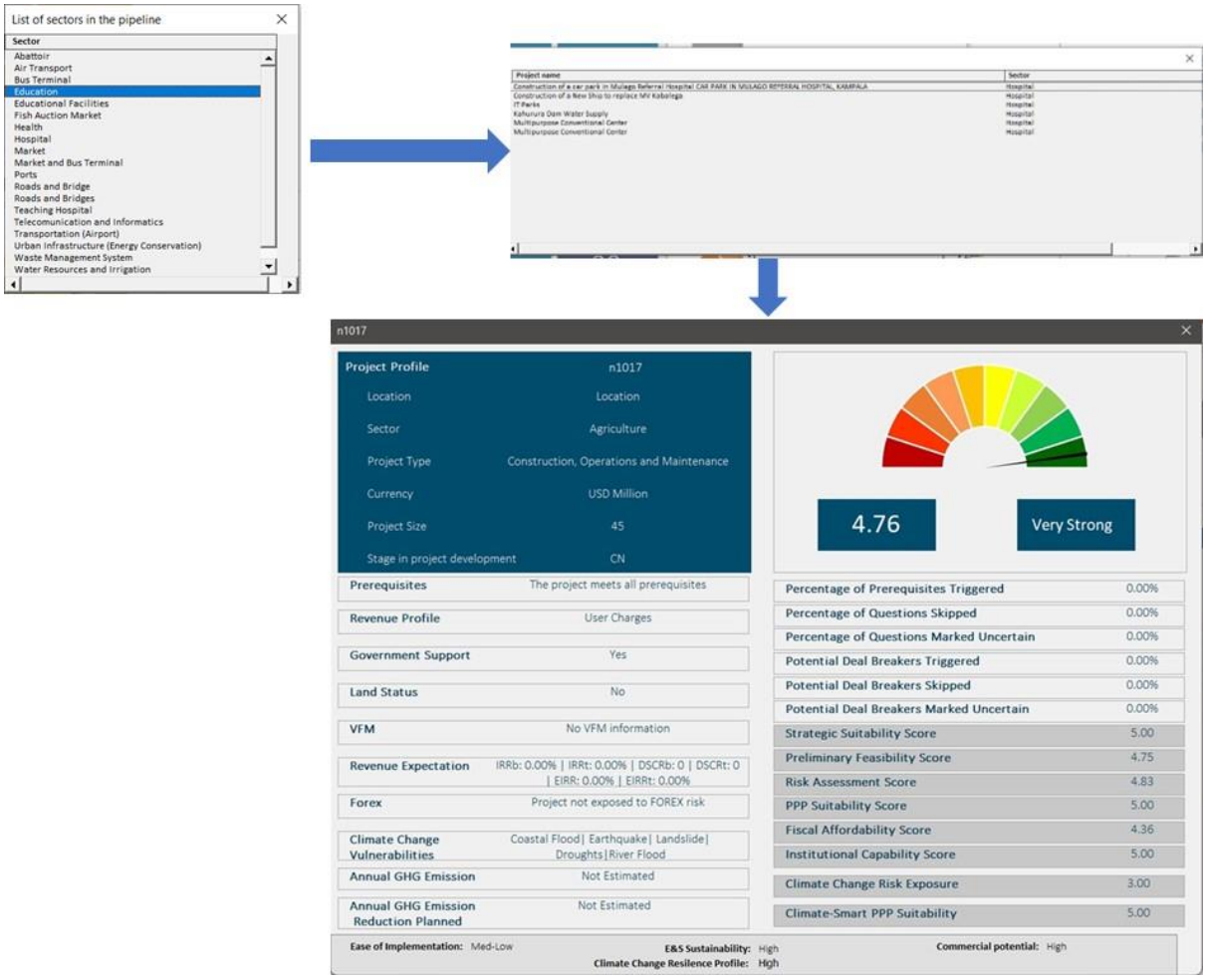
The following sections of the Dashboard are clickable and allow a detailed look at projects within specific categories:

- Number of projects
- Implementing government agencies
- Projects that require government support
- Sectors
- Unsolicited projects

- Stage in project development
- PSAT 2.0 score categories
- Payment type
- Project type.

The user can drill down into a category and access the project Dashboard by clicking on a project in a specific list. For example, by clicking on the number of sectors, a window will pop up displaying the list of sectors for projects in the portfolio. Selecting a sector will display a list of projects in that sector. Finally, selecting a project will display the Dashboard of that project with key project information (figure 19).

Figure 19. Project Dashboard

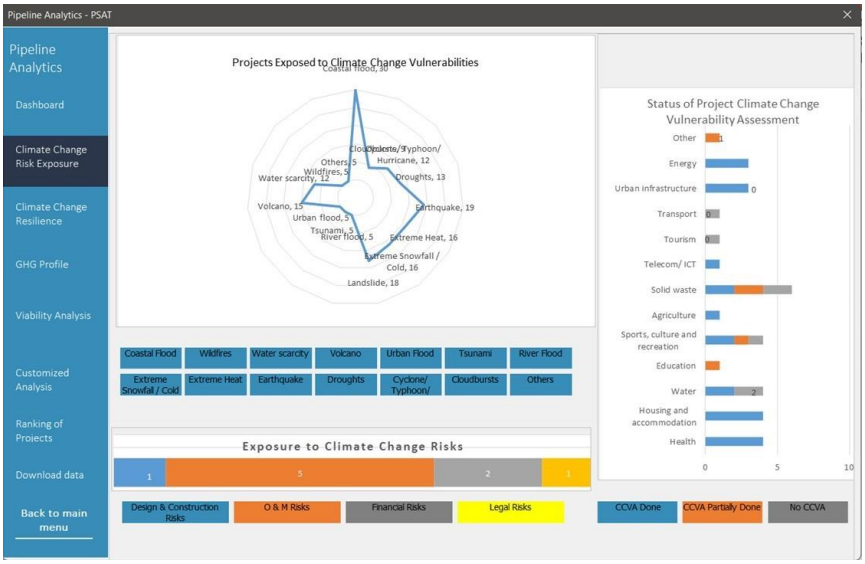


9.21 Climate Change Risk Exposure

This section of the Pipeline Analytics provides a summary of the climate change vulnerabilities and risk exposure of the portfolio (figure 20). This screen includes: (1) a web chart showing the number of projects

exposed to different climate change vulnerabilities; (2) the number of projects exposed to various climate change risks, namely Design and Construction Risks, Operations and Maintenance (O&M) Risks, Financial Risks and Legal Risks; and (3) a sector summary of climate change vulnerability assessments.

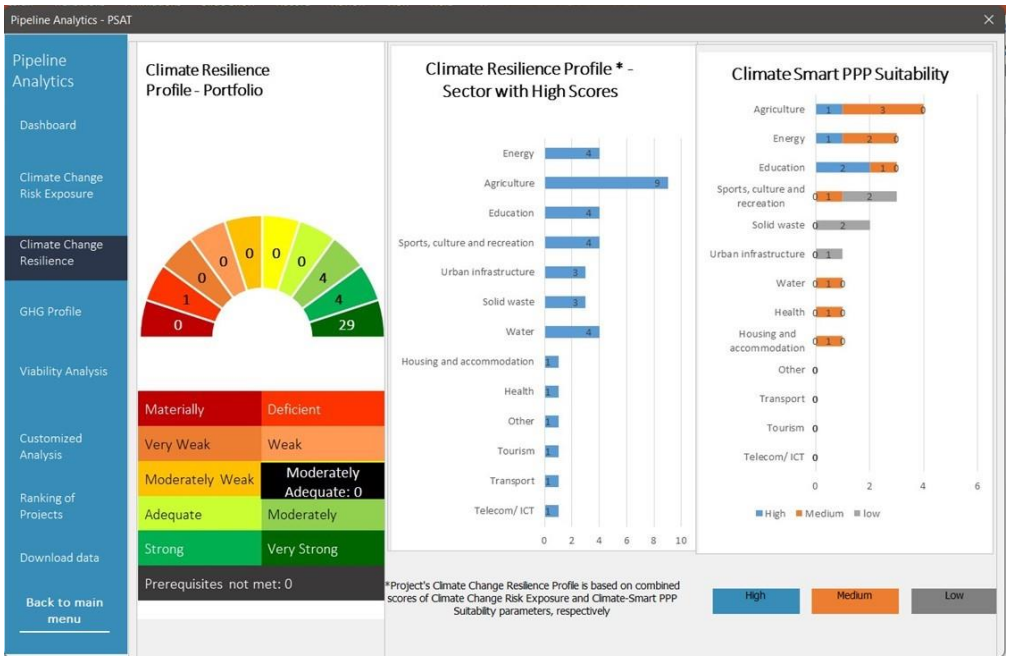
Figure 20. Climate Change Risk Exposure



9.22 Climate Change Resilience

This section provides a summary of the efforts put into projects to make them climate change resilient (figure 21). This screen includes: (1) a speedometer pie chart with the distribution of the number of projects falling into the various categories of the Climate Change Resilience Profile; (2) projects with high Climate Change Resilience Profile scores across sectors; and (3) a sector distribution of Climate-Smart PPP Suitability scores across high, medium and low categories.

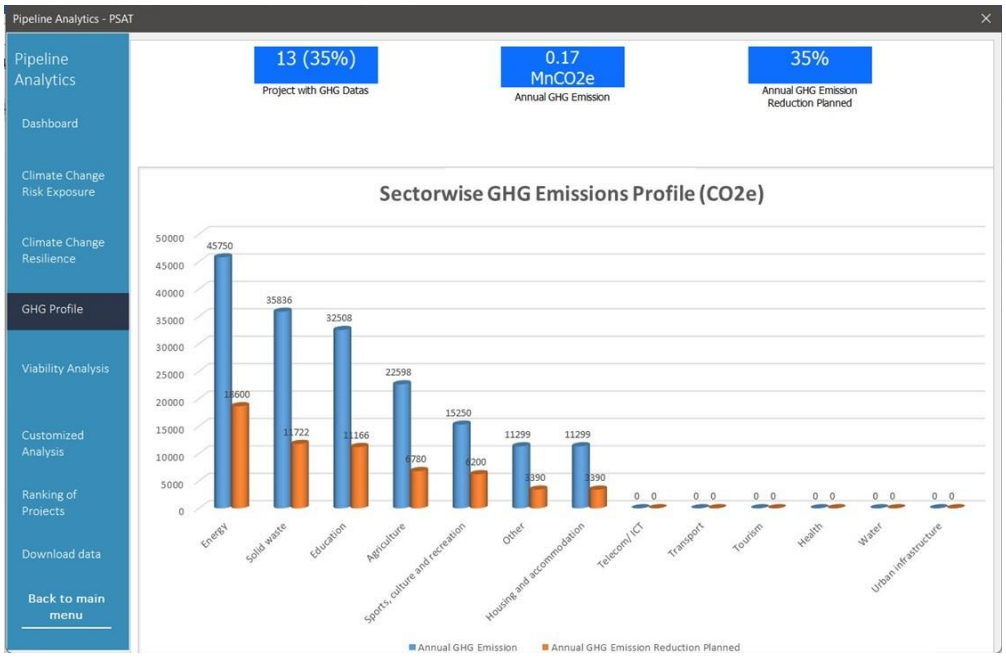
Figure 21. Climate Change Resilience



9.23 GHG Profile

This section provides a summary on the GHG emissions and the planned annual GHG reductions. It includes three boxes at the top of the screen and a chart with the sector breakdown of the GHG emissions profile (figure 22). The first blue box on the left indicates the number of projects in the portfolio for which a user provided GHG data while screening projects. A percentage in brackets corresponds to the share of projects with GHG data relative to the entire portfolio saved in the Tool. The second blue box shows the total of all annual estimated GHG emissions (a sum across all projects for which this data were provided and which are mentioned in the first box). The third blue box contains information on the planned reduction of GHG emissions for the projects mentioned in the first box. The chart below the boxes indicates the GHG emissions profile for the projects broken down by sectors.

Figure 22. GHG Emissions Profile



9.24 Viability Analysis

Viability analysis comprises Composite variables, namely, Ease of Implementation, Environmental and Social Sustainability, Commercial Potential, Climate Change Resilience Profile and Fiscal Affordability. The first four Composite variables are defined in subsection 2.1.3, and Fiscal Affordability is one of the PSAT 2.0 Parameters. This functionality is displayed in three tabs: Ease of Implementation (figure 23), Ease of Implementation subcomponents (figure 24) and Climate Change Resilience Profile (figure 25).

Figure 23. Ease of Implementation

Figure 24. Ease of Implementation Subcomponents

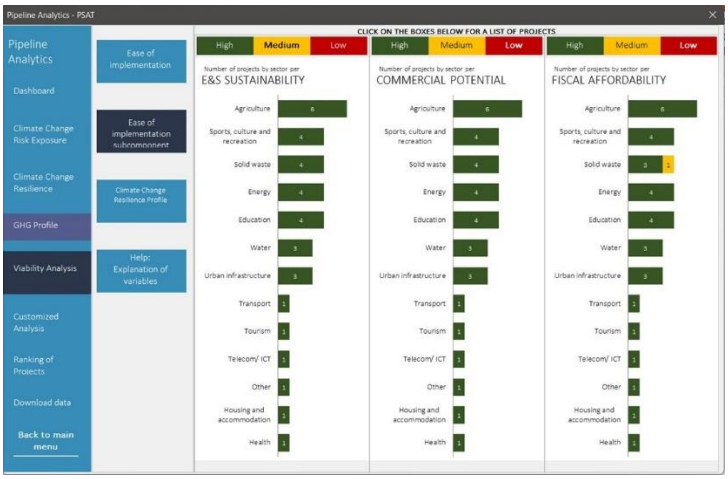


Figure 25. Climate Change Resilience Profile

The categories in the top band (High, Medium, Low) are clickable. Clicking on them will display the projects within the category. The project titles in the list are clickable as well and on selecting a particular project, the user is able to view key information on the project.

Note: The Ease of Implementation subcomponents (Environmental and Social Sustainability, Commercial Potential, Fiscal Affordability) and Climate Change Resilience Profile do not have the medium-high and medium-low score categories.

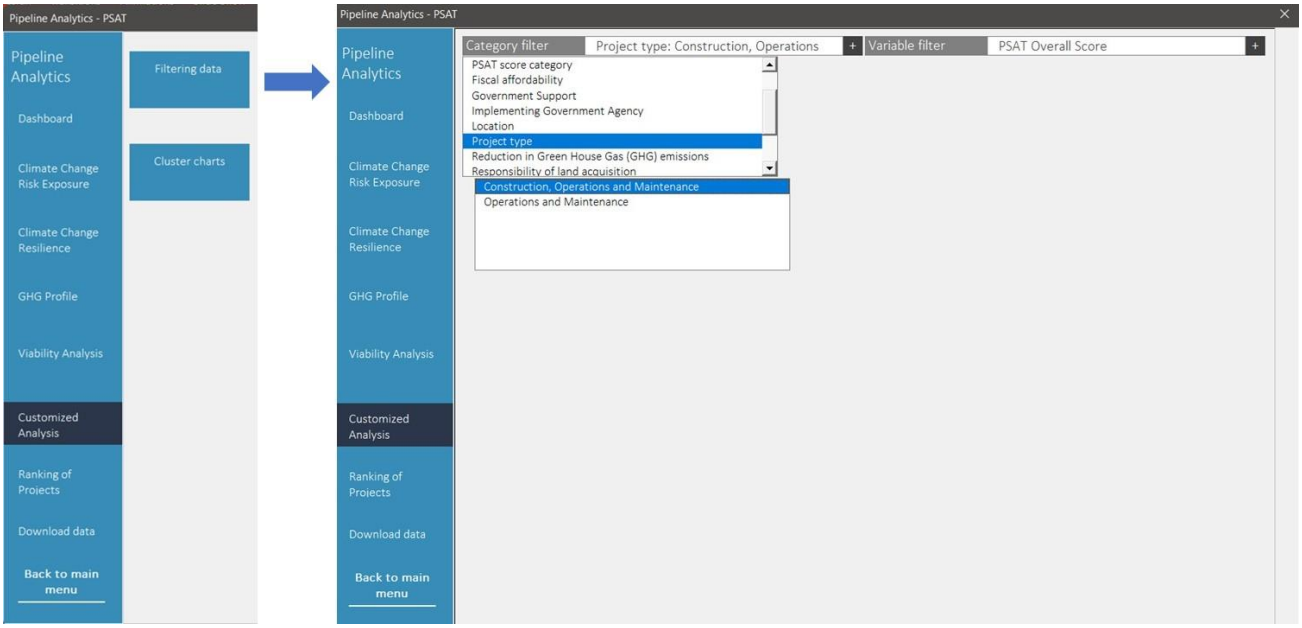
9.25 Customized Analysis

Customized analysis supports user-defined analytics. The user can generate customized charts across PSAT 2.0 Parameter and Sub-parameter scores and Composite variables based on user queries. The user can create customized project groups for further analysis with data filters and cluster charts.

3.1.1 Filtering Data

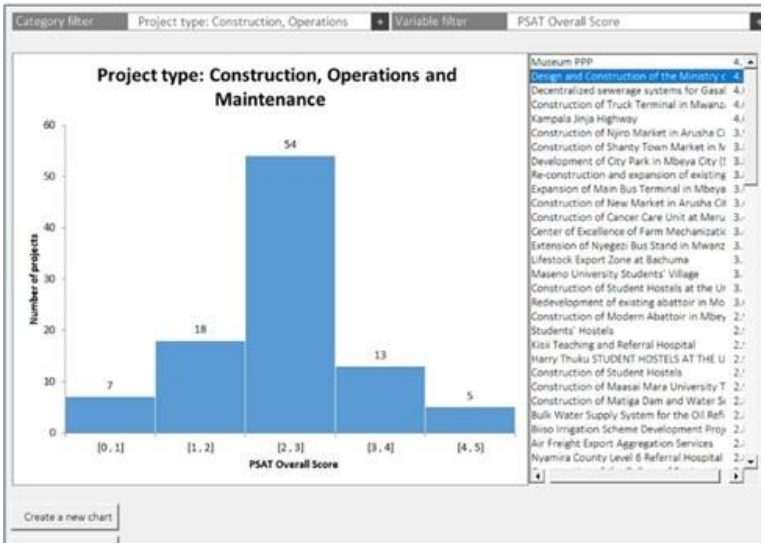
Filtering Data can be accessed by clicking on the Customized Analysis tab. This functionality allows users to extract a sample of projects from the portfolio by selecting a particular category filter from the drop-down menu, and then analyze the sample by a particular variable by selecting a variable filter (figure 26). The histogram organizes the number of projects for a selected category filter (mapped on the y-axis) into frequency bands for a selected variable filter (mapped on the x-axis).

Figure 26. Filtering Data



For example, if a user would like to know the distribution of the PSAT 2.0 Overall score for projects in the construction, operations, and maintenance category, they must select "Project type: Construction, operations and maintenance" in the category filter and then select "PSAT 2.0 Overall Score" in the variable filter drop-down menu. The chart displays the number of construction, operations and maintenance projects on the y-axis for the PSAT 2.0 Overall score in bands of 0-1, 1-2, 2-3, 3-4, and 4-5 on the x-axis (figure 27). The graph shows that most of the construction, operations, and maintenance PPP projects (54) scored between 2 and 3, and only five scored between 4 and 5 on the PSAT 2.0 Overall score.

Figure 27. Example for Filtering Data

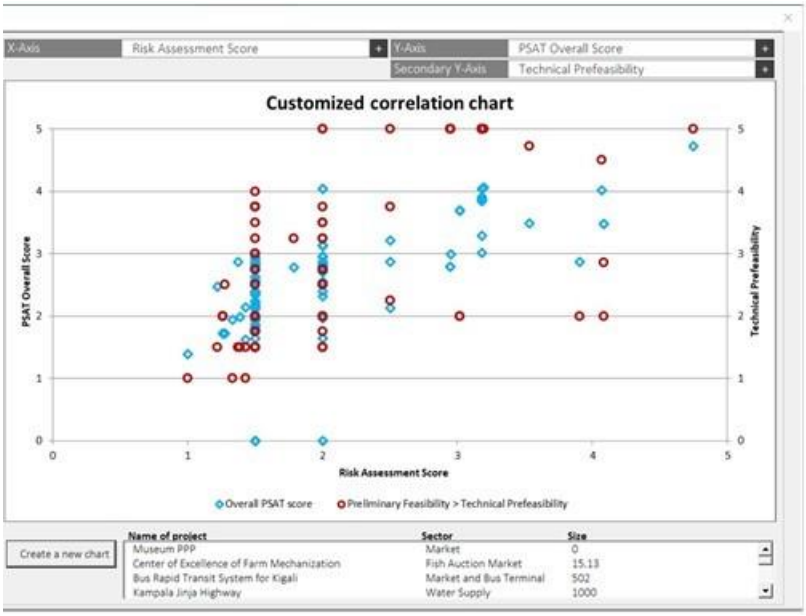


The panel on the right side lists projects in descending order of their scores. Clicking on a project on the panel will display the Dashboard for the project. Filtering Data can provide about 2,000 chart options using 55 category filters and 35 variable filters.

3.1.2 Cluster Charts

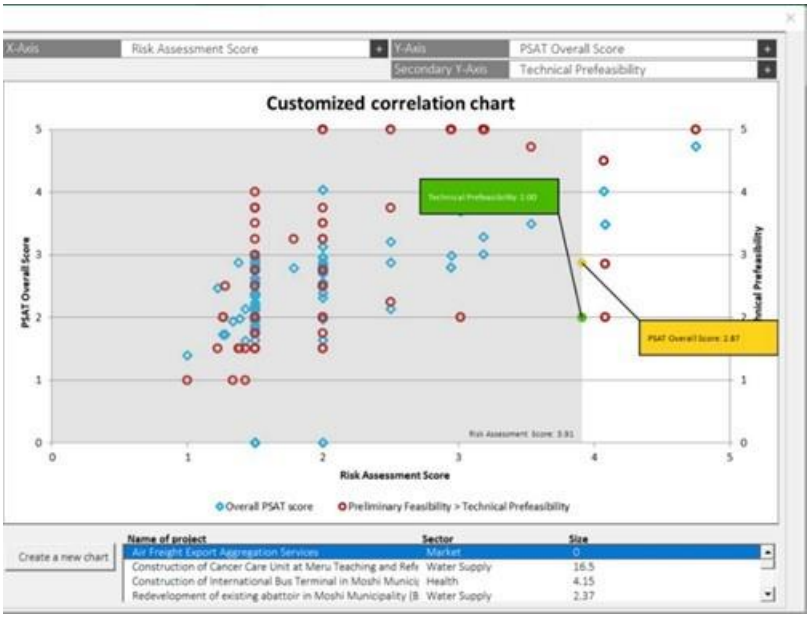
Cluster charts enable mapping of two selected variables on the y-axes vis-à-vis one variable on the x-axis. For example, the cluster chart in figure 28 displays the Risk Assessment score on the x-axis, PSAT 2.0 Overall score on the left y-axis and, and Technical Prefeasibility score on the right y-axis.

Figure 28. Cluster Charts



The blue rhombuses on the cluster chart map the project against the x-axis and left y-axis, and the red circles map it against the x-axis and right y-axis. The panel at the bottom displays the names of the projects. Clicking on a project in the panel will display the position of that project on the chart using solid yellow and solid green rectangles and its position relative to other projects. The grey shaded area on the graph shows the number of projects that have lower x-axis scores relative to the selected project (figure 29).

Figure 299: Example for Cluster Charts

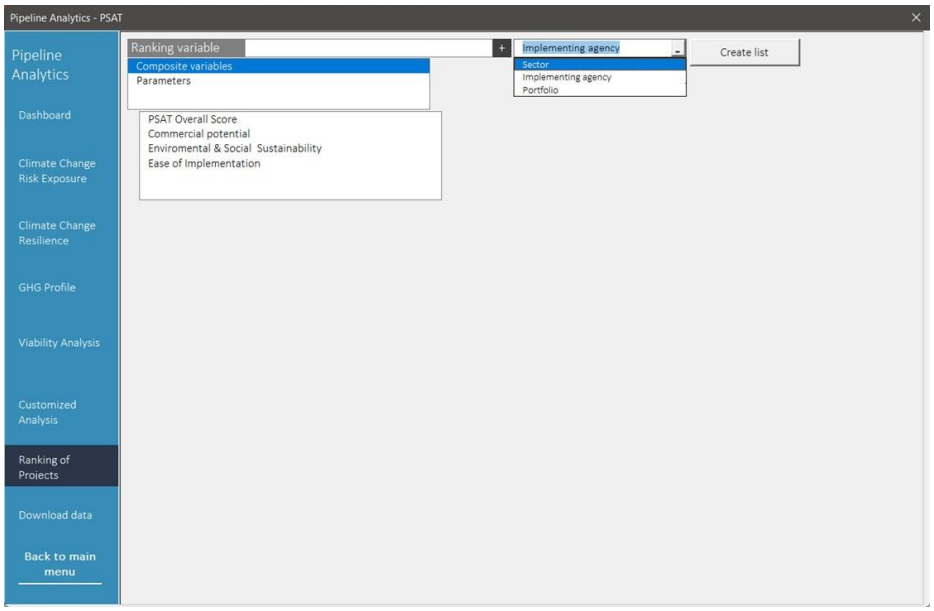


In theory, more than 40,000 cluster charts can be generated using these variables, using three axes with a selection of more than 35 variables on each axis.

9.26 Ranking Projects

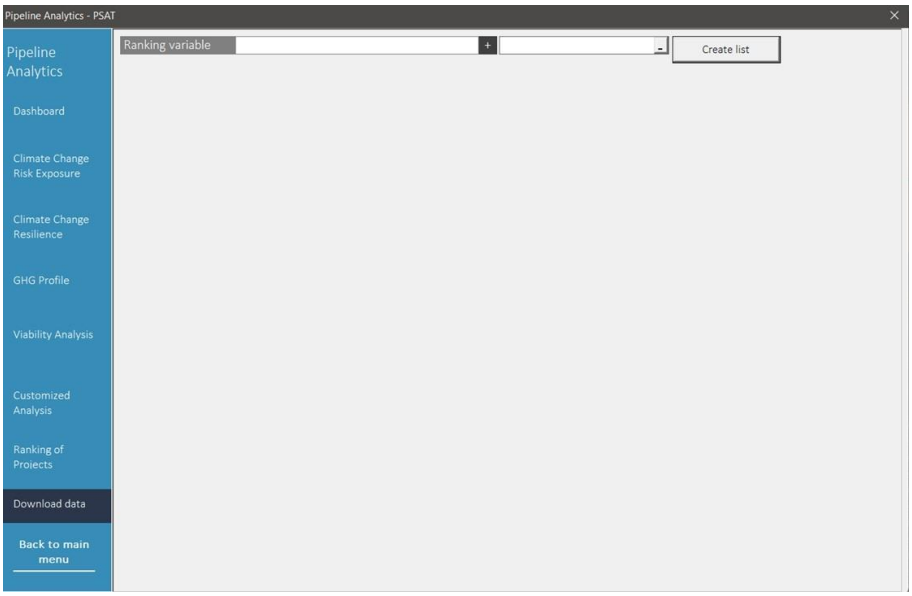
The Ranking option allows the user to rank projects in the portfolio by the Overall score, Parameter score, Sub-parameter score, and across Composite variables. Projects can be ranked at the aggregate portfolio level or by sector or implementing government agency (figure 30). More than 100 ranked lists can be generated and exported into an Excel file for further analysis.

Figure 30. Ranking Projects



In addition, the entire PSAT 2.0 portfolio can be extracted into a separate file by clicking the Download data option. This functionality downloads nearly 150 datapoints for each project in the PSAT 2.0 for further analysis (figure 31).

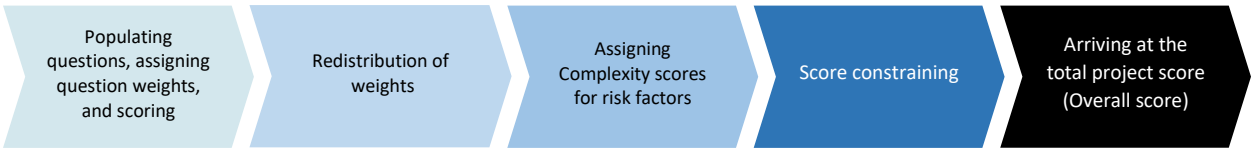
Figure 31. Download Data



4 Scoring Methodology

The scoring methodology of the PSAT 2.0 flows through five key stages, as shown in figure 32.

Figure 3232: Scoring Methodology



9.27 Question Score

The first two stages involve arriving at the question scores for the Sub-parameter before applying Complexity scores and score constraining. The process is as follows:

1. The responses provided by the user in the Basic Project Data screen populate the questions in the Parameter screens.
2. All questions in the Parameter screens are assigned predefined weights by the PSAT 2.0.
3. The user is required to respond to questions in the Parameter screens by selecting one of the responses in the drop-down menu. A score is assigned to each response option in the drop-down menu, as displayed in table 4.

Table 4: Scores Assigned to Drop-Down Menu Responses

Response	Score assigned
Yes	Score: 1
No	Score: 0
Uncertain	Score: 0.5
Skip	No score is assigned, the question weight is reduced to zero, and it has an impact similar to "no" response.
N/A	No score is assigned; the question weight is redistributed to other questions in the Sub-parameter.

Note: there are some questions in the PSAT 2.0 where "no" is a positive response that favors the project's suitability for a PPP. The scoring algorithm for such questions assigns a score of 1 for "no" and 0 for "yes."

4. The PSAT 2.0 checks for user responses that are marked N/A. Weights for questions with N/A responses are redistributed proportionately to other questions within the Sub-parameter.

5. The associated score for each question is multiplied by the question weight to arrive at the question weighted score.

9.28 Sub-Parameter Score

The Sub-parameter score is the total of the question weighted scores in the Sub-parameter multiplied by five (PSAT 2.0 scale of five). The final score displayed for the Sub-parameter is subject to three additional operations: (1) score constraints applied at the Sub-parameter level; (2) qualitative and quantitative scoring for selected Sub-parameters and Parameters, namely Environmental Sustainability, Economic Prefeasibility, Financial Prefeasibility, Risk of Delay in Land Acquisition, Foreign Exchange Risk, and Quantification of Fiscal Support; and (3) Climate Change Sub-parameters score adjustment on select Sub-parameters, namely Alignment with Government Policies, Scoping of the Project, Technical Prefeasibility, Environmental Sustainability, Social Sustainability, Economic Sustainability, Financial Prefeasibility, Legal Prefeasibility, Financing Fisk, Design and Construction Risk, O&M Risk, Quantification of Fiscal Support, and Preparedness of the Contracting Agency.

4.1.1 Sub-Parameter Score Constraints

Sub-parameter score constraints are applied as checks to avoid selection of projects where a large number of non-substantive response options are selected by the user.

If the number of questions marked "no" and/or "uncertain" is more than two, the score for the Sub-parameter is constrained to 2 or 2.5. Where the aggregate number of "no," "uncertain," and "skip" responses *exceeds 60 percent* of the responses in a Sub-parameter, the score is constrained, as shown in table 5.

Table 5: Sub-Parameter Score Constraints

Step 2 Constraint	Greater than or equal to	Less than or equal to	Forced/ constrained score
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	60.1%	70%	2
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	70.1%	90%	1.5
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	90.1%	100%	1

Example. Table 6 provides an example of score computation and constraining for the Design and Construction risk Sub-parameter within the Risk Assessment. The user must respond to six questions under this Sub-parameter. The table provides a simulation of a combination of responses and the scores selected by the algorithm.

Table 6: Simulation of the Sub-Parameter Constraint Algorithm

Combination of responses (yes, no, uncertain, skip)	Best score possible (a)	Step 1 constraint (b)	Step 2 constraint 60%-70% (c)	Step 2 constraint 70%-90% (d)	Step 2 constraint 90%-100% (e)	Score selected by the algorithm [minimum of a, b, c, d, e]
(6,0): User response is "yes" for all **6** questions (**0%)**	**5**	Not triggered	Not triggered	Not triggered	Not triggered	**5**
(5,1): User response is "yes" for **5** questions, and the remaining **1** response is "no," or "uncertain," or "skip" (**17%**)	**4.58**	Not triggered	Not triggered	Not triggered	Not triggered	**4.58**
(4,2): User response is "yes" for **4** questions, and the remaining **2** responses are any combination of "no," "uncertain," and/or "skip" (**33%**)	4.17	**2**	Not triggered	Not triggered	Not triggered	**2**
(3,3): User response is "yes" for **3** questions, and the remaining **3** responses are any combination of "no, "uncertain," and/or "skip" (**50%**)	3.75	**2**	Not triggered	Not triggered	Not triggered	**2**
(2,4): User response is "yes" for **2** questions, and the remaining **4** responses are any combination of "no," "uncertain," and/or "skip" (**67%**)	3.33	**2**	**2**	Not triggered	Not triggered	**2**
(1,5): User response is "yes" for **1** question, and the remaining **5** responses are any combination of "no," "uncertain," and/or "skip" (**83%**)	2.92	2	Not triggered	**1.5**	Not triggered	**1.5**
(6,0): User response is "yes" for **0** questions and **6** responses are various combinations of "no," "uncertain," and/or "skip" (**100%**)	2.5	2	Not triggered	Not triggered	**1**	**1**

4.1.2 Qualitative and Quantitative Scoring with Complexity Scores

A quantitative element is desirable for some of the Sub-parameters in the PSAT 2.0. This is addressed through Complexity scoring. The Complexity score is a weighted percentage that assigns weights to qualitative and quantitative responses. Complexity scores are used for the following:

- Economic Prefeasibility, Financial Prefeasibility, Risk of Delay in Land Acquisition, Foreign Exchange Risk, Quantification of Fiscal Support, and Climate Change – Design, Construction and O&M.

The algorithm for Complexity scoring gets triggered only when the user provides quantitative inputs to sections D – Government Support, E – Land Status, G – Return Expectations, H – Foreign Exchange Risk and J – GHG Emissions Profile in the Basic Project Data screen. The algorithm works on a qualitative basis; that is, without Complexity scoring, if the user enters zero for C, G, H and I; and "uncertain" or zero for E.

4.1.2.1 Economic Prefeasibility

The qualitative information in the Economic Prefeasibility Sub-parameter is combined with the quantitative information related to the economic internal rate of return (eIRR) through a Complexity scoring algorithm. The algorithm provides for a higher score for a project with a higher eIRR relative to the threshold eIRR. The final score for the Economic Prefeasibility Sub-parameter is the weighted average of the qualitative response to the questions in the Economic Prefeasibility Sub-parameter and the score for the difference in project eIRR vis-à-vis the threshold eIRR in the ratio 50:50 (figure 33).

Figure 3333: Calculating the Economic Prefeasibility Score

Score for Economic Prefeasibility = 50% **Complexity Score based on user estimates** + 50% **Score based on responses to questions under Economic Prefeasibility Sub-parameter in Preliminary Prefeasibility Parameter**

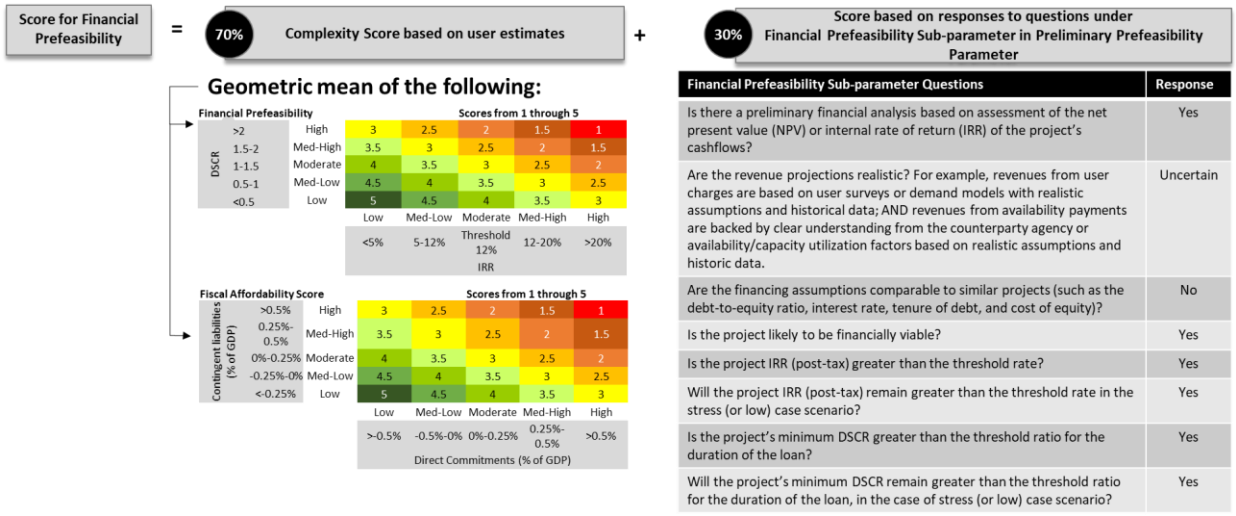
eIRR Calculations		
0%	6.00%	1
6.0%	11.999%	2
12%	**16.999%**	3
17.0000000%	22%	4
22.0000000%	100%	5
Input eIRR	**20%**	**4**

Economic Prefeasibility Sub-parameter Questions	Response
Is the economic rate of return (ERR) likely to be higher than the threshold ERR requirements of the government?	Yes
Will communities within the area of the influence of the project be able to share the direct or indirect economic benefits from the project?	Yes

4.1.2.2 Financial Prefeasibility

The qualitative information for the Financial Prefeasibility Sub-parameter is combined with the quantitative information related to the return expectations and fiscal commitments of the project through a Complexity scoring algorithm. Projects with higher IRR and DSCR are assigned a higher quantitative Financial Prefeasibility Complexity score. Projects with a higher percentage of fiscal commitments as a percentage of GDP are assigned a lower quantitative Fiscal Affordability score. The algorithm uses the weighted average of the geometric mean of these two scores and the qualitative scores for the Sub-parameter in the ratio 70:30 to assign the final score for the Sub-parameter (figure 34).

Figure 344: Calculating the Financial Prefeasibility Score



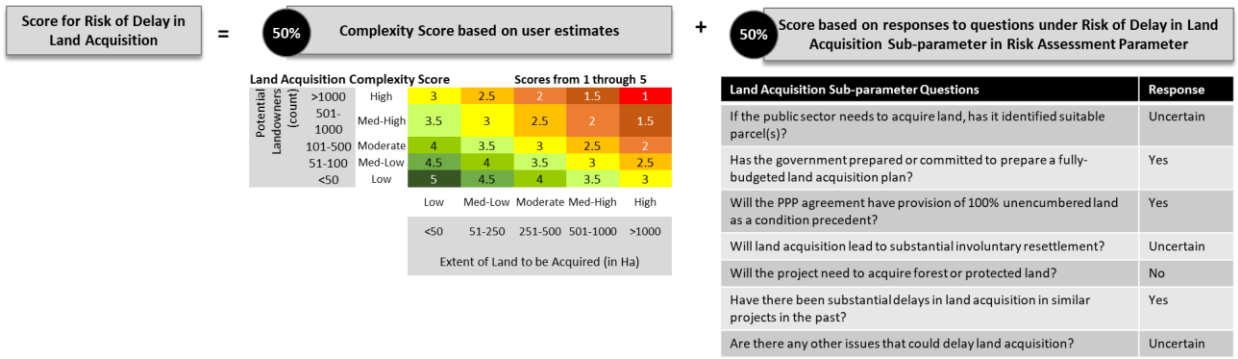
4.1.2.3 Risk of Delay in Land Acquisition

The qualitative information related to the Risk of Delay in Land Acquisition is combined with the quantitative information related to land acquisition through a Complexity scoring algorithm.

The quantitative land acquisition score is derived using a combination of the extent of land acquisition required for the project and the number of landowners and project-affected persons who must agree to the land acquisition. The quantitative land acquisition score gets reduced as the extent of land acquisition and number of landowners and project-affected persons increase.

The final Sub-parameter score for the Risk of Delay in Land Acquisition is a weighted average of the responses to the qualitative questions in the Risk of Delay in Land Acquisition Sub-parameter and the quantitative land acquisition score in the ratio 50:50 (figure 35).

Figure 35. Calculating the Risk of Delay in Land Acquisition Score



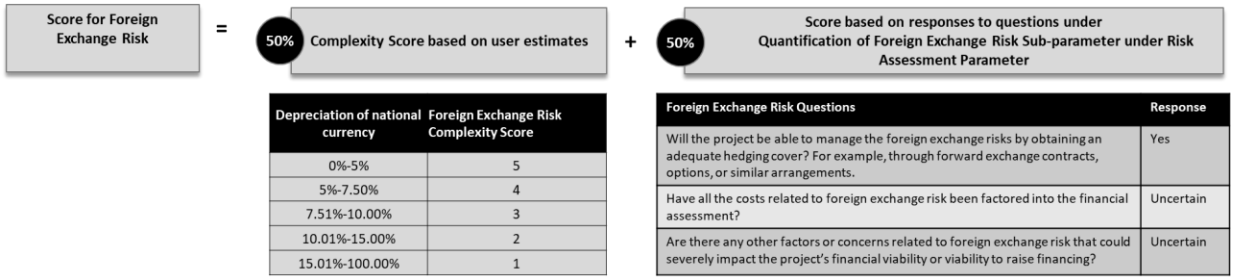
4.1.2.4 Foreign Exchange Risk

The qualitative information for the Foreign Exchange Risk Sub-parameter is combined with the quantitative information related to foreign exchange using a Complexity scoring algorithm.

The quantitative score for Foreign Exchange Risk is linked to depreciation of the national currency against the benchmark currency. The algorithm assigns a full score for depreciation of the national currency of up to 5 percent, which reduces as the depreciation increases.

The final score for the Foreign Exchange Risk Sub-parameter is a weighted average of the score assigned to the responses to the qualitative questions in the Foreign Exchange Risk Sub-parameter and the quantitative foreign exchange score in the ratio 50:50 (figure 36).

Figure 36. Calculating the Foreign Exchange Risk Score



Depreciation of national currency	Foreign Exchange Risk Complexity Score
0%-5%	5
5%-7.50%	4
7.51%-10.00%	3
10.01%-15.00%	2
15.01%-100.00%	1

Foreign Exchange Risk Questions	Response
Will the project be able to manage the foreign exchange risks by obtaining an adequate hedging cover? For example, through forward exchange contracts, options, or similar arrangements.	Yes
Have all the costs related to foreign exchange risk been factored into the financial assessment?	Uncertain
Are there any other factors or concerns related to foreign exchange risk that could severely impact the project's financial viability or viability to raise financing?	Uncertain

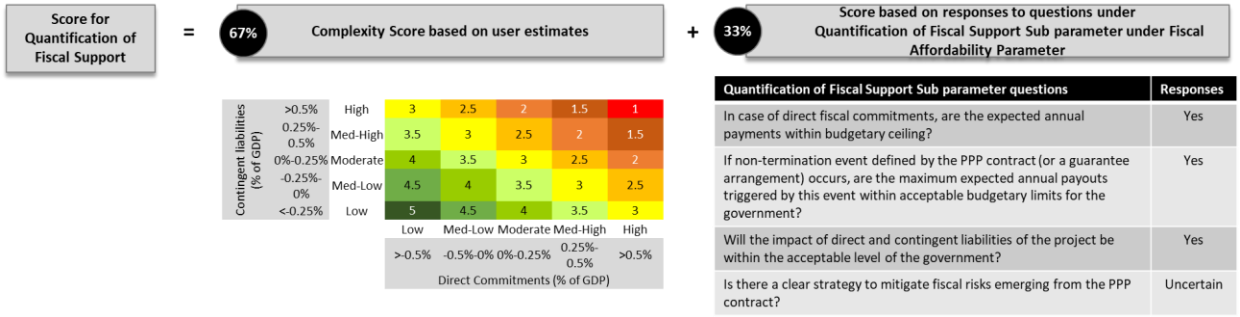
4.1.2.5 Quantification of Fiscal Support

The qualitative information for the Quantification of Fiscal Support Sub-parameter is combined with the quantitative information related to fiscal commitments of the project through a Complexity scoring algorithm.

The score for the quantitative information related to fiscal commitments is derived from the project's direct commitments and contingent liabilities for the government as a percentage of GDP. An increase in direct or contingent liabilities will lead to a decrease in the Complexity score and vice versa.

The final score for the Quantification of Fiscal Support Sub-parameter is a weighted average of the Complexity score based on user estimates of direct commitments and contingent liabilities as percentages of GDP and the responses to qualitative questions in this Sub-parameter in the ratio 67:33 (figure 37).

Figure 37. Calculating the Quantification of Fiscal Support Score

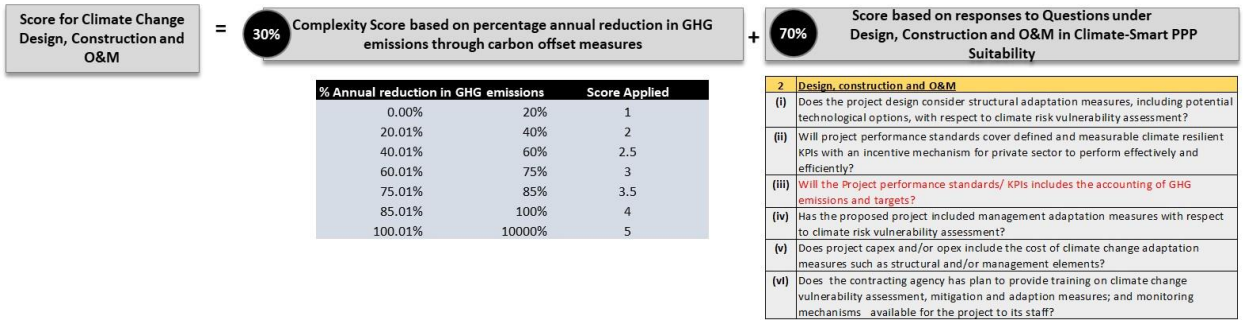


4.1.2.6 Climate Change – Design, Construction and O&M

The qualitative information for the Sub-parameter Design, Construction and O&M in the Climate-Smart PPP Suitability Parameter is combined with the quantitative information related to the percentage of annual reduction in GHG emissions through carbon offset measures.

The final score for the Design, Construction and O&M Sub-parameter is a weighted average of the Complexity score based on user estimates of percentage reduction of GHG emissions and the responses to qualitative questions in this Sub-parameter in the ratio of 30:70 (figure 38).

Figure 388: Calculating the Climate Change Design, Construction and O&M Score



4.1.3 Climate Change Sub-Parameters Score Adjustment

The 11 Climate Change Sub-parameter scores impact the scores of 13 select Sub-parameters within the Strategic Suitability, Preliminary Feasibility, Risk Assessment, Fiscal Affordability and Institutional Capacity Parameters. The adjustments to the impacted Sub-parameters are on the basis of a multiplier or a weighted average and are described in table 7 and table 8.

Adjustment on the Basis of a Multiplier

The Climate Change Sub-parameter scores impact the scores of a few Sub-parameters in the Strategic Suitability, Preliminary Feasibility and Institutional Capacity Parameters (please refer to table 7, column Impacted Parameters / Sub-Parameters). Their impact or modification is handled on the basis of a multiplier. The reason for selecting these Parameters is because they do not have constraints applied at a Parameter level (refer to section 4.3 explaining Parameter scores). The multiplier is calculated as a ratio

of the Climate Change Sub-parameter score to a threshold score of 3. A threshold score of 3 for Climate Change Sub-parameters is the minimum score demonstrating that the requirements for climate change resilience have been met. Scores less than 3 mean that the requirements have not been met. If a score is more than 3, the requirements for climate change resilience are exceeded.

The resulting ratio that defines the multiplier could be a number greater or less than 1 or equal to 1. The multiplier enhances the score of the impacted Sub-parameter if the Climate Change Sub-parameter score is above the threshold score of 3 (hence the ratio is above 1) and vice versa if the Climate Change Sub-parameter score is below 3 (the ratio is then below 1). Table 7 shows the mapping of Climate Change Sub-parameters and impacted Sub-parameters.

Table 7. Mapping of Sub-parameters for Multiplier Adjustments of Sub-parameter Scores

Climate Change *Parameter*/ Sub-parameter	Impacted *Parameter*/ Sub-parameter
Parameter: Climate Change Risk Exposure	
Alignment with Climate Change Policies	*Strategic Suitability* – Alignment with Government Policies
Climate Change Risk Assessment	*Preliminary Feasibility* – Environmental Sustainability
Legal Risks	*Preliminary Feasibility* – Legal Prefeasibility
Parameter: Climate-Smart PPP Suitability	
Climate-Smart Project Scoping	*Strategic Suitability* – Scoping of Project
Design, Construction and O&M	*Preliminary Feasibility* – Technical Prefeasibility
Financial Analysis	*Preliminary Feasibility* – Financial Prefeasibility
Procurement Process	*Institutional Capacity* – Preparedness of the Contracting Agency

Weighted Average Adjustment

The weighted average adjustment is applied to Sub-parameters of the Risk Assessment and Fiscal Affordability Parameters, because these Parameters have constraints applied at a Parameter level (refer to section 4.3 explaining Parameter scores). This approach assigns a percentage weight to the Climate Change Sub-parameter (please refer to table 8), and the balance weight (balance from 100 percent) is assigned to the impacted Sub-parameter. The resulting Sub-parameter score is a combined weighted score of the Climate Change Sub-parameter and the impacted Sub-parameter.

Table 8. Mapping of Sub-parameters for Weighted Average Adjustment of Sub-parameter Scores

Climate Change *Parameter*/ Sub-parameter	Weight applied	Impacted *Parameter*/ Sub-parameter
Parameter: Climate Change Risk Exposure		
Design and Construction Risk	60%	*Risk Assessment* – Design and Construction Risk
Operations and Maintenance Risks	60%	*Risk Assessment* – O&M Risk
Financial Risks	30%	*Risk Assessment* – Financing Risk
	20%	*Fiscal Affordability* – Quantification of Fiscal Affordability
Parameter: Climate-Smart PPP Suitability		
Economic and Social Sustainability	20%	*Preliminary Feasibility* – Social Sustainability
	20%	*Preliminary Feasibility* – Economic Sustainability

For example, the Design and Construction Risk Sub-parameter in the Climate Change Risk Exposure Parameter has two questions. The impacted Sub-parameter Design and Construction Risk in the Risk Assessment Parameter has six questions. The score of the Design and Construction Risk Sub-parameter in the Climate Change Risk Exposure Parameter is multiplied by the weight of 60 percent, and the score of the Sub-parameter Design and Construction Risk in the Risk Assessment is multiplied by the remaining weight (40 percent), in order to arrive at the Climate Change adjusted score of the impacted Sub-parameter Design and Construction Risk in the Risk Assessment.

4.1.4 Other Sub-Parameters That Have Adjustments Based on Quantitative Inputs

In additon to the six Complexity scoring algorithms, Offtaker Risk, Market and Demand Risk, and Value for Money are the other Sub-parameters that are influenced by quantitative inputs.

The Sub-parameter scores for Offtaker Risk and Market and Demand Risk are influenced by the proportion of availability payments as a percentage of total revenue in projects with a hybrid revenue profile.

The quantitative value for the VFM as provided in the Basic Project Data screen influences the VFM Sub-parameter score. The algorithm provides for a higher score for a project with a higher VFM relative to the threshold VFM.

9.29 Parameter Score

The score for a Parameter is the weighted sum of the Sub-parameter scores in that Parameter.

In some cases, it has been observed that the low scores of some Sub-parameters are compensated by other, high-scoring Sub-parameters within the Parameter, and this results in an above average or high Parameter score. To prevent this, constraints have been applied to the following Parameters:

1. Risk Assessment
2. PPP Suitability
3. Fiscal Affordability.

If the scores of these Sub-parameters are below the threshold, the Parameter score is constrained by applying a forced score.

9.30 Overall Score

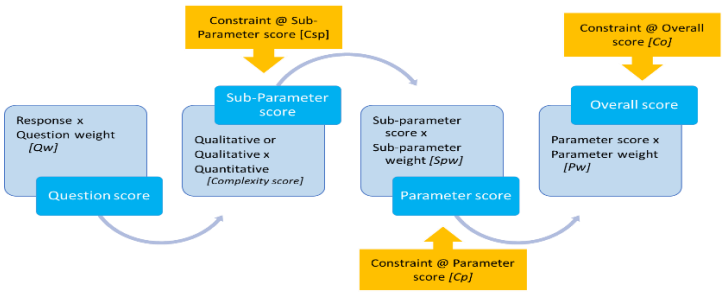
The Parameter score is multiplied by Parameter weights to arrive at the weighted Parameter score. The sum of six weighted Parameter scores—namely Strategic Suitability, Preliminary Feasibility, Risk Assessment, PPP Suitability, Fiscal Affordability, and Institutional Capacity—provides the Overall score or the total project score**.** The Overall score is forced to 2 if more than 25 percent of the 15 potential Deal breakers are triggered in the project. Note that the Parameter Scores of Climate Change Risk Exposure and Climate-Smart PPPs have been considered in the six Parameters through Climate Change Sub-parameter score adjustments (refer to section 4.2.3). Therefore, while the Climate Change Parameters have their individual (Parameter) scores, they are not considered in the overall score computation, and instead are applied to adjust the scores of the first six Parameters.

5 Customizing the PSAT 2.0

The PSAT 2.0 is a precalibrated tool. This section can be skipped if the user intends to use the PSAT 2.0 with the default settings. However, if the user needs to customize the PSAT 2.0 for country-specific priorities and requirements, they can undertake a customization exercise at nine levels. The procedure for customization is described in the customization sheets of the PSAT 2.0 along with cell references. Only the yellow-colored cells in the Admin and Data Analysis sheets can be modified for customization.

Figure 39 presents the computation flow of the PSAT 2.0. The individual question scores are first multiplied by question weights and adjusted for quantitative complexity. Thereafter, the scores are consolidated at the Sub-parameter, Parameter, and Overall levels after applying the constraints.

Figure 39. Computation Flow of the PSAT 2.0



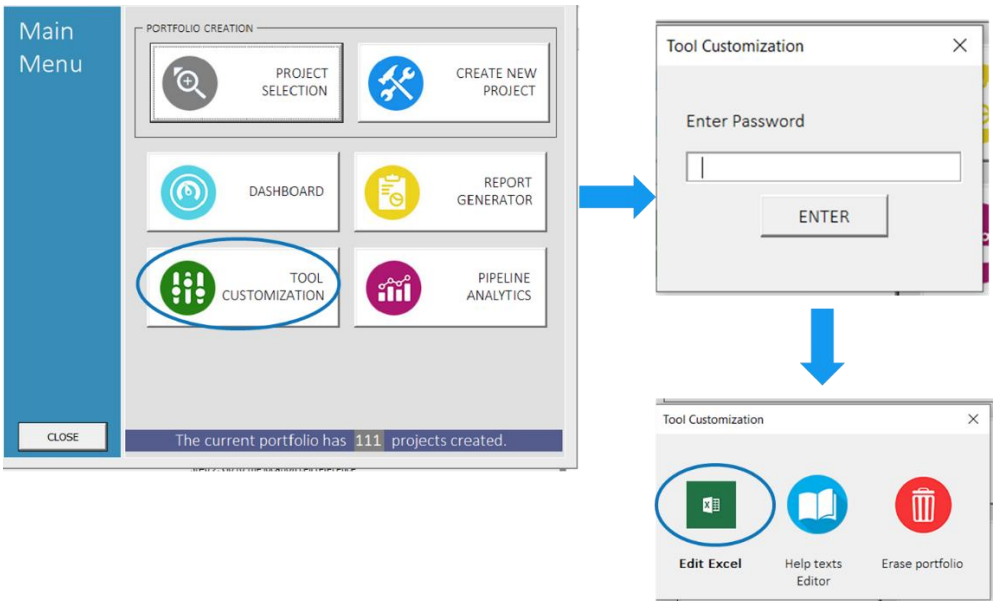
The entire process has three weights (Qw, SPw, and Pw), three constraints (Csp, Cp, and Co), and Complexity scores that influence the scoring. These are the customizable components of the PSAT 2.0. The other customizable components include the option to designate questions as Prerequisites and potential Deal breakers. The nine levels of customization classified into four categories are displayed in table 9.

Table 9. PSAT 2.0 Customization Levels

Category	Customization level	Tabs to customize
Basic customization	1. Select Prerequisites 2. Select potential Deal breakers	Admin
Customizing major weights	3. Alter Parameter weights ***[Pw]*** 4. Alter Sub-parameter weights ***[SPw]***	Admin
Customizing constraints	5. Constrain Sub-parameter score ***[Csp]*** 6. Constrain Parameter score ***[Cp]*** 7. Constrain Overall score (potential Deal breakers triggered) ***[Co]***	Admin
Micro customization	8. Alter question weights ***[Qw]*** 9. Alter Complexity score weights	Data Analysis

To customize the PSAT 2.0, click on the Tool Customization section in the main menu (figure 40), enter the password, and select Edit Excel for customization.

Figure 40. Entering Tool Customization

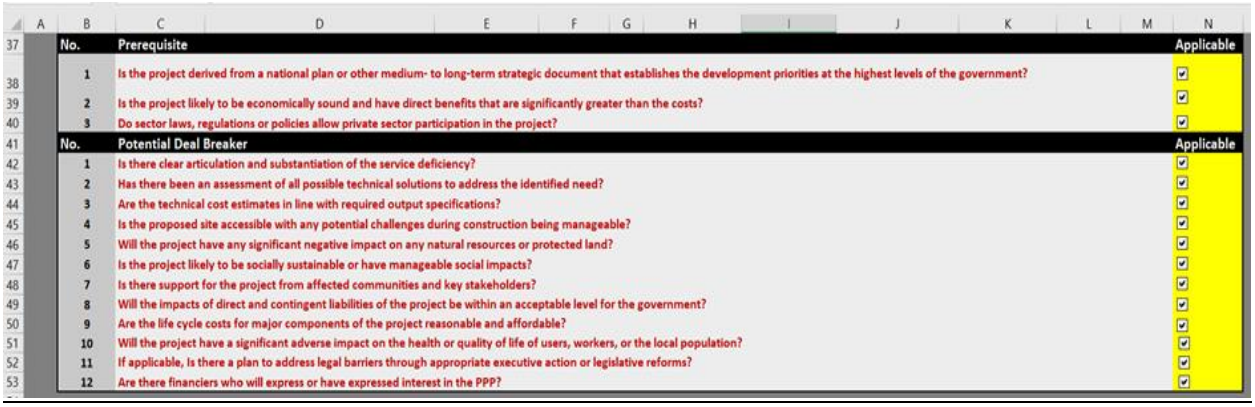


Edit Excel will allow the user to access the backend of the PSAT 2.0, which consists of more than 25 sheets. The user must navigate to the Admin and Data Analysis sheets for customization. The user should undertake changes only in the areas marked for customization described in the following subsections.

9.31 Basic Customization

Level 1 and Level 2 customization can be carried out in the Admin sheet by choosing the three Prerequisites and 12 potential Deal breakers (figure 41). The three potential Deal breakers in Climate Change Risk Exposure and Climate-Smart PPP Suitability are not customizable. The user must check/uncheck the boxes next to the questions to determine which questions should appear as Prerequisites and potential Deal breakers.

Figure 4141: Cells for Basic Customization



No.	Prerequisite	Applicable
1	Is the project derived from a national plan or other medium- to long-term strategic document that establishes the development priorities at the highest levels of the government?	☑
2	Is the project likely to be economically sound and have direct benefits that are significantly greater than the costs?	☑
3	Do sector laws, regulations or policies allow private sector participation in the project?	☑
No.	**Potential Deal Breaker**	**Applicable**
1	Is there clear articulation and substantiation of the service deficiency?	☑
2	Has there been an assessment of all possible technical solutions to address the identified need?	☑
3	Are the technical cost estimates in line with required output specifications?	☑
4	Is the proposed site accessible with any potential challenges during construction being manageable?	☑
5	Will the project have any significant negative impact on any natural resources or protected land?	☑
6	Is the project likely to be socially sustainable or have manageable social impacts?	☑
7	Is there support for the project from affected communities and key stakeholders?	☑
8	Will the impacts of direct and contingent liabilities of the project be within an acceptable level for the government?	☑
9	Are the life cycle costs for major components of the project reasonable and affordable?	☑
10	Will the project have a significant adverse impact on the health or quality of life of users, workers, or the local population?	☑
11	If applicable, Is there a plan to address legal barriers through appropriate executive action or legislative reforms?	☑
12	Are there financiers who will express or have expressed interest in the PPP?	☑

Steps to Be Followed for Level 1 and Level 2 Customization

This can be done with the following procedure:

Step 1. Access the administrator sheet.

Navigate to the Admin sheet and locate cells B37:N40 in the Admin sheet for Prerequisites and cells B41:N53 for the 12 potential Deal breakers.

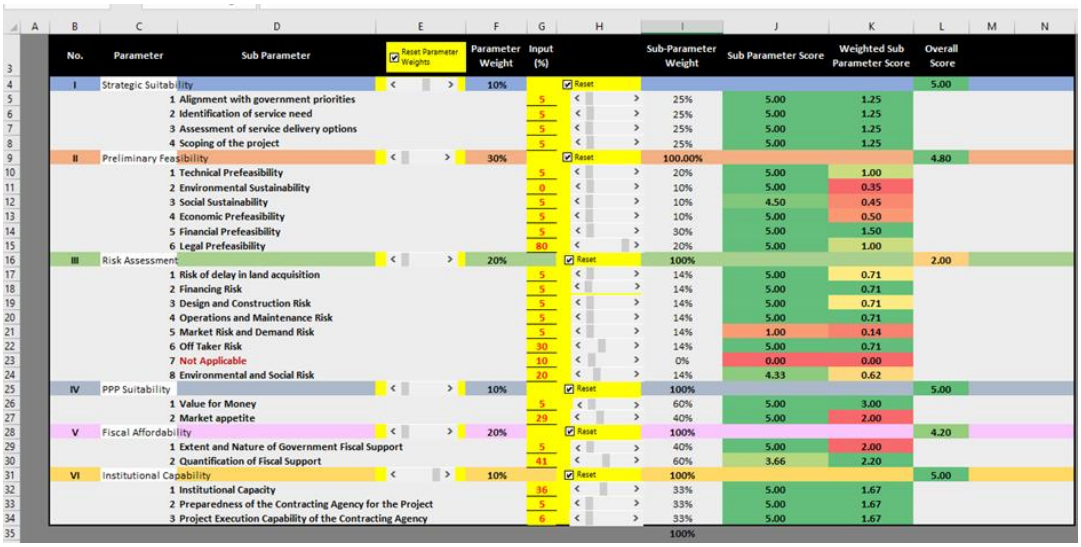
Step 2. Uncheck the checkbox for the Prerequisite or potential Deal breaker.

By checking/unchecking the checkboxes within the yellow-colored cells (N38:N53), the user can determine which questions should/should not appear as Prerequisites and potential Deal breakers.

9.32 Customizing Major Weights

The Admin sheet is also used for making Level 3 and Level 4 changes by altering the Parameter weights (Pw) and Sub-parameter weights (SPw) (figure 42).

Figure 4242: Cells for Customizing Major Weights



No.	Parameter	Sub Parameter	Reset Parameter Weights	Parameter Weight	Input (%)	Reset	Sub-Parameter Weight	Sub Parameter Score	Weighted Sub Parameter Score	Overall Score
I	Strategic Suitability			10%		Reset				5.00
	1	Alignment with government priorities			5		25%	5.00	1.25	
	2	Identification of service need			5		25%	5.00	1.25	
	3	Assessment of service delivery options			5		25%	5.00	1.25	
	4	Scoping of the project			5		25%	5.00	1.25	
II	Preliminary Feasibility			30%		Reset	100.00%			4.80
	1	Technical Prefeasibility			5		20%	5.00	1.00	
	2	Environmental Sustainability			0		10%	5.00	0.35	
	3	Social Sustainability			5		10%	4.50	0.45	
	4	Economic Prefeasibility			5		10%	5.00	0.50	
	5	Financial Prefeasibility			5		30%	5.00	1.50	
	6	Legal Prefeasibility			80		20%	5.00	1.00	
III	Risk Assessment			20%		Reset	100%			2.00
	1	Risk of delay in land acquisition			5		14%	5.00	0.71	
	2	Financing Risk			5		14%	5.00	0.71	
	3	Design and Construction Risk			5		14%	5.00	0.71	
	4	Operations and Maintenance Risk			5		14%	5.00	0.71	
	5	Market Risk and Demand Risk			5		14%	1.00	0.14	
	6	Off Taker Risk			30		14%	5.00	0.71	
	7	Not Applicable			10		0%	0.00	0.00	
	8	Environmental and Social Risk			20		14%	4.33	0.62	
IV	PPP Suitability			10%		Reset	100%			5.00
	1	Value for Money			5		60%	5.00	3.00	
	2	Market appetite			29		40%	5.00	2.00	
V	Fiscal Affordability			20%		Reset	100%			4.20
	1	Extent and Nature of Government Fiscal Support			5		40%	5.00	2.00	
	2	Quantification of Fiscal Support			41		60%	3.66	2.20	
VI	Institutional Capability			10%		Reset	100%			5.00
	1	Institutional Capacity			36		33%	5.00	1.67	
	2	Preparedness of the Contracting Agency for the Project			5		33%	5.00	1.67	
	3	Project Execution Capability of the Contracting Agency			6		33%	5.00	1.67	
							100%			

To modify the Parameter and Sub-parameter weights, the user shall use the following procedure:

Step 1. Access the Admin sheet (common step for Levels 3 and 4 customization).

Navigate to the Admin sheet and locate the table at B3:N34 in the Admin sheet.

Steps to Be Followed for Level 3 Customization: Altering Parameter Weights (Pw)

Step 2. Uncheck the Reset Parameter Weights button.

The Reset Parameter Weights checkbox ensures that the default set of Parameter weights is applicable on the Tool. Unchecking the yellow box in cell E3 allows modifications to the Parameter weights.

Step 3. Adjust Parameter weights.

Parameter weights can be modified by adjusting the scroll bar in column E for each Parameter row.

Step 4. View the applicable Parameter weight.

Following modification using the scroll bar, the new applicable weight can be viewed in column F of the Admin sheet for each Parameter.

The Climate Change Risk Exposure and Climate-Smart PPP Suitability Parameters do not have any Parameter weights associated with them. The scores of these Parameters modify select Sub-parameters in Strategic Suitability, Preliminary Feasibility, Risk Assessment, PPP Suitability, Fiscal Affordability and Institutional Capacity.

Steps to Be Followed for Level 4 Customization: Altering Sub-Parameter Weights (SPw)

Step 2. Uncheck the reset button for only the specific Sub-parameter in the first six Parameters (Strategic Suitability, Preliminary Feasibility, Risk Assessment, PPP Suitability, Fiscal Affordability and Institutional Capability) where the change is being made.

The Reset Weights button for each Sub-parameter in column N ensures that the default set of Sub-parameter weights is applicable. Uncheck the Reset Box to allow modifications to the Sub-parameter weights.

Step 3. Adjust Sub-parameter weights in the first six Parameters.

Unlike Parameter weights, which can range from 0 to 100 percent, Sub-parameter weights can only be altered from a minimum of 5 percent to a maximum of 80 percent, to ensure that customization does not result in reducing the significance of a Sub-parameter for screening. Weights can be inputted directly in column G of the sheet or using the scroll bar in column H to achieve the desired result.

Step 4. View the applicable Sub-parameter weight.

Following the modification using the scroll bar, the applicable weight can be viewed in column F of the Admin sheet for each Sub-parameter.

The PSAT 2.0 is precalibrated in such a way that the total weight of the Sub-parameter always adds up to 100 percent. No Sub-parameter would accept a weight of more than 80 percent or lower than 5 percent at any point. The upper limit of the weights of Sub-parameters is also dependent on the number of Sub-parameters within the Parameter. As the user uses the slider to change the weight of a Sub-parameter, the weights of the other Sub-parameters will be adjusted in such a way that the total weight of 100 percent is maintained at all times.

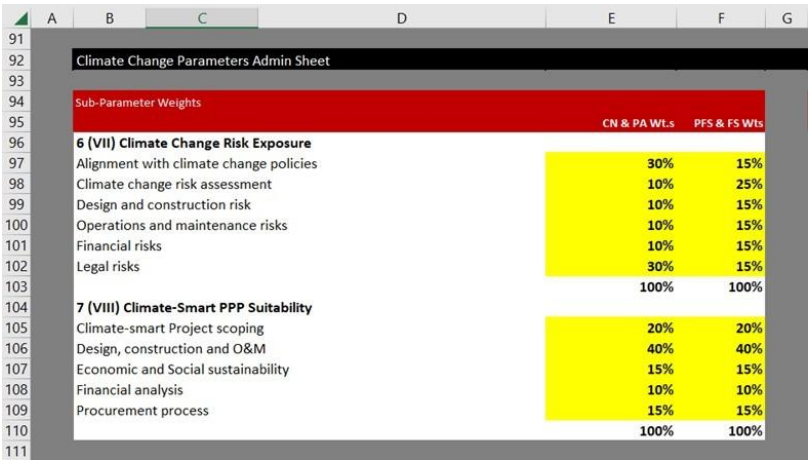
It is advisable not to alter the weights for the Sub-parameters in the Risk Assessment Parameter, as the weights for Market and Demand Risk, Offtaker Risk, and Foreign Exchange Risk are linked to decision trees. This makes it difficult to fix a weight, as it will vary from project to project.

Step 5. Adjust Climate Change Sub-parameter weight.

The Sub-parameter weights for the Climate Change Risk Exposure and Climate-Smart PPP Suitability Parameters can be modified in table B94:F110 in the Admin sheet. The PSAT 2.0 applies differential Sub-parameter weights based on the stage of project development, namely (1) Concept Note (CN) and Preliminary Assessment (PA) and (2) Pre-Feasibility Study (PFS) and Feasibility Study (FS).

The Sub-parameter weights can be altered by directly entering the required value in the yellow-shaded percentage cell corresponding to the Sub-parameter and stage of project development in E97:E109 (figure 43). The total of the Sub-parameter weights is displayed in rows 103 and 110. In the event the Parameter weight is either greater than or less than 100 percent, the total weight cell will be highlighted in red. Care should be taken to ensure that the set of weights always adds up to 100.

Figure 43. Cells for Customizing Climate Change Sub-parameter Weights

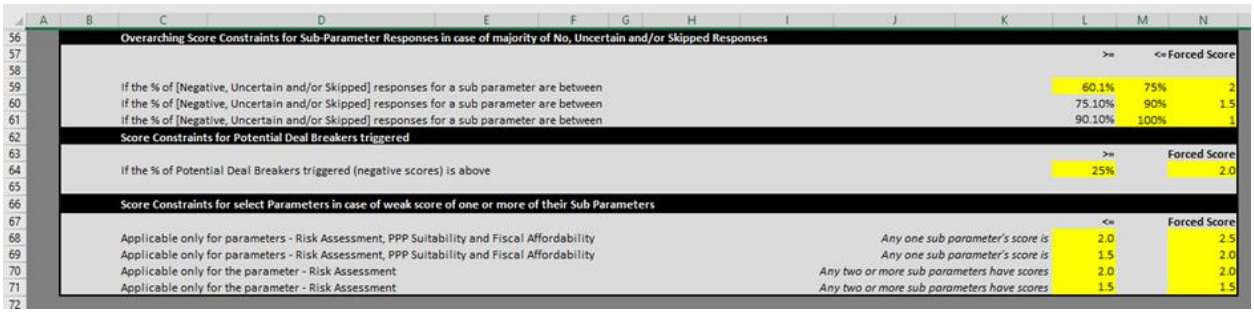


		CN & PA Wt.s	PFS & FS Wts
Climate Change Parameters Admin Sheet			
Sub-Parameter Weights			
6 (VII) Climate Change Risk Exposure			
Alignment with climate change policies		30%	15%
Climate change risk assessment		10%	25%
Design and construction risk		10%	15%
Operations and maintenance risks		10%	15%
Financial risks		10%	15%
Legal risks		30%	15%
		100%	100%
7 (VIII) Climate-Smart PPP Suitability			
Climate-smart Project scoping		20%	20%
Design, construction and O&M		40%	40%
Economic and Social sustainability		15%	15%
Financial analysis		10%	10%
Procurement process		15%	15%
		100%	100%

9.33 Customizing Constraints

The Admin sheet can be used for Level 5, Level 6, and Level 7 changes, allowing modification of default threshold limits applicable for constraints on the Sub-parameter, Parameter, and Overall score, respectively (figure 44).

Figure 44. Cells for Customizing Constraints



Overarching Score Constraints for Sub-Parameter Responses in case of majority of No, Uncertain and/or Skipped Responses					
			>=	<=	Forced Score
If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between			60.1%	75%	2
If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between			75.10%	90%	1.5
If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between			90.10%	100%	1
Score Constraints for Potential Deal Breakers triggered					
			>=		Forced Score
If the % of Potential Deal Breakers triggered (negative scores) is above			25%		2.0
Score Constraints for select Parameters in case of weak score of one or more of their Sub Parameters					
			<=		Forced Score
Applicable only for parameters - Risk Assessment, PPP Suitability and Fiscal Affordability		*Any one sub parameter's score is*	2.0		2.5
Applicable only for parameters - Risk Assessment, PPP Suitability and Fiscal Affordability		*Any one sub parameter's score is*	1.5		2.0
Applicable only for the parameter - Risk Assessment		*Any two or more sub parameters have scores*	2.0		2.0
Applicable only for the parameter - Risk Assessment		*Any two or more sub parameters have scores*	1.5		1.5

To modify the constraints, the user shall use the following procedure:

Step 1. Access the Admin sheet (common step for Levels 5, 6, and 7 customization).

Navigate to the Admin sheet and locate the three tables at B56:N71 in the Admin sheet.

Steps to Be Followed for Level 5 Customization: Altering Constraints for Sub-Parameter Score (Csp)

Step 2. Change the default values in the table at B66:N61.

- Enter the desired lower limit required to be set in cell L59.
- Enter the desired upper limit in the cell range M59:M6.
- Enter the desired forced score by inserting values in the yellow-colored cells N59:N61.

The cells for altering constrains for a Sub-parameter are displayed in figure 45. The user can refer to section 4.1.1 (Sub-Parameter Score Constraints) for the algorithm on how these constraints apply to the scores.

Figure 4545: Cells for Altering Sub-Parameter Constraints

	B	C	D	E	F	G	H	I	J	K	L	M	N
55													
56		**Overarching Score Constraints for Sub-Parameter Responses in case of majority of No, Uncertain and/or Skipped Responses**											
57												>=	<= Forced Score
58													
59		If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between									60.1%	75%	2
60		If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between									75.10%	90%	1.5
61		If the % of [Negative, Uncertain and/or Skipped] responses for a sub parameter are between									90.10%	100%	1

Steps to Be Followed for Level 6 Customization: Altering Constraints for a Parameter (Cp)

Level 6 customization applies to constraints on the Parameter scores for Risk Assessment, PPP Suitability, and Fiscal Affordability in two stages. The constraint is triggered and a forced score is applied as per the rule mentioned in table 10. The second stage gets triggered only for the Risk Assessment Parameter, and it applies over and above the first-stage trigger.

Table 10. Trigger Conditions for Constraining a Parameter Score

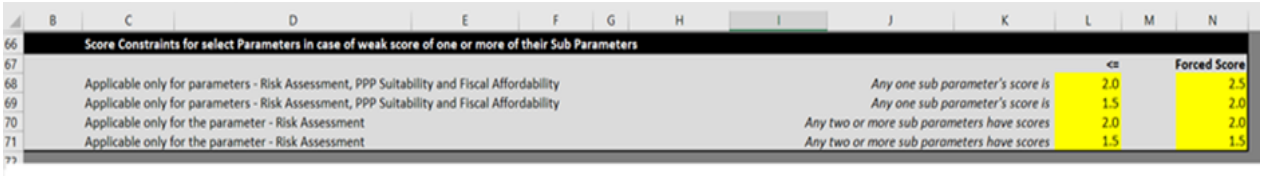
Stage	Applies to	Trigger condition – scores for Sub-parameters	Parameter score forced to
I	Risk Assessment, PPP Suitability, Fiscal Affordability *Refer to rows 68 and 69*	Any one Sub-parameter score below 2	2.5
		Any one Sub-parameter score below 1.5	2.0
II	Risk Assessment *Refer to rows 70 and 71*	Any two or more Sub-parameter scores below 2.0	2.0
		Any two or more Sub-parameter scores below 1.5	1.5

The user can change the threshold level at which the score constraint should be applicable as well as the forced score that is applicable upon breach of the threshold (figure 46). The modification can be done as follows:

Step 2. Change the default values in the table at B66:N71.

- Input the desired threshold range in cells L68:L71.
- Input the desired forced scores in yellow-colored cells N68:N71.

Figure 4646: Cells for Altering Parameter Constraints



	B	C	D	E	F	G	H	I	J	K	L	M	N
66		Score Constraints for select Parameters in case of weak score of one or more of their Sub Parameters											
67											<=		Forced Score
68		Applicable only for parameters - Risk Assessment, PPP Suitability and Fiscal Affordability								Any one sub parameter's score is	2.0		2.5
69		Applicable only for parameters - Risk Assessment, PPP Suitability and Fiscal Affordability								Any one sub parameter's score is	1.5		2.0
70		Applicable only for the parameter - Risk Assessment								Any two or more sub parameters have scores	2.0		2.0
71		Applicable only for the parameter - Risk Assessment								Any two or more sub parameters have scores	1.5		1.5

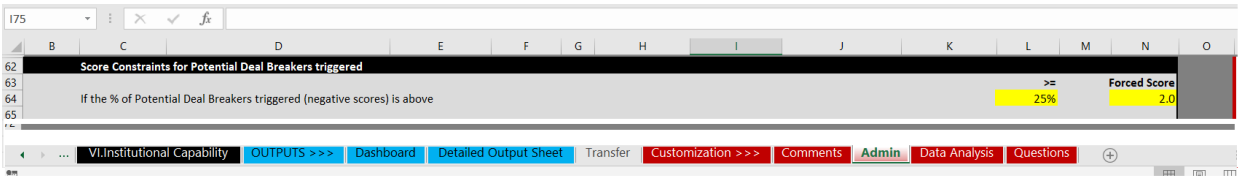
Level 7 Customization: Altering the Overall Score Constraint (Co)

The user can alter the threshold beyond which if an excessively higher number of potential Deal breakers are triggered, the Overall score would be constrained. Further, the user can modify the maximum forced project score when potential Deal breakers are triggered (figure 47). The modification can be done as follows:

Step 2. Change the default values.

- Enter the desired threshold value in cell L64.
- Enter the desired forced score in yellow-colored cell N64.

Figure 477: Cells for Altering Overall Score Constraints



9.34 Micro Customization

Level 8 and Level 9 customization involves changing the precalibrated individual question weights within the Sub-parameter and the default weights for the Complexity scores. The Data Analysis sheet is used for Level 8 and Level 9 customization.

Level 8 Customization: Alter Question Weights (Qw)

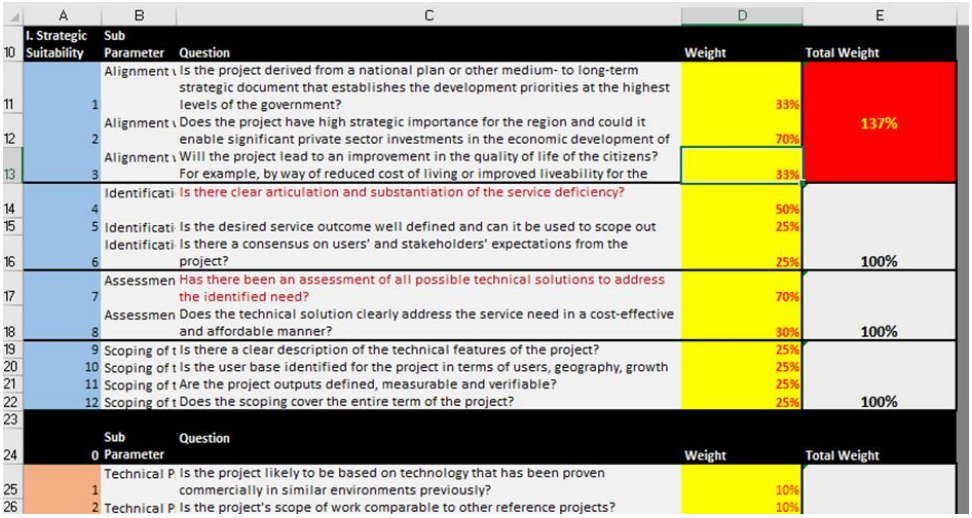
Step 1. Access the Data Analysis sheet.

Navigate to the Data Analysis sheet and locate the table at A8:E143 in the sheet

Step 2. Input the question weights.

The question weights can be altered by directly entering the required value in the yellow-shaded percentage cell corresponding to the question in D11:D143 (figure 48). The total of the Sub-parameter weight is displayed in column E. In the event the Sub-parameter weight is greater or less than 100 percent, the total weight cell displayed in column E will be highlighted in red, as seen in figure 47. Care should be taken to ensure that the weights set always add up to 100.

Figure 48. Cells for Altering Question Weights



	A	B	C	D	E
10	I. Strategic Suitability	Sub Parameter	Question	Weight	Total Weight
11	1	Alignment v	Is the project derived from a national plan or other medium- to long-term strategic document that establishes the development priorities at the highest levels of the government?	33%	137%
12	2	Alignment v	Does the project have high strategic importance for the region and could it enable significant private sector investments in the economic development of	70%	
13	3	Alignment v	Will the project lead to an improvement in the quality of life of the citizens? For example, by way of reduced cost of living or improved liveability for the	33%	
14	4	Identificati	Is there clear articulation and substantiation of the service deficiency?	50%	
15	5	Identificati	Is the desired service outcome well defined and can it be used to scope out	25%	
16	6	Identificati	Is there a consensus on users' and stakeholders' expectations from the project?	25%	100%
17	7	Assessmen	Has there been an assessment of all possible technical solutions to address the identified need?	70%	
18	8	Assessmen	Does the technical solution clearly address the service need in a cost-effective and affordable manner?	30%	100%
19	9	Scoping of t	Is there a clear description of the technical features of the project?	25%	
20	10	Scoping of t	Is the user base identified for the project in terms of users, geography, growth	25%	
21	11	Scoping of t	Are the project outputs defined, measurable and verifiable?	25%	
22	12	Scoping of t	Does the scoping cover the entire term of the project?	25%	100%
23					
24	0	Sub Parameter	Question	Weight	Total Weight
25	1	Technical P	Is the project likely to be based on technology that has been proven commercially in similar environments previously?	10%	
26	2	Technical P	Is the project's scope of work comparable to other reference projects?	10%	

Note: Question weights for Market and Demand Risk and Offtaker Risk cannot be modified, as they are linked to the percentage of availability payments in the total payment decision tree question in the revenue profile.

Level 9 Customization: Altering Complexity Score Weights

Step 1. Access the Data Analysis sheet.

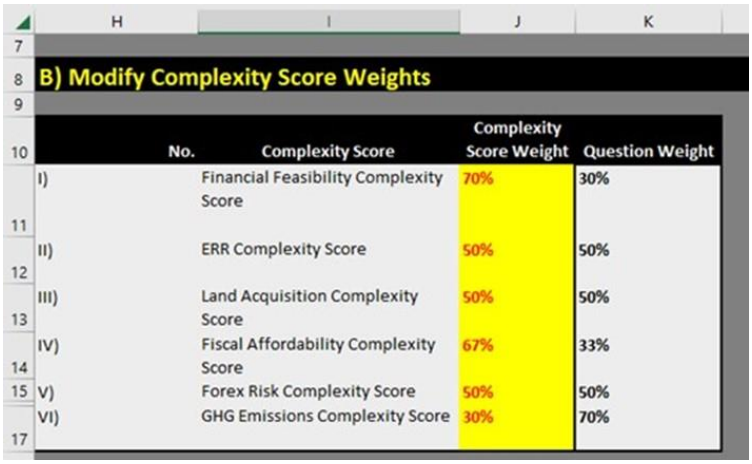
Navigate to the Data Analysis sheet and locate the table at H10:K17 in the sheet.

Step 2. Input the Complexity weights.

Input the desired weights in the yellow-shaded cells J11:J17.

The user can determine the split between the weights for the total Complexity score (quantitative score) and qualitative question weights by making changes in the yellow-colored cells in column J. The weights in column K will automatically be adjusted to reflect the balance weight. The total of column J and column K adds up to 100 percent (figure 49).

Figure 49. Cells for Altering Complexity Score Weights



B) Modify Complexity Score Weights

No.	Complexity Score	Complexity Score Weight	Question Weight
I)	Financial Feasibility Complexity Score	70%	30%
II)	ERR Complexity Score	50%	50%
III)	Land Acquisition Complexity Score	50%	50%
IV)	Fiscal Affordability Complexity Score	67%	33%
V)	Forex Risk Complexity Score	50%	50%
VI)	GHG Emissions Complexity Score	30%	70%

9.35 Things to Remember While Customizing the PSAT 2.0

The PSAT 2.0 provides the user the flexibility of customizing the PSAT 2.0 based on country-specific requirements. Customization must be undertaken only within yellow-shaded cells. In exceptional circumstances and under stress conditions, the PSAT 2.0 may give erratic results. Users should exercise caution during customization as follows:

Prerequisites and potential Deal breakers should be selected with care, as negative responses could potentially give a materially deficient score for the project.

Customization must be evaluated for any inconsistency by running the PSAT 2.0 multiple times.

The user should ensure that the sum of all the Parameter weights always equals 100 percent, and the individual Sub-parameter weights should be between 5 and 80 percent.

Note: Country governments intending to customize the PSAT 2.0 should do the following:

- Have a person who is reasonably proficient in Excel customize the PSAT 2.0.
- Undertake changes only in the yellow cells marked for customization without disturbing other cells.
- Document the changes for internal records.
- Issue a locked version of the PSAT 2.0 to users following customization.

6 Annexes

The following are the instructions to the user and explanatory notes mentioned in the Public-Private Partnerships Project Screening and Analytics Tool 2.0 (PSAT 2.0) for ready reference by the user.

9.36 Instructions to Users

Notes for Users	
A	To edit/create projects, use the options available in the main menu.
B	Thereafter, provide responses to questions for the following Parameters: I. Strategic Suitability II. Preliminary Feasibility III. Risk Assessment IV. PPP Suitability V. Fiscal Affordability VI. Institutional Capability VII. Climate Change Risk Exposure VIII. Climate-Smart PPP Suitability
C	The user shall respond to all questions in the questionnaire and the responses can be the following: 1) Yes: the user agrees with the statement. 2) No: the user disagrees with the statement. 3) Uncertain: the response to the statement is not a definite “no” and the user is unsure of it being a definite “yes.” 4) Skip: the statement applies to the project, but there is insufficient information to choose an informed response. 5) Not applicable (N/A): the statement does not apply to the project.
D	A “no” response to any of the Prerequisites in the Basic Project Data screen will trigger a warning to the user to reexamine. The Overall score on the Dashboard will stand reduced to zero, although specific Parameter scores would be available to the user to assess the project's strengths and weaknesses in the remaining areas. It is anticipated that this will help the user in anticipating issues and preparing a strategy or a path forward to resolving them.
E	Providing a “no,” “uncertain,” or “skip” response to several questions in a Sub-parameter will result in scores being restricted for the Sub-parameter. For example, a maximum score of 2 for 60-75 percent skipped responses; a maximum score of 1.5 for 75.1-90 percent skipped responses; and a maximum score of 1 for 90.1-100 percent skipped responses.
F	Questions marked in red-colored font are potential Deal breakers. Responding to these questions with a negative response beyond a threshold (or tolerance percentage, for example 25 percent) will result in the Overall Score being restricted to less than 2 . The scores will be prorated down for correspondingly higher numbers of potential Deal breakers triggered.

Notes for Users	
G	A combination of qualitative and quantitative scoring is used to arrive at the final score for some of the Sub-parameters. The quantitative scoring process for the Sub-parameter is activated when the user provides numerical information on the project in the Basic Project Data. The PSAT 2.0 will compute scores based only on the qualitative scoring process in cases when the numerical information is not provided in the Basic Project Data screen.
H	The results of the screening exercise can be viewed in the Dashboard and reports produced under the Report Generator options.
I	Explanatory notes can be accessed by clicking on the “Learn More (!)” option.
J	To customize the Tool, the user will need a password for accessing the embedded Excel sheets.

Disclaimer

The Public-Private Partnership (PPP) Project Screening and Analytics Tool (PSAT 2.0/Tool) is for preliminary screening of projects to determine their potential suitability for PPP procurement and climate change resilience. The PSAT 2.0 evaluates projects on qualitative and quantitative variables assuming a fair level of work has been done on the project, including but not limited to high-level or prefeasibility studies—technical, economic, financial, legal, social, and environmental and climate change analysis; site checks; fiscal and budget checks; political economy considerations; clear articulation of the need for the project; initial market checks; preliminary risk and climate change risk exposure analyses; qualitative value for money (VFM) check; and so on. The PSAT 2.0 does not substantiate the accuracy of the information provided by the user nor can the PSAT 2.0 replace a full-scale, detailed feasibility study. The Tool identifies the strength of a project to be undertaken as a PPP and supports analysis and prioritization of projects in the portfolio. The PSAT 2.0 provides a first level of assessment and gives the user an indication of whether the project can be evaluated in greater detail. A favorable score indicated by the PSAT 2.0 should be followed up with detailed studies. The PSAT 2.0 can also be used as a decision tool or checklist at the feasibility stage, that is, as an aid for deciding whether the project can be taken to tender.

9.37 Explanatory Notes: User Inputs in the Basic Project Data

	Section	Response Options
	Stage in Project Development	CN – Concept Note PA – Preliminary Analysis PFS – Prefeasibility Study FS – Feasibility Study
A	Project Profile	(i) **Construction, operation, and maintenance** for design-build-finance-operate-maintain, design-build-finance-maintain, design-build-operate-maintain, and public finance initiative types of projects. (ii) **Operation and maintenance** for projects that are already constructed and need to be operated and maintained. These are long-term management contracts or service contracts. (iii) **Construction** for design-build or design-build-finance types of projects that require only construction. Project size is the capital expenditure (capex) incurred on the project until the commissioning of the asset. Capex includes all engineering, procurement, and commissioning costs, plus soft costs like preliminary and preoperative expenses, provisions toward escalations and contingencies, financing expenses, and so forth. The cost of acquiring land is considered part of capex if the land is procured by the project company. The cost of land for the project can be excluded from the capex if the land is procured by a government agency and handed over to the project company free of cost, on lease, or on a concession/license fee for the project.
B	Prerequisite	These are essential conditions that need to be satisfied for proceeding with the project through the PPP procurement route. A "no" response to any of these conditions will trigger a warning, and the Overall project score will be restricted to zero. The user will need to address the issue before finalizing the PPP screening process. However, the user can continue with the evaluation and assess the project at the Parameter level. This will help the user to identify other areas for improvement in the project.
C	Revenue Profile	Choose any one of the three options that represents the revenue or income profile of the project during operations: (i) **User charges**, where project revenue is fully derived from tariffs paid by users or offtakers (ii) **Availability payments**, where project revenue is fully derived from government payments linked to the availability of the project facility, outputs, or capacity (iii) **Hybrid payments**, where project revenue is a combination of user charges and availability payments.

	Section	Response Options
		The user shall also provide the percentage share of availability payments to the total revenues of the project if this option is selected. The percentage is computed as (total availability payment / total revenues) x 100. Revenue or income from lease rentals, recurring income from commercial land exploitation rights, advertisement rights, and so forth can be considered as part of user charges. Indirect government support in the form of additional land exploitation rights, transfer of real estate development rights, and so forth that are of the nature of capital income can be excluded in the computation of revenue or income.
D	Government Support	Choose "yes" if the project requires government support. Government support is computed in net present value (NPV) terms as a percentage of the nominal gross domestic product (GDP) of the country. The numerator and denominator are in NPV. In terms of fiscal significance, the PSAT 2.0 considers projects with government commitments of less than 0.25 percent of nominal GDP as projects with moderate fiscal impact. Projects with government commitments of more than 0.50 percent of GDP are considered projects with high fiscal impact, which reduces the Fiscal Affordability score. Choose "yes" if the project provides upside benefits to the contracting authority and quantify the government support as a negative percentage. A negative percentage implies that the project provides revenues to the government. Examples include revenue share, concession fee, fixed annual payments, and so forth. The method for computation of benefits will be similar to the computation of direct commitments of government support, except the upside benefits will be inputted in negative percentage values. "Uncertain" response. The user will need to input 0 percent for direct commitments and contingent liabilities if the project requires government support and estimates have not been quantified yet. Then the Tool will evaluate based on the qualitative information provided by the user. Choose "no" if the project does not require government support. These are projects where user charge revenues are the main source of income for the project. **Direct commitments by the government.** These are payment commitments where the need for payment is known—these could include an upfront capital payment or regular payments over a specified period of the contract. Examples include upfront viability payments or viability gap financing, availability payments, output-based grants or unitary payments, public funding support, and so forth. Direct commitments by the government can be computed as (NPV of government payouts / NPV of nominal GDP for the corresponding period of government payouts) x 100. Example: the direct commitment as a percentage of GDP for an upfront viability payout over three years can be computed as NPV (P1, P2, P3) / NPV (G1, G2, G3) x

	Section	Response Options
		100, where P1, P2, and P3 are annual payouts and G1, G2, and G3 are the projected nominal GDPs for the years corresponding to the payouts. **Contingent liabilities.** These are obligations that arise from risk-specific assurances provided by the implementing agency or the government to assure the PPP project against certain unforeseen outcomes. Contingent liabilities arise from minimum revenue guarantees, foreign exchange guarantees, credit guarantees, inflation risk guarantees, counterparty payment guarantees, and others. The value and timing of the payment cannot be firmly ascertained, but it can be estimated based on risk assessment techniques. Contingent liabilities as a percentage of GDP can be computed as: NPV (P1, P2, P3… Pn) / NPV (G1, G2, G3… Gn) x 100, where P1, P2, P3… Pn are estimated risk assessed annual payouts and G1, G2, G3… Gn are the projected nominal GDPs for the years corresponding to the payouts.
E	Land Status	**Land requirement.** The user will provide information on the status of land required for the project. **Is there a need for land acquisition?** Select "yes," "no," or "uncertain." Choose "no" when the project does not need land. For example, it may be an operations and maintenance project or a refurbishment project that already has land. Choose "uncertain" when there is a need to acquire land but the details are not yet available. In this case, the analysis will only be based on the qualitative responses of the user. Choose "yes" when there is a need to acquire land and the details are available. Thereafter, (1) the user will need to indicate the estimate of the total area of land required for the project and the quantum of land that is presently available with the government for the project, and (2) the Tool will compute the remaining land to be acquired based on a formula. **Landowners and project-affected parties.** An indicative estimate of potential landowners that would be affected by the land acquisition and other project-affected parties needs to be provided by the user. The Tool will treat a figure of zero or blank as "uncertain" and thereafter the analysis would only be based on the qualitative responses of the user.

	Section	Response Options
F	Value-for-Money (VFM) Quantitative Assessment	VFM compares the proportion of risk-adjusted cost savings between a project that is delivered by the public sector, that is, a risk-adjusted public sector benchmark (PSB), as against the project delivery via a PPP. VFM percentage = ((cost of risk-adjusted PSB – cost of PPP) / cost of risk-adjusted PSB) x 100. Threshold VFM percentage is the minimum expectation of the government below which the government would be neutral if the project were taken up for delivery by the public sector or the private partner. Usually, this reference VFM is taken as 10 percent. Please input 0 percent in both cells if the user is uncertain or has not quantified the VFM. Then the Tool will ignore these values and deliver results based on qualitative VFM assessment.
G	Return Expectations	**Project internal rate of return (IRR) base case.** The project's financial IRR, which represents the overall returns to all project investors. It is usually taken from the most likely or base case scenario. **Project IRR (stress case).** The project IRR in the worst-case scenario. This is to gauge how the investor returns would be impacted if the project came under stress. Usually, stress scenarios are built by varying key assumptions related to macroeconomic and major project-specific variables that could have an adverse impact on the project cost, revenues, and operating costs. **Threshold project IRR.** A threshold reference rate below which the project is likely to be unviable. Usually, the threshold IRR is taken to be the percentage equal to the weighted average cost of capital for the project. **Minimum debt service coverage ratio (DSCR) base case.** The ability of the project cash flows to service debt obligations in any given year during the tenure of the debt in the project. Usually, the base case value is placed here. **Minimum DSCR (stress case).** The computation of minimum DSCR in the worst-case scenario. **Threshold minimum DSCR.** The minimum level DSCR that is expected by lenders in the base case scenario. **Economic IRR.** The economic rate of return of the project estimated after considering all costs and benefits from the project to the public. **Threshold economic IRR.** A threshold reference economic IRR rate that justifies the project as economically sustainable. Usually, the threshold economic IRR considered is 12 percent. **Uncertain response.** In case financial estimates are not available, please input 0 percent for IRR values and 0 for DSCR values. Similarly, input 0 percent for economic IRR values if preliminary estimates for economic returns are not available. The Tool shall then rely on qualitative analysis to evaluate the relevant Parameters.

	Section	Response Options
H	Foreign Exchange Risk Profile	Choose whether the project is exposed to foreign exchange risk or not, for example, if revenues are in local currency and capital investment service obligations are in foreign currency. Input the last five-year average depreciation of national currency vis-à-vis the benchmark foreign currency. Typically, the benchmark foreign currency is the foreign currency of expected financing. It could include U.S. dollars, euros, or British pounds, for example. In case financing is expected in a combination of foreign currencies, then the historical estimates based on a basket of currencies could be used.
I	Climate Change and Resilience Profile	Select the top five climate change events the proposed project location/site is exposed to from the options provided from high to low. An initial consideration of the project location for any infrastructure project is key to the project's climate change vulnerability and risk assessments. Accordingly, climate change adaptation measures for infrastructure projects need to be focused on ensuring a suitable level of resilience to the impacts of climate change, which includes expected acute events such as more intense floods, cloudbursts, droughts, heatwaves, extreme cold, wildfires, storms, landslides and hurricanes, as well as chronic events such as projected sea-level rise and changes in average precipitation, soil moisture and other physical and meteorological parameters that are used to assess the climate resilience of the project. There must be measures to ensure that the project includes a vulnerability assessment of neighboring economic and social structures. This could happen, for instance, if a project includes an embankment that could increase flood risk in the vicinity. Resources: https://thinkhazard.org/en/. https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en. https://publications.iadb.org/en/disaster-and-climate-change-risk-assessment-methodology-idb-projects-technical-reference-document. https://www.bbvaopenmind.com/en/science/environment/climate-change-trigger-earthquakes-tsunamis-volcanic-eruptions/. Du, S., Shi, P., Van Rompaey, A. and Wen, J. 2015. "Quantifying the impact of impervious surface location on flood peak discharge in urban areas." *Natural Hazards* 76: 1,457-1,471. https://doi.org/10.1007/s11069-014-1463-2.

	Section	Response Options
		Okon, I.E., et al. 2015. "Climate change and the challenges of flood mitigation in Calabar urban, south-south Nigeria." *International Journal of Ecology and Ecosolution* 2 (3): 41-48. 15-018.pdf
J	GHG Emissions Profile	Greenhouse gas (GHG) emissions from a project refers to the carbon emissions inventory attributed to project activities/operations during its lifespan. Increased release of carbon dioxide and other GHGs, primarily attributable to burning fossil fuels, has led to their increased concentration. This in turn has led to the greenhouse effect, which is potentially increasing earth's temperature at the surface and in the atmosphere, disrupting short-term weather patterns and causing long-term climate change. This can have several unintended consequences, such as flooding from excess rain in certain parts of the world, drought from lack of rain in others, ocean acidification, changing crops and crop production, and rising sea levels. Reducing the emission of GHGs now will help mitigate the effects of climate change in the future. GHG emissions inventories, including assessments and/or benchmarking of GHG emissions, are essential for understanding the carbon emissions throughout the life cycle of the project. They indicate what mitigation measures may need to applied to offset GHG emissions at each stage of a project's life cycle. A carbon offset is a reduction or removal of emissions of carbon dioxide or other greenhouse gases (e.g., through restoration of wetlands or the planting of trees) intended to compensate for emissions made elsewhere. Offsets are measured in tonnes of carbon dioxide-equivalent (CO2e). *For further descriptions of GHG inventories and calculations of CO2e, refer to Annex 6.3.*

9.38 Explanatory Notes: Parameters

Title	Explanation
I. Strategic Suitability	
Alignment with Government Priorities	The project's strategic importance and alignment with government priorities are assessed, as under: *Project derived from national plan or strategic documents.* These could be one or a combination of national, subnational, sectoral, and departmental plans and strategies that articulate the development priorities and provide the indicative nature of the project pipeline. Alternatively, projects could be identified through a needs analysis emanating from a policy or strategy document. For large projects, it is advisable that the project is part of a strategic document or plan, which would assure that the government's scarce resources are optimally deployed. *Strategic importance.* Herein, priority should be placed on projects that have the potential to transform a region, which could attract further private investments and lead to substantial economic development of the region. These could be projects that have a high economic multiplier effect in terms of income or investments. The region is defined as the area of influence of the project. The region can be a municipality for an urban water supply project, a hinterland for a port project, or an influence area served by an expressway project, and so forth. Typically, development of such projects may be a Prerequisite for other projects to develop (driver relationship). This could also include projects that have substantial forward and/or backward linkages with other projects. For example, a toll road or railway line project could improve connectivity to a port, thereby reducing logistics costs or enabling faster evacuation of cargo at the port and/or supporting port-based industries to an existing port facility. In such case, the sustenance of one project is closely linked to the development of the new project (linkage relationship). *Improvement in quality of life.* This question is used to assess the nature of the positive impact that a project has on the quality of life of users/citizens. This could be through reduced cost of living, facilitated by reduced cost of a service, such as mass transit that may reduce the cost of commuting and save time. A project could also substantially improve part of a citizen's life through a cleaner environment, such as a waste collection and treatment facility. The impact or outcome of the project can aid a practitioner in making comparative assessments to understand the importance of the project in a citizen's life, that is, livability.

Title	Explanation
Identification of Service Need	Infrastructure assets are enablers for the government to meet its service delivery obligations, and not an end in themselves. Hence, the user needs to identify what problem the project is trying to solve, or what service needs to be addressed by the project, while answering the questions. This highlights the gap between service need and present level of service delivery. Indicative examples of the existence of service deficiency include the following: (i) Only 50 percent of the city gets drinking water for six hours a day. (ii) Unaccounted-for water is 60 percent. (iii) There is traffic congestion. (iv) Travel time from point A to point B has doubled in the past 10 years. This is the service outcome expected from a project. The outcome is the effect of the project on the community and helps define the scope of the project. For example, the project could target one or a combination of service outcomes, such as: (i) Provide 100 percent connectivity to all users. (ii) Achieve at least 80 percent collections. (iii) Meet specified quality standards, such as 24x7 water supply of specified health standards and water pressure. (iv) Reduce average travel time from point A to point B to 15 minutes. It is a good practice to consult prospective users and key stakeholders while preparing a project. This will ensure that the user needs are well reflected in defining the service needs to be addressed by the project, as well as specifying the desired service outcomes and then cross-checking whether the proposed service outcomes will indeed meet user needs.
Assessment of Service Delivery Options	There may be a range of technical solutions available for addressing the service need. The technical solutions may include any one or a combination of the following options: (i) *Existing asset options.* Consideration should be given to whether existing assets held by the government can be used. This may involve rehabilitation, renewal, enhancement, replacement, adaptation, or reconfiguration of assets. (ii) *Non-asset options.* Service needs may be met without creating additional assets by reconfiguring the means of service delivery, developing initiatives to manage demand more effectively, or better utilization of existing assets. (iii) *New asset-based options.* New investment in assets may be developed. In practice, all options for addressing the service need are analyzed. The assessment should factor in the ability of the option to meet the service need in terms of capacity,

Title	Explanation
	service improvements delivered, time horizon, and life-cycle costs. Thereafter, a best fit solution is arrived at that could be a combination of the options listed here.
Scope of the Project	This is the project's description, in technical terms, including a detailed description and requirements for the most important aspects of the project. The scope of a project needs to define the technical outputs expected from the project, the market services expected in the location/geography, the users to be serviced, and so forth. It needs to cover the life of the project, from the construction of the project to its operations and maintenance requirements, measurable and verifiable outputs at each stage of the project, and so forth. Output is defined as a measure of services of the project; it addresses the service deficiency and the desired outcome of the project. A well-scoped project is clearly articulated, unambiguous, and not subject to multiple interpretations of the expectations from the project.
II. Preliminary Feasibility	
Technical Prefeasibility	This covers a preliminary assessment to gauge whether the project can be technically delivered in an efficient and effective manner to achieve the project outputs. It will include an early analysis of the project scope, technical design requirements, performance requirements, site issues, cost estimates, and related preparatory works. All available information relating to the engineering design and technical execution aspects of the project should be analyzed. Typically, the following aspects will be covered in a technical prefeasibility: • Appropriateness of the technology • Comparison of the scope of the project with other similar projects • Assessment of the completeness of the project cost estimates vis-à-vis the project delivery and output specification requirements • Analysis of life-cycle costs for major project components, whether reasonable and affordable • Site suitability based on geotechnical requirements, project requirements, and regulatory risks • Site accessibility from the perspective of construction management, for example, assessing the availability of borrow earth/aggregates, site for pre-casting structural components, site flexibility to manage construction in brownfield projects, and so forth • Availability of skilled workers for construction, operations, and maintenance of the project. **Clarifications on questions raised**

Title	Explanation
	1. *Well-established technology.* The intent is to prefer technologies that are in wide use and have a proven track record of success in similar projects and regions or terrains similar to the one related to this project. Untested and new technologies would potentially pose a greater risk to the project. 2. *Comparability of the project's scope of work to similar projects.* This relates to the tasks and outputs to be delivered under the project in terms of physical works, facilities, infrastructure, and services, and in compliance with specified and applicable performance levels and standards. The question seeks to ascertain whether the scope of work of the proposed project is similar to those of other similar projects (preferably within the country or region). 3. *Output specifications.* These relate to the consistency between the project's deliverables in terms of the project's physical works, facilities, and services with the technical cost estimates for such output specifications. 4. *Life-cycle costs* relate to all costs that the project will incur throughout its life, from the development, construction, operations, and exit phases (as applicable to the particular PPP format). This typically includes not only capital expenditure, but also operating period expenses and termination and exit phase costs. 5. *Site suitability* relates to the assessment of the site from the project's location standpoint and its suitability in terms of the project's requirements during the design, construction, operations, and maintenance phases. 6. *Site accessibility* during construction is critical, especially if the project is located in a remote area. There are challenges in relation to transportation and movement of construction equipment, material, and people. Remoteness of a site can substantially increase the construction cost and might make the project financials unviable or unsustainable due to site-related challenges.
Environmental Sustainability	At this stage, a preliminary analysis of environmental aspects will include an understanding of the project's impact on key environmental aspects, environmental scoping, outlining environmental management work plans for downstream activities, and other related works that would feed into a comprehensive environmental impact assessment that would be undertaken at the detailed engineering and design stage. For example, in the case of World Bank safeguard policies, one or more of the following policies may be triggered in a PPP project: (i) Environmental assessment (OP/BP[3] 4.01) (ii) Natural habitats (OP/BP 4.04) (iii) Pest management (OP 4.09) (iv) Physical cultural resources (OP 4.11)

[3] World Bank Operational Policy (OP)/Bank Procedure (BP).

Title	Explanation
	(v) Involuntary resettlement (OP/BP 4.12) (vi) Indigenous peoples (OP 4.10) (vii) Safety of dams (OP/BP 4.37). In addition, national or international standards on labor and occupational health and safety may be applicable. These studies are an initial analysis of positive and negative impacts of the project during construction and operations, as applicable. Any potential negative impact on the environment, especially on natural resources such as bodies of water or protected land such as forests, and impact on air, including potential unmanageable emissions, must be identified early. Delays with respect to obtaining forest, environmental, and wildlife clearances and so forth from the respective departments should also be factored in, as they may lead to significant delays during the implementation stage. Environmental prefeasibility is particularly critical in the case of development of power plants based on conventional fuels, setting up ports to handle hazardous or chemical cargo, or industrial parks or waste treatment facilities.
Social Sustainability	Although a comprehensive social impact assessment is advisable at the feasibility study and detailed engineering design stage, at this stage a preliminary analysis of social aspects is suggested. The preliminary social analysis could include early identification of the project's influence area and the people who will be affected by the project. It is suggested that the project adopt international standards on social impact assessment and management, such as those of the World Bank and International Finance Corporation. These international standards espouse a wider definition of project-affected parties and stakeholders, and measures to mitigate potential negative social impacts and encourage greater integration of communities in project design. It should be assessed whether the project will result in displacement of people, loss of livelihoods of a section of society, or an economic impact that will change people's quality of life (this can be positive or negative). Social impact mitigation may include rehabilitation and resettlement for people affected by the project. Interventions to protect social impacts should (i) Be informed and must take into account the key relevant social issues (ii) Incorporate a participation strategy for involving a wide range of stakeholders. Such social safeguard measures could be part of the contractual obligations of the concessionaire or part of the project preparatory works for the contracting agency. The preliminary social assessment would need to assess the support of the affected communities and other key stakeholders for the project, based on consultations, political support, and/or support for such project initiatives in the past.

Title	Explanation
	The assessment will need to conclude on a preliminary social management strategy that is sufficiently detailed, provide information on the approvals required, and comment on the timelines for obtaining such approvals.
Economic Prefeasibility	Economic analysis is a cost-benefit analysis of the project that seeks to quantify the net benefits for society after factoring in all the direct and indirect costs of the project. It is a key metric for the public sector to decide whether to proceed with a project or not. This is done with a long-term perspective, projecting costs and benefits through the analysis period. The period considered must be in line with the useful economic life of the infrastructure asset. The review should conclude on the completeness of the costs and benefits from the project, the reasonableness of the assumptions for the direct and indirect costs and benefits, and whether the project is economically sound with an economic internal rate of return (eIRR) that is greater than the government's threshold eIRR.
Financial Prefeasibility	A preliminary financial analysis is designed to give an early indication of a project's potential financial viability. The analysis covers projected income, expenses, and cash flows over the project life cycle. The cash flow takes into consideration all capital funding, capital expenditure, income and operational expenses, and debt servicing and investor returns. A project is considered feasible if the benchmark metrics are considered above their thresholds on a sustained basis (such as the project's internal rate of return and debt service coverage ratio) and in multiple scenario analysis (typically, three to five scenarios should be developed with realistic variations of key assumptions). An important factor in the analysis is the source of project revenue, such as user charges, availability payments, or a hybrid (a combination of user charges and availability payments). In each of the cases, the revenue projections need to be backed by realistic assumptions, preferably based on historical data and independent studies. Care should be taken to ensure that overoptimistic growth rates are not considered while making projections over the long term. In the case of user charges, the revenue assessment will need to be backed by demand studies. The affordability of user charges could be assessed from willingness-to-pay surveys. In the case of availability payments, the assessment needs to cover the ability of the counterparty to make payments and the arrangements within the counterparty to ensure that payments can be made on a sustainable basis. The financing assumptions for the project will need to be realistic and supported by evidence based on the country's experience with funding similar infrastructure projects in the past. The debt-to-equity ratio, interest rates, debt tenure assumptions, cost of

Title	Explanation
	equity, and so forth would need to be benchmarked to similar projects that have achieved financial closure in the recent past.
Legal Prefeasibility	At this stage, a basic level of legal analysis is recommended. The assessment will need to cover the legal feasibility of sources of revenue for the project, enforcement of lenders' rights, foreign exchange restrictions that may affect the financing of the project, and so forth. In the case of user charges, the prefeasibility will need to assess whether user charges can be levied by the PPP operator and assess regulatory frameworks or proposed contractual frameworks that provide a basis for tariff setting and periodic reviews. For availability payment types of projects, the prefeasibility will need to assess the modalities for assuring payments by the contracting agency through dedicating revenues to service the payment obligations. Assess legislation and guidelines related to enforcement of lenders' rights of substitution, step-in rights, and other recourse to lenders to recover their outstanding loan in the event of default. Assess if there are any restrictions to attracting foreign investment for the project in the form of debt and equity and repatriation of returns to equity investors outside the country. The assessment will need to conclude on the preliminary legal feasibility for the project; identify legal barriers, if any; and recommend a plan to address these barriers through appropriate executive action or legislative reforms.
III. Risk Assessment	
Risk of Delay in Land Acquisition	This refers to the risk that the project site will be unavailable or unable to be used within the required time or in the manner or cost anticipated, or the site will generate unanticipated liabilities due to existing encumbrances and native claims being made on it. The assessment will need to form an understanding on the land-related risks with respect to the quantum of land to be acquired, the legislative preparedness of the procuring agency to acquire land, budget availability to pay for the acquisition, and so forth. The assessment will also cover risks related to the nature of land being acquired with respect to resettlement of existing landowners, protected or notified lands, forest or eco-sensitive lands, and so forth. The assessment will need to assess the preparedness of the contracting authority to provide 100 percent unencumbered land for the project in a timely manner.

Title	Explanation
Financing Risk	This refers to the risk that sufficient finance will not be available for the project at reasonable cost (for example, due to changes in market conditions or credit availability), resulting in delays in a project's financial closure. This will cover an assessment of financial closure of similar projects in the country or region, financiers who may be interested in PPPs, and appraisal of other potential factors that may delay or impact raising finances for the project in a timely manner.
Design and Construction Risk	*Design Risk.* This refers to the risk that the proposed design will be unable to meet the performance and service requirements mentioned in the output specification. It can result in additional costs for modification and redesign. *Construction Risk.* This refers to the risk that the construction of assets required for the project will not be completed on time, budget, or to specification. It may lead to additional raw material and labor costs, as well as increase in the cost of maintaining existing infrastructure or providing a temporary alternative solution in case of delay in provision of the service. This will cover an assessment of technology risks, site-specific risks and construction challenges thereof, and sourcing of skills for constructing and operating the project. It includes the ability of the private sector partner to manage efficiently the design, construction, and commissioning risks by allowing engineering procurement and construction (EPC), equipment suppliers, or equivalent arrangements wherein EPC (or similar contractors) will take on cost, schedule, and performance risk through a "date-certain," fixed-price lump sum, turnkey contract. It also includes the ability of the private sector to include a strong system of safeguards, incentives, and liabilities to manage contractor and subcontractor performance, as well as an adequate warranty and defects liability period to manage any construction-related challenges.
Operations and Maintenance Risk	This refers to risks associated with the need for increased operations and maintenance (O&M) costs over the term of the project to meet performance requirements. This will cover an assessment of the O&M scope of the PPP, that is, whether it is clearly defined, with output standards that are clearly measurable and verifiable; sourcing of skills for managing O&M; and the ability of the PPP to manage this risk through back-to-back arrangements in O&M contracts and warranties on the performance of subcontractors.
Market and Demand Risk	This refers to the risk that demand for a service will vary from the level that was initially projected, such that the total revenue derived from the project over the project term will vary from initial expectations. Demand or usage risk emanates from optimism bias in traffic or income projections and two possible situations: (1) delay in ramp-up of usage

Title	Explanation
	or demand, or (2) usage or demand levels remaining well below project estimates over a long period of time. There could be several underlying reasons for these situations to come up, such as a general economic downturn, competition within the sector and beyond, changes in target market composition or demographics, technical obsolescence or innovation, and shifts in industry activity or focus. These should be critically examined while projecting usage volumes and revenues. This risk is at the heart of user-pay structures and should generally be borne by the private party, with adequate government support measures to address extreme situations.
Offtaker Risk	This refers to the risk where payments are to be received from government counterparties, such as availability payments or output-linked payments. The risk of timely and adequate payments is driven by the creditworthiness and financial position of the government counterparty. The credibility of the government agency to make payments as per the contract and on time is assessed here. Any payment mechanism by the government should be supported by identified income sources or budget line provisions; the private sector partner needs to be assured of the availability of funds with the government counterparty to make payments. This will also cover assessment of creditworthiness of the government counterparty reflected through sovereign credit ratings, debt-to-GDP ratios, debt service to revenue income, and so forth. Often lenders require putting in place an adequate liquidity and payment security mechanism, such as provisions to create a debt service reserve account, escrow arrangements, payment guarantees or sovereign guarantees, letters of credit, and similar credit enhancement arrangements.
Foreign Exchange Risk	This refers to the risk that could arise from increased payment obligations for the PPP due to depreciation of the local currency vis-à-vis the foreign currency deployed to fund the capital and revenue expenditures for the project. The assessment will cover foreign currency payment obligations of the project toward interest payments and repayment of foreign debt, and imports of raw materials for the project from international markets, such as imports of coal, gas, fuel for power projects, and so forth. The mitigation measures to manage the risk could include hedging the risks through forward contracts or options on payment obligations, assessment of the mix of foreign exchange and local currency earnings from the project, and availability of foreign exchange guarantees from the contracting authorities to mitigate this risk.

Title	Explanation
Environmental and Social Risk	Environmental and Social Risk refers to the risks being borne by the project on account of environmental and social impact management. The risk could result in negative outcomes for the environment or society and increase the unanticipated costs for the project company. Primarily, this risk is a design and construction phase risk and should generally be borne by the private partner. A notable exception is preexisting contamination. When there has been an existing operation, the government usually accepts responsibility for preexisting environmental problems (for example, site contamination for a power plant or waste dump). Environmental risks may also affect the O&M phase with increased management costs (for example, noncompliance with environmental legislation that is detected during operations or changes in environmental law). Social risks are related to issues of project-affected people. While a detailed environmental and social impact assessment will be expected at the detailed design and engineering stage, it is recommended that an early-stage analysis of potential environmental and social impact issues should be undertaken during the preliminary analysis stage, preferably as per international performance standards (please refer to the Preliminary Feasibility section). In addition, there should be suitable contractual provisions to manage preexisting environmental and social risks, and any unexpected factors.
IV. PPP Suitability	
Value for Money	A PPP represents VFM, implying cost savings enjoyed by the public sector on a whole-of-life-cycle basis. VFM would include qualitative and quantitative approaches to assess a range of project outcomes not only in terms of price, but also increased benefits to the end-users, greater certainty of the financial outcome, assets and services delivered at a specified level, and consideration of long-term service needs. *Drivers of VFM.* Several qualitative factors contribute to VFM, including the following: • *Project scale.* A large project can potentially lead to economies of scale. • *Longer project duration.* This provides an opportunity for the private sector to manage costs optimally and recoup its investments. • *Adequate integration of services.* This provides greater incentive for the private sector to have a longer-term view on service delivery, optimize costs, and benefit from efficiency gains. The idea is not to encourage full integration, but rather an adequate level of integration that optimizes the whole-of-life-cycle costs. For example, under the United Kingdom's Private Finance 2, certain auxiliary services (soft services: cleaning, catering, pest control, laundry, and mail; other common services: information and communications services, telephony, receptionist, health, and safety) have now been

Title	Explanation
	excluded from public finance initiative contracts on the grounds that they were being costed at rates much higher than what the public sector was procuring under traditional public procurement. Hence, the notion of an "adequate" level of integration as against full integration is understood to be more beneficial. More information on Private Finance 2 can be accessed at https://www.gov.uk/government/publications/private-finance-2-pf2. • *Opportunities for cost reduction.* It is expected that the private sector has better asset management skills than the public sector and is well-incentivized to realize efficiency gains from operating assets. • *Opportunities for increasing revenue generation.* It is expected that the private sector will have better marketing skills for efficiently increasing asset utilization and asset realization by increasing the usage of the facility and also exploring alternative revenue sources. • *Linking remuneration to the private sector to performance on measurable and verifiable outputs.* Quantitative VFM analysis should seek to quantify the incremental net benefit over costs vis-à-vis private sector delivery and risk-adjusted public sector delivery. VFM compares the proportion of cost savings between a project that is delivered by the public sector, that is, a risk-adjusted PSB, with project delivery via a PPP. The VFM percent = (cost of risk-adjusted PSB – cost of PPP) / cost of risk-adjusted PSB. The quantitative VFM assessment will need to be supported by assumptions that are realistic and reasonable. It is a good practice to benchmark assumptions and data for VFM analysis with outcomes on similar projects that were implemented in the past. *Scenario analysis for VFM.* Given that there is high uncertainty in relation to the basic assumptions, often practitioners conduct simulations and scenario analysis to generate different ranges of outcomes based on changes in assumptions, to examine whether there is VFM above the threshold VFM percentage in the stress case scenarios. The threshold VFM percentage is the minimum expectation of the government below which the government would be neutral if the project were taken up for delivery by the public sector or the private partner. Usually, this reference VFM is taken as 10 percent. The approach to structuring a project should be to look at an optimal VFM that the private sector can provide. These VFM solutions could emerge through permutations and combinations of project scope, the qualitative factors mentioned above, and quantitative VFM analysis, without a bias toward a particular form of delivery.
Market Appetite	An effective market sounding exercise provides an opportunity for a structured dialogue between the private and public sectors in the early stages of the PPP process. This not only tests the viability of the project's details, but also elicits feedback on how aspects of

Title	Explanation
	the project should be defined to ensure private sector participation and foster competition. The prefeasibility exercise should capture the potential investor's perspective of the project, the private sector's value drivers, and the main financial and operational constraints companies might face during the provision of the infrastructure and services.
V. Fiscal Affordability	
Extent and Nature of Government Support	Fiscal commitments for PPP projects are the government's obligations to make payments to the private sector, constituting the whole or part of the remuneration of the private party, a means to share risk, or a combination of the two. Typically, fiscal commitments may be required to: (1) make PPP projects viable, when economically viable projects are not financially viable at an affordable level of user charges alone, or where user charging may not be desirable or practical; and (2) achieve an appropriate risk allocation, by ensuring that each party bears the project risks they are best able to manage efficiently. Allocating too much risk to the private party may make it expensive or impossible to raise finance. Unless these commitments are managed well, the potential advantages of a PPP can be eroded, and the government can risk building up significant fiscal exposure. On the one hand, uncertain payment obligations expose the government to fiscal risk that can create budgetary uncertainty and may put public debt on an unsustainable path. On the other hand, uncertainty among private partners as to whether the government will be able to honor its commitments promptly can undermine the VFM created by allocating risks well. Fiscal commitments can take the form of direct or contingent liabilities. Direct liabilities or direct commitments are those where the need for payment is known. These could include an upfront capital payment or regular payments (such as availability payments or operational subsidies) over a specified period of the contract. Contingent liabilities or guarantees are those for which payment is needed only if some uncertain future event or circumstance occurs, so the occurrence, value, and timing of a payment may all be unknown when the government takes on the obligation. Collectively, they are termed as fiscal commitments and constitute a form of government support measures. The process of analysis to assess the extent of fiscal support from the government would include the following: • A Preliminary Feasibility study (PFS) would recommend that the project requires specified fiscal commitments to make it financially viable and potentially bankable.

Title	Explanation
	• The PFS considers all options to increase efficiency in project scoping and that there is no further reduction possible, that is, to ascertain that the same level of service delivery needs cannot be met with a reduced scope and scale of the project. • The PFS adequately examines all options to increase project revenues through user charges and/or third-party revenue sources that would be socially and economically acceptable to the users and the government. • The PFS includes an independent assessment of market demand, including comprehensive justification of major assumptions and key findings, and the project revenues are considered realistic. • The PFS considers all areas to optimize capital and operating costs and establishes a strong case for their reasonableness. • The PFS recommends optimal risk-sharing between the government, implementing agency, and investor(s). • The PFS concludes that the project is likely to be technically, legally, financially, environmentally, and socially feasible and bankable, with the desired level of fiscal commitments. When a project goes into tender, the direct fiscal support required from the government is made the bid variable for the project, while keeping all the other project Parameters fixed. This ensures that there is competitive pressure in market determination of government support for the project. For example, India's viability gap financing policy requires that the viability gap financing support required for the project is the bid variable, and the bidder quoting the lowest viability gap financing support is selected as the preferred bidder.
Quantification of Fiscal Support	With respect to direct commitments, the typical metrics include projections of multi-year payments and aggregations in terms of nominal and present value, computed at an appropriate discount rate (typically, the government's cost of funds). Budgetary ceilings are limits on exposure to direct and indirect fiscal commitments to PPPs that governments impose to restrict their fiscal exposure to PPPs. Depending on the nature of the fiscal commitments that the government seeks to provide, different ceilings could be established. For example, if payments are in the form of cash subventions during the construction period or for a prespecified number of early years, the government could consider an absolute ceiling amount, specified in applicable currency over aggregate payments to be made for respective planning periods (this could be consistent with, say, a Medium-Term Expenditure Framework period of three to five years or a public investment planning period, which is usually five to seven years) and subsequent periods, as applicable to the overall duration of the fiscal commitments tenure. Some governments prefer to limit annual payments to a percentage of government expenditure or a Medium-Term Expenditure Framework planning period

Title	Explanation
	(the sum of annual payments ≤ a specified percentage of government expenditure over the same period). In the case of guarantees or contingent liabilities (arising from nontermination events), some governments prefer placing a ceiling on maximum annual payments or maximum estimated annual payments linked as a percentage of GDP (a maximum estimated or absolute annual payment less than or equal to a percentage of GDP or as a percentage of government expenditure or public debt). The fiscal significance has been defined as 0.25 percent of the nominal GDP. This input assumption can be changed based on the government's acceptance of risk exposure. Usually, any event that has a potential impact is considered as 0.5 percent; those exceeding 1 percent would be considered high.
VI. Institutional Capability	
Institutional Capacity	The institutional capacity of the government refers to the capacity of the contracting agency to develop and manage the project PPP. To develop a PPP successfully, the contracting agency needs to have personnel in its departments with the capability to manage a PPP, and available for deployment on the project on a dedicated basis. Departments with experience in executing PPPs would be at an obvious advantage, provided that learning from past PPPs has been incorporated into the current project and the right personnel have been chosen for the project. The focal person for PPP refers to an officer from the department or an advisor appointed by the contracting authority to support them on the project PPP. It is expected that this person has capabilities in the area of PPPs and has executed similar projects in the past. This person may have an advisory role in the project or may be a senior officer with substantial decision-making powers to guide the process. Appointing transaction advisors to manage the PPP process is a good practice. Transaction advisors conduct prefeasibility and feasibility studies, structure a project PPP, and support the contracting agency in the procurement process and thereafter in contract negotiations.
Preparedness of the Contracting Agency	Project preparedness is the amount of rigor put in by the contracting agency to think through the entire project development phase, leading to procurement of the private sector partner and signing of the contract. At a high level, it could include a road map with timelines and identified responsibilities to manage the process. The plan should preferably include subplans for major project items like environmental approvals, communication strategies and plans, social impact mitigation measures, and land acquisition. Adequate funding allocated to these activities

Title	Explanation
	also indicates a high level of preparedness and intent of the contracting agency to go ahead with the PPP procurement. The contracting agency should be aware of the licenses, permits, approvals, and so forth that are required for undertaking the project, and should identify the concerned departments and agencies responsible for providing these permissions and approvals.
Project Execution Capability of the Contracting Agency	Project execution capability refers to the capability of the contracting agency to develop, operate, and maintain the project on its own through the normal procurement route. This indicates whether the agency has the full range of skills with a department to execute such projects. This is especially important in the context of social sector projects like hospitals, sports, and education facilities; contracting agency officers are mostly adept in operating these facilities but lack skills in constructing them. Understanding the skill gaps, supplementing them through secondment from other departments, and appointing advisors would help in effective project execution.
VII. Climate Change Risk Exposure	
Alignment With Climate Change Policies	The project's alignment with climate change policies is assessed with the following: • *Sustainable Development Goals (SDGs).* The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the 21st Conference of the Parties (COP 21) in Paris on December 12, 2015, and entered into force on November 4, 2016. Its goal is to limit global warming to well below 2 (and preferably to 1.5) degrees Celsius, compared to pre-industrial levels. It covers climate change mitigation, adaptation, and finance. • *Nationally Determined Contributions (NDCs).* These non-binding national plans highlight climate change mitigation, including climate-related targets for greenhouse gas emissions reductions, policies and measures that governments aim to implement in response to climate change and as a contribution to achieving the global targets set out in the Paris Agreement. • *The National Adaptation Plan (NAP).* This helps countries conduct comprehensive medium- and long-term climate adaptation planning. It is a flexible process that builds on each country's existing adaptation activities and helps integrate climate change into national decision-making. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.

Title	Explanation
Climate Change Risk Assessment	Climate Change Risk Assessment builds the foundation for a comprehensive climate risk management by identifying the nature and extent to which climate change and its impacts may harm a project or community. Quantifying and assessing climate risk, i.e. the result of the interaction of vulnerability, exposure and hazard, is important to support decision-making and forward-looking planning. Thus, the identification of current and future key risks and impacts on assets and ecosystems can help to design mitigation/adaptation strategies.
Design and Construction Risk	Acute climate change events need to be considered while designing and constructing an infrastructure project. The most significant climate change factors that may affect the design and construction of such projects include air temperature; soil temperature; angle and intensity of sunlight; relative humidity; direction and speed of wind; rainfall/ flooding; hurricanes; landslides; and earthquakes. Another significant aspect to consider is the availability of requisite skills and/or technologies relevant to the design and construction of project components with respect to climate change adaptation and/or mitigation measures. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Operations and Maintenance Risks	Climate change effects are predicted to be random, extreme, and of sustained duration during this unprecedented era in human civilization. Continuous feedback loops during the project life cycle with respect to such factors as emissions, extreme weather events, and resilience are important to adapt to climate change. The necessary skillsets and tools shall be available to proponents of the PPP Infrastructure to make decisions on the corrective actions required to maintain the integrity of the project and future proof their investment. Operation and maintenance of the project assets and services in relation to climate change events is going to depend on evolving technologies and skillsets, whose availability must be assessed. It must also be confirmed whether a project's O&M regime will incorporate the CCVA to ensure the project's resiliency to climate change events. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Financial Risks	Climate change adaptation/mitigation measures may affect a project's financial viability as these measures can be expensive and may increase overall project costs. A range of multilateral, bilateral and other climate funds exist for which the project may be eligible for financing or funding. Different eligibility criteria apply and projects must be screened

Title	Explanation
	to match with a suitable fund/instrument. Also, depending on the project, it needs to be assessed whether applicable insurance instruments might be available to the project for adverse climate change events that occur during its lifespan. The project should also be screened to determine whether the government will be able to absorb contingent liabilities that may arise from climate change-related adverse events. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Legal Risks	Legal risks related to climate change are any risks arising from increased financial and operational costs of doing project as a result of new or upcoming climate policy, regulation or carbon pricing.
VIII. Climate-Smart PPP Suitability	
Climate-Smart Project Scoping	This involves assessing whether a project's scope of work includes climate change adaptation measures, including any possible and applicable nature-based solutions (NbS), and the target for reduction of GHG emissions during the project's term. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Design, Construction and O&M	The project shall be screened for possible structural and non-structural/mismanagement elements of climate change adaptation measures being adopted during the design, construction and O&M phases. One of the important aspects to assess is whether the project's performance standards cover defined and measurable climate-resilient key performance indicators, with incentives for the private sector to perform effectively and efficiently. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Economic and Social Sustainability	This screening Sub-parameter addresses (1) the possible solutions to displacement of affected persons during the term of the project due to acute climate change events, and (2) consideration of climate change adaptation measures while assessing the economic sustainability of the project.
Financial Analysis	Econometrics of any PPP Infrastructure project will invariably be a key factor in whether the project is financially feasible, including the costs of adaptive and resilience measures and, conversely, whether carbon taxes may offset such potential expenses. The

Title	Explanation
	anticipated climate change events and related risks need to be allocated very carefully to the party that can handle them better. Therefore, a project's value for money shall be assessed considering the allocation of such risks. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.
Procurement Process	This assesses whether a green public procurement (GPP) process will be adopted. GPP is a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycles when compared to goods, services and works with the same primary functions. This means selecting the most advantageous bid rather than the bid with the lowest cost of acquisition. GPP therefore takes into account the costs incurred over the entire lifetime of the goods, services or works, and their environmental impacts in the broadest sense. The project is also screened for mitigation of transition risks resulting from a societal shift towards a lower-carbon footprint, through provisions in bidding documents. Refer to Annex 6.3 for further details and relevant e-resources for each specific question under this Sub-parameter.

9.39 Data Tables and Troubleshooting

The following lists the pre-calibrated data points in the PSAT 2.0.

A. List of Prerequisites

No.	List of Prerequisites
1	Is the project derived from a national plan or other medium- to long-term strategic document that establishes development priorities at the highest levels of the government?
2	Is the project likely to be economically sound and have direct benefits that are significantly greater than the costs?
3	Do sector laws, regulations, or policies allow private sector participation in the project?

B. List of Deal Breakers

No.	List of Deal Breakers
1	Is there a clear articulation and substantiation of the service deficiency?
2	Has there been an assessment of all possible technical solutions to address the identified need?
3	Are the technical cost estimates in line with required output specifications?
4	Is the proposed site accessible with any potential challenges during construction being manageable?
5	Will the project have any significant negative impact on natural resources or protected land?
6	Is the project likely to be socially sustainable or have manageable social impacts?
7	Is there support for the project from affected communities and other key stakeholders?
8	Will the impacts of direct and contingent liabilities of the project be within an acceptable level for the government?
9	Are the life-cycle costs for major components of the project reasonable and affordable?
10	Will the project have a significant adverse impact on the health or quality of life of users, workers, and the local population?
11	If applicable, is there a plan to address the legal barriers through appropriate executive action or legislative reforms?
12	Are there financiers who will express or have expressed interested in the PPP?
13	Does the project's scope align with the national agenda on climate change, including Nationally Determined Contributions (NDCs) and the National Adaptation Plan (NAP)?
14	Will the government be able to absorb the contingent liabilities arising from adverse climate events?
15	Does project design and operation address the displacement of population due to climate change events during the lifetime of the PPP project?

C. Weights of Parameters and Sub-Parameters

No.	Parameter	Sub-Parameter	Parameter Weight	Sub-Parameter Weight
I	**Strategic Suitability**		**10%**	
	1	Alignment with Government Priorities		25%
	2	Identification of Service Need		25%
	3	Assessment of Service Delivery Options		25%
	4	Scoping of the Project		25%
II	**Preliminary Feasibility**		**30%**	
	1	Technical Prefeasibility		20%
	2	Environmental Sustainability		10%
	3	Social Sustainability		10%
	4	Economic Prefeasibility		10%
	5	Financial Prefeasibility		30%
	6	Legal Prefeasibility		20%
III	**Risk Assessment**		**20%**	
	1	Risk of Delay in Land Acquisition		13%
	2	Financing Risk		13%
	3	Design and Construction Risk		13%
	4	Operations and Maintenance Risk		13%
	5	Market and Demand Risk		13%
	6	Offtaker Risk		13%
	7	Foreign Exchange Risk		13%
	8	Environmental and Social Risk		13%
IV	**PPP Suitability**		**10%**	
	1	Value for Money		60%
	2	Market Appetite		40%
V	**Fiscal Affordability**		**20%**	
	1	Extent and Nature of Government Fiscal Support		40%
	2	Quantification of Fiscal Support		60%
VI	**Institutional Capability**		**10%**	
	1	Institutional Capacity		33%

No.	Parameter	Sub-Parameter	Parameter Weight	Sub-Parameter Weight
	2	Preparedness of the Contracting Agency for the Project		33%
	3	Project Execution Capability of the Contracting Agency		33%
VII	**Climate Change Risk Exposure**			N/A
	1	Alignment with Climate Change Policies		15%
	2	Climate Change Risk Assessment		25%
	3	Design and Construction Risk		15%
	4	Operations and Maintenance Risks		15%
	5	Financial Risks		15%
	6	Legal Risks		15%
VIII	**Climate-Smart PPP Suitability**		N/A	
	1	Climate-Smart Project Scoping		20%
	2	Design, Construction and O&M		40%
	3	Economic and Social Sustainability		15%
	4	Financial Analysis		10%
	5	Procurement Process		15%

D. Complexity Score Weights

No.	Complexity Score	Complexity Score Weight	Question Weight
I	Financial Feasibility Complexity Score	70%	30%
II	eIRR Complexity Score	50%	50%
III	Land Acquisition Complexity Score	50%	50%
IV	Fiscal Affordability Complexity Score	67%	33%
V	Forex Risk Complexity Score	50%	50%
VI	GHG Emissions Complexity Score	30%	70%

E. Score Constraints for Sub-Parameter Responses

Score Constraints for Sub-Parameter Responses in Case of High 'No,' 'Uncertain,' and/or 'Skip' Responses			
	>=	<=	Forced Score

Score Constraints for Sub-Parameter Responses in Case of High 'No,' 'Uncertain,' and/or 'Skip' Responses			
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	60.1%	75%	2
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	75.10%	90%	1.5
If the percentage of [negative, uncertain, and/or skipped] responses for a Sub-parameter is between	90.10%	100%	1

F. Score Constraints for Parameters

Score Constraints for Risk Assessment, PPP Suitability, and Fiscal Affordability in Cases of a Weak Score in One or More Sub-Parameters in the Parameter			
	Condition	<=	Forced Score
Applicable only for Parameters – Risk Assessment, PPP Suitability, and Fiscal Affordability	If any Sub-parameter score is	2.0	2.5
Applicable only for Parameters – Risk Assessment, PPP Suitability, and Fiscal Affordability	If any Sub-parameter score is	1.5	2.0
Applicable only for Parameter – Risk Assessment	Any two or more Sub-parameters have scores	2.0	2.0
Applicable only for Parameter – Risk Assessment	Any two or more Sub-parameters have scores	1.5	1.5

G. Score Constraints for Potential Deal Breakers Triggered

Overall Score Constraint for Potential Deal Breakers Triggered		
	>=	Forced Score
If the percentage of potential Deal breakers triggered (negative scores) is above	25%	2.0

7 List of PSAT 2.0 Questions

1. STRATEGIC SUITABILITY

Alignment with government priorities

- Is the project derived from a national plan or other medium-to long-term strategic document that establishes economy-wide development priorities at the highest levels of the government?
- Does the project have high strategic importance for the region and could it enable significant private sector investments in the economic development of the region?
- Will the project lead to an improvement in the quality of life of the citizens? For example, by way of reduced cost of living or improved liveability for the citizens.

Assessment of service delivery options

- Has there been an assessment of all possible technical solutions to address the identified need?
- Does the technical solution clearly address the service need in a cost-effective and affordable manner?

Scoping of the project

- Is there a clear description of the technical features of the project?
- Is the user base identified for the project in terms of users, geography, growth trends, etc.?
- Are the project outputs defined, measurable and verifiable?
- Does the scoping cover the entire term of the project?

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2. PRELIMINARY FEASIBILITY

Technical feasibility assessment

- Is the project likely to be based on technology that has been proven commercially in similar environments previously?
- Is the project's scope of work comparable to other reference projects?
- Are the technical cost estimates in line with required output specifications?
- Are the life cycle costs for major components of the project reasonable and affordable?
- Has a site suitability assessment been completed for the proposed project site?
- Is the proposed site accessible with any potential challenges during construction being manageable?
- Will 'specific' technical skills and capabilities required for project implementation be available for this project and can be sourced either locally, regionally or globally? Construction, Operations and Maintenance?

Environmental Sustainability

- Is there a reliable initial environmental analysis related to the project?
- Will the project have any significant negative impact on any natural resources or protected land?

- Is the identified environmental management strategy, or its related approvals, likely to result in uncertainties or delays that could impede the implementation of the project?

Social Impact Assessment

- Is there a reliable initial social analysis related to the project?
- Will the project have a significant adverse impact on the health or quality of life of users, workers, or the local population?
- Is the project likely to be socially sustainable or have manageable social impacts?
- Does the project require land acquisition?
- Is there a plan and adequate funds available for land acquisition and resettlement?
- Is there support for the project from affected communities and key stakeholders?
- Will the identified social management strategy, or its related approvals, result in uncertainties or delays that could impede project implementation?

Economic Feasibility Assessment

- Is the project likely to be economically sound and have direct benefits that are significantly greater than the costs?
- Is the economic analysis based on realistic assumptions and historical data?
- Is the economic rate of return (ERR) likely to be higher than the threshold ERR requirements of the government?
- Will communities within the area of influence of the project be able to share direct or indirect economic benefits from the project?

Financial Feasibility Assessment

- Is there a preliminary financial analysis based on assessment of the net present value (NPV) or internal rate of return (IRR) of the project's cash flows?
- Are the user charge assumptions backed by user surveys or consistent with the tariff in similar projects?
- Are the demand or volume projections backed by surveys or demand forecasting models using reliable historical data?
- Are the financing assumptions comparable to similar projects? Such as the debt-to-equity ratio, interest rate and tenure of debt, and cost of equity.
- Is the project likely to be financially viable?
- Is the project IRR (post-tax) greater than the threshold rate?
- Will the project IRR (post-tax) remain greater than the threshold rate in the stress (or low) case scenario?
- Is the project's minimum DSCR greater than the threshold ratio for the duration of the loan?
- Will the project's minimum DSCR remain greater than the threshold ratio for the duration of the loan, in the stress (or low) case scenario?

Legal Feasibility Assessment

- Is there a framework that provides a basis for charging tariffs and are there clear methodologies for tariff setting and periodic reviews?

- Does the law confer enforceable rights such as, rights of substitution, step-in rights or other applicable remedies that enable the lenders to recover their outstanding loan amounts?
- Are there any restrictions on foreign exchange or capital movements that may limit the project's access to finance?
- If applicable, Is there a plan to address legal barriers through appropriate executive action or legislative reforms?

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3. RISK ASSESSMENT

Risk of delay in land acquisition

- If the public sector needs to acquire land, has it identified suitable parcel(s)?
- Has the government prepared or committed to prepare a fully-budgeted land acquisition plan?
- Will the PPP agreement have provision of 100% unencumbered land as a condition precedent?
- Will land acquisition lead to substantial involuntary resettlement?
- Will the project need to acquire forest or protected land?
- Have there been substantial delays in land acquisition in similar projects in the past?
- Are there any other issues that could delay land acquisition?

Financing Risk

- Have similar PPP projects achieved financial close in the country or region?
- Are there financiers who will express or have expressed interest in the PPP?
- Will financial close be a condition precedent to the effectiveness of the PPP agreement?
- Can it be reasonably expected that financial close will not be delayed to affect materially the conditions of effectiveness of the PPP agreement?

Design and Construction Risk

- Is the project likely to be based on technology that has been proven commercially in similar environments previously?
- Is the proposed site accessible with any potential challenges during construction being manageable?
- Will design and construction skills be available for this project and can be sourced either locally, regionally or globally?
- Does the project scope allow the private sector to manage efficiently the design, construction, and commissioning risks?
- Will there be a strong system to manage contractor/subcontractor performance and construction-related challenges?
- Will there be independent reviews of designs, monitoring of construction progress and oversight during testing and commissioning phases?

Operations and Maintenance Risk

- Does the project scope clearly include a well-defined, measurable, and verifiable O&M component?
- Will there be a strong system of safeguards, incentives and liabilities to manage contractor/sub-contractor/ equipment supplier performance during O&M?

- Will O&M skills be available for this project and can be sourced either locally, regionally or globally?

Market Risk and Demand Risk

- Will the PPP have a ready baseline of demand or offtake that has been well established through historical data, firm off-take commitments, or exclusivity of service area?
- Are there precedents of similar projects in the country or region, where the actual usage or offtake from the project facility in the initial years has been atleast 85% of the originally projected usage or off-take?
- Are there competing projects in the defined market that could impact the ramping up of demand for this PPP project?
- Is there an indication that user charges will be affordable to users? Such as through an assessment of the ability and willingness to pay of the users or benchmarking with similar projects.
- In case of delays in ramping up of demand, will the private sector have some flexibility in repricing tariffs to manage and off-set demand shortfalls in any given year, or would the government provide some level of cash deficiency support or assurances?
- Is there a transparent and well-defined process for setting user charges and managing their increase?

Off Taker Risk

- Does the government counter party have high credit worthiness? Such as may be reflected through its financial position or outstanding credit ratings issued by independent credit rating agencies.
- Are payments secured through budgetary arrangements and/or backed by dedicated funds or funding sources?
- Are guarantees, payment security measures or other cash contingency measures envisaged to support the PPP project in obtaining timely payments in relation to the payment obligations of the contracting authority?
- In the event of disputes on payments linked to performance measurements, are there arrangements envisaged to release the undisputed amount or is there a cap on the maximum amount that can be retained by the offtaker pending the dispute?

Foreign Exchange Risk

- Will the project be able to manage the foreign exchange risk by obtaining an adequate hedging cover? For example, through forward exchange contracts, options, or similar arrangements.
- Have all the costs related to foreign exchange risk been factored into the financial assessment?
- Are there any other factors or concerns related to foreign exchange risk that could severly impact the project's financial viability or ability to raise financing?

Environmental and Social Risk

- Is there a credible environmental and social impact analysis of the PPP?
- Are the costs of mitigating the environmental and social impacts of the project considered in the PPP?
- Can the private sector manage the environmental and social impact mitigation measures envisaged in its scope?

- Will the private sector take on environmental and social risks applicable after the contract signing date and not prior period liabilities?
- Will there be contractual measures to ensure that the project financials are reset in the event of delays in executing mitigation for reasons beyond the control of the project company?

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4. PPP SUITABILITY

Value for Money

Qualitative assessment of Value for Money

- Do the project size and contract duration have the potential to maximize private sector efficiency?
- Does the PPP adequately integrate responsibility for design, build and finance with O&M risks under one party that enables the private sector to derive efficiency gains from better management (than what the public sector could have achieved) of the whole-of-life-cycle costs of the project?
- Is there potential for the private sector to operate and manage the project more efficiently than the public sector to decrease the project's whole-of-life-costs?
- Is there potential for a private operator to generate higher revenues than the public sector would have through better utilization of the project assets?
- Are payments to the private sector linked to performance and based on easily measurable and quantifiable outputs?

Quantitative assessment of Value for Money

- Are the modeling assumptions backed by historical or empirical data?
- Is the value for money (VFM) for the project greater than the threshold VFM requirement?
- Will the VFM for the project remain greater than the threshold rate in the stress (or low) case scenario?

Market appetite

- Is there a favorable response expected from the private sector towards the project? For example, as gauged by the contracting agency through preliminary market consultations or similar investor interactions.
- Have similar PPP projects been successfully implemented in the past in the country or region?
- Will debt financing be available for the project with a relatively long tenure (more than 7 years) and at a reasonable cost?
- Is the project eligible for government funding support?
- Is the project eligible for funding/ guarantees from multilateral/donor agencies?

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5. FISCAL AFFORDABILITY

Extent and Nature of Government Fiscal Support

- Is there a clear rationale for government support that is consistent with applicable laws and government support policies?
- Is there an assessment of various options to minimize the requirement of government support? Such as options for additional sources of revenue, tariff adjustments, optimizing project scope, and/or adjusting the contract period?
- Has the level of government support been benchmarked to comparable projects, at the national level or regional level?
- Will there be competitive pressure in market determination of government support?

Quantification of Fiscal Support

- In case of direct fiscal commitments, are the expected annual payments within budgetary ceilings?
- If a non-termination event defined by the PPP contract (or a guarantee arrangement) occurs, are the maximum expected annual payouts triggered by this event within acceptable budgetary limits for the government?
- Will the impacts of direct and contingent liabilities of the project be within an acceptable level for the government?
- Is there a clear strategy to mitigate fiscal risks emerging from the PPP contract ?

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6. INSTITUTIONAL CAPABILITY

Institutional Capacity

- Is there a PPP focal point within the contracting agency?
- Does the contracting agency have the capacity to manage the PPP project preparation and procurement processes?
- Does the contracting agency or its key personnel have previous experience with PPPs?
- Will the contracting agency have access to transaction advisors and/or consultants for project preparation and procurement?

Preparedness of the Contracting Agency for the Project

- Does the proposal have a project plan for the next stages of the project with identified deadlines and responsibilities allocated?
- Has the contracting agency budgeted funds, or does it have access to funds, to complete project preparation? This includes the costs of preparing required studies, securing land, resettlement costs, and environmental and social impact cost mitigation.
- Does the project plan incorporate a strategic communications plan to engage with internal and external stakeholders of the project during the next stages of the project?
- Is the contracting agency aware of the requirements for licenses, approvals and permits in case the project covers multiple jurisdictions?
- Are there any constraints that could delay the project from getting to the market?

Project Execution Capability of the Contracting Agency

- Does the contracting agency have adequate project management capability as evidenced from successful experience of implementing publicly funded projects in the sector?
- Has the contracting agency been effective in managing key contractual risks and monitoring the performance of PPP projects during their operations phase?
- Will the PPP project have independent engineers or consultants to oversee the project's construction?
- Will the contracting agency hire independent consultants or advisors to periodically assess project performance during the operations phase?
- Will the contracting agency insist on project-level disclosure to the public from time to time on the project's performance and meeting contractual obligations?

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7. CLIMATE CHANGE RISK EXPOSURE

Alignment with Climate Change Policies

- Does the project's scope align with the framework of the Sustainable Development Goals (SDGs) and the Paris Agreement?
- Does the project's scope align with the national agenda on climate change including Nationally Determined Contributions (NDCs); Long-Term Strategy (LTS) and National Adaptation Plan (NAP)?

Climate Change Risk Assessment

- Has a Climate Change Risk Vulnerability assessment (CCVA) been considered as part of the project preparation plan?
- If a response to a question above is "yes", have established resources been used for climate vulnerability assessment, such as Think Hazard!, USAID's Climate links, the World Bank's Screening Tools, Climate-Adapt or country specific tools/methodologies?
- If the response to a question above above is "yes", will the proposed project be vulnerable to climate change risks?
- Have GHG emissions baseline and emissions inventory for the project lifecycle been estimated?
- If the response to a question above is "yes", will CO2e during project operations be higher than baseline CO2e?
- Is the project likely to be carbon neutral or net carbon negative, in terms of greenhouse gas (GHG) emissions.

Design and Construction Risk

- To which climate change events is the proposed project's location is vulnerable?
- Will the proposed infrastructure installations (greenfield or brownfield) be vulnerable to extreme weather events occurring in the short term and long-term climate-related shifts?
- Will requisite skills and/or technologies that relate to the construction of project components with respect to climate change adaptation and/or mitigation measures be available, and can they be sourced locally, regionally or globally?

Operations and Maintenance Risks

- Will the project be able to source, whether locally, regionally or globally, the skills required during to the project's operations and maintenance (O&M) to continuously assess climate variability and implement adaptation measures?
- Will a mandatory climate-oriented O&M regime be incorporated into the climate risk assessment as an element of the PPP climate-resilient life cycle?
- Will the project have access to an early warning system capable of predicting adverse weather and climate events in the region?

Financial Risks

- Will the project be eligible for climate financing from domestic and/or international sources?
- If yes, does the project financial viability depend on the intended/included climate finance components?
- Will applicable insurance be available for adverse climate change events during the lifespan of the project?
- Will the government be able to absorb the contingent liabilities arising from adverse climate events?

Legal Risks

- Have existing climate change-related legislation or sector regulations been considered while preparing the project?
- Will the project be impacted by transition risks driven by potential changes in policy, legislation or regulations related to adjustment towards a climate change adaptation and/or lower-carbon economy?

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8. CLIMATE-SMART PPP SUITABILITY

Climate-Smart Project Scoping

- Is the project envisaged to adopt nature-based solutions (NbS) to address climate change mitigation, adaptation and resilience features?
- Will a baseline mitigation target for GHG emissions be set and declared for the project?
- Do the project’s proposed mitigation measures partially compensate for the project’s expected GHG emissions?
- Are the proposed structural and/or management adaptation measures resilient to changes in climate conditions during the lifespan of the project?

Design, Construction and O&M

- Does the project’s design consider structural adaptation measures, including potential technological options, to reflect a CCVA?
- Will the project’s performance standards cover defined and measurable climate resilient key performance indicators (KPIs) with an incentive mechanism for the private sector to perform effectively and efficiently?
- Will the project performance standards/ KPIs include the accounting of GHG emissions and targets?

- Has the proposed project included appropriate management adaptation measures to reflect the results of the CCVA?
- Does the project's capex and/or operating expenditure (opex) include the cost of climate change adaptation measures such as structural and/or management elements?
- Does the contracting agency plan to provide project-related training on climate change vulnerability assessments, mitigation and adaption measures, and monitoring mechanisms to its staff?

Economic and Social Sustainability

- Does the project design and operation address the displacement of population due to climate change events during the lifetime of the PPP project?
- Have the climate change impacts (including GHG emissions) and the effects of the climate adaptation measures on the wider society been considered as part of an economic analysis (quantitative) for the project, and has this analysis been completed?

Financial Analysis

- Have the financial parameters/ratios (e.g., IRR, NPV, return on investment (ROI)) been evaluated, taking into account the climate adaptation/mitigation measures?
- Has the value for money (VFM) assessment considered the climate change risk allocation between the parties?
- Will the project be eligible for fiscal incentives from the government for climate change adaptation or mitigation?

Procurement Process

- Will the project be procured using the green public procurement (GPP) procedures?
- Can potential transition risks be mitigated through provisions in the bid documents and/or project agreement?
- Have PPP projects that had considered climate change adaptability been successfully implemented in the country or region?

8 Description and Resources for Climate Change Parameter Questions (Parameters VII and VIII)

No.	Question	Description/ Remarks	Resources
VII. CLIMATE CHANGE RISK EXPOSURE			
1. Alignment with Climate Change Policies			
i	Does the project's scope align with the framework of the Sustainable Development Goals (SDGs) and the Paris Agreement?	The **Paris Agreement** is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris on December 12, 2015, and entered into force on November 4, 2016. Its goal is to limit global warming to well below 2 (and preferably 1.5) degrees Celsius, compared to pre-industrial levels. It covers climate change mitigation, adaptation, and finance.	United Nations. 2015. "Adoption of the Paris Agreement." https://unfccc.int/. https://sdgs.un.org/goals
ii	Does the project's scope align with the national agenda on climate change, including Nationally Determined Contributions (NDCs), Long-Term Strategy (LTS) and National Adaptation Plan (NAP)?	A **Nationally Determined Contribution (NDC**) or intended nationally determined contribution (INDC) is a non-binding national plan highlighting climate change mitigation, including climate-related targets for greenhouse gas emission reductions, and other policies and measures governments aim to implement in response to climate change and as a contribution to achieving the global targets set out in the Paris Agreement. The **Long-Term Strategy (LTS) or mid-century long-term low GHG emissions development strategy**: In accordance with Article 4, paragraph 19 of the Paris Agreement, all Parties/Countries should	https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs https://www.un.org/en/climatechange/all-about-ndcs

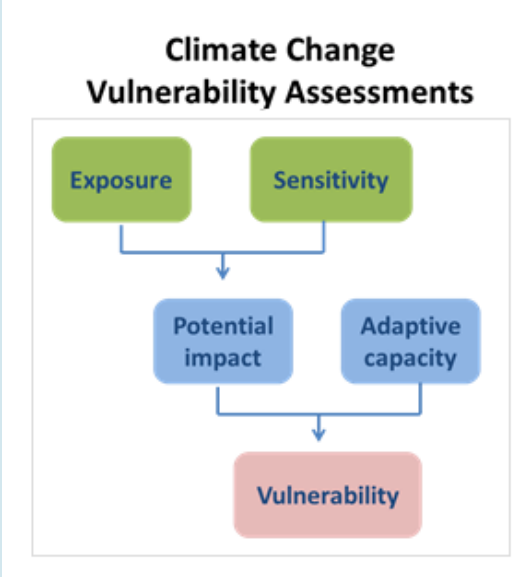
No.	Question	Description/ Remarks	Resources
		strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in light of different national circumstances. Under the Paris Agreement, countries agreed to limit the increase in global average temperature to well below 2 degrees C (3.6 degrees F) and to pursue efforts to limit the increase to 1.5 degrees C (2.7 degrees F). The 2018 Intergovernmental Panel on Climate Change (IPCC) *Special Report on Global Warming of 1.5°C* underscores the difference that a half-degree can make to the world's ecosystems. To have a likely chance of limiting warming to 1.5 degrees C, the world's top climate scientists say that global greenhouse gas emissions must be cut by 45 percent by 2030 and reach net-zero soon after 2050. Parties' LTS are central to achieving the goal of reaching net-zero global emissions, limiting warming, and preventing some of the worst impacts of climate change. Ambitious long-term strategies are vital because current near-term NDCs are only sufficient to limit warming to 2.7-3.7 degrees C (4.9-6.7 degrees F). Moreover, long-term strategies provide a pathway to a whole-of-society transformation and are a vital link between shorter-term NDCs and the long-term objectives of the Paris Agreement. The **National Adaptation Plan (NAP)** process helps countries conduct comprehensive medium- and long-term climate adaptation planning. It is a flexible process that builds on each country's existing adaptation activities and helps integrate climate change into national	https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx The list of NDCs of different countries, compiled by the United Nations Framework Convention on Climate Change (UNFCCC), can be found here: https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx https://unfccc.int/process/the-paris-agreement/long-term-strategies?gclid=Cj0KCQiAkMGcBhCSARIsAIW6d0Dm6P1uW6ey6UcPxUyYQk6FuQTLZqm8WCLp0Jr1NSLiCFUl5YeQ7BMaAg4UEALw_wcB https://www.wri.org/climate/what-long-term-strategy https://www.wri.org/insights/clarifying-unfccc-national-adaptation-

No.	Question	Description/ Remarks	Resources
		decision-making. These NDC, LTS and NAP documents are being updated by respective Parties/Countries from time to time. Therefore, users must refer to a given country's relevant government website to find the latest versions of these documents.	plan-process#:~:text=The%20National%20Adaptation%20Plan%20(NAP)%20process%20helps%20countries%20conduct%20comprehensive,change%20into%20national%20decision%2Dmaking A list of NAPs of different countries, compiled by the United Nations Framework Convention on Climate Change (UNFCCC), can be found here: https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx https://www.unep.org/explore-topics/climate-action/what-we-do/climate-adaptation/national-adaptation-plans United Nations. 2015. "Adoption of the Paris Agreement." https://unfccc.int/.

No.	Question	Description/ Remarks	Resources
2. Climate Change Risk Assessment			
i	Has a Climate Change Vulnerability Assessment (CCVA) been considered as part of the project preparation plan?	Climate Change Vulnerability Assessments (CCVAs) focus primarily on the projected changes in climatic conditions, an inventory of potentially impacted assets, the likelihood of the impact, and the resulting consequences. Vulnerability assessments emphasize exposure, sensitivity and the adaptive capacity of systems, assets and populations. CCVAs are emerging tools that can be used as an initial step in the adaptation planning process. A CCVA focuses on systems of interest, species or habitats, and helps identify the greatest risks to them from climate change impacts. A CCVA identifies factors that contribute to vulnerability, which can include both direct and indirect effects of climate change, as well as non-climate stressors (e.g., land use change, pollution). Climate risk or vulnerability assessments shall cover both internal and external risks of the project. **Internal Risks**: These originate from hazards that are posed directly to the project and could damage the infrastructure itself and/or that affect its availability, and are categorized as follows: • **Direct impacts** are defined as losses due to damage to the physical infrastructure; and	World Bank's Climate and Disaster Risk Screening (CDRS) tool (sector specific). https://climatescreeningtools.worldbank.org/ https://publications.iadb.org/en/disaster-and-climate-change-risk-assessment-methodology-idb-projects-technical-reference-document https://www.adb.org/sites/default/files/linked-documents/49026-002-sd-03.pdf https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en Vulnerability assessment for climate adaptation - IPCC

No.	Question	Description/ Remarks	Resources

		• **Indirect impacts** are defined as the loss of revenue due to the unavailability of the infrastructure (applicable both to government-pays and user-pays PPPs).
		
		For example, a flood (e.g., due to a storm) can cause direct damage to the project's assets and/or lead to asset availability disruptions.
		
		External Risks: These originate from hazards affecting the broader socioeconomic system and the surrounding or associated infrastructure with which the PPP project is interlinked.
		
		Some examples:
		• **Associated/surrounding infrastructure**: An upstream flood-risks reduction measure might fail, leading to unexpected flooding.
		• **Socioeconomic system:**
		  • Urban densification over the life cycle of the project can increase runoff and thus also flooding risk; or
		  • Transition to a green economy can impose legal or operational changes related to flooding risks.
		
		The process of completing a CCVA includes the synthesis of existing information about the target species or system, confidence levels in those data, and identification of knowledge gaps. A CCVA combines this background information with climate projections to identify the
			https://www.ipcc.ch › njlite › njlite_download2
			
			Climate Vulnerability and Risk Assessment: Framework ...
			
			https://www.weadapt.org › system › files_force › vu...
			
			https://climateactiontool.org/content/climate-change-vulnerability-assessments#:~:text=Climate%20Change%20Vulnerability%20Assessments%20(CCVAs,them%20from%20climate%20change%20impacts.
			
			https://ec.europa.eu/clima/system/files/2016-11/major_projects_en.pdf
			
			https://publications.iadb.org/publications/english/document/Disaster_and_Climate_Change_Risk_Assessment_Methodology_for_IDB_Projects_

No.	Question	Description/ Remarks	Resources
		specific elements of exposure, sensitivity, and adaptive capacity that contribute to the overall vulnerability of the species or system.  There is no standard method or framework to conduct a CCVA, and a variety of methods are being implemented at governmental, institutional, and organizational levels. Because of this, interpretation of CCVA results should carefully consider whether and how each of the three components of vulnerability (exposure, sensitivity, and adaptive capacity) were evaluated, if non-climate stressors were included in the assessment, how uncertainty is presented, the geographic location covered by the assessment, and whether the entire life cycle of a target system was evaluated. Generally, the approach chosen should be based on the goals of practitioners, confidence in existing data and information, and the resources available (e.g., financial, personnel).	A_Technical_Reference_Document_for_IDB_Project_Teams.pdf https://climateknowledgeportal.worldbank.org/ Notre Dame (ND)-Global Adaptation Initiative (GAIN) Country Index. https://gain.nd.edu/our-work/country-index/rankings/ Aware for Projects. http://www.acclimatise.uk.com/wp-content/uploads/2018/11/Aware_brochure_Nov2018.pdf Evans, C., Wong, A., Snow, C., Choate, A., & Rodehorst, B. 2014. "Indicator-based vulnerability screening for improving infrastructure resilience to climate change risks." *ICSI 2014: Creating Infrastructure for a Sustainable World.*

No.	Question	Description/ Remarks	Resources
			Proag, V. 2020 "Climate Change and Infrastructure." *Infrastructure Planning and Management: An Integrated Approach*. https://doi.org/10.1007/978-3-030-48559-7_10
ii	If a response to i, above, is "yes," have established resources been used for the climate change vulnerability assessment, such as ThinkHazard!, USAID's Climate links, the World Bank's Screening Tools, Climate-Adapt or country-specific tools/methodologies?	For conducting CCVAs, established methodologies/tools shall be adopted, such as the World Bank's Climate and Disaster Risk Screening (CDRS) tool, the Inter-American Development Bank's (IDB's) Disaster and Climate Change Risk Assessment Methodology, or the European Commission's Climate-Adapt. In the absence of any study on CCVAs, tools such as ThinkHazard! and the Sea Level Rise Viewer may be used to assess certain risks applicable to the proposed infrastructure project at a preliminary level.	https://thinkhazard.org/en/ https://www.climatelinks.org/ World Bank's Climate and Disaster Risk Screening (CDRS) tool (sector specific). https://climatescreeningtools.worldbank.org/ https://climate-adapt.eea.europa.eu/knowledge/tools/urban-ast/step-2-4 https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099120004052270615/p1746330d584ff0210a9670dcf49a5becb0

No.	Question	Description/ Remarks	Resources
			Esri's Global Footprint Story Map created by Global Footprint Network. https://www.esri.com/ The Sea Level Rise Viewer is produced by the National Oceanic and Atmospheric Administration (NOAA). https://coast.noaa.gov/slr/ Migrations in Motion by the Nature Conservatory. https://maps.tnc.org/migrations-in-motion/#4/19.00/-78.00 https://gogeomatics.ca/top-ten-climate-change-maps-and-gis-applications
iii	If the response to ii, above, is "yes," will the proposed project be vulnerable to climate change risks?	Vulnerability to climate change is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.	http://www.lifesecadapt.eu/fileadmin/user_upload/ALLEGATI_LIFESECADAPT/documenti/Vulnerability_Risk_FGiordano.pdf Proag, V. 2020. "Climate Change and Infrastructure." *Infrastructure Planning and Management: An Integrated Approach*.

No.	Question	Description/ Remarks	Resources
			https://doi.org/10.1007/978-3-030-48559-7_10 Stewart, M.G., and X. Deng. 2015. "Climate Impact Risks and Climate Adaptation Engineering for Built Infrastructure." http://dx.doi.org/10.1061/AJRUA6.0000809
iv	Have the GHG emissions baseline and emissions inventory for the project life cycle been estimated?	GHG emissions inventories, including assessments and/or benchmarking of GHG emissions, are essential for understanding the carbon emissions throughout the life cycle of the project, and indicate what mitigation measures may need to applied to offset GHG emissions at each stage. GHG emissions assessments or benchmarking are usually included in a country's NDC commitments to the Paris Agreement, so should be standard across all PPP Infrastructure projects. GHG inventories can be developed for PPP projects based on parameters that fall within three main Scopes of GHG emissions. **Scope 1 emissions:** The GHG emissions that a project or project company makes directly, e.g., emissions associated with fuel combustion in boilers, furnaces, and vehicles.	https://ghgprotocol.org/guidance-0 https://ghgprotocol.org/scope_2_guidance https://ghgprotocol.org/sites/default/files/Guidance_Handbook_2019_FINAL.pdf https://ghgprotocol.org/scope-3-technical-calculation-guidance https://ghgprotocol.org/ghg-emissions-calculation-tool https://www.ghgprotocol.org/sites/default/files/ghgp/Global-

<table>
<tr><th>No.</th><th>Question</th><th>Description/ Remarks</th><th>Resources</th></tr>
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Scope 2 emissions: Indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.

Scope 3 emissions: All indirect emissions (not included in Scope 2) that occur in the value chain of the project company, including both upstream and downstream emissions (e.g., transportation of employees, waste disposal, purchased goods and services).

GHG emissions under each respective Scope shall be expressed in carbon dioxide equivalents (CO2e).

Carbon Dioxide Equivalent (CO2e): A metric measure (commonly expressed as million metric tonnes of carbon dioxide equivalents (MMTCDE), but also sometimes expressed in kilos) used to compare emissions from various GHGs on the basis of their global warming potential (GWP), by converting amounts of other GHGs to the equivalent amount of carbon dioxide (CO2).

Global Warming Potential (GWP) is an index, with CO2 having the index value of 1; the GWP for all other GHGs is the number of times more warming they cause when compared to CO2. The GWP of different GHGs, commonly known as Kyoto Gases, is presented below:

<table>
<tr><th>No.</th><th>Greenhouse Gas (GHG)</th><th>Global Warming Potential (GWP) *</th></tr>
<tr><td>1</td><td>Carbon dioxide (CO2)</td><td>1</td></tr>
<tr><td>2</td><td>Methane (CH4)</td><td>25</td></tr>
</table>
</td><td>
Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

https://www.wri.org/initiatives/greenhouse-gas-protocol

https://www.epa.gov/climateleadership/ghg-inventory-development-process-and-guidance

https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance

https://www.epa.gov/climateleadership/scope-3-inventory-guidance

https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html

https://www.eib.org/attachments/publications/eib_project_carbon
</td></tr>
</table>

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<tr><th>No.</th><th>Question</th><th>Description/ Remarks</th><th>Resources</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>3</td><td>Nitrous oxide(N2O)</td><td>298</td></tr>
<tr><td>4</td><td>Hydrofluorocarbons (HFCs)</td><td>124 – 14,800</td></tr>
<tr><td>5</td><td>Perfluorocarbons (PFCs)</td><td>7,390 – 12,200</td></tr>
<tr><td>6</td><td>Sulfur hexafluoride (SF6)</td><td>22,800</td></tr>
<tr><td>7</td><td>Nitrogen trifluoride (NF3)</td><td>17,200</td></tr>
</table>
* Note: Please refer to GWP indexes as per the latest assessment of the Intergovernmental Panel on Climate Change (IPCC).

A quantity of GHG can be expressed as CO2e by multiplying the amount of the GHG by its respective GWP. For example, if 1kilogram (kg) of methane is emitted, this can be expressed as 25 kg of CO2e (1 kg CH4 x 25 = 25 kg CO2e).

A GHG inventory is a list of emissions sources and the associated emissions quantified using standardized methods. Users shall use the global standardized GHG Protocol frameworks (https://ghgprotocol.org/about-us) to measure, report, verify and manage GHG emissions (see resources column for links).

An Excel-based tool to estimate a project's GHG emissions inventory (https://ghgprotocol.org/ghg-emissions-calculation-tool) developed by the GHG Protocol can also be used.

Baseline emissions inventory: A baseline is defined by the absence of a recognized intervention—a general term for the policy, decision, investment, incentive, or other act intended to influence activities that produce GHG emissions and whose impact is being assessed. A</td><td>footprint_methodologies_2022_en.pdf

https://ghginstitute.org/2022/03/14/what-is-a-baseline/</td></tr>
</table>

No.	Question	Description/ Remarks	Resources
		baseline is a reference state or the values against which we measure change. A baseline emissions inventory is carried out to assess a GHG emissions "without the project" scenario. These baseline emissions are compared to the emissions generated by a "with the project" scenario. For brownfield projects, the baseline shall be emissions from the existing project before its proposed upgrade, rehabilitation, and so forth. For greenfield projects, the baseline can differ according to the situation. By definition, the baseline emissions prior to developing a greenfield project are zero. However, for a greenfield project wherein there is a shift of demand from an existing system to a proposed greenfield project, the baseline will be emissions from the quantum of demand to be shifted to the greenfield project. For example, a proposed sea transport system using vessels with green propulsion systems will attract existing road transport demand. In this case, the emissions from the road transport demand that shifts to the sea transport system can be the baseline. A baseline can be static or dynamic (to be reset periodically during the project life cycle).	
v	If the answer to iv, above, is "yes," will CO2e during project operations be higher than baseline CO2e?	Sum total of the CO2e estimated Scope 1, 2 and 3 GHG emissions from the proposed project.	https://ghgprotocol.org/ghg-emissions-calculation-tool
vi	Is the project likely to be carbon neutral or net	**Carbon neutral:** A project is carbon neutral if the amount of CO2e it emits into the atmosphere is the same as the amount of CO2e it	Ambrosio, N., et al. 2020. "Addressing Climate Risk in

No.	Question	Description/ Remarks	Resources
	carbon negative, in terms of GHG emissions?	removes from the atmosphere. For example, using renewable energy to operate the project or switching to electric vehicles for project operations can reduce the project's CO2e. Another example of an attempt at carbon neutrality is the use of carbon offsets such as planting trees or restoring wetlands. **Net carbon negative:** In such cases, project operations remove more CO2e from the atmosphere than they emit. Benchmarking of projects can screen out high embodied carbon building materials and processes during the construction phase. Throughout the life cycle of the project, a stringent monitoring and evaluation regime should be implemented to ensure that the NDC targets at onset are consistent and further mitigation measures are applied to account for declines in efficiency due to wear and tear. The Climate Action Tracker has defined and analyzed a global-level series of Paris Agreement-compatible benchmarks, across four major sectors: Power, Transport, Industry, and Buildings.	Financial Decision Making." *Optimizing Community Infrastructure*. https://doi.org/10.1016/B978-0-12-816240-8.00007-0 World Bank's Climate and Disaster Risk Screening (CDRS) tool (sector specific). https://climatescreeningtools.worldbank.org/ Acquaye, Adolf, Andrea Genovese, John Barrett, and S.C. Lenny Koh. 2014. "Benchmarking carbon emissions performance in supply chains." *Supply Chain Management: An International Journal*. Ng, S. Thomas, Yuan Chen, and James M.W. Wong. 2013. "Variability of building environmental assessment tools on evaluating carbon emissions." *Environmental Impact Assessment Review* 38: 131-141.

No.	Question	Description/ Remarks	Resources
			For benchmarking GHG emissions in key sectors: https://climateactiontracker.org/documents/754/CAT_2020-07-10_ParisAgreementBenchmarks_SummaryReport.pdf
3. Design and Construction Risk			
i	To which climate change events is the proposed project's location vulnerable?	An initial consideration of the location for any infrastructure project is key to the assessment of the project's climate change vulnerability and risks assessment. Accordingly, climate change adaptation measures for infrastructure projects need to be focused on ensuring a suitable level of resilience to the impacts of climate change, which includes expected acute events such as more intense floods, cloudbursts, droughts, heatwaves, extreme cold, wildfires, storms, landslides and hurricanes, as well as chronic events such as projected sea-level rise and changes in average precipitation, soil moisture and other physical and meteorological parameters that are used to assess the climate resilience of the project. There must be measures to ensure that the project includes a vulnerability assessment of neighboring economic and social structures. This could happen, for instance, if a project includes an embankment that could increase flood risk in the vicinity.	https://thinkhazard.org/en/ https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en https://publications.iadb.org/en/disaster-and-climate-change-risk-assessment-methodology-idb-projects-technical-reference-document https://www.bbvaopenmind.com/en/science/environment/climate-change-trigger-earthquakes-tsunamis-volcanic-eruptions/ Du, S., et al. 2015. "Quantifying the impact of impervious surface

No.	Question	Description/ Remarks	Resources
			location on flood peak discharge in urban areas." *Natural Hazards* 76: 1,457-1,471. https://doi.org/10.1007/s11069-014-1463-2 Okon, I.E., et al. 2015. "Climate change and the challenges of flood mitigation in Calabar urban, south-south Nigeria." *International Journal of Ecology and Ecosolution* 2 (3): 41-48. 15-018.pdf (netjournals.org)
ii	Will the proposed infrastructure installations (greenfield or brownfield) be vulnerable to extreme weather events occurring in the short term and long-term climate-related shifts?	Extreme weather conditions may relate to phenomena such as floods, cloudbursts, droughts, heatwaves, wildfires, storms, landslides and hurricanes, as well as chronic events such as projected sea-level rise and changes in average precipitation and soil moisture. Please refer to an illustration of the impacts of climate changes in different sections described under Table 2 (page 10) of OECD Environment Policy Paper No. 14 ("Climate-resilient infrastructure"). https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf .	https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf Evans, C., et al. 2014. "Indicator-based vulnerability screening for improving infrastructure resilience to climate change risks." *ICSI 2014: Creating Infrastructure for a Sustainable World*. https://ascelibrary.org/doi/epdf/10.1061/9780784478745.019 Noble, I.R., S. Huq, Y.A. Anokhin, J. Carmin, D. Goudou, F.P. Lansigan,

No.	Question	Description/ Remarks	Resources
			B. Osman-Elasha, and A. Villamizar. 2014. "Adaptation needs and options." In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, edited by C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White, 833-868. Cambridge, United Kingdom: Cambridge University Press. Estrada, F., et al. 2015. "Economic losses from US hurricanes consistent with an influence from climate change." *Nature Geoscience* 8: 880-884. https://doi.org/10.1038/ngeo2560

No.	Question	Description/ Remarks	Resources
iii	Will requisite skills and/or technologies that relate to the construction of project components with respect to climate change adaptation and/or mitigation measures be available, and can they be sourced locally, regionally or globally?	Although traditional construction and infrastructure engineering firms may be used to execute the project, specialist firms must also be included to undertake, assess and supply special expertise in climate adaptation and resilience.	https://www.pacific.undp.org/content/pacific/en/home/presscenter/pressreleases/2019/pacific-regional-climate-risk-adaptation-and-insurance-study-underway.html?utm_source=EN&utm_medium=GSR&utm_content=US_UNDP_PaidSearch_Brand_English&utm_campaign=CENTRAL&c_src=CENTRAL&c_src2=GSR&gclid=Cj0KCQjw0PWRBhDKARIsAPKHFGi6x0uKtkZJhheslmBfbevEgVD7_1-zvGMzjGpE-NMPT_zpbQ6Ry_YaAtGrEALw_wcB
4. Operations and Maintenance Risks			
i	Will the project be able to source, whether locally, regionally or globally, the skills required during the project's operations and maintenance (O&M) to continuously assess climate variability and	Climate change effects are predicted to be random, extreme and of sustained duration during this unprecedented era in human civilization. Continuous feedback loops during the project life cycle with respect to such things as emissions, extreme weather events, and resilience are important to adapt to climate change. The skillset and tools shall be available to proponents of the PPP Infrastructure to make decisions on the corrective actions required to maintain the integrity of the project and future proof their investment.	https://coastadapt.com.au/sites/default/files/factsheets/RR2_Monitoring_and_Evaluation_in_adaptation.pdf https://www.oecd.org/climate-action/ipac/the-annual-climate-action-monitor-5bcb405c/ \

No.	Question	Description/ Remarks	Resources
	implement required adaptation measures?		https://ec.europa.eu/clima/system/files/2016-11/major_projects_en.pdf https://projects.worldbank.org/en/projects-operations/project-detail/P122841
ii	Will a mandatory climate-oriented O&M regime be incorporated into the climate risk assessment as an element of the PPP climate-resilient life cycle?	As above.	https://www.adaptation-undp.org/strengthening-climate-information-and-early-warning-systems-climate-resilient-development
iii	Will the project have access to an early warning system capable of predicting adverse weather and climate events in the region?	These thematic areas will need to involve: the collection of data and undertaking of risk assessments; the development of hazard monitoring and early warning services, using weather and hydrological monitoring equipment to improve forecasting; building in capacity for communicating risk information to potentially affected locations through traditional and new media, and a comprehensive response plan for such warnings; and ultimately building national and community response capabilities to act effectively when warnings are received.	https://climate-adapt.eea.europa.eu/metadata/adaptation-options/establishment-of-early-warning-systems https://www.adaptation-undp.org/strengthening-climate-information-and-early-warning-systems-climate-resilient-development

No.	Question	Description/ Remarks	Resources
5. Financial Risks			
i	Will the project be eligible for climate financing from domestic and/or international sources?	A range of multilateral, bilateral and other climate funds exist for which the project may be eligible for financing or funding. Different eligibility criteria apply, and projects must be screened to match with a suitable fund/instrument. Climate finance may be allocated through various financial instruments, including grants, low-cost project debt, project-level market-rate debt, project-level equity, balance sheet financing, equity, and guarantees. Governments can also avail themselves of funds for implementing or providing viability gap funding (VGF) for Climate-Smart PPP projects. **Viability gap funding (VGF)** refers to a grant to support PPP projects that are economically justified but not financially viable. **Climate-smart infrastructure PPPs** are infrastructure solutions that: • **Mitigate climate change**, e.g., through reduction of GHG emissions and improved energy efficiency; • **Increase the resilience of infrastructure assets to climate change**, i.e., ensure that infrastructure is planned, designed, built and operated in a way that anticipates, prepares for and adapts to uncertain and potentially permanent effects of climate change (e.g., a hydropower project that takes into account changes in average and extreme flows in the future,	https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance World Bank; World Mainstreaming Climate Change in Governance: Reference Guide for Climate-Smart Public Investment Policy and Public Investment Management, February 2022 https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2021/ https://openknowledge.worldbank.org/bitstream/handle/10986/33917/149752.pdf https://ppp.worldbank.org/public-private-partnership/energy-and-power/climate-smart-ppps-1

No.	Question	Description/ Remarks	Resources
		to ensure that financial models that stem from hydrological analyses are correct, or that spillways are correctly sized to avoid dam breaches). This may in turn generate significant cost savings and efficiency gains for the wider community, by avoiding or reducing potentially costly rectifications and replacements of infrastructure later on; and • **Ensure resilience through infrastructure**, i.e., ensure that the new or improved infrastructure does not harm and delivers related benefits to wider systems, communities, households and individuals (e.g., sea barriers, flood protection).	https://www.greenclimate.fund/news/gcf-101-new-guide-on-how-to-access-the-green-climate-fund https://publications.iadb.org/en/climate-resilient-public-private-partnerships-a-toolkit-for-decision-makers
ii	If yes, does the financial viability of the project depend on the intended/included climate finance components?	Climate mitigation, adaptation and resilience components will inevitably add costs to the project, compared to a pre-Paris Agreement PPP Infrastructure project. These additional costs would need to be included in the viability assessment of the Infrastructure PPPs. While conducting the assessment, the applicable climate financing/funding covenants shall also be considered.	Proag, V. 2020. "Climate Change and Infrastructure." *Infrastructure Planning and Management: An Integrated Approach*. https://doi.org/10.1007/978-3-030-48559-7_10 Ambrosio, N., et al. 2020. "Addressing Climate Risk in Financial Decision Making." *Optimizing Community Infrastructure*. https://doi.org/10.1016/B978-0-12-816240-8.00007-0

No.	Question	Description/ Remarks	Resources
iii	Will applicable insurance be available for adverse climate change events during the lifespan of the project?	The insurance industry can play a critical role in managing the risks of climate change. Insurance companies have started to develop a far more sophisticated understanding of climate risks than many other industry sectors. It has been using tools to predict weather-related disasters for decades, and it is exposed to claims whenever there is a climate-related event. Therefore, users of the PSAT 2.0 need to identify the availability of insurance products related to climate change risks in the region.	https://www.ccrif.org/?language_content_entity=en https://www.wfp.org/risk-management-insurance-and-finance
iv	Will the government be able to absorb the contingent liabilities arising from adverse climate events?	All public infrastructure projects, irrespective of how they are procured, managed and financed, generate future liabilities. This becomes even more apparent under a PPP arrangement. A number of these liabilities are subject to a high degree of uncertainty regarding when they will arise and the financial exposure involved when they do, and are therefore said to be contingent. Contingent liabilities have the potential to undermine national macroeconomic policy and cause significant economic harm when they eventuate. The contingent liabilities arising due to climate change risks can be huge. Climate change events are quite unpredictable in terms of loss or liabilities to be borne by the public partner. Examples presented in the World Bank Group Reference include: • Widescale green securitization approaches through bankable governance frameworks and policies, standardization of terms for the underlying projects, and innovative platforms such as	https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance World Bank; World Mainstreaming Climate Change in Governance: Reference Guide for Climate-Smart Public Investment Policy and Public Investment Management, February 2022 https://publications.iadb.org/en/climate-resilient-public-private-partnerships-a-toolkit-for-decision-makers

No.	Question	Description/ Remarks	Resources
		are shown in Case Study 1 - Clifford Capital CLO Infrastructure Take-Out Facility. • Technical assistance and public-private partnership concession programs to address long-term planning, policy and regulatory, and project pipeline barriers to enable both domestic and international institutional investment as demonstrated by Case Study 2 – Colombia's Fourth Generation (4G) Roads Concession Programme. • Green bond issuance and refinancing approaches to provide local financing and address currency exchange rate and inflation risk, as demonstrated by Case Study 3 - Refinancing with Green Bonds: North American Development Bank (NADB). • Concessional capital and alternative investment funds to address financing barriers such as limited local financial market capacity. In view of the above, if a government chooses not to adopt climate change adaptation measures for a proposed project, the probability of contingent liabilities arising due to climate change events can be unbearable. Therefore, it is advisable that governments consider incorporating climate change adaptation measures in every project to minimize the level of contingent liabilities arising from the project.	
6. Legal Risks			
I	Have existing climate change-related legislation or sector		

<table>
<tr><th>No.</th><th>Question</th><th>Description/ Remarks</th><th>Resources</th></tr>
<tr><td></td><td>regulations been considered while preparing the project?</td><td></td><td></td></tr>
<tr><td>ii</td><td>Will the project be impacted by transition risks driven by potential changes in policy, legislation or regulations related to adjustment towards a climate change adaptation and/or lower-carbon economy?</td><td>Transition risks result from societal shifts towards a lower-carbon footprint, for example, government policy shifts or possible new regulations related to using or adopting a type of technology. Lack of preparation for this is likely to catch parties off-guard. At this stage, a project shall be screened to consider the likely transition risks that may impact the project’s viability.</td><td></td></tr>
<tr><td colspan="4">VIII. CLIMATE-SMART PPP SUITABILITY</td></tr>
<tr><td colspan="4">1. Climate-Smart Project Scoping</td></tr>
<tr><td>i</td><td>Is the project envisaged to adopt nature-based solutions (NbS) to address climate change mitigation, adaptation and resilience features?</td><td>Nature-based solutions (NbS) are defined as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

A few examples of nature-based solutions are as follows:<table><tr><th>Climate Change Hazard</th><th>Impact</th><th>Nature-based Solution</th></tr><tr><td>Coastal storms</td><td>Sea surge: flooding, coastal erosion</td><td>Mangrove plantation, preservation of</td></tr></table></td><td>https://www.iucn.org/theme/nature-based-solutions

https://www.iucn.org/theme/climate-change/resources/key-publications/strengthening-nature-based-solutions-national-climate-commitments

https://highways.dot.gov/public-roads/autumn-2021/02</td></tr>
</table>

No.	Question	Description/ Remarks			Resources
				wetlands, dunes, and reefs	https://www.sciencedirect.com/science/article/pii/S0925857417304093 https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/37318/NBSCCM.pdf https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/37323/NBSST.pdf https://www.csagroup.org/article/research/nature-based-solutions-for-coastal-and-riverine-flood-and-erosion-risk-management/ https://royalsocietypublishing.org/doi/epdf/10.1098/rstb.2019.0124 https://royalsocietypublishing.org/doi/epdf/10.1098/rstb.2019.0120
			Wind storms	High winds: blow down structures	Wind-resistant plantings	
				Wind entrainment of particles	Plants to filter air-borne pollutants	
			Inland storms—riverine flooding	Overbank flooding: inundation	Wetlands, ponds, reservoirs, floodplain widening	
				Erosion, bank failure	Wetlands, channel restoration, tree planting, floodplain widening	
			Heat waves	Increased human exposure	Tree canopy cover, parks, open spaces, green roofs	
			Extreme cold	Increased demand for heating; increased human exposure	Wind breaks	

No.	Question	Description/ Remarks	Resources
			https://link.springer.com/content/pdf/10.1007/978-3-319-56091-5.pdf Andrade, Angela, Emmanuelle Cohen-Shacham, James Dalton, Stephen Edwards, Daisy Hessenberger, Stewart Maginnis, Simone Maynard, Pamela McElwee, Radhika Murti, Cara Nelson, Veronica Ruiz, Juha Siikamäki, and L. Vasseur. 2020. *Guidance for using the IUCN Global Standard for Nature-based Solutions: first edition*. https://doi.org/10.2305/IUCN.CH.2020.09.en. https://www.iied.org/nature-based-solutions-for-climate-change-global-ambition-local-action https://www.weforum.org/agenda/2021/12/what-are-nature-

No.	Question	Description/ Remarks	Resources
			based-solutions-tackle-climate-crisis/
ii	Will a baseline mitigation target for GHG emissions be set and declared for the project?	Baselines are defined as scenarios that describe future GHG emissions in the absence of defined mitigation efforts and policies. Declaring GHG reduction/mitigation targets is a best practice. Publicly reported GHG mitigation targets provide transparency, accountability, and credibility to the target setting process. It is recommended that reported targets adhere to the following best practices: **1. Targets should include a base year and the target year**. The base year is the year against which GHG reductions are tracked. The year in which the target will be met should be five to 10 years from the base year. **2. Targets should be aggressive**. An aggressive level of reduction is one that is beyond business as usual in an organization's sector. To determine whether the target is sufficiently aggressive, a good rule of thumb is to align it with the criteria of a standardized process such as the Science Based Targets initiative (SBTi). Those criteria require emissions reductions of 2.5 percent per year for targets that cover Scope 1 and 2 emissions, and emissions reductions of 1.23 percent per year for targets that cover Scope 1, 2, and 3 emissions. **3. Targets should be for an absolute reduction in GHG emissions**. Targets should be a clearly defined, absolute GHG reduction to be achieved over a specified period of time (e.g., 25 percent reduction over 10 years).	https://www.oecd.org/env/cc/1943333.pdf https://unfccc.int/files/national_reports/non-annex_i_natcom/cge/application/pdf/final-compendium-mitigation-actions.pdf https://www.epa.gov/climateleadership/target-setting https://sciencebasedtargets.org/ https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf https://ghgprotocol.org/sites/default/files/standards/Mitigation_Goal_Standard.pdf

No.	Question	Description/ Remarks	Resources
		4. Targets should address all three emission Scopes. Targets should include all Scope 1 and 2 emissions and at least a portion of Scope 3 emissions. **5. Publicly declared targets should include all of the above information**. For example, "Project commits to a 35 percent absolute reduction of Scope 1, 2, and 3 global emissions by 2030 from 2020 levels."	
iii	Do the project's proposed mitigation/adaptation measures partially compensate for the project's expected GHG emissions?	Mitigation of GHG emissions through the use of renewable forms of energy, energy efficiency practices and carbon capture and sequestration may offset some of the GHG emissions that will occur as a result of the fundamental operation of the project.	Proag, V. 2020. "Climate Change and Infrastructure." *Infrastructure Planning and Management: An Integrated Approach*. https://doi.org/10.1007/978-3-030-48559-7_10 https://www.hashmicro.com/blog/net-present-value-npv/#understanding Stewart, M.G., and X. Deng. 2015. "Climate Impact Risks and Climate Adaptation Engineering for Built Infrastructure." http://dx.doi.org/10.1061/AJRUA6.0000809
iv	Are the proposed structural and/or	**Structural adaptation measures**: These involve physical changes to a project's design or location. Changes to the project design can reduce	

No.	Question	Description/ Remarks	Resources
	management adaptation measures resilient to changes in climate conditions during the lifespan of the project?	the probability of the risk occurring (works for protecting against sea surges, for example) and/or reduce its severity (using materials less susceptible to heat stress, for example). Structural measures can also include design features to reduce disaster recovery times. Examples include changing the composition of road surfaces so that they do not deform in high temperatures and building seawalls or using permeable paving surfaces to reduce run-off during heavy rainfalls. Ecosystem-based approaches using natural infrastructure to design adaptation measures are also key alternatives to be considered alongside structural adaptation measures. **Management (or non-structural) adaptation measures**: These involve changes to operational and maintenance practices to reduce the severity of a hazard should it occur. Such measures should be accompanied by appropriate monitoring during operations. Examples include changing the timing of maintenance to account for changing patterns of energy demand and supply, investments in early warning systems, and purchasing insurance to address financial consequences of climate variability. These measures can also include enhanced monitoring of existing assets to reduce the risk of failure as climate conditions change. Adaptive management approaches also include provisions to include flexibility from the outset to monitor and adjust to changing circumstances over the asset's lifetime.	https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en

No.	Question	Description/ Remarks	Resources
2. Design, Construction, and O&M			
i	Does the project's design consider structural adaptation measures, including potential technological options, to reflect the CCVA?	Increasingly, innovations in research and technology have led to the development of new systems and processes to reduce GHG emissions and streamline the project life cycle, while including climate resilient features from the outset. **Structural adaptation measures**: These involve physical changes to a project's design or location. Changes to the project design can reduce the probability of the risk occurring (works for protecting against sea surges, for example) and/or reduce its severity (using materials less susceptible to heat stress, for example). Structural measures can also include design features to reduce disaster recovery times. Examples include changing the composition of road surfaces so that they do not deform in high temperatures and building seawalls or using permeable paving surfaces to reduce run-off during heavy rainfalls. Ecosystem-based approaches using natural infrastructure to design adaptation measures are also key alternatives to be considered alongside structural adaptation measures.	https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en European Commission Technical guidance on the climate proofing of infrastructure in the period 2021-2027. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:C:2021:280:TOC EIB Project Carbon Footprint Methodologies for the Assessment of Project GHG Emissions and Emission Variations, January 2023: https://www.eib.org/attachments/lucalli/eib_project_carbon_footprint_methodologies_2023_en.pdf https://publications.iadb.org/en/climate-resilient-public-private-

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<tr><td></td><td></td><td></td><td>partnerships-a-toolkit-for-decision-makers

Ambrosio, N., et al. 2020. “Addressing Climate Risk in Financial Decision Making.” Optimizing Community Infrastructure. https://doi.org/10.1016/B978-0-12-816240-8.00007-0</td></tr>
<tr><td>ii</td><td>Will the project’s performance standards cover defined and measurable climate-resilient key performance indicators (KPIs), with an incentive mechanism for the private sector to perform effectively and efficiently?</td><td>An incentive mechanism for performance standards can be in the form of a deduction/penalty for non-performance. A few indicative examples of KPIs are presented below for reference:

<table><tr><th>KPI</th><th>Baseline</th><th>Target</th><th>*Measurement/ verification</th></tr><tr><td>Scope 2 CO2e emissions reduction (in tons)</td><td>95.5 tons (based on sum of actual electricity consumption by the project, and trend increases in its consumption of Scope 2 emissions)</td><td>Annual reduction of Scope 2 emissions by e.g., 10%</td><td>Sum of annual electricity consumption by the project through energy efficiency and/or renewable energy program</td></tr></table></td><td>Proag, V. 2020. “Climate Change and Infrastructure.” Infrastructure Planning and Management: An Integrated Approach. https://doi.org/10.1007/978-3-030-48559-7_10

https://www.hashmicro.com/blog/net-present-value-npv/#understanding

https://publications.iadb.org/publications/english/document/Indicators-to-Assess-the-Effectiveness-of-Climate-Change-Projects.pdf

https://pubs.iied.org/sites/default/files/pdfs/2021-06/20281g.pdf</td></tr>
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<tr><td></td><td></td><td>
<table>
<tr><td>CO2e reduction (in tons)

Through tree plantation</td><td>180.7 tons of CO2e (2022 estimate)</td><td>Mid-term target (e.g., by 2030): e.g., 160 tons of CO2e

Final target (e.g., by 2045): e.g., 135 tons of CO2e</td><td>Reducing Emissions from Deforestation and Forest Degradation (REDD) + monitoring and verification</td></tr>
</table>
* Note: If targets achieved by the project company are higher than the set targets, an incentive scheme may be built into the payment mechanism of the project.
</td><td>Stewart, M. G., and X. Deng. 2015. “Climate Impact Risks and Climate Adaptation Engineering for Built Infrastructure.” http://dx.doi.org/10.1061/AJRUA6.0000809

Ambrosio, N., et al. 2020. “Addressing Climate Risk in Financial Decision Making.” Optimizing Community Infrastructure. https://doi.org/10.1016/B978-0-12-816240-8.00007-0</td></tr>
<tr><td>iii</td><td>Will the project performance standards/ KPIs include the accounting of GHG emissions and targets?</td><td>Greenhouse gas accounting describes how to inventory and audit GHG emissions. The GHG emissions assessment measures the project’s carbon footprint by quantifying the total amount of greenhouse gases the project produces, whether directly or indirectly (covering Scope 1 and 2 and some Scope 3 emissions).</td><td>https://www.e3g.org/metrics_methods/greenhouse-gas-accounting-and-reduction/

https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

https://www.epa.gov/climateleadership/ghg-inventory-development-process-and-guidance#:~:text=A%20greenhouse%20gas%20(GHG)%20inventory,voluntary%20or%20mandatory%20GHG%20programs</td></tr>
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No.	Question	Description/ Remarks	Resources
iv	Has the proposed project included appropriate management adaptation measures to reflect the results of the CCVA?	**Management (or non-structural) adaptation measures**: These involve making changes to operational and maintenance practices to reduce the severity of a hazard should it occur. Such measures should be accompanied by appropriate monitoring during operations. Examples include changing the timing of maintenance to account for changing patterns of energy demand and supply, investment in early warning systems, or purchasing insurance to address financial consequences of climate variability. These measures can also include enhanced monitoring of existing assets to reduce the risk of failure as climate conditions change. Adaptive management approaches also include provisions to include flexibility from the outset to monitor and adjust to changing circumstances over the asset's lifetime.	https://www.oecd.org/environment/cc/policy-perspectives-climate-resilient-infrastructure.pdf
v	Does the project's capex and/or operating expenditure (opex) include the cost of climate change adaptation measures such as structural and/or management elements?	Capital expenditure (capex) and operating expenditure (opex) across the entire project life cycle may need to be adjusted if additional infrastructure and/or climate-positive elements need to be included. Users may refer to the IDB's document "Climate Resilient Public-Private Partnerships: A Toolkit for Decision Makers" (see link in the resources column) for embedding climate resilience considerations at each stage of the PPP project life cycle. The considerations related to each stage may be found as follows: A. Project identification stage—pages 18 to 40; B. Project preparation/business case/feasibility study stage—pages 45 to 88; C. Procurement/transaction stage—pages 91 to 134; and	Fant, C., et al. 2020. "Climate change impacts and costs to U.S electricity transmission and distribution infrastructure." *Energy* 195. https://doi.org/10.1016/j.energy.2020.116899 https://publications.iadb.org/en/disaster-and-climate-change-risk-assessment-methodology-idb-

No.	Question	Description/ Remarks	Resources
		D. Contract management stage—pages 138 to 146.	projects-technical-reference-document
vi	Does the contracting agency plan to provide project-related training on Climate Change Vulnerability Assessments, mitigation and adaptation measures, and monitoring mechanisms to its staff?	Investments will need to be made in training staff as well as building institutional capacity to ensure that best practices in PPP development and operations are followed at all times. This is especially important as climate-resilient PPPs are an emerging area for which specialist consultants will most likely need to be brought in at the outset, and staff will need to be trained to operate and monitor the climate resilient Infrastructure PPP.	World Bank; World Mainstreaming Climate Change in Governance: Reference Guide for Climate-Smart Public Investment Policy and Public Investment Management, February 2022 https://www.financeministersforclimate.org/helsinki-principles https://pdf.usaid.gov/pdf_docs/PA00X3RC.pdf
3. Economic and Social Sustainability			
i	Does the project design and operation address the displacement of population due to climate change events during the lifetime of the PPP project?		Proag, V. 2020. "Climate Change and Infrastructure." *Infrastructure Planning and Management: An Integrated Approach*. https://doi.org/10.1007/978-3-030-48559-7_10 https://www.hashmicro.com/blog/net-present-value-npv/#understanding

No.	Question	Description/ Remarks	Resources
			Stewart, M.G., and X. Deng. 2015. "Climate Impact Risks and Climate Adaptation Engineering for Built Infrastructure." http://dx.doi.org/10.1061/AJRUA6.0000809 Ambrosio, N., et al. 2020. "Addressing Climate Risk in Financial Decision Making." *Optimizing Community Infrastructure*. https://doi.org/10.1016/B978-0-12-816240-8.00007-0
ii	Have the climate change impacts (including GHG emissions) and the effects of the climate adaptation measures on the wider society been considered as part of an economic analysis (quantitative) for the project, and has this analysis been completed?	This features a climate-smart social cost-benefit analysis and related econometrics, as for any PPP Infrastructure, but also includes climate mitigation, adaptation, and resilience aspects.	World Bank; World Mainstreaming Climate Change in Governance: Reference Guide for Climate-Smart Public Investment Policy and Public Investment Management, February 2022
4. Financial Analysis			

No.	Question	Description/ Remarks	Resources
i	Have the financial parameters/ratios (e.g., IRR, NPV, return on investment (ROI)) been evaluated, taking into account the climate adaptation measures?	Econometrics of any PPP Infrastructure project will invariably be a key factor in whether the project is financially feasible, including costs of adaptive and resilience measures and, conversely, whether carbon taxes may offset such potential expenses.	Ambrosio N. et al. 2020. "Addressing Climate Risk in Financial Decision Making." *Optimizing Community Infrastructure*. https://doi.org/10.1016/B978-0-12-816240-8.00007-0 World Bank's Climate and Disaster Risk Screening (CDRS) tool (sector specific). https://climatescreeningtools.worldbank.org/
ii	Has the value for money (VFM) assessment considered the climate change risk allocation between the parties?	The anticipated climate change events and related risks need to be allocated very carefully to the party that can handle them better. Therefore, the VFM assessment should consider such allocated risks.	
iii	Will the project be eligible for fiscal incentives from the government for climate change adaptation or mitigation?	Fiscal incentives are aspects of fiscal policy that are able to influence and induce the behaviors of people and firms to act in a particular way by offering a financial reward for certain activities. Various governments offer fiscal incentives to the private sector to significantly invest in technologies, processes and measures for climate change mitigation and adaptation.	https://www.greenfacts.org/en/climate-change-ar4/l-3/9-incentives-mitigation.htm
5. Procurement Process			

No.	Question	Description/ Remarks	Resources
i	Will the project be procured using the green public procurement (GPP) procedures?	**Green public procurement (GPP)** is a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle, including sourcing of raw materials and/or use of recycled materials, when compared to goods, services and works with the same primary function that would otherwise be procured. This means selecting the most advantageous bid rather than the bid with the lowest cost of acquisition. GPP therefore takes into account costs incurred over the entire lifetime of goods, services or works, and their environmental impact in the broadest sense. Specifically, the requirement is for climate change considerations to be integrated into the guidance, procedures and methodologies for public procurement, including appropriate measures to improve energy efficiency and favor low-carbon solutions.	World Bank; World Mainstreaming Climate Change in Governance: Reference Guide for Climate-Smart Public Investment Policy and Public Investment Management, February 2022 https://ec.europa.eu/environment/gpp/index_en.htm https://ec.europa.eu/environment/gpp/case_group_en.htm https://www.oecd.org/gov/public-procurement/green/ https://publications.iadb.org/en/climate-resilient-public-private-partnerships-a-toolkit-for-decision-makers https://www.financeministersforclimate.org/helsinki-principles
ii	Can potential transition risks be mitigated through provisions in the bid documents	Transition risks result from a societal shift towards a lower-carbon footprint, for example, a government policy shift or possible new regulations regarding the use or adoption of a type of technology. Lack of preparation for this is likely to catch parties off guard. Such risks can	

No.	Question	Description/ Remarks	Resources
	and/or project agreement?	be mitigated by inserting provisions in the bidding documents to tackle such events. This will help attract more and better competition during the procurement process, leading to better VFM for the government.	
iii	Have PPP projects that had considered climate change adaptability been successfully implemented in the country or region?		

9 Troubleshooting

The following are some issues commonly faced by users while using the PSAT 2.0. The approaches to address the issues are detailed in this section.

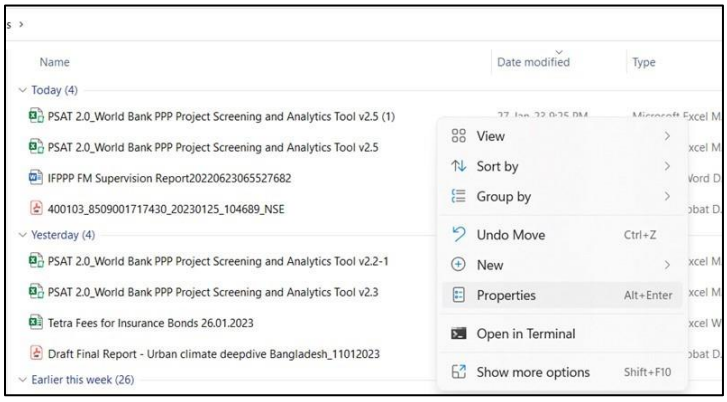
9.1. PSAT 2.0 file displays a security risk and disables the file

Error display observed:

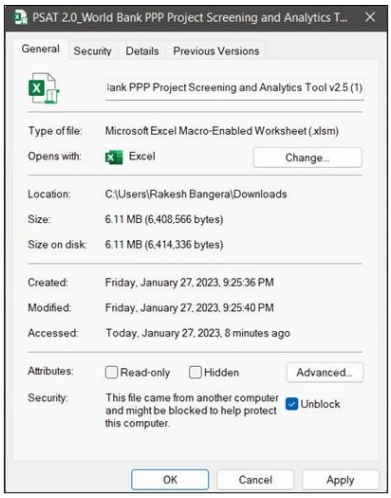
Remedy:

1) Close the file and open the folder for the file location.

2) Left click on the file and select Properties.



3) In the Properties pop-up box, choose the General tab, and on the last line (Security), select Unblock and click on Apply.



9.2. PSAT 2.0 file opens in protected view mode

Error display observed:

Or

Remedy:

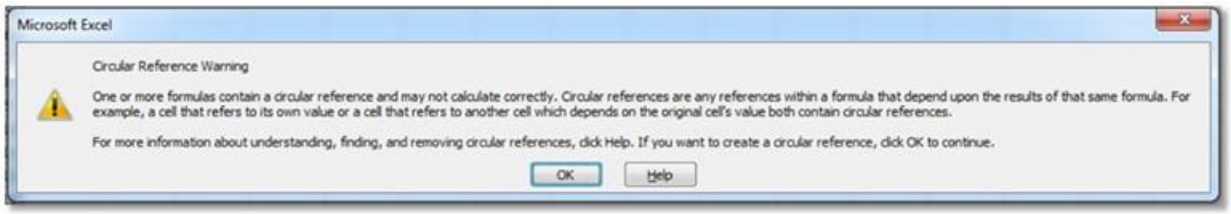
1) Click on Enable Editing.

2) Save the workbook to the local disk.

The Protected View function of Excel opens documents in read-only mode and disables editing functions. There are several reasons why documents are opened in read-only mode and all are for security measures. Documents that are considered "Files that originate from the Internet" are opened in Protected Mode by default. For the PSAT 2.0 to be used correctly, the user must click on "Enable Editing" as shown above in the first image. However, users must ensure that the document is never in [Read-only] mode as shown in the second image. If so, the file must be saved to the local disk to continue using the Tool optimally.

9.3. Circular reference

Error display observed:



Remedy:

1) Click OK and continue using the Tool normally.

This Tool uses circular references because they make its functions repeat until a specific numerical condition is met. Iterative calculations are generally disabled in Excel. The above message appears when the file is opened for the first time, so the user should click on OK. The message will not appear again on future occasions.

9.4. Active content (Macros)

Error display observed:

Remedy:

1) Click on Enable Content.

This Tool is based on the use of Macros. When the user opens the file for the first time, the above message bar will appear, because by default, Microsoft Excel perceived that the active content may be harmful. The user can enable the active content of the file by selecting the Enable Content button, making this file a trusted document. When a user opens the file again, the message bar will not appear.

9.5. Active content (Macros)

Error display observed:

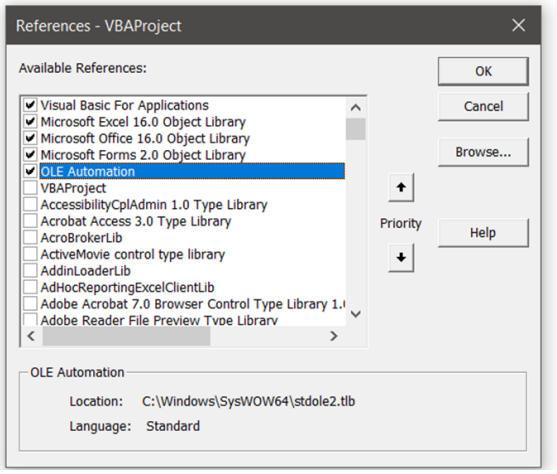
Remedy:

1) Save the workbook to the local disk.
2) Right click on the file and choose Properties.
3) Click on the Unblock button and then click Apply.

In the event that the user faces a security message as shown in the image, the user must save the file to the local drive or to a trusted file server. Once this step is done, when opening it, the normal "Enable Content" button will appear (Trouble shooting 3) where the user must continue with the steps detailed above.

9.6. Macros – Reference or Object error

Error display observed:



A text box error appears with “Reference or Object error” mentioned in it. It also includes buttons to end, debug, help, and so forth.

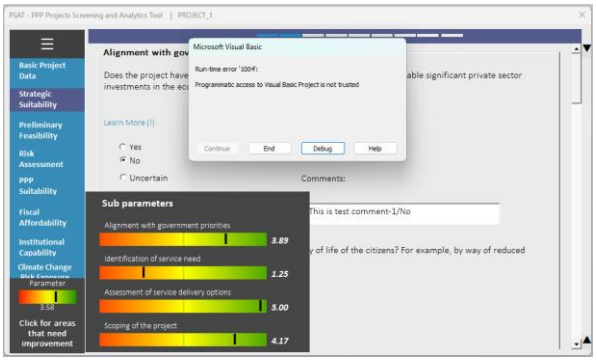
Remedy:

1) Click on the Developer tab in the top ribbon in MS Excel.
2) Click View Code.

3) In the Visual Basic for Applications (VBA) editor, click “References” on the Tools menu.
4) The following VBA Dialogue box appears:
5) One or more references will have an “X” with “MISSING: xxxx” next to it above the dialogue box.
6) Click on the X box to clear the Missing library and click OK.

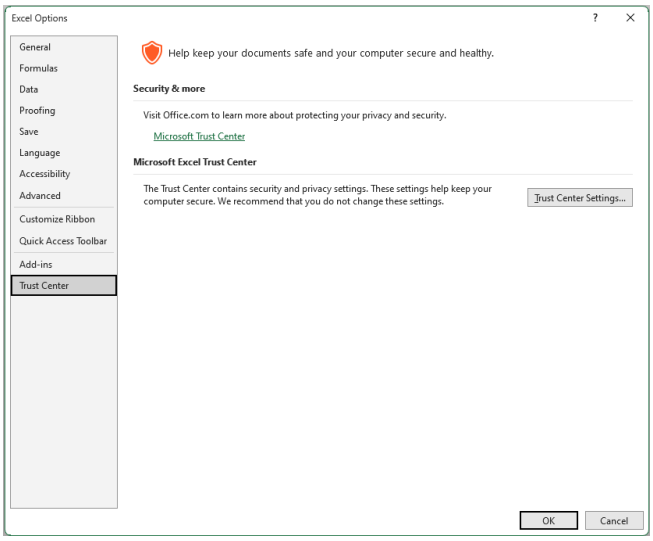
9.7. PSAT 2.0 file displays Programmatic access to Visual Basic Project is not trusted

The following error display is observed when a user selects “Click for areas that need improvement” in the project input screens.

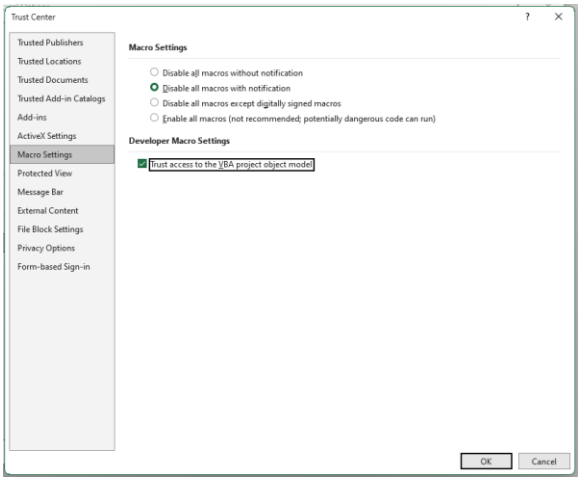


Remedy:

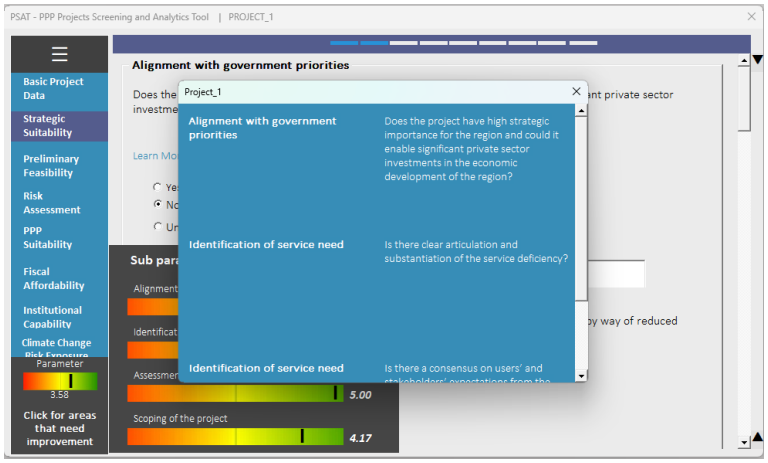
1) Go to File, select Options
2) In Options, select Trust Center

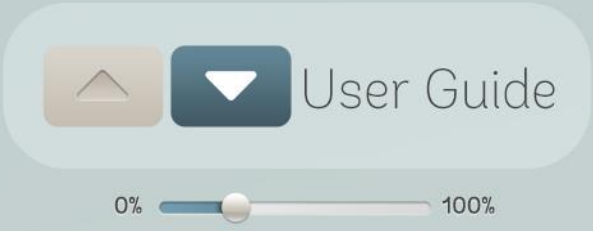


3) Select Trust Center Settings
4) Select Macro Settings: select Enable All Macros and select Trust access to the VBA project object model



Enabling this access will allow the user to use the functionality: Click for areas that need improvement





The World Bank Group provides assistance to governments in developing countries to improve access to infrastructure and basic services through public-private partnerships (PPPs). When designed well and implemented in a balanced regulatory environment, PPPs can bring great efficiency and sustainability to the provision of such public services as water, sanitation, energy, transport, telecommunications, healthcare, and education.

The World Bank Group's unique value proposition rests with its capacity to provide support along the entire PPP cycle—upstream policy and regulatory guidance, transaction structuring advice, as well as financing and guarantees to facilitate implementation.

04/2023

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