METHODOLOGY FOR PREPARING CUMULATIVE IMPACT SECTIONS OF PROJECT REVIEWS AND ASSESSMENTS IN MIAMI-DADE, BROWARD, PALM BEACH AND MARTIN COUNTIES, FLORIDA

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MARITIME INDUSTRY AND COASTAL CONSTRUCTION IMPACTS (MICCI)

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METHODOLOGY FOR PREPARING CUMULATIVE IMPACT SECTIONS OF PROJECT REVIEWS AND ASSESSMENTS IN MIAMI-DADE, BROWARD, PALM BEACH AND MARTIN COUNTIES, FLORIDA

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1. Intent and Use

This Assessment Tool was developed as a framework that can be built upon and modified by users in the hopes of developing a consistent (and adaptable) Cumulative Impact/Effects Analysis and Methodology that can be used by regulators, applicants, and consultants. Periodic reviews of its efficacy and performance will prove useful to improve the methodology in a consistent manner.

The purpose of this document is to give a step-by-step guidance on how to use the Assessment Tool. The Assessment Tool is intended to be used as a supplement to relevant regulatory agency tools in the review of coastal and marine construction projects that may impact marine ecosystems within Martin, Palm Beach, Broward and Miami-Dade counties. The tool was developed with an emphasis on large-scale coastal construction and may not be applicable to activities with *de minimus* level of impact. If multiple agencies evaluate a project, this tool provides a consistent evaluation of projects across agencies.

2. Assumptions

It is assumed that users of this Assessment tool will have working knowledge of Council of Environmental Quality (CEQ), Uniform Mitigation Assessment Method (UMAM), National Environmental Policy Act (NEPA) and related guidelines and legislation, guidance documents and principles related to Cumulative Effects Analysis (CEA), Cumulative Impact Methodologies (CIMs) and relevant project reviews.

1) This Assessment Tool assumes adequate information is available from relevant literature, past projects, monitoring reports, GIS systems, databases and other relevant sources to make these determinations. In order for this checklist to be most useful, this data should be compiled and stored in one central location, such as a data clearing house. This clearing house should be updated as new information and data is made available. This checklist is meant to track specific sources of data used to make informed and scientific evaluations.

2) The Assessment Tool should result in an integrated regulator/applicant approach where both sides try to avoid negative impacts and mitigate unavoidable impacts. In order for this checklist to be effective, all past, present and foreseeable impacts must be considered.

3) For this methodology to be consistent from project to project, it should not be modified in the course of an evaluation. Any modifications, especially to the questions on the worksheets themselves, must be submitted for approval by the Tool Development team. The team will consider all modifications and will issue a new version of the Tool and associated documents with the changes integrated.

4) This Assessment Tool assumes that a well-functioning and well-updated database of past projects, their impact rating, and their current impact rating exists. This tool may not be fully effective in the early stages of calculating cumulative impacts while this database is being developed. In the interim, expert reviewers may self-assign ratings to past projects.

Please send any comments, questions, or modifications requests regarding this tool to:

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3. Limitations

This is a draft for a Cumulative Impact Methodology that can be utilized to help in determining cumulative impacts for marine and coastal construction projects. This Assessment Tool has been adapted from several sources including the UMAM, CEQ Guidance Documents, NOAA NMFS Essential Fish Habitat Assessment requirements and other relevant reference material.

This methodology will achieve its greatest usability and purpose if the following factors are taken into account:

1) Cumulative Impact and Effects Analysis is a complex and challenging subject. The complexity of performing the analysis, the complexity of the marine ecosystems, and the lack of standard CEA or CIM methodologies highlight the need for the development of a standard methodology.

2) This Assessment Tool was developed as a framework that can be built upon and modified by users in the hopes of developing a consistent (and adaptable) Cumulative Impact/Effects Analysis and Methodology that can be used by regulators, applicants, and consultants. Periodic reviews of its efficacy and performance will prove useful to improve the methodology in a consistent manner.

4. Project Evaluation Steps

The Assessment Tool is comprised of eight worksheets and each worksheet contains a set of questions regarding a particular aspect of the evaluation including the project summary, environmental factors, risk characterization, and socio-economic and cultural impacts. The objective of the tool is to come up with a reliable and consistent mechanism for evaluating projects. If the project reviewer is unable to answer a question, it is acceptable to leave the answer blank. An unanswered question should be denoted by entering a "0" in the cell. *The only exception to this is on the fifth worksheet,* for which additional instructions are provided later in this documentation. The Assessment Tool automatically takes into account responses that have not been answered and adjusts accordingly. These adjustments are made by using the formula: [(score from answered questions + ((score from answered questions / percentage of questions answered) – score from answered questions)) * (average weight of answered questions / average weight of unanswered questions)]. Nonetheless, it is important that the project reviewer try to

score as many questions as possible in each of the worksheets in order to arrive at a cumulative impact score that is as accurate as possible. It is also possible to add questions to the worksheets. While this Assessment Tool is designed to include this flexibility, any modifications must be approved by a team assessment. Areas are provided on each worksheet for the Assessment Tool user to provide references to relevant data for his or her responses. For the ease of both the project reviewer and other parties that may evaluate the scores provided by this tool, it is important that these reference fields be filled out whenever possible. The weight given to the various responses was arrived at by a general consensus of the MICCI team members following a two-day working session.

Scoring guidelines and a discussion of the content of each of the worksheets are described below.

4.1. Tool General Information Worksheet

The purpose of this first worksheet is to provide the user with general information about the tool itself and to provide a space to log changes and revisions that have been made to the tool. It provides contact information should a user wish to submit a change and provides an area to make a detailed log of all revisions. If a revision to the tool is approved, it *must* be logged on this worksheet in the table provided. Additionally, care should be taken to ensure that any supporting documents (such as these user instructions) are updated simultaneously with corresponding information and version number. Each column should be filled out with the following information:

- Version Number: Enter the version number of the revised tool. Bear in mind that a version number should be reflective of the magnitude of the change(s) that has been made. For example, if version 1.2.1 was the last stable and approved version of this tool, then a minor revision would cause an update to version number 1.2.2, a medium change would cause an update to version number 1.3.1, and a major change would cause a revision to version 2.0. Examples of minor changes include the revision, addition, or deletion of a single question as well as general formatting changes. A medium change might include the addition of a column in one of the worksheets, or the revision/addition/deletion of multiple questions. A major change should be considered any change that affects one or more worksheets as a whole.

- Modification Number: Each revision of the tool may include one or more changes. Each individual change should receive its own row in the table. The modification number should be used to differentiate each individual change that has been made within a specific revision. For example, if two questions are added, one question will receive a modification number of “1” and the other question will receive a modification number of “2.”

- Reason for Modification: Use this field to explain the reason that the modification to the tool was necessary. A log of this information will be especially useful as this tool continues to be developed.

- Approved (Y/N): The only entry in this column should be Y (yes). If the revision was not approved, no changes should be made and no entry should be inputted into this table.

4.2. Worksheet 1 – Project Summary

The first Worksheet is the Project Summary Worksheet. Fill out the worksheet by providing the requested information pertaining to the proposed project. The scores in the Assessment Summary section of this worksheet should not be directly filled out by the user. This section will automatically be filled out by the tool as subsequent worksheets are completed.

4.3. Worksheet 2 – Past, Present, and Foreseeable Projects

The second worksheet is used to provide information about past, present and reasonably foreseeable projects that are related to the proposed activity. It is assumed that this information will ultimately be gatherable from a centralized project database. If such a database does not exist, it is up to the user of this Assessment Tool to use his or her best expert judgment in determining which past, present and foreseeable projects need to be accounted for. In this case, it is also up to the user to use his or her best expert judgment in determining these projects' impact scores. Fill in the requested information about the projects. The brief description column should include a description of the project and its impacts. The methods column should be filled out with methods that were implemented to mitigate these effects, if applicable.

Fill out the two impact score columns. The cumulative impact rating (CIR) should be available from the project database. If it is not, then the user of this tool must assign a CIR to projects that have not been given a CIR, taking care to choose a CIR that is in-line with what this Assessment Tool would have calculated at the time that the project was approved. Enter this value in the CIR column. Then assign a current rating to each project in the current rating column in order to describe the project's current impacts on their surroundings. It is important that the current rating column be filled out in addition to the CIR column because it is expected that the passage of time will cause the CIR to change. The rating is based on a 1-5 scale as described below for Worksheets 3 to 6 and in Scoring Table 1. The information from this worksheet is automatically summarized in Worksheet 8.

Worksheet column definitions:

- ID No.: Field for entering the project ID number from regulatory agency records.
- Past, Present, or Future Project: Field for inputting whether the project is a past project, a current/present project, or a foreseeable/future project.
- Project Name: Field for entering the project's official name.
- Location (County): Field to denote the county that the project took place in. If it did not take place within any county, enter the county that was geographically closest.
- Location (Lat/Lon): Field to enter the project's geographic coordinates. This should be entered to the greatest degree of accuracy allowable by the agency's project records.

- Brief description: Used for explaining the purpose, scope, and environmental/social impacts (if applicable) that the project had or will have.

- Methods: Used to describe the mitigation methods used to reduce the project's impacts.

- Cumulative impact rating: Scored 1-5 (see Scoring Table 1). The rating that the project received according to agency records. If agency records do not indicate such a rating, then the project reviewer should attempt to give the project a CIR based upon using today's cumulative impact tool, but at the time that the project originally took place. If no CIR exists, it is up to the user's best expert judgment to populate this field with a proper CIR.

- Current rating: Scored 1-5 (see Scoring Table 1). The most important of the fields for the purposes of the *current* project's assessment. This field should be used to assess the impact that a project is having environmentally/socially *today*. It is important that the current rating column be filled out in addition to the CIR column because it is expected that the passage of time will cause the CIR to change.

- Name of Data Source: Field for entering the data source name that was used to gather the information that populates the other fields in the same row. Website, application file, database, past projects are examples.

- Type of Data Source: Field for entering the type of data source that the applicable source(s) fall under. GIS, website, literature, other are examples.

- Location of Data Source: Field to input where the data source can be found. Web address, file number, etc are examples.

- Discussion: Field to enter any additional user comments about the project itself that may not fall into any particular field. This discussion field may also be used to explain why information was entered in a particular way if that is not readily apparent.

4.4. Worksheet 3 – General Evaluation

This worksheet is designed to analyze the general impacts of the proposed project on the area of impact. Answer each question by selecting a score of 1-5 (see Scoring Table 1) based on the options provided for each question. The weights for each question have been assigned by consensus of the MICCI team members and should not be changed. If additional data is needed, make note of it in the "Need Data" column. It is acceptable to leave a response blank if sufficient data is not available. Indicate the source used to answer each question. Finally, if discussion is needed, make note of it in the "Discussion" column. After each question is given a score, the worksheet will generate a General Evaluation Score. Worksheets 4 and 6 should be filled out using the same approach used in this worksheet. The information from this worksheet is automatically summarized in Worksheet 8.

Worksheet column definitions:

- Score: This field is used to input the score in answer to the question asked. A score of 1-5 (see Scoring Table 1) should be entered if answering the question. A 0 (zero) must be entered if the question cannot be answered.

- Weight: Field to denote the importance of the question being asked. Higher numbers indicate questions that carry more weight relative to other questions.

- Total Score: Field to indicate the total score for the question, assuming it has been answered. Cells in this field are automatically populated by multiplying the Score by the Weight. If it is decided to leave a question unanswered, then a total score of 0 (zero) will appear in this field.

- Need Data: If the question cannot be answered because additional data is needed, then "Yes" should be entered in this field. Otherwise, it may be left blank.

- Name of Data Source: Field for entering the data source name that was used to determine the score in answer to the question asked. Website, application file, database, past projects are examples.

- Type of Data Source: Field for entering the type of data source that the applicable source(s) fall under. GIS, website, literature, other are examples.

- Location of Data Source: Field to input where the data source can be found. Web address, file number, etc are examples.

- Discussion: Field to enter any additional user comments about why a question was scored in a particular manner or to enter additional information about data sources or data needs to sufficiently answer the question.

4.5. Worksheet 4 – Environmental Evaluation

This worksheet is designed to analyze the ecological and environmental effects of the proposed project. It should be filled out in the same manner as Worksheet 3. See Worksheet 3 for details.

Note: Question 17 which refers to the availability of the BMPs is designed to address whether or not BMPs are available and also practical to use to reduce the potential for environmental impact. The level of benefits associated with available BMPs need to be evaluated on a case by case basis. For example, if only one BMP is available it is easy to answer this question. However, if more than one BMP are considered then it becomes important to make a determination based on the set of BMPs' ability to reduce the project environmental impact.

The information from this worksheet is automatically summarized in Worksheet 8.

Worksheet column definitions:

- Score: This field is used to input the score in answer to the question asked. A score of 1-5 (see Scoring Table 1) should be entered if answering the question. A 0 (zero) must be entered if the question cannot be answered.

- Weight: Field to denote the importance of the question being asked. Higher numbers indicate questions that carry more weight relative to other questions.

- Total Score: Field to indicate the total score for the question, assuming it has been answered. Cells in this field are automatically populated by multiplying the Score by the Weight. If it is decided to leave a question unanswered, then a total score of 0 (zero) will appear in this field.

- Need Data: If the question cannot be answered because additional data is needed, then "Yes" should be entered in this field. Otherwise, it may be left blank.

- Name of Data Source: Field for entering the data source name that was used to determine the score in answer to the question asked. Website, application file, database, past projects are examples.

- Type of Data Source: Field for entering the type of data source that the applicable source(s) fall under. GIS, website, literature, other are examples.

- Location of Data Source: Field to input where the data source can be found. Web address, file number, etc are examples.

- Discussion: Field to enter any additional user comments about why a question was scored in a particular manner or to enter additional information about data sources or data needs to sufficiently answer the question.

4.6. Worksheet 5 – Risk Characterization Evaluation

This worksheet will assess the risk level to Valued Environmental Attributes (VEAs) at the project location. The risk characterization score is dependent on (1) quantity of VEAs within the project's Area Of Impact (AOI), (2) risk factors to VEAs, (3) whether or not a VEA has received a special designation. When entering information into this worksheet, only enter data for stressor-VEA combinations that are applicable. Otherwise, leave the cell completely blank.

1. Risk factors to VEAs are determined by selecting a score of 1-5 (see Scoring Table 1) to indicate the impact of stresses related to the proposed project. If the VEA does not exist in the AOI, leave the entire column blank. The list of VEAs in the worksheet table was arrived at by consensus of the MICCI team members after a two-day working session. Input a score at each intersection for each VEA present at the proposed AOI. *If a stressor does not have any impact on a VEA that is present, then leave the cell blank*. The physical damage stressor carries the entire weight of all other stressors combined if a 4 or a 5 (see Scoring Table 1) is entered as the value under either the stony coral or soft coral

VEA columns, since this is representative of complete or nearly complete destruction of these coral VEAs, which would be considered unrecoverable. The extra weight in these two cases is taken into account by automatically entering a 50 in the VEA subtotal if a 4 or a 5 (see Scoring Table 1) is entered in the physical damage stressor for corals.

2. In order to determine quantity of potentially affected VEAs, the worksheet is split into three main tables – one for attached organisms, one for estuarine communities, and one for mobile organisms. The attached organisms and estuarine communities tables factor in the VEAs' geographic density within the project stressors' area of coverage, while the mobile organisms table takes into account the likelihood that an organism will be present within the stressors' area of coverage. The area of coverage multiplier should be entered as a decimal, with 0.2 = small coverage area, 0.4 = small/medium coverage area, 0.6 = medium/large coverage area, 0.8 = substantial coverage area, and 1.0 = entire coverage area. The VEA density multiplier should be entered as a value of 1-5 (see Scoring Table 1), with 1 being a very low density and 5 being an extremely high density. The VEA presence multiplier in the mobile organisms table should be filled out in the same way as the VEA density multiplier, with 1 signifying a low probability of presence and 5 signifying a very high likelihood of presence.

3. If a VEA category contains a species that has received a special designation, that column's score will be multiplied by a factor of 1-5, depending on what that designation is. In the special designation field, enter 1 for "no designation," 2 for "unspecified special designation," 3 for "threatened" or similar, 4 for "endangered" or similar, and 5 for "critically endangered" or similar.

Note that all three multipliers must be filled out for a column where one or more stressor-VEA combinations exists. Otherwise, leave the entire column blank, including the multipliers. Blank columns have been provided in each of the three tables to insert new VEAs if necessary. After all scores have been inputted, the worksheet will calculate the Risk Characterization Score. This score is based upon a maximum possible Risk Characterization Score of 1250. Even if a project receives a raw score greater than 1250 on this worksheet, the score will automatically be adjusted down to the maximum of 1250. The information from this worksheet is automatically summarized in Worksheet 8.

4.7. Worksheet 6 – Social, Economic and Cultural Evaluation

This worksheet is designed to assess the various social, economic or cultural impacts of the proposed project. It should also be filled out in the same manner as Worksheet 3. See Worksheet 3 for details. This worksheet may not be used by all stakeholders for all projects. The formulas calculating the Project Impact Rating have been adjusted to be equally valid whether or not this worksheet is used in an evaluation. The information from this worksheet is automatically summarized in Worksheet 8. Some agencies do not have authority to consider public interest issues and should not score this sheet. The overall score will not be affected if this worksheet is not populated as part of the Assessment.

Worksheet column definitions:

- Score: This field is used to input the score in answer to the question asked. A score of 1-5 (see Scoring Table 1) should be entered if answering the question. A 0 (zero) must be entered if the question cannot be answered.

- Weight: Field to denote the importance of the question being asked. Higher numbers indicate questions that carry more weight relative to other questions.

- Total Score: Field to indicate the total score for the question, assuming it has been answered. Cells in this field are automatically populated by multiplying the Score by the Weight. If it is decided to leave a question unanswered, then a total score of 0 (zero) will appear in this field.

- Need Data: If the question cannot be answered because additional data is needed, then "Yes" should be entered in this field. Otherwise, it may be left blank.

- Name of Data Source: Field for entering the data source name that was used to determine the score in answer to the question asked. Website, application file, database, past projects are examples.

- Type of Data Source: Field for entering the type of data source that the applicable source(s) fall under. GIS, website, literature, other are examples.

- Location of Data Source: Field to input where the data source can be found. Web address, file number, etc are examples.

- Discussion: Field to enter any additional user comments about why a question was scored in a particular manner or to enter additional information about data sources or data needs to sufficiently answer the question.

4.8. Worksheet 7 – Data Sheet

This worksheet provides an overall view of the various database sources a project reviewer used to answer the questions in Worksheets 2 to 6. It will populate automatically from the other previous worksheets.

4.9. Worksheet 8 – Cumulative Impact Rating

The figures in this worksheet are generated using the information provided in Worksheets 2 to 6. A graph is also provided with this worksheet to compare the individual scores of various projects and/or the scoring of the same project by various individuals. The graph is a valuable resource for decision making because it gives a very good summary of the assessment.

This comparison applies only within each worksheet not across worksheets. The graph should not be used to compare the scores within the same project because the various worksheets do not have the same number of questions.

The adjusted cumulative impact rating on this final worksheet is derived in the following way:

> The scores from worksheets 3 through 6 are combined onto worksheet 8. Each of these four scores are multiplied by their weights and then all four are summed to arrive at the project impact score (PIS). The PIS is then compared to the maximum score that the project could have received (see Scoring Table 2). This maximum score is derived from the number of questions that were completed on each of the worksheets multiplied by the sum of all of the weights for these answered questions. By comparing the PIS to the maximum possible score, different projects are able to be compared to one another and different evaluations from agencies with different capabilities (i.e. those that are unable to answer the same questions) can be compared to one another.
>
> For example, if Project A answered enough questions to receive a maximum possible score of 2000 and actually received an 1800, and Project B answered enough questions to receive a maximum possible score of 3500 and actually received a 2200, the raw score of Project B is greater than that of Project A. Based on the raw score alone (the PIS), Project B's impact is worse than that of Project A. However, when these scores are compared to the maximum allowable score, Project A's impact is far greater than Project B's (1800/2000 > 2200/3500). The PIS is thus converted to a more useable and friendly numeric comparator by dividing the actual score received into the maximum score that could have been received, as shown in this example. This percentage, which allows various projects and agencies to compare like data, is then converted into a project impact rating that ranges from 1-5 (see Scoring Table 3 for an example conversion table). Finally, the score from Worksheet 2 (past, present, and foreseeable projects) is then added to the project impact rating in order to arrive at an adjusted cumulative impact rating, which is rounded and is on a scale of 1-10. This final adjusted cumulative impact rating is outlined in and derived from Scoring Table 4.

5. Definitions

This Section provides a definition of the terms used in the eight worksheets of the Assessment Tool.

5.1. Worksheet 1 – Project Summary

Anticipated Area of Impact (AOI): The area of proposed direct and indirect impacts of the activity.

The area of impact is meant to define the specific area that the project is anticipated to, or can potentially, impact. This can be a pre-permit evaluation and once the project has been completed then post construction or actual AOI can be calculated and documented. The AOI units can be defined based on the specific project impact (i.e. m^2, linear ft, acres, radius, etc.) and relevant watershed. Use of political boundaries to establish the AOI is discouraged.

5.2. Worksheet 2 – Past, Present and Foreseeable Projects

Past Projects/Activities: Those projects or activities that have occurred in the past within the geographical scale of the proposed project.

Past projects should be those that have occurred prior and are related to the proposed activity. The actual time scale of past projects will have to be determined based on relevant, available and reasonably accurate information. Issued permits, monitoring reports, compliance reports and other documented activities would qualify.

Present Projects/Activities: Projects or activities present within the geographical scale of the proposed project.

Present projects should be those that are current, or have recently occurred, which are related to the proposed activity. The actual time scale of present projects will be determined based on relevant, available and reasonably accurate information. Issued permits, monitoring reports, compliance reports and other documented activities would qualify. Present activities should be those that have occurred within 1 to 2 years of the assessment date.

Foreseeable Projects/ Activities: Projects or activities that are reasonably anticipated to occur in the future within the geographical scale of the proposed project.

Foreseeable projects are expected to occur in the foreseeable future and may have some relevance to the proposed activity. The actual time scale of future projects will be determined based on relevant, available and reasonably accurate information. Applications for permits, anticipated construction projects and other documented activities would qualify. Future activities should consist of those activities that are reasonably foreseeable in the future.

On-going Project- A project or activity that is ongoing and contemporary with the proposed project. These must be considered until the time the habitat reaches equilibrium and monitoring (and compensatory mitigation) is completed.

Current Rating: The current rating of a past project is based on the project's impact at the time of evaluation.

Until a database is built, the current rating is a rating based on the best judgment of the agency at the time of the evaluation. It is a score from 1 to 5. Once the database is built, the rating will be different than the rating that a past project has received at the time of its evaluation because the impact might have changed over time.

Average Current Rating of Projects = Past, Present, and Foreseeable Project Evaluation Score: The sum of Current Rating of all projects divided by the number of past, present and foreseeable projects.

5.3. Worksheet 3 – General Evaluation

General Evaluation Score: The General Evaluation Score is defined as the sum of the evaluation components. The components of this calculation, which is also used to arrive at the Environmental Evaluation Score and the Social, Economic and Cultural Rating Score, are described in detail at the end of this document in the section titled ***Scoring***.

5.4. Worksheet 4 – Environmental Evaluation

Environmental Evaluation Score: This score is calculated using the same method used to calculate the General Evaluation Score in Worksheet 3 (see Worksheet 3 definitions for more details).

5.5. Worksheet 5 – Risk Characterization Evaluation

Risk Characterization Score: Sum of all scores in worksheet 5.

5.6. Worksheet 6 – Social, Economic and Cultural Evaluation

Social, Economic and Cultural Evaluation Score: This score is calculated using the same method used to calculate the General Evaluation Score in Worksheet 3 (see Worksheet 3 definitions for more details). The formulas for calculating the Cumulative Impact Rating will adjust depending on whether this part of the tool is utilized by a particular reviewer.

5.7. Worksheet 7 – Data Sheet

No definitions listed for Worksheet 7.

5.8. Worksheet 8 – Cumulative Impact Rating

Project Impact Score: Sum of weighted General Evaluation, Environmental Evaluation, Risk Characterization, and Social, Economic and Cultural Evaluation Scores.

Project Impact Rating: Project Impact Score divided by the Highest Possible Project Impact Score times five.

Adjusted Cumulative Impact Score: Project Impact Score plus the Past, Present and Foreseeable Projects Evaluation Score

Highest Possible Project Impact Rating: Sum of the highest possible scores for the General Evaluation, Environmental Evaluation, Risk Characterization and Social, Economic and Cultural Evaluations multiplied by their respective weight.

Weights: A predetermined adjustment of the score based on the importance of the category. The importance of each category was determined by consensus of the MICCI team members.

6. Scoring

The answers to the questions in Worksheets 3, 4, 5, and 6 are scored using a 1 to 5 scale of impact as defined below:

Scoring Table 1:

IMPACT SCORING
1 = None
2 = Low
3 = Moderate
4 = High
5 = Extreme

The General Evaluation Score, the Environmental Evaluation Score, and the S,E,C Score are each defined as the sum of the evaluation components. Methods used for the calculations for Worksheets 3, 4 and 6 are described below. The adjustments made to account for questions that are left unanswered by a particular evaluator are also defined. It was important to adjust the calculations so the final score would not be biased by the kinds of questions a particular reviewer either answered or left blank for a given project. The Risk Characterization Score for Worksheet 5 is simply the sum of all responses in that worksheet and is not affected by this bias.

The formulas used for the calculations at the end of Worksheets 3, 4 and 6 are shown below:

- **Total weight**: Sum of weights for all questions
- **Weight of answered questions**: Sum of weights of answered questions
- **Weight of unanswered questions**: Sum of weights of unanswered questions
- **Highest possible score**: Total weight times 5 (highest possible score per question)
- **Total answered questions**: Number of questions answered by evaluator
- **Total unanswered questions**: Number of questions not applicable to the project or for which information is not available

- **Percentage answered**: Number of answered questions divided by the number of total questions (divide by 100)
- **Average weight of answered questions**: Weight of answered questions divided by total answered questions
- **Average weight of unanswered questions**: Weight of unanswered questions divided by total answered questions
- **Unadjusted score**: Sum of total score for all questions
- **Unanswered Estimated Score**: Subtract the Unadjusted Score divided by Percentage answered from the unadjusted score and then multiply this by the Ratio of Weights. The ratio of weights is the average weight of unanswered questions divided by the Average weight of answered questions
- **Adjusted score**: Unadjusted score plus unanswered estimated score

The scores calculated in Worksheets 3, 4, 5 and 6 are analyzed as a percentage of the highest possible score on that worksheet. A project's potential impact rating depends on the range under which the project's adjusted score falls. The table below shows the highest possible project impact scores from which the percentages are calculated.

Scoring Table 2:

HIGHEST POSSIBLE PROJECT IMPACT SCORE			
Evaluation Type	**Highest Score**	**Weight**	**Total Score**
General	390	2	780
Environmental	420	2	840
Risk Characterization	1125	1	1125
Social, Economic, and Cultural	650	2	1300
Total Highest Possible Project Impact Rating			4045

This table is found on Worksheet 8. The highest possible score differs for each worksheet based on the number of questions contained in that section.

Note: The Total Score for the Social, Economic and Cultural will adjust when and if that worksheet (6) is used. The Total Score for this section will change from zero as soon as a response is input to that section.

The Project Impact Rating Scale is based on a breakdown of the total score a project receives as a percentage of the Highest Possible Project Impact Score. From this, the project is assigned an Impact Rating from none to extreme as shown below:

Scoring Table 3:

PROJECT IMPACT RATING SCALE					
Adjusted Score		Percentage		Score	Impact Rating
Low Range	High Range	Low Range	High Range		
0	274	0.00	9.99	0.5	None to Minimal
275	549	10.00	19.99	1	
549	823	20.00	29.99	1.5	Low
824	1098	30.00	39.99	2	
1098	1372	40.00	49.99	2.5	Medium
1373	1647	50.00	59.99	3	
1647	1921	60.00	69.99	3.5	High
1922	2196	70.00	79.99	4	
2196	2470	80.00	89.99	4.5	Extreme
2471	2745	90.00	100.00	5	

Note: This Project Impact Rating Scale example is based on an evaluation that does not include the Social, Economic, and Cultural Evaluation. The Adjusted Score will be 4045 if Worksheet 6 was included.

The final score is the Adjusted Cumulative Impact Score which provides the most complete reflection of the cumulative impact of a proposed project. It is the sum of the Project Impact Rating and the Past, Foreseeable and Current Projects Score from Worksheet 2.

Scoring Table 4:

ADJUSTED CUMULATIVE IMPACT SCALE			
SCORE			
Minimal	1	to	2
Low	3	to	4
Medium	5	to	6
High	7	to	8
Extreme	9	to	10

Each of these scores is calculated by the Assessment Tool based on the responses to the questions found in Worksheets 2 to 6. These are summarized automatically in Worksheet 8 which gives the final assessment of a project evaluation.