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**Units 4-6: Development of Regional Case Study Action Plans and Evaluation Rubric/Checklist**

* Your team is part of a special ad hoc committee that has been assigned to create a PowerPoint presentation describing the context of the *Wicked Problem of Food Security a*nd the potential solutions for their case study region.
* PowerPoint Audience: either 1) Mayor of New York City 2) Governor of Nebraska 3) CARICOM–Council for Human and Social Development
* To complete this assignment you will need to conduct research on your region (we have identified starting points in the list of references for you)
* Complete two data analyses using ArcGIS online. (You can use the ones you have already done as assignments as a basis for your analysis, or create new ones.)
* The presentation should incorporate and consider each of the points below. One or more slides should be devoted to each topic or task below:

1) Title Slide: Your Region and the specific problem that your team is addressing

2) An introduction to the problem (1-3 paragraphs)

3) Definition of what a Wicked Problem is and how your selected topic meets the criteria of a Wicked Problem

4) A well-thought out diagram that connects the food system of your region to the Earth system, with a discussion of the fluxes and feedbacks exhibited between the components in the two systems, using Earth system science terminology from Unit 2.

5) A discussion of your research

6) Research methods section, describing what geoscientific habits of mind were employed

7) Two maps that provide an analysis of data, these should be original and created by your team

8) At least two proposed solutions based on your analysis, and a discussion of the projected outcomes of the solutions including possible unintended consequences resulting from systems interactions. A discussion of your food system model, its connection to the Earth system, and interactions is appropriate here. Be sure to use system terminology presented in Unit 2.

9) Summary and conclusion statement, including a reflection on the role of systems thinking in your analysis.

10-13) Formatting and submission requirements

**Student Rubric.** You can use the rubric below to ensure that you have submitted all the required information in your presentation. Use the checklist on the left as you near the deadline for the project.

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| **Team Check-off List prior to submission** **YES/NO** | **Required****content in presentation** | **Criteria based on learning objectives** | **4 points** | **3 Points** | **2 Points** | **1 Point** | **0** **Points** |
| **1** | **Regional food security issue that your project addresses** | Region and Topic is both relevant and significant to Global Food Security. | Region and topic is clearly stated. |   |   |   | Topic is not well formed  |
| **2** | **Introduction to your PowerPoint** | Competence explaining one or more geoscience-related challenges facing society. | One paragraph introduction is provided. |   |   |   | Not present |
| **3** | **Definition of a wicked problem and description of why your topic meets this definition** | Project shows evidence that learner understands complex societal issues are best addressed through a multidisciplinary approach and systems reasoning, through their discussion of a wicked problem. | Can describe the differences between a wicked problem and a tame problem, using 6 or more criteria. | Can describe the differences between a wicked problem and a tame problem, using 4 or more criteria. | Can describe the differences between a wicked problem and a tame problem, using 2 or more criteria. | States that the problem they are examining is a wicked problem. | Not present |
| **4** | **Inclusion of a systems diagram that connects to the global food system to the Earth system.**  | Diagram utilizes terminology presented in Unit 2: components, fluxes, feedbacks, residence time and reservoirs. | Diagram shows links between Earth system and food system and uses terminology appropriately. | Diagram either shows Earth system and food system connections or incorporates terminology, but not both. | Terminology is used but it is applied inconsistently or at times inaccurately. | Termino-logy is not used. | Not present |
| **5** | **Identify at least 4 factors influencing food security in your region based on research with appropriate citations.** |  | Identify at least 4 factors influencing food security in your region, using data. | Identify at least 3 factors influencing food security in your region using data. | Identify at least 2 factors influencing food security in your region using data. | Identify at least 1 factor influencing food security in your region using data. | Not present |
| **6** | **Identify which of the following modalities of analysis were used in developing your study: observations, hypothesis testing, historical comparisons, spatial and temporal pattern investigation.**  | **The nature and methods of geoscience and developing geoscientific habits of mind.** | Explicit discussion of at least two geoscientific habits of mind. | Explicit discussion of at least one geoscientific habit of mind. | No explicit discussion but implied use of geoscientific habits of mind. | Not supplied | Not present |
| **7** | **Two maps based on your AGO analysis used to define the food security problem in the region or provide evidence of a direction for a solution. Each map has a descriptive explanation.** | Use of authentic and credible geoscience data to learn central concepts in the context of geoscience methods of inquiry- using ArcGIS. | Purpose for creating map is clear. Map product is attractive, symbolization is effective, and classification is appropriately designed to clearly depict the data needed to support the argument. Three or more data sets are employed in analysis. One or more spatial analysis tools used. Map includes metadata and references.  | Purpose for creating map is clear. Map product is attractive, symbolization is effective, and classification is appropriately designed to clearly depict the data needed to support the argument. Two or more data sets are included in analysis. One or more spatial analysis tools are used. | Purpose for creating map is clear. Map product is attractive, either symbolization or classification is appropriately designed to clearly depict the data needed to support the argument. Two or more data sets are used. | Purpose for creating map is clear. One or more data sets are used. | Not present |
| **8** | **Proposed actions that are expected to lead to solutions, with discussion of possible negative or undesired consequences, using system terminology.** | Product demonstrates critical thinking and data analysis to explore possible steps toward mitigation of part of the wicked problem of food security.  | At least 5 appropriate resources for analysis are identified, consulted, and used, including at least two data sets. | At least 4 appropriate resources for analysis are identified, consulted, and used, including at least one data set. | At least 3 appropriate resources for analysis are identified, consulted, and used. | At least 2 appropriate resources for analysis are identified, consulted, and used. | Not present |
| **9** | **Summary and conclusion** | Project shows evidence of awareness of the need for including Earth system understanding when examining any problem that arises from interaction of society and the environment.   | Linkages, including cycles, feedbacks and fluxes, between societal systems and Earth system are identified. | Linkages, including fluxes and either feedbacks or cycles, between societal systems and Earth system are identified. | Earth system is identified and fluxes connected concretely in the discussion. |  | Not present |
| **10** | **Inclusion of a minimum of four outside sources in addition to the materials provided. Sources and images are properly cited and referenced on the final PowerPoint slide.** |  | Inclusion of a minimum of 4 outside sources in addition to the materials provided. Sources and images are properly cited and referenced on the final PowerPoint slide. | Inclusion of a minimum of 3 outside sources in addition to the materials provided. Sources and images are properly cited and referenced on the final PowerPoint slide. | Inclusion of a minimum of 2 outside sources in addition to the materials provided. | Inclusion of one outside source in addition to the materials provided.  | Not present |
| **11** | **Grammar, style overall attention to detail.** |  | Presentation is free from grammar and spelling mistakes and is properly formatted. | Presentation has only an occasional grammar, spelling or format error. | Presentation has 5-10 grammar, spelling or formatting errors. | Presenta-tion is draft quality  | Not present |
| **12** | **Description of individual roles in creating team product and % contribution of each team member.** |  | Yes, provided |  |  |  | No |
| **13** | **Submitted on time** |  |  |  | Yes |  | No |
| **Out of 50 points=**  |  |  |  |  |  |  |  |