GEOG 454: CONSERVATION AND SUSTAINABLE USE OF NATURAL RESOURCES
Assignment #3 (Final Project)

In this assignment, you will identify a topic in natural resource and conservation, conduct research into the topic, write a paper based on the research, and present it in class on Tuesday April 30 and Thursday May 2.

I have listed specific topics that you may choose from below for your paper. The paper should address aspects of sustainability related to these topics.

1. Overpopulation and family planning policies/measures
2. Hunger or food insecurity and caused related to poverty, conflicts, and/or climate change.
3. Soil erosion: patterns, impacts and control.
4. Issues related to water resources (water shortage/scarcity, water pollution): causes, impacts and solutions
5. Forest resource and management (tree harvesting, wildfire, national parks and wildness, deforestation, reforestation)
6. Biodiversity (species extinction or endangerment, invasive species) related to human action, pollution, and climate change
7. A particular type of energy: wind, solar, hydropower, or fossil fuels (coal, oil, or natural gas).
8. Climate change (e.g. changes in growing season, ice-out and ice-on dates, precipitation changes, rising sea level and impacts, etc.). Consider both benefits and harmful effects.

Each of the topics listed above is broad. After you have identified a topic, you need to narrow it down by defining one or a few **very specific** research questions. In addition, you will study the topic from a regional viewpoint (national, state, local). In other words, your research should include a case study.

It's critical that your research questions or research issues are specific, and you conduct in-depth research into the issues – do NOT provide a broad survey of a natural resource or environmental topic. Your paper should NOT be simply a review of literature. It should be a research project that is based on the analysis of data and/or information that you collect. The paper is expected to generate some information or findings that are **new** to many of us in class. The **new** information that your project generates is measured by ALL the following three criteria:

1. Not too much information that your project presents has already been discussed in class.
2. Not too much information that your project presents has already been presented in assigned readings.
3. Not too much information that your project presents can be easily found online after a quick Google search.

Requirements:

1. It's critical that your research questions or research issues are specific, and you conduct in-depth research into the issues – do NOT provide a broad survey of a natural resource or environmental topic (for instance, a broad survey of water resource, renewable energy, etc.).

2. Your paper should include the following sections:

   - **Title Page** – title of your project, your name, course information, date
   - **Introduction** (about one page) – in this section, you will first provide some background or big-picture information by discussing the topic that your research will fit in. Then, you will state the purpose of your study. Try to state the purpose clearly but succinctly (in one sentence). Following that, you will present the specific issues you plan to research into or questions you attempt to answer. If necessary, you can then elaborate on the issues. Next, you will explain why you choose to study the issues. You may, for instance, explain why the issues are important ones but they have not received much research attention in the literature.
   - **Literature Review** (about two pages) – in this section, you will conduct a brief review of the literature. You will need to collect some articles from academic journals and/or books that deal with the research topic. You will read and analyze the sources and discuss how the studies approach the issues that you are studying (or related issues) and what findings or conclusions they have drawn. At the end of this section, you will need to point out what is lacking in the literature and what needs to be studied about the topic – this justifies the purpose and importance of your research.
   - **Methodology** (1-2 pages) – in this section, you will describe what you data or information you will need to use to study the issue or answer your research questions, where you get such data or information, and what methods you will use to analyze and present the data (if you have any analytical methods, such as descriptive statistics, mapping, making charts/tables, etc.). If you have a case study, briefly describe the study area.
     Special requirements for Geography Majors: In order to assess your geospatial skills, you will need to create at least one map that reveals some spatial pattern or spatial relationship. At the very minimum, the map could be a location map showing the location of your study area. You will need to create the map(s) by yourself using the ArcGIS software. If you could perform some spatial analysis to help answer your research questions, it will likely make your paper a very strong project!
   - **Results/Findings** (4-5 pages) – in this section, you will present the results or findings of your study. You are writing should center around the research issue(s) (nature and causes of the issue(s), solutions, etc.) or research question(s) (answers to the question(s)).
   - **Summary (or Conclusions)** (about one page) – provide a brief summary of major findings from the study (that is, to discuss very briefly what you have done and what you have found).
   - **Bibliography** – At the end of your paper, you should include a bibliography, which is a list of references that you use and cite in the paper (see requirements 3 & 4 on page 3).

3. To write the paper, you will need to consult **at least five (5) substantive academic sources**, such as books, academic journal articles (hardcopy or electronic format), or book chapters. The five sources do NOT include textbooks and other readings required or recommended in this class, though you may use them as additional sources (But again, your project should NOT be simply a review of literature).

4. Citations – you should cite the sources in your paper. For both in-text citation and bibliography, you will need to follow the **Chicago Manual of Style (CMOS) - the author-date style**.

5. For many of the issues, especially those with respect to the future of the issues under discussion, there may not be a single and/or right answer! The important thing is to make an argument and carefully support it with evidence from external sources and your own analysis. I would like to see your own arguments and opinions but try not to make your paper too opinionated! Most of your arguments should be well-grounded and supported by reliable sources. The factual materials you are using should be accurate.

6. **Use of internet and AI**: you may find a lot of "useful" information from various websites. However, you should use extreme caution about the information from the internet. You are **NOT** encouraged to rely too heavily on the internet to obtain information (except credible academic sources such as journal articles published online). If you do gather information from the internet, use accredited websites only AND make sure you cite in a proper way following CMOS. Avoid copying information directly from the internet and be very cautious against plagiarism.

   Use of Artificial Intelligence (AI) Tools:
   - A paper that is generated by AI is not considered your own original work.
   - When you use AI text, you need to cite.
   - Excessive use of AI generated content (especially without proper citations) will be considered plagiarism.

7. Cite the ideas and words you draw from other sources and reference all your sources in your paper. **Plagiarism** — using other's ideas or words without giving them credit through citation — will be penalized (from low to no grade and/or disciplinary action by the University). Please refer to the UND Code of Student Life or talk to Dr. Wang if you are not sure what plagiarism is about.

8. The paper will be graded on your efforts, appropriate use and understanding of source materials, and presentation, including adherence to the format required and a reference citation standard. A scoring rubric will be posted on Blackboard.

Deadlines and Deliverables
In total, the assignment is 100 points (out of the course's total of 500 points). But there is one opportunity for students to earn extra credit of up to 20 points by participating in the UNDergraduate Showcase hosted by the College of Arts & Sciences. Please pay attention to deliverables of the project and deadlines, as listed below:
- **April 1 – one-page proposal**: Write a paragraph or two discussing how you will study the topic (a preliminary research plan) and, if you have, what data or information you have collected that allow you to conduct the research. (10 points possible; submit a MS Word document to Blackboard)

- **April 29 – draft paper:** Your paper should be completed and submitted to Blackboard (by end of day). The paper must be in complete form. (20 points possible; submit a MS Word document to Blackboard)
- **April 30 & May 2 - presentations in class on Tuesday:** each student is expected to give a PowerPoint presentation introducing their research to the class. A sign-up sheet will be provided later. (20 points possible)
- **May 2 – Poster presentation at the [UNDergraduate Showcase](#)** (optional): great extra-credit opportunity to boost your final grade (20 points possible).
  - ✓ Visit the website and check the registration deadline and other requirements.
  - ✓ Do NOT sign up for any session that falls within or overlaps with our GEOG 454 class time (2:00-3:15 p.m.)
  - ✓ Dr. Wang can print your poster free of charge (Department of Geography and GISc will cover the cost)
- **May 9 – Final/revised paper**: Submit a MS Word document to Blackboard by end of day. (50 points possible)

Please contact Dr. Wang if you have questions about the assignment or need some clarifications. Help on writing is available at the UND Writing Center (Chester Fritz Library Room 321; https://und.edu/academics/writing-center/). They may or may not provide proofreading services, but probably provide help on more substantive writing issues: understanding the assignment, preparing an outline, making a persuasive argument, incorporating references, etc.