Fundamentals of Sustainability 2024/2025 S2

Group Assignment Guidelines (45% Final Grade)

Objective: Apply the main theoretical concepts discussed in class (the 3 sustainability domains of Water, Earth, and Air) to a real-life context.

At the end of the assignment, students should feel comfortable about the three domains, should understand how the tools discussed in class can be helpful in both understanding problems related with the 3 domains, but also devising solution to tackle environmental problems concerning water, earth, and air.

The topic: Companies are often the main actors involved in **infrastructure*** projects. They are involved in planning and constructing dams, bridges, transportation systems, housing or industry complexes, among others.

Such projects are often in need of **environmental assessments to understand** their impacts, and whether they are viable or not.

Each group (**up to four elements)** will be asked to choose a **company** and research one of their ongoing or planned infrastructure projects, by using the concepts and tools discussed in class.

Each group should look at the project from the point of view of its impact on water, earth, and air, as well as any important impact the group would like to highlight, namely the impacts in society (so-called socio-economic impacts). They should focus on providing a critical analysis of the impact of the project in the three domains, and then develop up to 3 robust and feasible recommendations. Students should also apply and/or recommend the application of at least two of the tools discussed in class.

Each group should register its composition in Moodle by February 26th.

Groups should also choose a company and project by February 26th and email it to the Teaching Assistant (maria.godinho@novasbe.pt). Only one member of each group should email the TA on behalf of the group. Please state the **group number (as per Moodle enrollment)** on the subject of the email.

The course instructor and TA reserve the right to not accept a topic if it falls out of scope and/or has been chosen by other groups.

Groups will need to prepare an intermediate presentation, to be held in class on May 7th, and a final report, to be delivered by May 12th.

General Guidelines for the intermediate Presentation:

Each group should prepare an 8-minute presentation. PowerPoint is not mandatory but, if used, no more than 10 slides are expected, in order to fit the 8-minute slot.

Assessment of the intermediate Presentation:

The presentation will be assessed in class by the course instructor and TA, and will be considered for the final grade (15%). At the stage of the intermediate presentation, groups are expected to have a good understanding of the problem and the company as well as a preliminary view of the main environmental impacts on the three domains (water, earth, and air), as well as any important impact the group would like to highlight, namely the impacts in society (so-called socio-economic impacts) of the project.

General Guidelines for the Report:

Each group should produce a report of 20 pages (maximum, excluding cover page, references, and appendix).

The report should cover:

- An introduction to the problem and to the company (10-15% assignment).
- An assessment of the environmental impacts on the three domains of water, earth, and air, as well as the socio-economic impacts of the project (70-65% of the assignment).
- A final recommendations section (20% of the assignment).

In the recommendations, students should summarize the main impacts, define the most important ones (and why) and come up with at least 3 recommendations to tackle these problems. The recommendations should be robust, feasible and realistic. Any information that allows us to judge the recommendations in such a way will be highly valued.

In the report (throughout or in the recommendations) students should also apply and/or recommend the application of at least 2 tools discussed in class. We will not require the full application of tools if not possible (i.e., Groups are not expected to produce a sustainability report), however, when tools are used and/or recommended, it should be clear what are the goals and principles for applying the tool, what are the main steps companies should take, and why they are being used in the context of the assignment. In case students find it impossible to apply the two tools (i.e., can only apply or recommend the application of 1) this should be clearly justified.

Students should use different sources to justify their arguments and analysis (see '**Tips'** section). Arguments and analysis should be thoroughly justified and referenced whenever they use specific sources.

The report should have normal margins (bottom and top 2,5 cm; right and left 3 cm), Font 'Times New Roman', size 12. Spacing: 1.5. Referencing style: APA

The final report is submitted on Moodle. Only one member of each group should submit the final report on Moodle on behalf of the group.

Please include clearly in the cover page the Group number, names and student numbers of members of the group and the company/project chosen.

Assessment of the Report:

The reports will be graded according to the several criteria, namely:

- **Assessment of the analysis component of the report (11/20):** in-depth analysis of the impacts, bearing in mind the concepts discussed in class in connection with the research on the project chosen. This will also take into consideration the quality and extent of the literature review incorporated in this section.
- **Assessment of the recommendations (4/20):** analysis of the quality of the recommendations, which comprises how robust and realistic they are, but also whether they are coherent with the analysis component of the report.
- **Implementation of tools (2/20)**: how coherently are the two tools chosen incorporated in the report, but also whether a quality justification is provided for why the tools were chosen, and how they are incorporated in the analysis and/or the recommendations.
- **Research component (2/20):** judgement on the coherence and consistency of the report, and the arguments presented.
- **Formal aspects (1/20):** to what extent the general guidelines of the report were respected.

Main deadlines:

- **Register Group** Composition (up to 4 members) on **Moodle** – using the **group registering** tool on Moodle **- by February 26th at 23h59**.
- Send your **group's topic** by **February 26th at 23h59** to the TA @ maria.godinho@novasbe,pt

- **Mid-semester check-in**: Around the beginning of April, each Group will have the opportunity to schedule an appointment with the TA, to check-in on the assignment. This will be helpful for groups to present their findings and ask questions on the assignment.
- **Intermediate Group work presentations: May 7th** in class.
- **Deadline for delivery of the report on Moodle: May 12th at 23h59 (Note: Reports will be checked for both plagiarism, but also use of AI-related tools).**

Tips for a successful report:

1. Be careful in choosing your topic: not all projects are infrastructure projects!

   *__Infrastructure projects__ are 'projects where there is a proposal to build, maintain, and upkeep infrastructural facilities, systems, and services. Building new roads, constructing new power plants, maintaining sewage systems, and providing drinking water to the public are all examples of infrastructure projects.' (def. by Blackridge Research and Consulting)

2. Choose a big company and/or a big infrastructure project. Listed companies usually have a lot of information you can use. Also, make sure the project you choose has information in your language, or you'll be able to reliably translate the existing information.

3. Cross-reference information: when choosing a topic make sure you have information not only from the proponent of the project (i.e., the company or regulator who might have issued an environmental assessment) but also from other sources (i.e., NGOs, journalists, or other companies; benchmark of similar projects). A good report will present information and perspectives from different actors and sources.

4. Reflect on your topic, but be quick! The instructor and TA will restrict the number of groups working on the same topic, and the choice will be first-come, first served.

5. Keep in mind the list of excluded projects **you won't be able to choose from. These include:**

   - Stuttgart 21
   - Masdar City
   - A69: Highway
   - Natural gas pipeline Finland and Estonia
   - Hywind Scotland

- Dogger Bank Wind Farm
- Enel - Lagoa dos Ventos
- Medellín's Green Corridors
- Salamander Wind Farm
- Lynetteholmen Island Initiative
- Energy Island
- SSEN Transmission supporting UK's transition
- Tunnel Euralpin Lyon Turin
- Trans Adriatic Pipeline Report
- Google's Data Centre Norway
- East Coast Rail Link Malaysia
- Lisbon Metro expansion Project
- Kaskasi offshore wind park
- Baihetan hydropower plant
- NEOM project
- Intel SemiConductor Plant in the US
- California Train
- Copenhagen City Ring
- London Array Offshore Windfarm
- U5 Project in Hamburg
- GigaFactory Berlin
- Nordstream
- LNG Terminal
- Tilenga oil project of Total Energies in Uganda
- Plenitude
- Samsung SemiConductor in Texas
- Gasnetz Hamburg GmbH
- Ørsted Skipjack Wind Project
- South to North Water Diversion Project
- Great Green Wall of Africa
- Fehmarn Belt Tunnel Project
- Carlsbad Desalination Plant California
- Borkum Riffgrund
- Madeira's Central and University Hospital
- Brenner Basis Tunnel
- Bridge over the Messina's Strait
- Lubiatowo-Kopalino Nuclear Plant

- Hinkley Point C
- Venice MOSE project
- Salamander Floating Offshore Wind Project in Scotland
- Siemens Mobility's High Speed Rail Project in Egypt