

### **General Comments**

Students were asked to answer one of two “situational” exam questions. The questions challenge students to think about social science perspectives on environmental issues, and provide them with an opportunity to **synthesize, integrate**, and communicate the course material in a manner that demonstrates what they have learned during the semester. Generally, exam papers that are able to synthesize and integrate different concepts rather than address them separately earn higher grades.

Each exam question contained specific tasks – topics to address – and successful answers should address these specific topics in a structured fashion, clearly demarcating them with appropriate headlines.

Each question clearly indicates a number of course concepts that are relevant and should be included in the answer. Students are not required to make use of all the suggested concepts, but should integrate some in their answers. Not using any of the suggested concepts is likely to lead to a poor grade – missing central social science ideas that are needed to understand the topic.

The course this year focused heavily on climate change, but the topics and themes were relevant to all issues, including biodiversity loss. There is no one correct answer to these questions – we are rather looking to see how students approach the question and how much information and learning they can pull together from the course. Both questions ask the students to take an integrative approach to the topic as well as reflect on what such an approach might look like in practice. All questions present opportunities for the students to be creative, e.g., to write in a style that is suitable for a real-world context rather than a university exam. It is important, however, that students make an honest attempt to become concrete by linking problems and solutions.

Students were asked to bring in readings from the course curriculum, which included the *Climate and Society* textbook (Leichenko and O’Brien 2019). Though there was no specific number of references to include, **exam answers that are awarded As and Bs will generally integrate a wider variety of readings**. While it is possible to answer the questions adequately with only the main textbook, we are looking for more depth and a greater capacity to think laterally, thus would like to see them bring together more “threads” from the readings.

In some instances, social science perspectives outside of the course could be relevant, but these are not required for responding to the exam questions. It is acceptable to bring in external literature, but students were encouraged to limit this to a minimum and focus on the curriculum. **The use of additional/external resources should not be considered beneficial for the grade, i.e., there is no link between using additional information and receiving a better grade** (e.g., for effort). If students mainly reference external literature, this should subtract from their final grade. The grade should awarded based on the successful application of course concepts.

## Question 1

### Climate Change, Heat Stress, and Adaptation

India and much of southern Asia is currently experiencing a period of extreme heat. This follows multiple heatwaves in Northern India in this time period last year, indicating a climate change-related pattern. At the same time, [CarbonBrief](#) reports that half of the world's population has experienced extreme/record heat over the last decade. Extreme heat presents a range of challenges for affected regions, especially the risk of heat-related deaths and health impacts, but also pressure on energy systems due to demand for cooling, expanding access to healthcare and increasing drinking water supplies. Millions in this region of the world don't have access to air-conditioning and often deal with electricity outages, especially during heat waves. The author of a recent [BBC article](#) is one of many linking a work of climate fiction to these present-day realities of climate change in India: "In his best-selling 2020 novel, *The Ministry for the Future*, science fiction writer Kim Stanley Robinson opens with a deadly heatwave in India which kills millions of people." In Robinson's story, the experience of the heatwave is formative for one of the novel's main characters, who becomes a radical climate activist.

Based on what you have learned in SGO2302, how should India respond to the challenge of increasing climate-related heat? Briefly explore the question of attribution – whether the recent heat wave in India can be linked to climate change at all. Use the concepts of discourses and worldviews to distinguish different perspectives regarding climate change adaptation and provide examples of solutions each discourse might favor. Drawing on this comparison of discourses, develop your own position on what India should do to deal with increasing heat. Consider barriers and limits to adaptation as well as potential maladaptation risks and important justice dimensions of climate change adaptation. Finally, discuss the potential role of story and narrative for responses to climate change, including adaptation policy making at the national or international scale.

<https://onebillionresilient.org/hot-cities-chilled-economies/>  
<https://interactive.carbonbrief.org/half-global-population-saw-all-time-record-temperatures-over-past-decade/>

#### Examiner Guidelines:

- Strong responses distinguish and address all components of the question with balanced attention to all four: (1) attribution of extreme heat events (or other extreme weather events) to climate change, (2) climate change discourses, (3) climate change adaptation and related concepts, (4) story and narrative as part of the solution. Components 2 and 3 should receive greater attention than 1 and 4. Weaker responses might ignore one or more components or treat them superficially.
- Strong responses integrate the different components of the question and tie their responses closely to India as a case study context. Discussing other countries is possible

but might lead students to neglect important justice and development dimensions of the question that are linked to the characteristics of India.

- Attribution science – students have to display knowledge of the concept for a high grade (A, B or C), esp. the fact that climate change is never the single cause of an extreme event but makes them more likely/frequent and more intense.
- Students need to discuss the specific impacts of extreme heat in India. Stronger answers will be able to identify more diverse impact types beyond the ones listed in the question. Strong students might expand on related concepts like compound events, double exposure and (uneven) vulnerability.
- Students might want to discuss adaptation and related concepts (maladaptation, barriers and limits to adaptation, loss and damage) before they dive into discourses. They should define adaptation and explain what might be involved in adapting to extreme heat at different social scales, from changing patterns of being and working outdoors (individual behaviors), to using technological solutions like AC for cooling (households, organizations), creating cooling centers for the homeless (communities), strengthening national health care systems and facilities, public educational campaigns, trainings for medical personnel, securing safe drinking water supply, changing building codes and practices to deal with urban heat island effects (e.g., creating shade, insulation, ...). They can use the concept of vulnerability to distinguish unevenly distributed adaptation needs and corresponding issues of justice.
- Stronger students might also discuss that addressing extreme heat has also a mitigation dimension – India needs to consider what it can do nationally and internationally to limit global temperature increases with carbon emission reductions. Mitigation is necessary to limit future warming and therefore directly affects the scope of necessary adaptation and adaptation challenges.
- A discussion of the 4 climate discourses introduced in the textbook is key for a successful answer: biophysical, critical, dismissive, and integrative. Strong students are able to efficiently present these discourses and apply them to the context of adaptation. Weaker students will use more space to describe the discourses based on the textbook with less attention to case-specific application. They need to state clearly what each discourse would propose as a solution to extreme heat events. Students should identify concrete examples for these solution types (described in general, abstract terms below):
  - Biophysical: behavioral, technological and other measurable changes that can involve policy making
  - Critical: measures that consider and correct inequality and uneven vulnerability, power relations, poverty, giving voice to marginalized groups in the process, and other ways of addressing the structural causes of vulnerability.
  - Sceptical: not linking heat stress with climate change and relying on individuals' ability to adapt (without a major role for government)
  - Integrative: emphasizing the value multiple perspectives, incl. all three discourses above, and seeking to integrate these in the process of developing solutions. Attending to the importance of worldviews and values.

- The terms barriers, limits and maladaptation need to be defined and explored in the context of the India case study.
  - Limits: e.g., physical limits to adapt to heat (being exposed) at wetbulb temperature,
  - Barriers: e.g., cost as a barrier to installing cooling technology in a home,
  - Maladaptation: e.g., massive expansion of air-conditioning powered with fossil fuels – contributes to climate change.
- Stronger students could use the 3 spheres of transformation framework in addition to the discourses to explore how India should respond to the extreme heat problems.
- A section on story and narrative should discuss why stories are powerful communication tools – meaning-making devices beyond information, who they might influence (individual readers can include citizens and decision makers) and how (mental simulation of climate impacts and human experience, also of solutions, emotions).

## Question 2

### Individualisation of Responsibility

Climate change is a major challenge facing all societies and communities on the planet. As you have learned in SGO2302, different discourses understand this challenge in different ways and offer different solutions. Among the many solutions proposed, some focus on systemic and structural changes that require political change and policy measures (e.g., carbon taxes, fossil fuel phase-out laws, ...). Others focus on encouraging individual behavior change, such as avoiding air travel, shifting diets away from meat, or shifting investments away from fossil fuel companies. **Use concepts from the course, including climate discourses, the three spheres of transformation, and climate justice, to discuss the relationship between systemic and individual approaches.** Are they mutually exclusive or complementary/synergistic? Is one of them more important or effective than the other? Does individualization distract from – and therefore undermine – systemic solutions or can individual behavior change drive systems change? What are important downsides of individualization? Consider equity and justice dimensions of individualization – should every person be equally responsible for changing their behaviors? What is your own opinion about the individualization of responsibility for climate change through proposals of behavior change? Keep in mind that individual behaviors can also include participating in protests, joining, or supporting climate activist groups and other forms of becoming political.

### Examiner Guidelines

- This exam question offers a lot of guidance for how to answer it (including 6 sub-questions), but a key challenge is a strong structure of the response. There are many ways this question can be answered, and students creating a strong logical flow of ideas will earn a higher grade. Some students will choose to answer all 6 sub-questions in the order they are listed. Stronger students will find other ways to organize their arguments.
- The answer should include a discussion of three core course concepts and their relationship to/implications for individualization of responsibility:
  - Climate discourses (from textbook)
  - Three spheres of transformation
  - Climate justice
- Each concept can be used in different ways to create arguments for and against individual or structural-systemic solutions to climate change
  - Example: Biophysical discourse and the technical sphere focus on technical, measurable responses, especially technological and behavioral changes; these often have a strong individual component (e.g., adoption of a new, carbon-free technology or eating less meat). However, they can also require policy and political changes, i.e., be more systemic.
- Other course concepts can also be deployed and to the extent they are brought in conversation with discourses, spheres and justice, indicate students' ability of independent thinking and synergistic capabilities.

- Below I list a number of relevant arguments/considerations in the debate about individualization of responsibility. Not all of these were subject to detailed lectures, so there is no expectation that students address them all. But strong students will demonstrate an ability to present more of these arguments, to relate them to each other and to present a clear personal position in the debate.
- Relevant arguments:
  - Policy challenges can typically be addressed both through systemic changes (e.g., taxes and mandates) and by encouraging individual behavior change. But while in principle complementary, systemic and individual perspectives can compete for the limited attention of people and policymakers. Thus, directing policies in one of these two ways can distract attention from the other.
  - Individualization unduly shifts attribution of responsibility away from the main contributors (corporations and governments); ultimately policies at multiple scales are needed to address climate change.
  - Related to shifts in responsibility is a "greenwashing" effect, where companies use individual actions like recycling to distract from their destructive practices. Fossil fuel companies have used this strategy to steer focus towards low-impact behaviors (that don't affect their business!).
  - Individualizing climate change can be divisive and make people feel guilty or defensive about performing behaviors often largely shaped by socio-technical and political systems. This can undermine efforts to build crucially needed social movements. *Students can build on class discussions about emotions.*
  - A strategic discussion of individual action can be instrumental in achieving systemic changes. Limiting climate change will ultimately require profound and widespread behavior changes, such as technology use, transportation choices, diets, .... When enough people change their behavior, it can create a powerful demand for systemic change.
  - Ambitious policies that tackle the underlying system are highly unlikely to be adopted unless supported by the public and key stakeholders. Therefore individual change might have to come before systemic change.
  - Some people will have to change more than others. There is a lot of inequality in who contributes to climate change, both between and within countries. *This was discussed a lot in class.* People with high socioeconomic status generally have larger carbon footprints and importantly also have disproportionate power to affect whether systemic solutions are implemented or not.
  - Individualization could focus on the subset of individuals that can actually do something about it. This is different from the mass individualization done by the fossil fuel industry. It involves shifting the focus from low-impact behaviors to the individual behaviors that matter most for climate mitigation.
  - By focusing individualization efforts on people with high socio-economic status, we can spotlight their disproportionate influence on public and corporate policy. This might help build pressure on specific individuals, groups of individuals, and their companies to stop resisting transformative change. (some people have more systemic change leverage than others).

- People dismiss arguments for individual actions because it shifts attention away from one's own (typically high) emissions, and alleviates feeling bad about it.
- The conceptualization of individual action is often too limited, i.e., equated with consumer choice. People can act in many other roles, including as citizens, investors, participants in organizations, community members
- Consumer action is also often too easily dismissed. Reducing air travel, avoiding red meat, electrifying your home, and shifting to public transport certainly make a difference.
- Both individual and systemic changes are pivotal and not mutually exclusive.