

Sustainability assessment: tools and methods

Code: SSC3016

University College Maastricht

2017-2018



**International Centre for Integrated assessment and
Sustainable development (ICIS)**

Faculty Humanities and Sciences

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I. General information

Introduction

The interactions between social, economic and ecological processes in sustainability issues entail a high level of complexity. In today's world, environmental policy approaches that are rooted in one disciplinary viewpoint typically deliver unsatisfactorily results. The complex dynamics of strongly interacting processes force scientists and decision makers to think and act in a more integrative manner.

This simple insight, however, brings up a multitude of questions. How, for example, can we analyse complex societal problems in such a way that the numerous interlinkages are taken into account? How can we deal with the fundamental uncertainty involved? How can we merge different stakeholder perspectives, values and beliefs into one coherent problem assessment? In other words: How can we put integrative thinking and acting into practice? This is the central question for the course Hands-on Sustainability Science.

Course objectives

This course deals with a number of methods and tools for addressing complex sustainability issues. During the course, students will:

- Improve their understanding of (the need for) integrated approaches for addressing sustainable development issues (that is: for 'sustainability assessment')
- Explore the application of three sustainability assessment methods in particular: integrated models, scenarios and participatory methods
- Obtain experience with applying methods for sustainability assessment through exercises
- Study practical applications of different Integrated Assessment methods in real-life case studies.

Course coordinator

- Dr. Annemarie van Zeijl-Rozema
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SCHEDULE

Course week 1: Sustainability Assessment (SA): introduction				TO DO BEFORE SESSION
April 9	Monday	Lecture 1	Introduction to Sustainability Assessment : Dr. Marc Dijk and Dr. Annemarie van Zeijl-Rozema	Read course manual, especially guidelines about the final assignment (see eleum)
April 12	Thursday	TG 1	Post-discussion Task 1, (Sustainability Assessment) Pre-discussion task 2 (Scenarios)	Read Task 1, Read all literature and prepare for post discussion Task 1.
Course week 2: Scenarios				
April 16	Monday	TG 2	Post-discussion task 2 (Scenarios) Pre-discussion task 3 (Stakeholder analysis & participation)	Read all literature and prepare for post discussion Task 2
April 19	Thursday	Lecture 2	Scenarios: Dr. Maud Huynen	
Course week 3: Stakeholder analysis & participation				
April 23	Monday	TG 3	Post-discussion task 3 (Stakeholder analysis & participation) Pre-discussion task 4 (Modelling)	Read all literature and prepare for post discussion Task 3.
April 26	Thursday	Lecture 3	Participation: Dr. Nicole Rijkens-Klomp	
Course week 4: Modelling				
April 30	Monday	TG 4	Post-discussion task 4 (Modelling)	Read all literature and prepare for post discussion Task 4.
May 3	Thursday	Lecture 4	Modelling: Prof.dr. Pim Martens	
Course week 5: Topic and outline for final assignment				
May 7	Monday	TG 5	Work session on outline and briefing on case study presentations	<ol style="list-style-type: none"> 1. Pre-discussion Case work-sessions and choosing of example case and topic for graded presentation Read guidelines for case study analysis of the 4 example cases 2. Prepare a 1-minute elevator pitch on the topic of your final assignment. Your peer group will comment based on the pitch and the topic description. See ELEUM for information on elevator pitches 3. You will discuss the outline for your final assignment in your peer group. Send your tutor and peer group an email by 2 May with the outline for your final assignment. This includes a description of the topic max 1.5 page: See chapter IV paper guidelines
May 10	Thursday		ASCENSION	

Course week 6: Case study work (1 + 2)				
May 14	Monday	TG 6	Case work session 1: graded presentations Pre-discussion work-session 2	Part of the group: prepare case study presentation (graded) Part of the group: grade presentations
May 17	Thursday	TG 7	Case work-session 2: graded presentations Pre-discussion work-session 3	Part of the group: prepare case study presentation (graded) Part of the group: grade presentations
Course week 7: Case study work (3)				
May 21			WHIT MONDAY	
May 24	Thursday	TG 8	Case work-session 3: graded presentations	Part of the group: prepare case study presentation (graded) Part of the group: grade presentations
Course week 8: finalise assignment				
June 1	Friday 17.00		Hand in assignment	

Attendance

The official attendance requirement of UCM should be met: being present at 85% of the tutorial meetings. Since we have relatively few meetings (12) due to all the public holidays, this means you need to attend at least 10 meetings. In this course, lectures fall within the attendance requirement.

Engagement in the meetings is highly recommended, which includes active involvement and a proper preparation by reading the materials provided.

Students who have not met the attendance requirement, but who have not missed more than 30% (= 4 meetings) of the group meetings, can request an additional assignment to make up for the insufficient attendance

Examination

The final grade of this course will consist of:

Deliverable	Description	Weight in overall course grade
Presentation	Presentation of the analysis of an example study. (individual).	30 %
Work plan report	-Topic description & Outline -A workplan for a (hypothetical) Sustainability Assessment of a (chosen) sustainability issue . (individual).	Handed in 70 %

A final course grade of at least 5.5 is required in order to pass the course.

Resit

- If the average course grade is below 5.5, the student can take part in the resit. However, the resit-examination is only available for students who took fulfilled all other obligations (presentation, topic and outline handed in and attendance).
- The resit consists of writing a new assignment on another topic.
- In case a student fails to attend an examination due to a valid reason, he/she is entitled to do the resit-examination. The course coordinators shall decide on the validity of the reasons given.

Literature

Please refer to e-reader in eleum for this course.

II. Tasks

1. Sustainability Assessment
2. A sustainable future?
3. Stakeholder analysis and participation methods
4. Modelling for sustainable development

Task 1: Sustainability Assessment

NOTE: there will be no pre-discussion of this task. We will start the course with the post-discussion. Learning goals can be found at the bottom of the page.

Due to many interactions of social, economic and ecological processes, sustainability issues face a high level of complexity. Policy approaches dealing with these issues cannot take just one disciplinary viewpoint, as this would deliver unsatisfactory results. The complex dynamics of strongly interacting processes force scientists and decision makers to think and act in a more integrative manner. Therefore, new methods and tools are necessary for scientific research on and decision making for sustainable development.

To that end more integrative approaches have emerged during the last decades, both the policy arena and in academia, under various terms including Sustainability Science, Integrated Assessment or Sustainability Assessment. Sustainability Assessment (SA), a specific form of integrated assessment, consists of a range of tools and methods that all have as their broad aim the integration of sustainability concepts into decision-making. Sustainability Assessment is a value-laden process, in which a range of stakeholder perspectives, values and beliefs need to be considered.

In general, two types of Sustainability Assessment methods can be distinguished: analytical methods and participatory methods. The group of analytical methods includes model analysis, scenario analysis and risk analysis. They provide analytical frameworks for representing and structuring scientific knowledge in an integrative manner. The group of participatory methods involves a range of methods for involving both scientists from various disciplines as well as stakeholders, policymakers and societal actors in the assessment process.

Literature

- Bond et al. (2012) Sustainability assessment: the state of the art, *Impact Assessment and Project Appraisal* 30 (1), 53–62
- De Ridder, W., J. Turnpenny, M. Nilsson, A. von Raggamby (2007) A framework for tool selection and use in integrated assessment for sustainable development, *Journal of Environmental Assessment Policy and Management*, Vol. 9, No. 4 (December 2007) pp. 423–441.
- Turnpenny, J. et al. (2008). Why is integrating policy assessment so hard? A comparative analysis of the institutional capacities and constraints. *Journal of Environmental Planning and Management* 51 (6), 759–775.

LEARNING GOALS

- What is sustainability assessment?
- What is the state-of-the-art of sustainability assessment?
- What is meant with the “dimensions of integration” as discussed by Turnpenny et al? Why do you think this feature is explicitly mentioned?
- Which four generic steps can be distinguished in an SA process?
- How adequate are different tool groups in these steps?
- How is sustainability assessment different from impact assessment?
- What problems and constraints are encountered when applying SA in practice?

Task 2: A sustainable future?

A key challenge of sustainability is to examine the range of possible future pathways of combined social and environmental systems under conditions of uncertainty, surprise, human choice and complexity. One of the core questions in sustainability science is therefore: How can the future be scanned in a creative, rigorous and policy relevant manner that reflects the normative character of sustainability and incorporates different perspectives. In response to this question, scenario analysis has become an increasingly important tool in the sustainability science toolkit. Scenarios are descriptions of pathways to possible futures. Formally, scenarios can be defined as plausible but simplified descriptions of how the future may develop, according to a coherent and internally consistent set of assumptions about key driving forces and relationships (Swart et al. 2004).

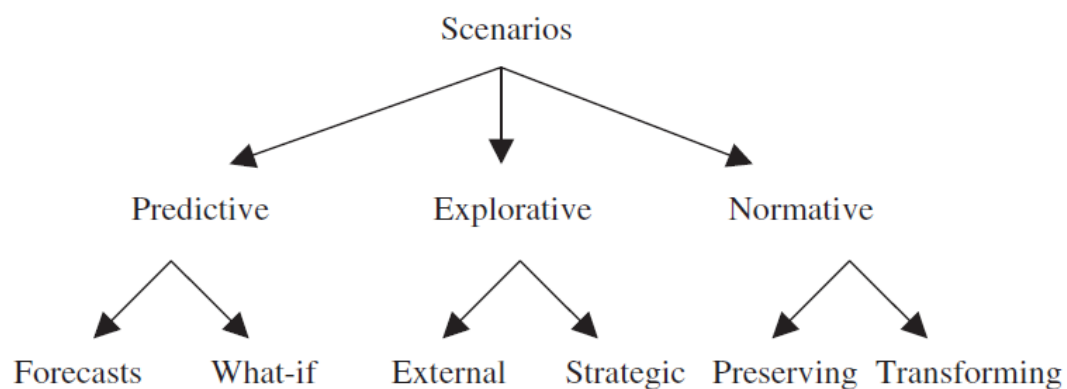
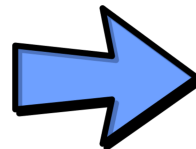


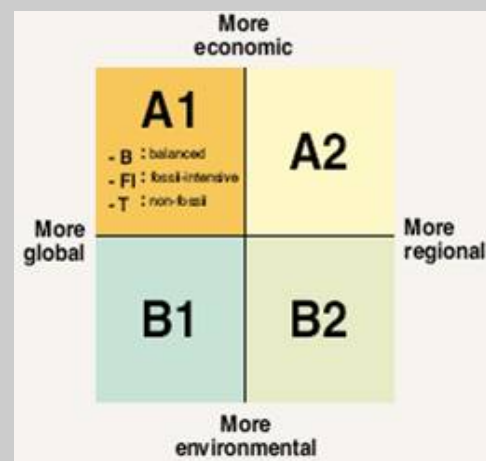
Fig. 1. Scenario typology with three categories and six types.

Scenarios can be told in many ways and have been used for many purposes. They can begin by looking forward from the present or by looking backward from some envisioned (desirable) future. They can be primarily narrative or quantitative, with the latter generally relying on detailed computer models. They can be narrowly focused on one or two specific issues, e.g. the future of the Dutch job market, or more broadly focused, e.g. the state of the world's environment in 30 years time. They can be developed by a small group of scientific experts or involve a large group of stakeholders. These choices should depend upon the purposes of the exercise. Ultimately, the process of scenario analysis should teach us as much about the present as about the future. However, scenario analysis is still an evolving research field and the road ahead is expected to be bumpy.

TASK CONTINUES ON NEXT PAGE!!!!



IPCC Scenario Labelling



This diagram describes the IPCC numbering code used to label scenarios in graphs of predictions. "A" refers to models that focus more on economic considerations. "B" focuses on the environment. "1" looks at regional and "2" looks at global factors. For example A1 scenario's describe global scenario's in which economic considerations play the major role while B2 would describe regional scenario's focusing on environmental considerations.

The IPCC describes these scenarios as "storylines".

Example B2 . " The B2 storyline and scenario family describe a world in which the emphasis is on local solutions to economic, social and environmental sustainability. It is a world with

continuously increasing global population, at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines. While the scenario is also oriented towards environmental protection and social equity, it focuses on local and regional levels."

Source: http://www.energysustained.com/managing_impacts.htm

Literature

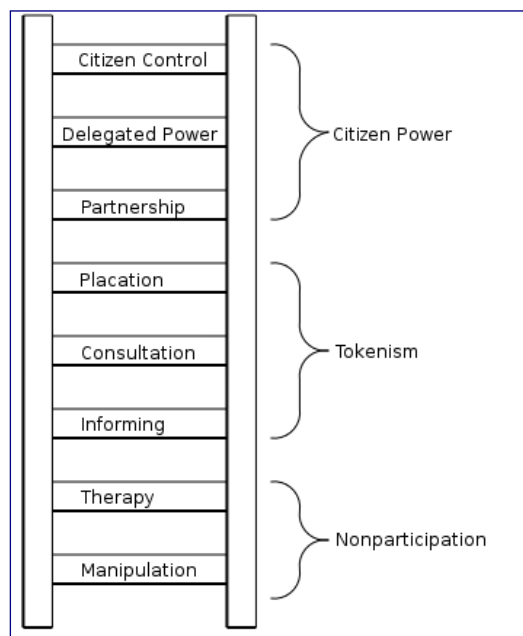
Reading material

- Börjeson, L., Höjer, M., Dreborg, K.H., Ekvall, T., Finnveden, G. (2006). Scenario types and techniques: Towards a user's guide. *Futures* 38, p723-739.
- UNEP (2007) Integrated Environmental Assessment (IEA) Training Manual - module 6: Scenario development and analysis: download pdf at: <http://www.unep.org/ieacp/res/site/File/iea-training-manual/module-6.pdf>
- Van Notten, P.W.F., J. Rotmans, M.B.A. van Asselt, D.S. Rothman (2003). An updated scenario typology, *Futures* 35: 423-443
- IPCC (2000). IPCC Special Report-Emissions scenarios; Summary for policy makers. Download pdf at <http://www.ipcc.ch/pdf/special-reports/spm/sres-en.pdf>

Task 3: Stakeholder analysis and participation methods

The notion 'participatory methods', also referred to as interactive or deliberative methods, is used as an umbrella term to indicate a variety of methods and approaches employed to enhance participation in assessments of complex problems. Participatory methods are being increasingly applied in policy-making arenas to enhance decision-making, and in scientific research for the purpose of involving non-scientists in the analysis of complex issues and unstructured problems. Often two major goals of participation are distinguished: mapping out diversity and reaching consensus. In the research arena, as in any other field, the process of participation is diverse and open in its

Often, solutions to cross-cutting and complex environmental problems cannot be solved through technology or scientific expertise alone, but require the active cooperation of different stakeholders



ability to meet the needs of the researcher. As such, its flexibility enables a mix of methodologies and techniques to be designed and applied - the prescription of which requires considerable thought and planning and is shaped in accordance to both the particular characteristics, cultures and nature of each study, as well as to those involved. Mostly though, the first step in the process is an actor analysis to identify who should participate. Ultimately the outcomes of participatory methods are often measured in accordance to how effective they are in facilitating active involvement of the participants, and in improving mutual understanding, social learning, knowledge sharing, trust, and framing and re-framing of problem perceptions.

Arnstein's ladder of participation

Literature

- Enserink, B., L. Hermans, et al (2010) Actor Analysis. In: Enserink, B., L. Hermans, et al., Policy Analysis of Multi-Actor Systems (Chapter 4) NOT IN EREADER
- **Will be replaced** S.R. Arnstein (1996), A ladder of citizen participation, *The city reader*, Eds R.T. Gates and F. Stout, Routledge. Download at http://lithgow-schmidt.dk/sherry-arnstein/ladder-of-citizen-participation_en.pdf
- PARTICIPATORY METHODS TOOLKIT; A practitioner's manual (2003). King Baudouin Foundation and the Flemish Institute for Science and Technology Assessment (viWTA) in collaboration with the United Nations University – Comparative Regional Integration Studies (UNU/CRIS). http://archive.unu.edu/hq/library/Collection/PDF_files/CRIS/PMT.pdf

Task 4: Modelling for sustainable development

The high level of interactions and according complexity that characterize many sustainability issues creates a need for analysis that concentrates on the relations of subsystems or variables instead of focusing on each subsystem in isolation.

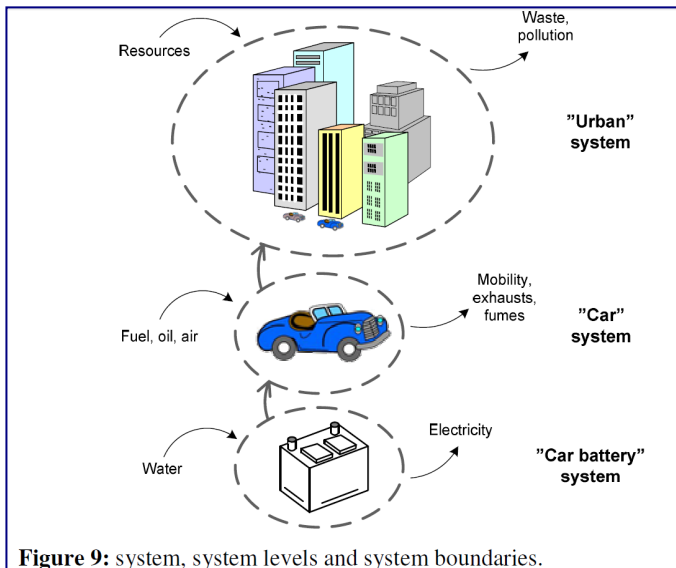


Figure 9: system, system levels and system boundaries.

Integrated Assessment modelling presents an approach for doing just that. For dealing with the complexity of sustainable development, systems thinking is used, whereby we try to understand connections and relations between seemingly isolated things. There can be different system levels, depending on where we place the system boundary.

Through models we try to understand the key dynamics in the issue. The history of Integrated Assessment (IA) modelling started in the 1970's with the development of the system dynamics World3 model by the club of Rome. Since then, a suite of IA models has been developed dealing with issues of climate/global change, regional development and more. The purpose of these models can vary from creating understanding to monitoring and strategy development. These models take various approaches ranging from purely conceptual modelling, to quantitative system dynamics models, to more qualitative approaches involving cause-effect reasoning. Some important types of models used in environmental assessment are system dynamics models, agent-based models, knowledge-based models, Bayesian networks and coupled component models. An example of a sustainable development model is the SCENE model which provides a conceptual approach to deal with different time-scales, geographical scales and disciplinary domains. Obviously, integration of all these elements into a meaningful model is not easy.

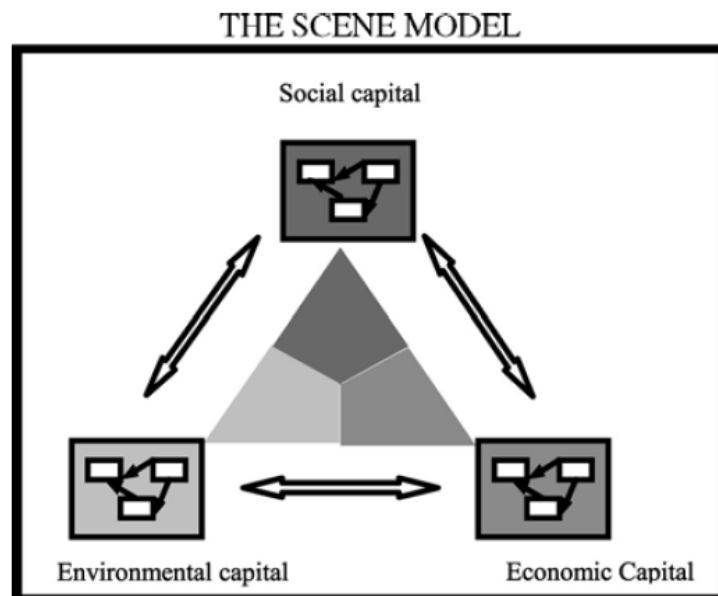


Figure 1. The SCENE model (Rotmans, 1998).

Literature

- Grosskurth, J., J. Rotmans (2005). The scene model: getting a grip on sustainable development in policy making. In: *Environment, Development and Sustainability*, Vol. 7, pp. 135-151.
- Kelly, R.A., A.J. Jakeman, O. Barreteau, et al (2013). Selecting among five common modelling approaches for integrated environmental assessment and management. *Environmental modelling and software* 47: 159-181
- H. V. Haraldsson (2004), Introduction to systems and causal loop diagrams. Systems Analysis course LUMES, Lund University. ONLY READ pp 1-20. Download at http://cmap.crs.org.pl:4444/rid=1244140954250_1167059429_1461/Introduction%20to%20Systems%20and%20Causal%20Loop%20Diagrams.pdf

III. Case study work: Example studies

In three tutorials in course week 6 and 7, we will analyse four published examples of sustainability assessments. Together these four examples present a very diverse mix of levels of scale, approaches, tool use, stakeholder involvement and integration in formal decision making procedures. The examples will be analysed from three different angles: use of modelling approaches, use of participatory approaches, use of scenario analysis. Each student will be assigned to make and present (max. 10 minutes) an analysis for one of the methods in one of the example studies. This individual presentation will count for 30% of your grade.

Case studies

(1) EU Energy Roadmap Impact assessment (type: EU Impact assessment; scale: European Union)

- General information on energy in the EU:
http://ec.europa.eu/energy/energy2020/roadmap/index_en.htm
- EU (2011) Energy roadmap 2050 brochure.
http://ec.europa.eu/energy/sites/ener/files/documents/2012_energy_roadmap_2050_en.pdf
- EU (2011). Energy roadmap 2050. Impact assessment and scenario analysis.
http://ec.europa.eu/energy/sites/ener/files/documents/roadmap2050_ia_20120430_en_0.pdf

(2) Millennium Assessment (type: integrated assessment; scale: world)

- General information on the Millennium Assessment:
<http://www.millenniumassessment.org/>
- MA (2005) Ecosystems and human well-being. (Synthesis Report). Millennium Ecosystem Assessment (MA). See:
<http://www.millenniumassessment.org/documents/document.356.aspx.pdf>

(3) Increasing airport capacity in South East England (type: integrated assessment; scale: country):

- General information on the consultation:
<https://www.gov.uk/government/consultations/increasing-the-uks-long-term-aviation-capacity>
- Consultation outcome:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/452271/consideration-of-consultation.pdf
- Gatwick Airport Second Runway: Business Case and Sustainability Assessment:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374662/evidence-base-gatwick-airport-second-runway.pdf
- Interim report:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/271231/airports-commission-interim-report.pdf

(4) Integrated sustainability assessment of the BIOCORE biorefinery concept (type: integrated sustainability assessment; scale: business perspective)

- General information: <http://www.biocore-europe.org/> and EU perspective
<https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels>
- Integrated sustainability assessment: [http://www.biocore-europe.org/file/D7_6%20Integrated%20sustainability%20assessment%20of%20the%20BIOCORE%20biorefinery%20concept\(1\).pdf](http://www.biocore-europe.org/file/D7_6%20Integrated%20sustainability%20assessment%20of%20the%20BIOCORE%20biorefinery%20concept(1).pdf)

Approach for the analysis

Use the literature of the course and the insights you gained in the work sessions for the analysis. Also have a look at the web resource suggested at the bottom of this section.

General questions to be addressed in the analysis:

- What was the goal of the sustainability assessment? Who initiated and funded the assessment and for what purpose? What was the conclusion / recommendation? How was the assessment organized (generic steps, phases)?

Specific questions for each of the methods:

Modelling

- What was the goal of the modelling study within in the overall assessment?
- In which step/phase was it used? (De Ridder et al.)
- What type of model did it concern? (thematic focus? spatially explicit? quantitative or qualitative? Type?)
- How were uncertainties dealt with?
- How was the modelling process organized? Were stakeholders involved, and if so, how? What is your view of this process of stakeholder involvement?
- How did the model relate to scenario analysis and stakeholder participation? How and when was information integrated?
- What are in your view the strengths and weaknesses of these models?
- What improvements would you suggest in a future version of this study?

In case your case study does not contain any modelling, or only very marginally, then answer the following questions:

- Why do you think modelling was not used?
- Would modelling be a useful tool for this assessment? If so, what should be the goal of the modelling study within the overall assessment?
- In which step/phase could it be used?
- What type of model would you recommend and why? (thematic focus? spatially explicit? quantitative or qualitative? Type?)
- How would you deal with uncertainties?
- How would you organize the modelling process? Would you involve stakeholders, and if so, how?
- How could the model relate to scenario analysis and stakeholder participation?
- What would be your major recommendation to the “owners” of the SA for a future version of this study?

Scenarios

- What was the goal of the scenario study?
- In which step/phase was it used? (De Ridder et al.)
- What type of scenario study did it concern? (See van Notten and Borjeson)
- What did the process of scenario development look like? To what extent did the scenario approach follow 'the critical steps in a generic scenario development process' (UNEP)? If there was a deviation from these critical steps' why do you think this was?
- How did they include stakeholders? What is your view on this process?
- How did the scenario study relate to modelling and participation? For instance, how were qualitative narratives combined with quantitative model outputs?
- How and when was information integrated?

- What are in your view the strengths and weaknesses of the scenario study?
- What improvements would you suggest in a future version of this study?

In case your case study does not contain any scenarios, or only very marginally, then answer the following questions:

- Why do you think scenarios were not used?
- Would a scenario study be a useful tool for this assessment? If so, what should be the goal of the scenario study within the overall assessment?
- In which step/phase could it be used?
- What type of scenario would you recommend and why? (See van Notten and Borjeson)
- How would you organize the scenario process in this case (use the critical steps in a generic scenario development process' (UNEP).
- Would you involve stakeholders, and if so, how?
- How could the scenario study relate to modelling and participation? For instance, how could qualitative narratives be combined with quantitative model outputs?
- What would be your major recommendation to the “owners” of the SA for a future version of this study?

Participation

- What was the goal of the participatory process?
- In which step/phase was it used? (De Ridder et al.)
- How to map it on the framework of Van Asselt & Rijkens-Klomp?
- What was the level of involvement (Arnstein’s ladder of participation)? Was this sufficient in your view?
- Which specific methods were used and why do you think these were used?
- What are the main stakeholders in the SA?
- How did the participatory process relate to scenario analysis and modelling?
- What were in your view strengths and weaknesses of the participatory processes carried out?
- What improvements would you suggest in a future version of this study?

In case your case study does not contain any participation, or only very marginally, then answer the following questions:

- Why do you think participation was not used?
- Would participation be a useful tool for this assessment? If so, what should be the goal of the participation within the overall assessment? Use the framework of Van Asselt & Rijkens-Klomp as guidance.
- In which step/phase could it be used and what methods would you recommend for this specific case? Why?
- What level of involvement would you recommend and why? (See Arnstein)
- How would you organize the participatory process in this case? Who are the main stakeholders to be involved?
- How could the participatory process relate to scenario analysis and modelling?
- What would be your major recommendation to the “owners” of the SA for a future version of this study?

Web resource on specific tools for sustainability assessments

- Tools for Sustainability Assessment:
<http://www.ivm.vu.nl/en/projects/Archive/SustainabilityA-test/index.asp>

IV. Paper guidelines

1. Your assignment:

You are the project leader for a new integrated sustainability assessment. Before your team of experts can start with the SA, you must prepare a workplan. This workplan will follow the generic phases as described in De Ridder et al (2007). However, these phases are generic, so you should make them specific for your case. You do not need to address the 4th phase (learning/monitoring). For each phase, you need to explain what the desired output is, and how you would like your team to produce that output, i.e. which methods should be used, how and why. Obviously, you will include a preliminary stakeholder analysis that tells your team which stakeholders to focus on and why. It is also important for your team to know when certain actions should take place: show this in the time plan. Furthermore, it always helps if you include a diagram of the process (linear or with feedbacks?). Based upon your workplan, an SA could then be carried out by a team of experts. Every student submits an individual workplan.

2. Criteria for case selection:

Your imaginary client should be faced with a strategic choice, e.g. should the university become more sustainable? Should Volkswagen develop improved electric engines? Should Nike produce slave-free products? How can the city of Maastricht become climate neutral? Etc.

Further criteria for a good case study topic are:

- *Complexity*: The case study should be an example of a complex societal problem characterized by:
 - Interactions between process at different scale levels, both in space (local - global) and time (long term – short term).
 - High stakes
 - Large uncertainty
- *Multiple perspectives*: It should be possible to define multiple perspectives on the problem. These perspectives are generally associated with different stakeholders with different interests and beliefs. (This should generally be the case for the complex problems described above.)
- *Availability of information*: There should be sufficient information available to address the case in a realistic way

3. Generic outline of the Workplan (please make specific for your workplan):

Send an email to your tutor and to your peer group by the end of May 2 with the outline for your final assignment: **max 1.5 page** (provide per chapter a short description). We will discuss the outline in peer groups in tutorial 5 on 7 May. Use the structure below for your chapters (you may choose case-specific headings).

- 1) The problem (15%)
 - case study introduction and context of the case study
 - Who is your client?
 - What is the strategic choice to be made?
 - problem statement: What is the goal of the SA?
- 2) Stakeholder analysis: who are the most important stakeholders (and why?)(15%)
- 3) The methods (35%)

- For each of the first 3 phases, describe what the desired output is
 - For each of the phases, describe how your team of experts should produce those outputs, i.e. describe which methods you will use and why. Be specific in your instructions:
 - What kind of model do you suggest? Which input data should be collected? What will be the output and how does it contribute to the overall goals?
 - What type of scenarios do you foresee? Who will develop the scenarios? What will be the output and how does it contribute to the overall goals?
 - Which participatory methods could be used (why?) and what level of involvement is desired? What will be the output and how does it contribute to the overall goals?
 - How will results of all methods be integrated into meaningful output?
- 3) Time plan (5%)
- hypothetical time plan

4. Paper requirements

From the outline, create a workplan for a sustainability assessment. This workplan will follow the generic phases as described in De Ridder et al (2007). However, these phases are generic, so you should make them specific for your case. You do not need to address the 4th phase (learning/monitoring). For each phase, you need to explain what the desired output is, and how you would like your team to produce that output, i.e. which methods should be used, how and why. Based upon your workplan, an SA could then be carried out by a team of experts.

Indicative length: 3500 words (+/- 10%) excluding references, table of contents and title page.

Deadline: 1 June at 17.00

4.1 Criteria (paper counts for 70% of your grade):

For the work plan report, the following grading criteria are used:

- outline (must be handed in in order to receive a grade)
- (preliminary) explanation of the problem (15%)
- stakeholder analysis (15%)
- explain how and why you intend to apply the method(s) in each generic phase (35%)
- time plan (5%)

4.2 Style requirements:

- Letter type: Calibri, Arial or Times New Roman
- Letter size: 12
- Line spacing: 1.5
- Use the APA-system for acknowledging your sources

5. Literature and references:

Acknowledging sources is done by referencing or citing your sources and there are a number of different ways you can do this. Use the American Psychological Association (APA) system for your assignment. Every source cited in your text--and only those sources cited in your text--are referenced in the reference list. Use in text referencing and create a reference list at the end of the document.

Use at least 5 sources from the course literature.

6. Avoiding plagiarism:

Acknowledging the sources of information and ideas you have used when writing your essays or assignments is important whether you have quoted them directly or indirectly.

Writers should acknowledge sources for three reasons:

- to give credit to those sources;
- to enable readers to consult those sources for further information;
- to give credibility and authority to their work.

Unacknowledged use of another's words, ideas or information is referred to as plagiarism! In order to avoid plagiarism, writers must distinguish between their own and their sources' ideas, **even in the case of paraphrased or summarized ideas /information** (see also the textbook 'Reading Critically, Writing Well' by Axelrod and Cooper).