**TEACHING MODULE Conflict Management**

**Understanding and managing conflicts on energy technologies.**

**SYLLABUS**

1. **Name of the teaching module**

Conflict Management – Understanding and managing conflicts about energy technologies.

1. **Brief description of the subject matter**

Public controversies and conflicts about innovative technologies are part of technology development. Like other technologies, energy technologies in many European countries are frequently confronted with society’s increasing unease about science and technology development. Controversies about innovation often occur at the local and regional level when technologies that are developed in the context of their application, e.g. when it comes to selecting locations for large-scale energy infrastructure such as nuclear power plants, geothermal facilities or high-voltage power grids. In such situations, engineers and scientists are often not familiar with the concepts and strategies that can be used to understand and deal with the controversy.

The Conflict Management module introduces social science perspectives on conflicts. The module does not provide comprehensive conflict management training. Instead it delivers insights into how to understand technological controversies. Students learn that there are a variety of definitions, theoretical approaches and models available that can help them understand conflicts about technologies. The module introduces key questions about the functions, impact, dynamics, and potential outcomes of conflicts. Examples from the field of energy technology (e.g. nuclear energy and geothermal energy) are provided to illustrate the social science approaches.

In addition to knowledge about concepts and processes, a role play is used to provide students with an emotional understanding of conflict situations related to energy technology issues.

1. **Complete SSH[[1]](#footnote-1) problems description**

* Technological controversies about energy technologies and infrastructure occur frequently and are caused by conflicting interests, value systems, or risk perceptions.
* A basic understanding of how technological controversies develop, their dynamics and their (social) implications is useful for people involved in the selection of locations for technology projects.
* An awareness of the different perspectives and perceptions that come into play is important for understanding the development of conflicts in general and controversies about technologies.
* Awareness forms the basis for an open-minded understanding that complex technological controversies are characterized by different perspectives, interests and values.

1. **Prerequisites and contextual knowledge**

There are no prerequisites, although students are expected to be interested in this topic. The module is mainly aimed at Masters and PhD students, but Bachelor students are also able to attend.

1. **Learning outcomes**
   1. *Knowledge*

The students will learn about the extent to which a social science perspective is useful for understanding conflicts related to energy infrastructure and technologies. They will acquire basic knowledge about social science perspectives on technological controversies and learn which questions and dimensions are relevant in social science conflict analysis. This enables the students to gain a broader understanding of the key aspects of technological conflicts, to identify emerging conflicts and to undertake measures to deal with them (prevent or resolve).

* 1. *Skills*

Students will develop an awareness for the positions and interests of different actors in complex technological controversies related to energy issues. As a result, they will learn how to take an open-minded approach towards these different perspectives, interests and values.

* 1. *Social competencies*

The students gain social competencies such as the ability to collaborate effectively, develop and defend the point of view of a peer group, put forward arguments within a debate, and acknowledge positions that differ from one’s own point of view.

1. **Module structure**

The module will consist of three sessions (see point 8) that are 1-1.5 hours each. These sessions can be taught consecutively in one day or over a period of three days. If the module is taught in one day, there must be breaks between the sessions and a longer break between the second and third sessions.

A traditional lecture format will be used to introduce the issue of technological controversies and the conceptual ideas from SSH.

Interactive elements will complement the traditional lecture format. The second session involves a role play that allows students to experience different points of view and emotions within a conflict situation related to energy technologies and infrastructure.

There are no homework tasks.

1. **Teaching methods**

* Lectures
* Interactive role play
* Discussions
* Group works

1. **Class plans**

**Session 1.** Why and how do we talk about technological controversies? (video input, group work, lecture supported by PowerPoint slides)

*Time: 1 hour*

* 10 minutes video input
* 10 minutes exploration task
* 40 minutes lecture

*Description of the task*

* Lesson to introduce the issue of technological controversies and related SSH perspectives:
* What is a technological controversy?
* How do technological controversies arise?
* What are reasons for the emergence of technological controversies (types of conflicts)?
* What are the implications of technological controversies?
* Why should we deal with technological controversies in the context of energy issues?

*Materials required*

* (Additional material for a general introduction of the module: TM7-S1-RM-00-ppt\_Module overview)
* TM7-S1-RM-01-video
* TM7-S1-RM-02-ppt\_lecture\_technological controversies

*Teacher-student and student-student interaction*

* Group work
* Traditional lecture

**Session 2.** Role play panel discussion about a geothermal energy facility (lecture, group work, role play, discussion)

*Time: 1.5 hours*

* 10 minutes introduction
* 30 minutes preparation of the roles
* 35 minutes role play
* 15 minutes brief reflection and summary

*Description of the task*

* Students are asked to carry out a role playing game. The storyline of the game is a panel discussion that brings together parties who have different positions about a planned geothermal energy project. The students play the roles of local citizens, the mayor and representatives of the local council, and the project developer/investor. A detailed description about how to organize the game is available here: TM7-S2-RM-02-description\_of\_the\_case

*Materials required*

* TM7-S2-RM-01-method\_of\_roleplaying
* TM7-S2-RM-02-description\_of\_the\_case
* TM7-S2-RM-03-ppt\_illustration\_of\_the\_case\_description
* TM7-S2-RM-04-Role\_of\_the\_moderator
* TM7-S2-RM-05-Role\_Cards
* TM7-S2-RM-06-Handout group work\_preparation\_role\_play

*Teacher-student and student-student interaction*

* The teacher prepares the game and guides the students
* The students prepare their roles and play the role play game

**Session 3.** Key questions for understanding conflicts and an introduction to conflict management approaches: group work and exercise combined with a lecture

*Time: 1.5 hours*

* 10 minutes content-related reflection about the role play (joint discussion between the students and the teacher)
* 25 minutes deriving key questions about a conflict (students guided by the teacher)
* 20 minutes applying the key questions to another case study
* 15 minutes lecture (introduction to conflict management approaches)
* 10 minutes intervention and discussion about conflict management approaches
* 10 minutes summary (of the whole module)

*Description of the task*

* The role play is used as a point of departure to systematize and deepen some of the aspects concerning technological controversies. After that an introduction into conflict management approaches will be given in the form of a lecture. Another case study is introduced with the help of a newspaper article or with the help of a student and the students then apply their new knowledge to this new case study.

*Materials required*

* TM7-S2-RM-03-ppt\_illustration\_of\_the\_case\_description
* TM7-S3-RM-01-Key questions conflict
* TM7-S3-RM-02-Vaughan\_2017\_newspaper\_article\_fracking\_Wales
* TM7-S3-RM-03-ppt\_lecture\_conflict management
* TM7-S3-RM-04-ppt\_last slide

*Teacher-student and student-student interaction*

* Group work
* Student-student and student-teacher discussions
* Traditional lecture format

1. **Literature**

**Theoretical approaches for the understanding of conflicts**

Bogner, A., 2010. Let´s disagree! Talking Ethics in Technology Controversies. *Science, Technology & Innovation Studies*. 6(2), pp. 183-201.

Böschen, S., Kastenhofer, K., Marschall, L., Rust, I., Soentgen, J. & Wehling, P., 2006. Scientific cultures of non-knowledge in the controversy over genetically modified organisms (GMO) - The cases of molecular biology and ecology. *GAIA.* 15(4), pp. 294-301.

Crouch, C. J., 2015. Conflict Sociology. In: Wright, J., ed. *International Encyclopedia of Social and Behavioral Science.* Amsterdam: Elsevier, pp. 2554 – 2559.

Devine-Wright, P., 2010. Public engagement with large‐scale renewable energy technologies: breaking the cycle of NIMBYism. *WIREs Climate Change*. 2(1), pp. 19-26.

Hård, M., 1992. Beyond Harmony and Consensus: A Social Conflict Approach to Technology. *Science, Technology, & Human Values.* 18(4), pp. 408-432.

Kepplinger, H.M., 2009. Publizistische Konflikte und Skandale. Wiesbaden: Springer VS Verlag.

Libiszewski, S., 1992. What is an environmental conflict? Paper presented at the first coordination meeting of the Environment and Conflicts Project (ENCOP) in Bern/Zürich. [viewed 17 May 2018]. Available from: <http://www.css.ethz.ch/publications/pdfs/What_is_Environment_Conflict_1992.pdf>

Saretzki T., 2001. Entstehung, Verlauf und Wirkungen von Technisierungskonflikten: Die Rolle von Bürgerinitiativen, sozialen Bewegungen und politischen Parteien. In: Simonis G., Martinsen R., Saretzki T., ed. Politik und Technik. Politische Vierteljahresschrift. Wiesbaden: Springer VS Verlag. 31, pp. 185-210.

Simmel, G., 1904. The Sociology of Conflict: I. *American Journal of Sociology*. The University of Chicago Press. 9(4), pp. 490-525.

**Examples of technological conflicts**

ANZINGER, N. & KOSTKA, G., 2017. Pioneer Risks in Large Infrastructure Projects in Germany. In: Wegrich, K., Kostka, G., Hammerschmid, G., ed. The Governance of Infrastructure. Oxford: Oxford University Press, pp. 203-224.

Barry, J. & Ellis, G., 2010. Beyond consensus? Agonism, contestation, republicanism and a low carbon future. In: Devine-Wright, P. ed., Renewable Energy and the Public: From NIMBY to participation. London: Earthscan, pp. 29-42.

BORNEMANN, B., 2017. Private Participation Going Public? Interpreting the Nexus Between Design, Frames, Roles, and Context of the Fracking ‘InfoDialog’ in Germany. Journal of Environmental Policy & Planning, 19(1), pp. 89-108.

Bornemann, B. & Saretzki, S., 2018. Konfliktanalyse – das Beispiel „Fracking“ in Deutschland. In: Holtenkamp, L., Radkte, J., ed. Handbuch Energiewende und Partizipation. Wiesbaden: Springer VS Verlag, pp. 563-581.

Devine-Wright, P., 2011. From backyards to places: Public engagement and the emplacement of renewable energy technology. In: Devine-Wright, P., ed. Renewable Energy and the Public: From NIMBY to participation. London: Earthscan, pp. 57-70.

Feindt, P.H. & Saretzki, T., 2010. Umwelt- und Technologiekonfikte. Wiesbaden: Springer VS Verlag.

MUSALL, F. D. & KUIK, O., 2011. Local acceptance of renewable energy—A case study from southeast Germany. Energy Policy 39(1), pp. 3252-3260.

Walker, G, Devine-Wright, P, Barnett, J, Burningham, K, Cass, N, Devine-Wright, H, Speller, G, Barton, J, Evans, B, Heath, Y, Infield, D, Parks, J & Theobald, K, 2010.Symmetries, expectations, dynamics and contexts: a framework for understanding public engagement with renewable energy projects. *In:* Devine-Wright, P. ed., Renewable Energy and the Public: From NIMBY to participation. London: Earthscan, pp. 2-14.

**Literature on geothermal energy and related conflicts**

Canan, P., 1986. Rethinking geothermal energy’s contribution to community development. *Geothermics.* 15(4), pp. 431-434.

Kousis, M., 1993. Collective Resistance and Sustainable Development in Rural Greece: The Case of Geothermal Energy on the Island of Milos. *Sociologia Ruralis.* 23(1), pp. 3–24.

Kunze, C. & Hertel, M., 2017. Contested deep geothermal energy in Germany – The emergence of an environmental protest movement. *Energy Research & Social Science.* 27(May), pp. 174-180.

Leucht, M., 2013. Sozio-technische Parameter der Projektentwicklung:Soziale Akzeptanz von Vorhaben der Tiefen Geothermie. In Böttcher, J., ed. *Geothermie-Vorhaben: Tiefe Geothermie: Recht, Technik und Finanzierung.* Oldenburg: Wissenschaftsverlag, pp. 221-248.

Stauffacher, M; Muggli, N.; Scolobig, A. & Moser, C., 2015. Framing deep geothermal energy in mass media: the case of Switzerland. *Technol. Forecast. Soc. Change.* 98(Sept.), pp. 60-70.

Pellizzone, A., Allansdottir, A., De Franco, R., Muttoni, G. & Manzella, A., 2017. Geothermal energy and the public: A case study on deliberative citizens’ engagement in central Italy. *Energy Policy*. 101, pp. 561-570.

**Literature on nuclear energy and related conflicts**

Böschen, S., 2010. Der endlose Streit um die Atomenergie. Konfliktsoziologische Untersuchungen einer dauerhaften Auseinandersetzung. In: Feinft, P. H., Saretzki, T., ed. Umwelt- und Technologiekonflikte. Wiesbaden: Springer VS Verlag, pp. 104-122.

**Literature on conflict management**

Bogner, A. & Menz, W., 2009. Konfliktlösung durch Dissenz? Bioethikkommissionen als Instrument der Bearbeitung von Wertkonflikten. In: Feinft, P. H., Saretzki, T., ed. Umwelt- und Technologiekonflikte. Wiesbaden: Springer VS Verlag, pp. 333-353.

Bogner, A. & Menz, W., 2010. How Politics Deals with Expert Dissent: The Case of Ethics Councils. *Science, Technology & Human Values.* 35(6), pp. 888-914.

Clarke, T. & Peterson, T. R., 2016. Environmental Conflict Management. SAGE Publications, Inc.

Grunwald, A., 2010. *Technikfolgenabschätzung - Eine Einführung.* 2th ed. Berlin: edition sigma.

Hennen, L., 1999. Participatory technology assessment: A response to technical modernity?. *Science and Public Policy.* 26(5), pp. 303-312.

Lienhoop, N., 2018. Acceptance of wind energy and the role of financial and procedural participation: An investigation with focus groups and choice experiments. *Energy Policy.* 118(July), pp. 97-105.

Nadaï A. & Labussière O., 2013. Playing with the line, channelling multiplicity Wind power planning in the Narbonnaise (Aude, France). *Environment and Planning D: Society and Space*. 31(1), pp. 116-139.

Saretzki, T. & Bornemann B., 2014. Die Rolle von Unternehmensdialogen im gesellschaftlichen

Diskurs über umstrittene Technikentwicklungen: Der „InfoDialog Fracking“. *Forschungsjournal Soziale Bewegungen.* 27(4), pp. 70-82.

Wallquist, L. & Holenstein M., 2015. Engaging the Public on Geothermal Energy [online]. Risk Winterthur, Switzerland: Dialogue Foundation. [viewed 07 June 2018]. Available from: https://pangea.stanford.edu/ERE/db/WGC/papers/WGC/2015/02032.pdf

Ziekow, J., Barth, R., Schütte, S. & Ewen, C., 2014. Konfliktdialog bei der Zulassung von Vorhaben der Energiewende. Leitfaden für Behörden. Konfliktdialog bei tiefer Geothermie. [viewed 04 May 2018]. Available from: online: http://www.bmu.de/fileadmin/Daten\_BMU/Pools/Forschungsdatenbank/fkz\_3712\_13\_101\_geothermie\_bf.pdf

**Literature on the role playing method**

Craciun, D., 2010. Role-Playing as a creative method in science education*. Journal of Science and Arts*. 10(1), pp. 175-182.

EDUC, 2010. EDUC 3780 Part L: Role-Plays, Games, and Simulations. [viewed 13 July 2018]. Available from:

https://www.weber.edu/wsuimages/COE/SecondaryCore/InterdisciplinaryStrategies/3780bookpartL0906.pdf

Skelton, J., Hammond, P., Wiskin, C. & Fitzmaurice, D., 1999. Role-play as a teaching methodology. Barmingham: University of Birmingham.

1. Social Sciences and Humanities [↑](#footnote-ref-1)