

Throughout the last decades, the ever growing use of technology in our society has brought along the need to reflect on the related impact on the ecosystem, human health and on society as such. There is growing evidence that the complexity of issues of justification and risk governance of technological applications such as nuclear and fossil fuels, cloning and genetically modified crops cannot be tackled by pure rational technological and economical reasoning alone.

The first reason is that, due to the complex and interlinked character of causal natural and technical systems and the time dimension of processes, the natural sciences behind these applications cannot provide clear and quantifiable evidence of the inherent risks, potential impacts and related consequences. Secondly, evaluating these technologies and their alternatives in a policy context unavoidably leads to a multifactorial exercise of balancing benefits and burdens, while certain practices, even in a context of peaceful application, may be perceived as being incompatible with personal or group value frameworks. In order to pursue robust and transparent policies that integrate justification of these complex technological applications, and that, at the same time, could provide answers to the concerns of civil society, both supportive research and political decision making need a transdisciplinary approach and should be done in close interaction with civil society.

Starting from the insight that a full understanding of the benefits and risks of applications of radioactivity and nuclear technology requires also an understanding of the context of application and related politico-economical, social and ethical aspects, SCK•CEN started in 1999 with its PISA research programme (Programme of Integration of Social Aspects into nuclear research). The aim of the research was (and still is):

- to engage nuclear and non-nuclear researchers and policy makers in transdisciplinary research activities that can generate better insight into the complex issue of societal justification of nuclear applications;
- to shed new lights on how to organise in a responsible way the involvement of civil society in nuclear technology assessment, both at research and policy level;
- to make these insights available to national and international research networks and policy makers.

This internal critical reflection is still unique in its kind today, and not only nuclear research and industry, but also political decision makers and other research areas can benefit from the theoretical insights and practical interaction experiences gained in this transdisciplinary research exercise.

The thematic issues of the PISA research include:

- theories and practices of deliberative democracy;
- the use of research-generated knowledge in political decision making;
- sustainable development as a policy principle in technology assessment and governance;
- governance and ethics;
- expert culture and safety culture;
- ethical choices in radiological protection;
- intelligent decision and policy making support systems;
- transdisciplinarity and inclusiveness in research, education & training and knowledge management.

The research is done through own budgeted or sponsored projects, and relate for the coming years to the following themes:

- aspects of justification of nuclear in national and international energy policies, taking into account international environmental and sustainable development policy frameworks;
- the management of radioactive waste, with a focus on RW disposal siting processes and deliberative decision making involving civil society;
- risk governance, with a focus on how society perceives and deals with risks related to nuclear activities and radioactivity;
- the proliferation of nuclear weapons and the potential use of nuclear material in terrorist activities.

All information on past and current research projects can be found on the website <http://www.sckcen.be/pisa>.

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