

GenØk-Centre for Biosafety has since 1998 aimed to provide cutting edge scientific biosafety research, capacity building and educational training in the safer use of gene technologies in agriculture, medicine, and aquaculture. Our core activities center around the field of Gene Ecology, a trans-disciplinary field that takes a precautionary-based approach to study the multi-dimensional aspects of transgenes introduced into different ecological, social, political and ethical contexts.

Biosafety: Aims at knowledge generation, technological assessment and policy to minimize the potential negative effects of technological applications on health, environment and society, particularly from bio- and nano-technologies.

Precautionary-based research: A research approach that aims to ensure safer use of biotechnologies through transdisciplinary basic research, where the hypotheses, problem formulations seek to explore existing and important gaps in scientific knowledge. Studies are designed to minimize potential false-negative outcomes, where the primary aim is to avoid irreversible and undesirable damage in risk relevant science. This approach puts emphasis on the consideration of uncertainties, is every bit as robust as the research approaches used in other scientific disciplines, yet provides important information for informing potential risks to health, the environment and food security.

GenØk

- Centre for Biosafety

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Who are we?

GenØk - Centre for Biosafety was founded in 1998 and is a non-commercial foundation located in the research environment at the University of Tromsø and Forskningsparken (the Science Park). GenØk is the National Centre for Biosafety in Norway.

The centre has 45 employees. The majority are located in Tromsø (Norway), but GenØk is also represented in Trondheim (Norway), Christchurch (New Zealand), Berkeley (USA), Nanjing (China), Lusaka (Zambia), Florianópolis (Brazil), Geneva/Zurich (Switzerland) and Kuala Lumpur (Malaysia).

GenØk is engaged in research, education and capacity building in the professional field of Gene Ecology. The foundation focuses in particular on the environmental and health-related consequences from the application of gene technology in agriculture, aquaculture, medicine and infectious disease management.

What do we do?

Research

GenØk's research programme focuses on three potential impact areas related to development and use of new bio- and nanotechnologies, including:

- Human, as well as animal health and nutrition (e.g. vaccine, food and feed safety)
- The environment and natural resources (biodiversity, ecosystem integrity, agriculture, forestry, aquaculture).
- Sustainable innovations and outcomes in policy (assessment of risk, uncertainty and other ethical aspects).

Advisory activities

The increased demand for biosafety information when introducing new bio- and nanotechnologies stresses the need for independent risk assessments and policy development in the years to come.

As a national centre for biosafety, GenØk provides scientific and technical advice on risk assessments for Norwegian authorities related to new GMO applications and the future biotechnology assessment.

GenØk staff members are also frequently represented in national and international committees related to biosafety.

Capacity building

GenØk's capacity building activities include:

- Gateways international institute cooperation
- International courses in biosafety
- Research conferences
- Biosafety Assessment Tool - a web based tool for risk assessment
- Development of formal educational curriculum in biosafety

Departments

Biology Department

The Biology Department and the ongoing projects are organized into four research groups:

- Micro- and molecular biology
- Immuno-epidemiology and -ecology
- Virology
- Ecotoxicology, ecology and ecosystems (the Daphnia program)

GenØk focuses on effects studies. Effect studies are an important process in identification of potential undesired risks, and often require extensive rigorously controlled laboratory work. The types of effects we investigate include:

- Immune response in small mammals in the agroecological and associated environments. This is highly relevant for human health aspects related food consumption, pollen inhalation or other exposure to transgenic plants.
- Effects on food webs and biodiversity of target organisms/non-target organisms in field.

Also, GenØk has research cooperation partner institutions in Brazil, China, South Africa and India where we can perform important field trials. We will also follow up our trials with laboratory research that can increase the understanding of molecular basis for any observed effects.

Society, Ecology and Ethics Department (SEED)

The use of new technologies are characterized by uncertainties related to both advantages (for example better health and environment) and possible harmful effects (for example unintentional negative effects on health, or social/ethical implications). New technological solutions, and the choice of certain technological development options, have a profound impact on the society's development. These considerations raise questions, such as: What kind of development do we want? For whom? In relation to what?

SEED researches the complex questions of emerging life sciences in which social, ecological and ethical issues are inherently entangled. We explore the way problems are framed and solutions imagined, with a particular interest in uncertainties, alternatives, precaution and sustainability. Our approach is transdisciplinary.

Advisory and International Department

In our international program, the aim of the GenØk-initiated Gateways Institute Program is to establish a global network of genuinely independent research institutions serving as regional biosafety centres. GenØk currently has cooperation agreements with partners in China, Zambia and Brazil. The program is financed through the Norwegian Agency for Development Cooperation (Norad) and FK Norway (Fredskorpset). The Program gives support for national and regional research institutes in order to support the implementation of the Cartagena Protocol on Biosafety under the UN Convention on Biological Diversity, and the fulfilment of UN Millennium Development Goals on sustainable and safe development of gene technology, particularly in agriculture.

In this context, GenØk's international biosafety courses are highly relevant. GenØk has since 2005 trained 550 people from more than 110 developing countries in biosafety. GenØk organizes two annual courses; one summer course in Tromsø and one regional course abroad