

Sustainable Economy



Sustainable Economy
National Research Programme

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1. A sustainable economy to secure prosperity

All human activity makes use of goods and services derived from nature. But nature's ability to supply resources such as clean air, fresh water, a stable climate, raw materials or healthy soils is limited. The world economy is at risk of crossing critical environmental thresholds. In some cases, we even live as if a second planet were available to us. This can cause irreversible damage to ecosystems, jeopardise the supply of raw materials and undermine prosperity worldwide - thereby increasing social inequalities, as manifested in job losses, socio-economic insecurity and instability, and disease.

The necessary transformation of the economy and of society is a complex and challenging task, but it is achievable.

The core element of a sustainable economy is the decoupling of economic activities from the use of natural resources. In doing this, existing economies need to be transformed economies that increase prosperity while minimising resource and energy use. We need technological solutions, economic incentives, appropriate political as well as legal frameworks and best practice examples to achieve a sustainable economy. This is where the National Research Programme "Sustainable Economy" (NRP 73) comes in.



Prof. Gunter Stephan
President of the NRP 73
Steering Committee



Prof. Dr. Regina Betz
Co-President of the NRP 73
Steering Committee (since May 2019)

2. Sustainable Economy: resource-friendly, future-oriented, innovative

The National Research Programme “Sustainable Economy: resource-friendly, future-oriented, innovative” (NRP 73) aims at generating scientific knowledge about a sustainable economy that uses natural resources sparingly, creates welfare and increases the competitiveness of the Swiss economy. NRP 73 takes account of environmental, economic and societal aspects and examines all natural resources and stages in the value chain. Its specific objectives are to:

- **acquire scientific knowledge to better understand and facilitate a sustainable economy** (Module 1: Expanding the knowledge base);
- **identify opportunities and risks against the backdrop of a globally connected Swiss economy** (Module 2: Opportunities and risks);
- **understand the dependencies and insecurities resulting from the chosen measures and instruments** (Module 3: Measures and instruments);
- **identify future areas of action and propose specific areas for implementation** (Module 4: Enterprise application).

In total, 29 research projects have been approved and selected. Most of them involve a combination of approaches, concepts and methods from different disciplines; collaboration with partners from the private and public sector as well as civil society is also envisaged.

34.5% of the selected projects are in the field of economics and another 34.5% are in the environmental and engineering sciences. 10.3% focus on business administration and the remaining 20.7% comprise projects in different fields of the humanities and social sciences, such as political and legal sciences.

The figure on the next page highlights the 29 research projects and their thematic areas from circular economy, finance, building and construction, cities and mobility to forestry, agriculture, food and nutrition, the consideration of entire supply chains, sustainable behaviour and governance. These topics have been assigned to individual Sustainable Development Goals (SDGs) of Agenda 2030, without establishing a link to the sub-targets. The Federal Council attaches great importance to Agenda 2030, which was adopted in September 2015 by the UN General Assembly. Although it is not binding under international law, it is the Federal Council’s intention to see it implemented both in Switzerland and globally.

The 17 Sustainable Development Goals



The goals to which the NRP 73 research projects make significant contributions are highlighted in colour. Contributions to other goals are not excluded.

NRP 73

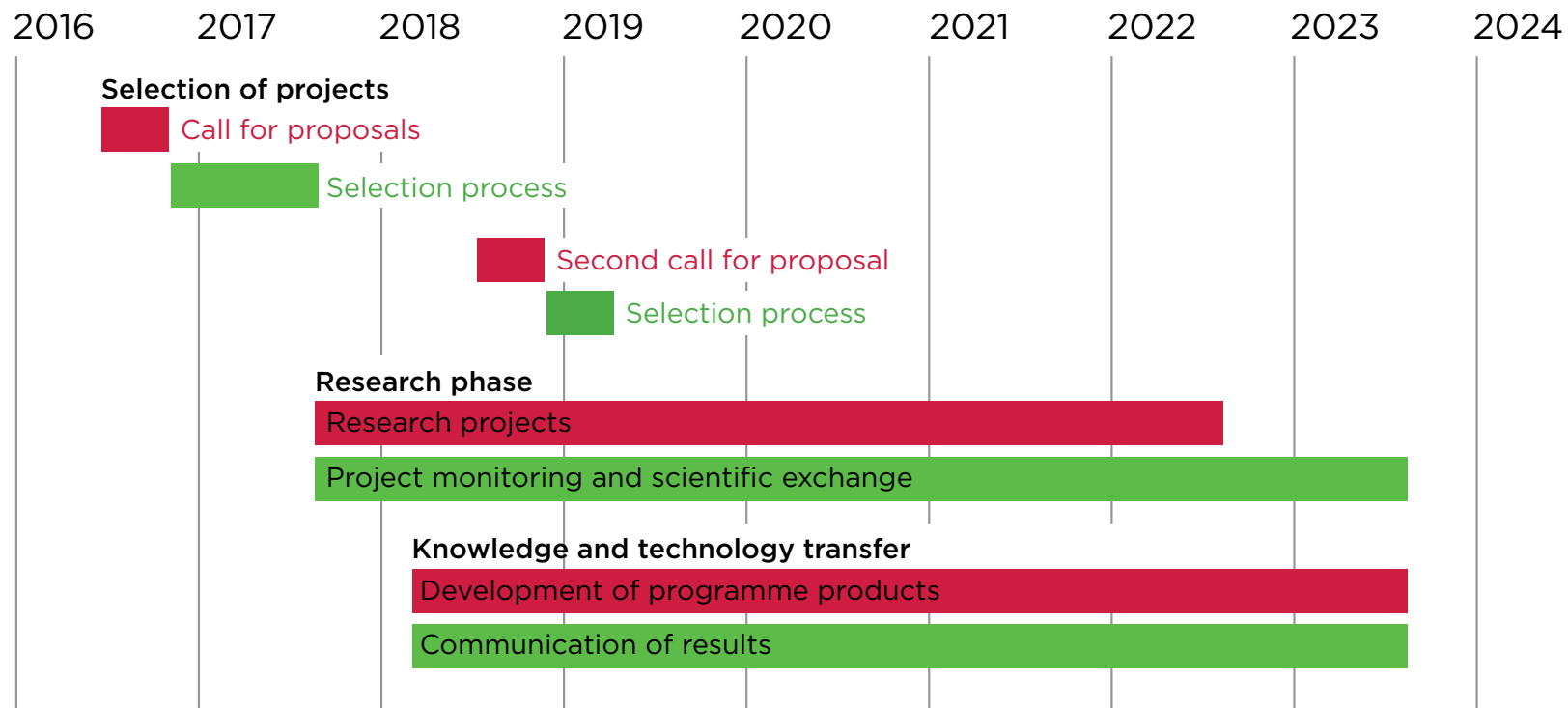
The figure shows thematic areas of the NRP 73 research projects clustered according to the Sustainable Development Goals (SDGs).



Programme timetable

NRP 73 has an overall budget of CHF 20 million for five years of research. In 2018, 25 research projects and in 2019 another four projects were selected in the frame of the second call for proposals. The publication of the programme synthesis report is planned for 2023. In order to contribute to a systemic transformation of the Swiss economy and the private as well as the public sector, specific measures will be developed for stakeholder groups and their widespread implementation ensured through knowledge and technology transfer.

Programme timetable





Sustainable Development Goals

3. The projects

Circular economy

Karolin Frankenberger **Laboratory for circular economy**

In collaboration with partner companies from different sectors, the project aims to demonstrate how the principles of circular economy can be both ecologically meaningful and profitable for companies.

Volker Hoffmann **Towards a sustainable circular economy**

This project aims to analyse the economic and environmental potential of a circular economy and to define the framework conditions for applying the principle of a circular economy in Switzerland.

Matthias Stucki **Resource efficiency in Swiss hospitals**

To make the hospital sector more sustainable, the project analyses the resource consumption and efficiency of hospital processes in partnership with Swiss hospitals. To this end, concrete proposals for process optimisation will be developed and tested.

Bernhard Truffer **Challenges of modular water infrastructures**

The project aims to analyse opportunities and risks of modular water infrastructure systems. The analysis will primarily focus on the urban water management sector, examining the impact on industrial and utility companies, professional associations and regulators.

Finance

Joelle Noailly **Financing clean tech**

The objective of this project is to investigate the mechanisms of clean tech investments, for example in the field of energy efficiency or the use of new materials. A better understanding of the factors underlying such investment decisions is essential.

Jean-Charles Rochet **Sustainable finance**

This project seeks to analyse the influence of non-governmental organisations (NGOs) on the decisions of large firms to implement “green” investment projects, and to identify and quantify the environmental and social footprint of institutional investors. Eventually, a “Swiss Social Stock Exchange” will be implemented and access to social and environmental microfinance initiatives will be facilitated.

Building & construction

Susanne Kytzia **Co-evolution of business strategies and resource policies in the building industry**

The research intends to identify how public policies promoting resource efficiency influence the success of business strategies in the construction sector and how alternative business strategies change the use of natural resources with a focus on mineral raw materials.

Philippe Thalmann **Ecological footprint in the housing sector**

This project identifies measures to reduce the use of resources and the environmental impact of housing. For this purpose, different approaches for residents, building owners and authorities will be developed and modelled. The measures relate to the construction, use and renovation of residential buildings.



Sustainable Development Goals

Cities & mobility

Markus Maibach **Decarbonisation of the transport sector**

The objective of the project is to identify pathways to minimise greenhouse gas emissions from the transport sector by 2050 with the most favourable economic effects in Switzerland.

Patrick Wäger **Post-fossil cities**

In order to identify and assess possible pathways to post-fossil cities, a simulation game will be developed, tested and applied in the context of the “Swiss City 2050”, a fictitious fossil carbon free city on the Swiss plateau.

Forestry

Roland Olschewski **Insurance value of forest ecosystems**

The forest protects the population and settlement infrastructure in mountain areas from natural hazards such as avalanches, landslides and falling rocks. In order to assess the protection capacity provided by forest ecosystems, the project seeks to determine the natural potential and financial value of this insurance benefit.

Tobias Schulz **Trade-offs in forests**

Various sustainable economy sectors are competing for ever-scarcer land, thus increasing the pressure on forests. The project aims to disentangle trade-offs between different sectors from the perspective of the forest sector and to propose solutions.

Esther Thürig **Ecosystem services in forests**

The project investigates the impact of different forest management practices on ecosystem services in forests. The development of the forest will be simulated in different management and climate change scenarios.

Agriculture, food & nutrition

Robert Finger **Digital innovation for sustainable agriculture**

This project assesses the technical, agronomic and socio-economic factors facilitating the use of new innovative information and communication technologies. In particular, it examines the use of drones and the latest sensor technologies in agriculture in a more targeted and efficient manner.

Alexander Mathys **Impact of Swiss food consumption and trade**

With the aim of assessing and improving the sustainability of the national food systems, this project combines environmental impact assessments with nutritional quality assessments. The most relevant influencing factors of Swiss food consumption and trade are analysed. Eventually, transformation pathways with improved nutritional and environmental impact will be developed.

Thomas Nemecek **Interaction of economy and ecology in Swiss farms**

This project investigates the internal processes of farms typically consisting of several enterprises (e.g. wheat cultivation and dairy cow farming). The enterprises are analysed from an ecological and economic point of view.



Sustainable Development Goals

Supply chain

Christopher Mutel **Open assessment of Swiss economy and society**

This project will quantify the global environmental and social burdens associated with current Swiss production and consumption. It aims to improve the estimation of carbon footprints for greenhouse gases and pollutants, natural resources, critical materials and the related social impacts.

Christian Schader **Enhancing supply chain sustainability**

The aim of this project is to analyse the management options for sustainable supply chains in the chocolate and textile sector. Based on real-life case studies with enterprises, the potential of various measures to achieve long-term improvements in sustainability is being assessed.

Peter Seele **Sustainable public procurement**

Switzerland spends more than 40 billion francs annually on public procurement. Based on existing tendering data and taking into account various sustainability indicators, this project will develop effective criteria for sustainable procurement.

Sustainable behaviour

Claudia Binder **Rebound effects of the sharing economy**

This project analyses the motives, barriers and negative environmental impacts of the sharing economy and develops potential strategies and measures aimed at minimising negative rebound effects.

Yann Benedict Blumer **Extending the lifespan of mobile devices**

Extending the lifespan of mobile web-enabled devices can significantly reduce their ecological footprint. This project aims to develop innovative approaches and test them in the field.

Sandor Czellar **The influence of environmental identities**

Our identity influences our daily behaviour as well as consumer decisions. The project will show how people's environmental identity is formed and what personal and situational factors influence it. In addition, it will investigate how identity-related incentives can encourage sustainable consumer behaviour.

Jan Schmitz **Nudging SMEs**

The project examines if “nudges” specifically targeted at companies can lead to more resource friendly business decisions. The focus is on small and medium sized enterprises (SMEs), which make up 99% of Swiss companies.

Renate Schubert **Sustainable consumer behaviour**

This project investigates the question of whether consumers who are motivated to make sustainable use of a particular natural resource are also using other natural resources in a more sustainable way. The conditions under which positive or negative spillover effects can be expected will be analysed.



Sustainable Development Goals

Governance

Thomas Bernauer **Voluntary corporate environmental initiatives**

The project investigates the impact of voluntary corporate environmental initiatives on consumers' attitudes and behaviour. It is of particular interest how such initiatives influence the demand for "green" governmental interventions on the part of citizens and environmental organisations.

Elisabeth Bürgi Bonanomi **Sustainable trade relations for diversified food systems**

Sustainable trade relations are of importance for transitioning to a diversified food system. This project seeks to answer a key question: how can the public sector distinguish between more sustainable and less sustainable food without being discriminatory and without placing too many constraints on trade partners?

Joseph Francois **Switzerland's sustainability footprint**

The aim of this project is to quantify the sustainability footprint of the Swiss economy, to identify future challenges and to assess Switzerland's political options. To this end, the project team is developing sustainability indicators and preparing projections of future emissions and resource use. It will also analyse options for designing policy instruments and assess the potential of eco-labelling.

Sebastian Heselhaus **Legal framework for a resource-efficient circular economy**

The legal framework for a resource-efficient circular economy must be built in a way that changes sales and consumption patterns. This project focuses on measures for fighting food waste and for promoting the repair and reuse of products in order to reduce waste.

Rolf Weder **Green labour markets effects**

This research project investigates the opportunities and risks in the Swiss labour market on the path to a sustainable and still open economy. The project thereby focuses on jobs and skills that are relevant for such a transformation.

Swiss National Science Foundation

Mandated by the federal government, the Swiss National Science Foundation (SNSF) supports basic science in all academic disciplines, from economics to medicine and the engineering sciences. The SNSF is Switzerland's foremost research funding organisation, financing over 3,200 projects involving 14,600 researchers each year. In 2016, it allocated 937 million Swiss francs to the best applicants. By awarding public research money based on the principle of competition, the SNSF contributes to the high quality of Swiss research.

National Research Programmes

The National Research Programmes (NRPs) provide science-based solutions to urgent problems of national importance. The programmes are approved by the Federal Council and assigned a budget of around 20 million Swiss francs for a period of four to five years. NRPs are problem-oriented, inter- and transdisciplinary and dedicated to achieving a defined, overall goal through the coordination of individual research projects. Knowledge transfer to industry and the practical realm is another area of focus.

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Publishing information

Publisher

Swiss National Science Foundation
Wildhainweg 3, P.O. Box
CH - 3001 Bern, Switzerland
W www.snf.ch

Editorial team

Barbara Dubach, Pascal Walther

Graphic design

Anouk Pasquier Di Dio, Geneva

Images

fotolia
thinkstock - iStock
Golf Chalermchai

© May 2019, 2nd edition



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