Resource-efficient and non-toxic

Bridging goal conflicts between a non-toxic environment and a circular economy

Opening Date: 8 December 2020

Application Deadline: 17 March 2021

Date of Decision: 17 June 2021

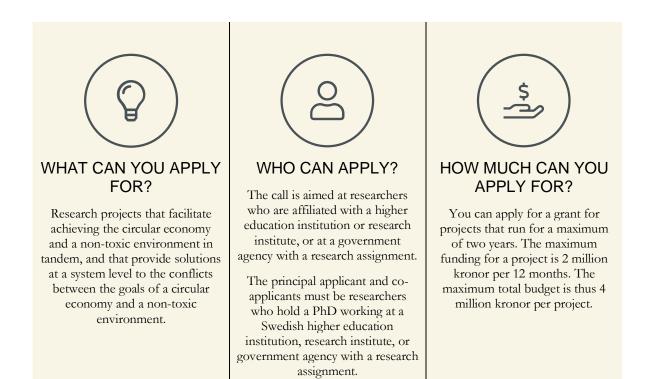### Which of Formas' subject areas does the call relate to?

☐Climate change　　　　　　　　　　☒Environment, water and ecology

☐Food and animals　　　　　　　　　　☐Forestry, water use and agriculture

☒Buildings and infrastructure　　　　　☒Spatial planning, urban and rural areas

☐Research policy and funding

Which of the sustainable development goals does the call relate to?

☐ 1. No poverty　　　　　　　　　　　　☐ 2. Zero hunger

☒ 3. Good health and well-being　　　　☐ 4. Quality education for all

☐ 5. Gender equality　　　　　　　　　☐ 6. Clean water and sanitation

☐ 7. Affordable and clean energy　　　☐ 8. Decent work and economic growth

☒9. Industry, innovation and infrastructure　☐ 10. Reduced inequalities

☐11. Sustainable cities and communities　☒12. Responsible consumption and production

☒13. Climate action　　　　　　　　　☐ 14. Life below water

☐ 15. Ecosystems and biodiversity　　☐ 16. Peace, justice and strong institutions

☐ 17. Partnerships for the goals

WHAT CAN YOU APPLY FOR?

Research projects that facilitate achieving the circular economy and a non-toxic environment in tandem, and that provide solutions at a system level to the conflicts between the goals of a circular economy and a non-toxic environment.

WHO CAN APPLY?

The call is aimed at researchers who are affiliated with a higher education institution or research institute, or at a government agency with a research assignment.

The principal applicant and co-applicants must be researchers who hold a PhD working at a Swedish higher education institution, research institute, or government agency with a research assignment.

HOW MUCH CAN YOU APPLY FOR?

You can apply for a grant for projects that run for a maximum of two years. The maximum funding for a project is 2 million kronor per 12 months. The maximum total budget is thus 4 million kronor per project.

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Revision history

Any changes to the call text are listed below.

Date	Change

Contents

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Description of the call

Introduction

The purpose of this call is to facilitate achieving the vision of a circular economy and the environmental objective "A non-toxic environment" in tandem. Formas therefore wishes to promote collaboration among researchers in the areas of circular economy and non-toxic environment.

The stricter the requirements placed on levels of hazardous substances in recycled materials, the more difficult it will be to achieve the vision of a circular, resource-efficient economy since more materials will be phased out and end up in incineration or landfill. This applies to materials for reuse as well as recycling and to the use of residual and by-product streams from various industrial processes. We need to find ways to reconcile the goals of a circular economy with safeguarding the non-toxic environment objective so that material flows become both resource-efficient and non-toxic.

Background

Both in Sweden and worldwide, the circular economy gets a lot of attention as an essential part of efforts to create a sustainable society. The circular economy links to many environmental quality and sustainability goals – in some cases as conflicting such as with the environmental quality objective "A non-toxic environment".

The EU published an action plan for a circular economy in March 2020, and in July the government published Sweden's national strategy for this area. Both documents stress that important issues remain to be resolved and that research can make a major contribution. In Sweden's national strategy, one of the focus areas is indeed the touchpoints between circular economy and non-toxic environment and how these goals must be addressed together. The same is also highlighted in the Swedish Chemicals Agency's documentation and report to the government on proposed strategies and new interim targets for 2030 for the environmental quality objective of a non-toxic environment, as well as in the EU's recently published chemicals strategy. The documents underscore the need for circular, non-toxic material flows. In addition to these documents, the circular economy represents a key pillar of the Green Deal as well as the EU's plans to restart the economy following the Covid-19 pandemic.

Sweden's vision for a circular economy is "a society in which resources are used efficiently in non-toxic circular flows, replacing virgin materials". The environmental quality objective of a non-toxic environment aims to reduce the concentrations of undesirable substances in circulation: "Concentrations of non-naturally occurring substances should be close to zero, and their impact on human health and ecosystems negligible. Concentrations of naturally occurring substances should be close to background levels".

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However, reconciling the objective of a non-toxic environment with the vision of a circular, resource-efficient economy poses some problems. This is because products and materials intended for reuse or recycling often contain compounds and substances that are not desirable in the next cycle of use. These substances may be present either from the primary production process or enriched during the use of the product.

Some substances can be avoided relatively easily, others less so. There are substances that serve an important function in some applications but are undesirable for other uses, thus posing a problem in recycling processes.

Unwanted or hazardous substances can also contaminate a product during its lifetime, such as certain packaging, construction materials, outdoor textiles, disposable healthcare products and workwear.

The stricter the requirements placed on levels of harmful substances in recycled materials, the more difficult it will be to achieve the vision of a circular, resource-efficient economy since more materials will be destined for incineration or landfill. This applies to materials for reuse as well as recycling and to the use of residual and by-product streams from various industrial processes. We need to find ways to reconcile the goals of a circular economy with safeguarding the non-toxic environment objective so that material flows become both resource-efficient and non-toxic.

"Non-toxic from the start" is an ambition in which all products or materials launched on a market are free of hazardous substances, allowing for a non-toxic, circular economy. "Non-toxic from the start" is a vital part of the solution but additional efforts are needed to solve the above dilemma, because it will take a long time to phase out everything currently in the material cycle and because it does not include handling substances that are currently approved but may prove undesirable in the future.

There is a clear need for research to describe, identify and resolve these challenges, goal conflicts and knowledge gaps associated with the above described.

Purpose and focus

The purpose of this call is to facilitate the achievement of a circular economy and a non-toxic environment in tandem by enabling new or enhanced partnerships among researchers active in the areas of circular economy and non-toxic environment.

The call aims to fund projects whose results can increase our understanding of the conflicts between the goals of a non-toxic environment and a circular economy. The projects should identify needs and potential solutions from a societal and a systems perspective. The projects should also address these conflicting goals in an integrated way and help to resolve them in a constructive way. They must address issues that will have a major impact on our ability to move from goal conflict to goal optimisation.

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The call opens the way for researchers to identify relevant key issues that align with the call's purpose. Areas for research questions relevant to the call include, but are in no way limited to, the following:

- Identification and elucidation of the two conflicting goals
- Bridging the goal conflicts – how we move from goal conflict to goal optimisation
- Risk assessment, risk evaluation and risk sharing in a resource-efficient, non-toxic society
- Acceptance and instruments for circular flows
- Description and/or analysis of different scenarios for a resource-efficient, chemical-smart society
- Obstacles and drivers for the emergence of a resource-efficient, chemical-smart society, including the current and future roles of different actors

Who can apply under this call

The call is aimed at researchers who are affiliated with a higher education institution or research institute, or at a government agency with a research assignment.

To fulfil the purpose of the call, each project team must consist of at least one researcher with documented research experience in subjects relevant to the field of circular economy and at least one with documented research experience in subjects relevant to the field of non-toxic environment. The two areas must be treated equally and integrated in the projects. The composition of the project team will be taken into account when the application is assessed.

Before you apply

Applicant and organisation requirements

To apply for a grant for a research project, the principal applicant must have obtained a PhD degree before the call closes.

- Participating researchers must also have obtained their PhD degree. Other staff involved in the project do not need to have a PhD degree.

- The proposed grant recipient must be stated as project manager on the application.

- Grants for research projects may only be administered by a Swedish higher education institution or other Swedish organisation that meets Formas' criteria for administrating organisations.
  Who can become an administrating organisation?

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- There is no upper age limit for the principal applicant and participating researchers. However, researchers who are full-time pensioners are not eligible to receive funding for salaries.

- The principal applicant may submit a maximum of one project application. However, someone can be the principal applicant on one application and a participant (co-applicant) on other applications. Co-applicants can also be co-applicants on more than one application in this call.

- An applicant is **not** allowed to submit the same application with different principal applicants. Applications that have the same content will be rejected.

Costs that qualify for funding

When you apply for project funding, you can apply for a grant to cover both direct and indirect costs. Direct costs include costs for salaries, equipment and travel. Indirect costs are costs that are shared with others in your organisation, such as for administration, IT and renting of premises. Indirect costs are sometimes called overhead.

Grant amount and project duration

You can apply for a maximum of 24 months and a maximum of 2 million kronor per year, meaning that the maximum project budget is 4 million kronor. The project should start between 1 July 2021 and 30 November 2021. If the project duration exceeds 24 months or if the total amount applied for exceeds an average 12-month amount of 2 million kronor per 12 months, the application will be rejected.

You can apply for funding under this call even if you have already been awarded funding under one of Formas' other calls. Note that the total salary amount for a single researcher, PhD student or other staff must not exceed 100 percent of full-time employment. This means that additional salary funding cannot be granted to researchers, PhD students or other staff who already receive grants or contributions with full salary funding.

Formas does not grant funding for annual salary increases. For PhD student salaries, however, it is possible to count salary according to the PhD student pay scale; the salary can be reported per year or calculated as an average for the years applied for. It is important that this is clarified in the budget specification.

Language

We recommend that you write your application in English, since the review panel that will assess your application is international. You can write your application in Swedish, but it will then be translated into English prior to assessment. Applicants will not be able to review the translated version.

Who can read the application?

According to Swedish law, your application and its appendices are considered as general public documents once they have been submitted to us. This means that anyone can request and read your application. Before we disclose any application we always conduct a confidentiality assessment, but we can only hide information as legislated for in the Public Access and Secrecy Act (2009:400).

How to apply

You apply in Prisma

You apply for a grant in our application system, Prisma. In Prisma, you must create a personal account where you will add the information you need for your application. We recommend that you create an account and an application as early as possible and contact Formas with any questions in good time.

[Apply in Prisma](#)

In order to submit an application, the organisation where the project manager works must be an approved administrating organisation. If the organisation is not already an approved administrating organisation, the organisation must apply to become one in good time before the call closes, as it can take a few weeks to become approved as an administrating organisation.

Information your application must include

Basic information

• Number of months applied for – the maximum is 24 months.

• Title in Swedish (maximum 200 characters including spaces).

• Title in English (maximum 200 characters including spaces).

• Popular science description in Swedish (maximum 4,500 characters including spaces). The popular science description should be able to be used in Formas' project database, which allows the general public and the media to see which projects were granted funding.

• Abstract in Swedish (maximum 1,500 characters including spaces). A clear and concise description in Swedish of the project and its potential to contribute to a solution to conflicting goals between a circular economy and a non-toxic environment. The project abstract will be published in open access databases if the project is awarded a grant. The contents of this field should therefore not contain sensitive information.

• Abstract in English (maximum 1,500 characters including spaces). A clear and concise description in English of the project and its potential to contribute to a solution to conflicting goals between a circular economy and a non-toxic environment. The project abstract will be published in open

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access databases if the project is awarded a grant. The contents of this field should therefore not contain sensitive information.

Project description

Read the background and the call's purpose and focus carefully before you write the project description. Also take note of the assessment criteria under "How does the assessment process work?".

Address all the criteria in your application. You must describe the following components in your application:

• Goals and purpose of the project, state-of-the-art and the relevance of the project to the call's purpose (maximum 7,000 characters including spaces).

• Project description, including a detailed description of how the research topic and composition of the project team are aligned with the purpose of the call, how the project will develop the subject area, and the state-of-the-art and other ongoing research in similar areas. The description should also include and explain the method, implementation, and a plan for scientific publication and dissemination of the results. The method must be systematic and scientific. Also describe and justify here how the project will use the resources and experts necessary for implementing the project proposal. Include a timetable (maximum 15,000 characters including spaces).

• Description and justification of the project's societal relevance (see criteria description on page 14). This should also describe how the project addresses the systems perspective, meaning how the project might affect and be affected by other considerations relevant to the call (maximum 8,000 characters including spaces).

• References. List the in-line references pertaining to the above sections in a separate field (maximum 5,000 characters including spaces).

Budget

You report the project budget in Prisma. The budget should include:

• Salaries, including social security contributions for each project participant.
You can apply for funding to cover salaries for researchers, PhD students and technical staff. Social security contributions should be included. Formas does not grant funding for annual salary increases. You can therefore apply for funding for salaries that apply at the time of the application, but not for funding to cover salary increases. For any current job positions, you must state the salary in effect at the time of the application submission. This will then apply to all subsequent years in the project. For new job positions you must state the starting salary at the administrating organisation. The total amount of the salary for a single researcher, PhD student or other staff must not exceed 100 percent of full-time employment. This also means that someone who is already receiving full salary funding from any other funder cannot receive additional funding for salary. Researchers who are full-time pensioners cannot receive funding for their own salary.

• Activity level in the project

Activity level refers to the percentage of full-time service a project participant contributes.

• Operating costs

Operating costs can include the cost of consumables, travel, conferences and publication fees for open-access journals and databases. Equipment costs and depreciation costs for equipment used in the project are also considered operating costs. The total maximum amount you can be granted for equipment and equipment depreciation costs is 500,000 kronor.

• Premises

You can apply for funding for the cost of premises if this is not already included as overhead in the project's budget.

• Indirect costs

When you specify the overhead costs in the application, do so according to the practice of the college, university or public administration that will manage the funds. Formas does not grant funding for overhead costs that you write off for equipment or premises.

For funds that are to be transferred from the administrating organisation to another organisation involved in the project, the overhead of receiving organisation can instead be applied for the transferred amount. Explain and report the different overhead costs in the budget specification. The total overhead for the project should be entered in the budget table.

• Budget specification

In your own words, explain how the grant amount you are applying for will be distributed each year, as well as the total amount per organisation if several organisations are applying.

Ethical considerations

Fill in only when relevant for the implementation of the project. You must describe the relevant ethical issues and how they should be managed. Examples include research that uses personal data, or experiments on humans or animals. Read more about ethical considerations on the Formas website.

Classifications

Formas uses project classifications in analyses and supporting documentation on an overall level. The classifications are made when the applicant states the subject area, SCB codes and at least one sustainable development goal the project can contribute to.

- **Subject area**

Select the project's subject area and add a sub-heading.

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- **Research subject (SCB code)**

Select at least one research subject with two sub-levels that together form the entire code.

- **Keywords**

Select at least one and a maximum of three keywords describing the project. Choose what best represents your project, even if it does not entirely match the field you work in.

- **Sustainable development goals**

Select up to three sustainable development goals (SDGs) for classification purposes, in order of relevance.

Administrating organisation – the organisation receiving the grant

An administrating organisation is the organisation that receives the grant money from Formas when a grant is awarded. An applicant in this call must be an approved administrating organisation for all of Formas' calls.

The administrating organisation is responsible for transferring part of the grant to any co-applicant project participants. This grant money must be transferred, not invoiced.

CVs

The project manager retrieves the information from his or her personal account in Prisma. Participating researchers themselves add CV information from their profile to the application in Prisma. Applicants should review in good time that their CV in Prisma is complete and up-to-date. If participating researchers have not filled in the required fields correctly, the principal applicant will not be able to complete registration of the application. Participants who are not co-applicants are not able to attach CV information. Instead, their qualifications for the project should be described in the research programme.

The following CV information should be added to the application.

• Education. Postgraduate, undergraduate and graduate levels.

• Employment history. Current employment and major relevant prior positions, postdoctoral stays, postgraduate exchanges that are relevant for the research, and any significant gaps in the research (such as parental leave, illness, military service or political duties).

• Qualifications and merits:

- Associate professorships (Docent)
- Supervision: Doctoral students, postdocs, graduate theses; specify the total number for each category and name the most relevant ones (max. 10).
- Grants received in competition: Specify the most relevant ones (max. 10).
- Awards and distinctions: Specify the most relevant ones (max. 10).

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- Other qualifications, including summary of publications: Here, the principal applicant and participating researchers should provide a brief summary of their publications during the past five years as well as the total number of publications if the applicant's active research period exceeds five years (max. 800 characters including spaces). This summary should include:
  o Number of publications of various types, for example articles in peer-reviewed journals, book chapters, books and other monographs, conference papers and popular science contributions.
  o Any citation metrics should be given, excluding self-citations, and the database they are retrieved from.
  o The summary should **not** contain information about the H-index, the journal impact factor, or any other type of metric used to rank publishers or journals.
  o Under "Other qualifications," you **must** list other qualifications that are relevant to the application. These can include popular science publications or proven experience of collaboration and research communication (max. 10).
  o Intellectual property: For example, patents and open source software that you have developed (max. 10).

List of publications

The principal applicant and participating researchers should list up to ten of their most relevant publications. The publications should be linked from the applicants' personal profiles in Prisma.

Appendices

If you need figures, tables or images to describe the project, you can upload them as attachments here. A maximum of one PDF attachment of 4 MB can be uploaded. Note that a CV should not be attached as an appendix.

After submitting your application

We first verify whether your application falls within Formas' areas of responsibility, meets the call's procedural requirements and falls within the scope of the call. If it does, it continues on to a review panel for assessment. If it does not, it is rejected.

How does the assessment process work?

All applications are assessed by an external review panel based on the descriptions in the application and how well the criteria are addressed. It is therefore important to write the application as clearly as possible and include all important and relevant information. The review

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panel is composed of both researchers and practitioners who possess knowledge within the field of the call. Read more about the assessment process.

The applications are assessed based on the following criteria:

Scientific research question

- How well the project's purpose is aligned with the focus of the call

- How well the project integrates the areas of non-toxic environment and circular economy

- Originality and novelty of purpose, theory and research question

- Possibility of scientifically significant results.

Methods and implementation

- Suitability of the scientific method

- Suitability of the budget and work plan for the purpose and objectives of the project

- The plan for scientific publication and communication is well-defined and realistic

- The coordination of the project and research group is fit for purpose

- Ethical considerations are described clearly, and the applicant's plan for managing them is appropriate

Scientific competence

- The project team's combined strength and expertise relative to the call's purpose and the team's experience with different perspectives on non-toxic environment and circular economy

- The project team's ability to complete the project according to plan

- Experience in project management – especially in multidisciplinary and cross-disciplinary projects

- National and international activities, including projects, networks, assignments, honorary assignments, and participation in or arranging workshops or conferences

- Experience and ability to communicate research and research results with stakeholders and users.

Societal relevance

The review panel will assess how well you motivate how your proposed research addresses the following considerations:

- The question relates to important issues in society that fall within the call's focus.

- The project's design takes relevant account of the needs of stakeholders or users and clearly describes how the project can benefit them. The application addresses the systems

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perspective, meaning how the question might affect and be affected by other considerations relevant to the call.

- The expected results of the project are relevant for diverse groups in society.

Taking into account the needs of stakeholders or users can include references to directives, environmental objectives, the global sustainable development goals or related strategies, and discussions with the relevant stakeholders or users.

The terms "stakeholders" and "users" are broadly defined as actors who are impacted by the research results or enable their real-world impact. This includes actors outside or inside the research community (depending on whether the project is of a more basic or more applied nature), nationally or internationally.

Communication with stakeholders and users

The review panel assesses whether the application contains the following:

- A description of relevant stakeholders and/or users
- A concrete and realistic plan for a) the project's involvement of relevant stakeholders or users and (b) the project's plan for communicating the research and its results with the stakeholders or users.

Communication with stakeholders and users can take place in different ways and with different timeframes, depending on the topic. However, it should include various forms of dialogue with stakeholders and the potential users of the research.

Grant award decisions

Formas' Scientific Council is expected to reach a decision on 17 June 2021 concerning which projects are granted funding. Decisions will be announced the following day at the latest on Formas' website and later sent via email from Prisma. Grant award decisions cannot be appealed.

During the course of the project

During the course of the project, Formas will arrange meetings or other forms of collaboration to promote exchanges and synergies among the projects, and will expect participants to participate.

Reporting for granted projects

Each project that is awarded funding must submit a financial and a scientific final report to Formas in accordance with the decision, three months after the end of the appropriation period. For projects longer than 18 months, however, financial statements must be submitted annually.

Learn how to report expenses and results.

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Open access to publications and research data

Results of research funded by Formas must be published using open access.

Open access to research results and data

If you receive funding from us, you must have a data management plan for the data produced in the project. This plan does not need to be submitted to Formas, but should be presented on request. We recommend that you follow the proposal developed by Science Europe on what a data management plan should contain. For more information about the proposal, see the Practical Guide to the International Alignment of Research Data Management.

By signing our grant terms and conditions, you certify that a data management plan will be available before the research begins and that it will be maintained.

SweCRIS
Formas shares information about awarded grants to SweCRIS, a national database of grant-funded research that was instituted by request of the government.

Support and shortcuts

- Prisma
- Prisma's user support
- Ethics policy

Contact information

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