

Funding Guidelines

Preamble

The German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt, DBU) was instituted by the federal government in 1990 as a foundation under civil law. The foundation is commissioned with supporting proposals and projects for the protection of the environment, with special consideration for the small- and mid-sized business economic sphere. Upon initiation of DBU funding activity in 1991, the first "Guidelines for Support by the German Federal Environmental Foundation" were published. New editions followed in 1998 and 2004.

Based on an ongoing, comprehensive process of evaluation, we now present fundamental and newly-designed funding guidelines which, on the basis of the principles formulated in the Errichtungsgesetz (Establishment Act) and Foundation Charter, take up the current challenges of environmental protection under consideration of social transformation. The DBU's support offerings are oriented towards interdisciplinary funding topics which are regularly adapted to the changing demands of environmental protection. This also opens up the possibility, by supporting a wide range of research areas, of taking up the innovative ideas of project partners, and encouraging innovative environmental protection initiatives with special significance, which may lie in areas outside the narrowly-defined support subjects.

The German Federal Environmental Foundation supports, in accordance with the foundation mission and governing concept, innovative, model and solution-oriented projects for the protection of the environment. It pursues these goals under the rubric of sustainable development in its ecological, economic, social and cultural aspects with special consideration of small- and mid-sized businesses in their dynamic diversity. In this sense, environmental protection can also be understood as health protection.

Supported projects should be sustainably effective in practice, provide impulses, and enable a continuing multiplier effect. The DBU supports the communication and dissemination of project results, and integrates them into the discussion process about the crucial challenges of environmental protection.

It is the objective of the DBU to contribute to the solution of current environmental problems, in particular, which result from unsustainable economic practices and ways of life in our society. The DBU sees the crucial

challenges above all in climate change, loss of biodiversity, unsustainable consumption of resources, and harmful emissions. The support areas thereby address both current scientific findings about planetary limits, and also the UN Sustainable Development Goals. With its support activities the DBU simultaneously wishes to make a contribution, in particular, to the implementation of the Federal Government's sustainability and biodiversity strategies. Education, and the active participation of children and adolescents, are of essential importance for the attainment of ambitious sustainability goals. The DBU accepts this crucial task along with the challenges of increasing urbanization.

Complex environmental problems can only be brought under control through approaches which integrate interdisciplinary and systemic action with an underlying practical social basis. DBU support programs are intended to set accents, and thus consistently integrate into their spectrum of support areas the statutory fields of endeavor. The research, development and use of new environmentally-friendly technologies and products compatible with precautionary integrated environmental protection; the preservation and restoral of the nation's natural heritage; and the encouragement of environmental consciousness and related behavior in the population through information and environmental measures: these objectives receive equal consideration and balanced treatment in the support areas.

The digitalization of production-, business- and informational processes is proceeding rapidly and offers many approaches to the solution of environmental problems. Using these approaches consequently in all support areas is an important DBU objective.

I. Funding topics

1. Instruments and competencies of sustainability assessment and strengthening of sustainability consciousness and -action

The sustainability assessment of processes, products and services is a major challenge. It involves developing and utilizing decision-making tools for the evaluation of sustainability, on the basis on indicators. The dissemination of corresponding skills and systemic relationships, and the encouragement of awareness and related action within the framework of education about sustainable development, are conditions for the formation of a sustainable society. This involves, also, considering issues of guiding values and basic ethical attitudes. This necessitates the development of new methods and instruments of communication, learning, dialogue and participation, conceived especially for children and young people.

Eligible for support are:

- measures for the identification and development of practical sustainability indicators;
- development, optimization of, and research on practically applicable methods and concepts of sustainability assessment;
- measures for the development and reinforcement of sustainability competencies, in particular for multipliers;
- new methods and approaches toward the raising of consciousness regarding systemic sustainability relationships and –goals, especially in schools, colleges and universities, and extracurricular training facilities;
- new methodical means of developing and strengthening sustainability consciousness, especially in children and adolescents;
- developing and optimizing transformative methods of reinforcing sustainability practice and participation (i.e. citizen science, field tests).

2. Sustainable nutrition and sustainable management of food products

The fundamental elements of sustainable nutrition are production processes, processing methods, and preparation methods for food products which save resources and are humane to animals, and the raising of consumer consciousness regarding the environmental- and climate effects of our food choices. Crop production and intensive livestock breeding continue to result in negative impacts on - above all - soil, biodiversity and water quality. The support is aimed at reducing these negative environmental effects. A further pressing problem is represented by avoidable food losses which emerge along the food value chain and, in particular, by overconsumption. In reducing these losses, consumers have a great responsibility. Here the goal is the strengthening of their competence in the area of sustainable nutrition. Better understanding of sustainable production, marketing, storage and preparation of food products is necessary. A further key factor is product- and process-related information about sustainability which can be made accessible to consumers in an understandable form.

Eligible for support are:

- resource-saving and animal-friendly concepts for environmentally sound food production;
- energy-saving and loss-minimizing processes (production, marketing, processing, storage, shipping) for food products;
- approaches to minimization of food losses in trade, particularly baked goods, fruits and vegetables;
- projects for the prevention of food losses and –waste by private and large consumers (purchasing, management of shelf life information, storage and processing);
- approaches for product-specific sustainability assessment of food products and dissemination of sustainability information along the value chain, to the customer;
- impartation of decision competence and implementation capacity in nutrition, and in the sustainable management of food products;
- research, development and practical implementation of processes and products compatible with environmentally sound plant protection, especially in organic agriculture.

3. Development, design, and acceptance of environmentally-friendly movable consumer goods

The development, design, and acceptance of environmentally-friendly products are essential instruments needed to minimize the consumption of resources and related negative environmental effects. Of particular interest are durable consumer goods, the so-called "durables". These goods are defined by a longer period of use. Environmental damage occurs both in production and in the use- and "end of life" phases. Goals of the support are: more environmentally-friendly design of durables, primarily in the areas furnishings, electronic devices, household appliances and vehicles; making such durables more acceptable; and supporting a social value transformation in the direction of such products.

Eligible for support are:

- the elaboration and testing of new methodological product development concepts;
- the development of durables and their components with lower resource utilization, subject to consideration of the entire lifecycle (i.e. resource minimization during service life, minimization of materials use, long product life, ease of maintenance and repair, recyclability);
- incentives for the testing of new business models which increase the value of movable durables and/or reduce their negative environmental impacts, particularly through improvement of their recyclability and an increase in their utilization intensity;
- innovative concepts for further use and reuse of used materials ;
- the creation of awareness of, encouragement of the acceptance of, and education in the economy and society on the need for the technical realization of, sustainably designed consumer goods;
- development of valid decision aids for the purchase and use of environmentally-friendly consumer goods.

4. Renewable Energy Sources – accelerating a decentralized heating transition, optimizing existing systems and reducing negative environmental impacts

Climate protection requires a substantially increased use of renewable energy sources. The efficient, environmentally-friendly use of existing facilities in a manner compatible with nature conservation is coming increasingly into focus. Furthermore, the feasibility of storing energy in existing systems is becoming increasingly important. There is considerable pent-up demand in the area of regenerative thermal energy, particularly as regards solar energy, heat-pump technology, heat transfer and bioenergy. In the use of biomass fuels for heating, the relevant factors of environmental- and nature protection and also the competitive relationship with food production must be considered. The support work is therefore aimed at accelerating the decentralized use of renewable energies for heating- and cooling supply systems through improvement of their efficiency and economic viability, the optimization of existing facilities by means of “retrofitting” measures, reducing environmental effects through the operation of such systems, raising the acceptance level for further expansion of renewable energy use, and guaranteeing the availability of qualified experts.

Eligible for support are:

- continued development, system optimization and model application of solar energy technologies for generation of warmth and cool air (including the use of photovoltaic electricity in combination with heat pumps or cooling systems with natural coolants) and the opening of previously seldom-explored fields of application;
- continued development, optimization and model application of heat-pump systems and heat transfer systems with natural coolants, and their integration into larger systems;
- continued development, system optimization and model application of technologies for environmentally-friendly production, preparation and energetic utilization of biomass fuels in decentralized implementation;
- new concepts for a combined utilization of various regenerative energies toward the optimization of economic viability and environmental relief, including innovative storage concepts;
- new developments in efficiency increase, operational optimization of existing facilities for utilization of renewable energy sources, and new approaches to the optimization of individual system components;

- development of new concepts and technical solutions for the utilization of renewable energies which are viable as regards environmental factors, health and nature conservation;
- development and testing of new approaches to qualification, education and training, involvement and dissemination of information.

5. Climate- and resource-saving construction

In order to reach the goal of energy- and resource-efficient construction for a climate-neutral and health-compatible building stock by 2050, various and connected strategies in the construction field are required. In addition to the exemplary development of the potential for energetically-optimized existing building stocks, and environmentally viable urban densification, future-oriented concepts and technological approaches must be developed and tested, as primary engines for innovation, in new construction. Because the increased use of wood as a renewable raw material can represent a leveraging factor for improvement of resource efficiency, the opening of large building volumes for wood construction should be considered.

The support focuses, in particular, on a holistic optimization within an integral planning phase, and target group-specific dissemination of results. The various aspects of sustainable building should be integrated to the greatest possible extent into model projects involving high-quality design, then implemented, evaluated, documented and communicated in innovative educational programs.

Eligible for support are:

- the model concept development, implementation, evaluation and documentation of energy- and resource-optimized, healthy old and new construction which consider the entire building lifecycle;
- the exemplary development and implementation (for example) of concepts for the improvement of indoor air quality, for passive air conditioning, "plus energy"-neutral and CO₂-neutral buildings and neighborhoods, for the minimization of gray energy, emissions and immissions, for sufficiency and its evaluation and documentation;
- the further development, exemplary implementation and documentation of wood construction in larger building volumes;
- the optimization of concepts, systems and constructions involving wood, and raising the degree of acceptance for wood buildings;
- the further development of planning methodology, process quality and related instruments as an optimization strategy toward sustainable and health-friendly planning, construction and operation of residential areas and buildings, and their target group-specific dissemination;
- innovative methods and concepts for education and training, communication, participation and qualification for (in particular) public and private builders, planning agencies, authorization authorities,

construction-related professions, children and adolescents, and users.

6. Energy- and resource-saving neighborhood development and renewal

Measures for the reduction of resource consumption, for viable management of natural resources, for climate protection and climate change adaptation are dependably more efficient when their localization and integration into the neighborhood - as well as the existing physical-technical, natural landscape-related, social, economic and design qualities and requirements - are taken into consideration. The focus on the entire neighborhood enables, beyond a spatially consistent development process, the utilization of synergies and the development of effective, well-integrated overall solutions which contribute to the avoidance of counterproductive isolated solutions. Approaches to energetic neighborhood renewal with high-efficiency combined heat and power systems, local heat networks, and structurally integrated systems for the generation, storage and use of renewable energies should all be developed and tested, as should the resource-saving modernization of grid-based infrastructures and their integration in a coherent overall concept which also includes urban green spaces (green infrastructure). This must involve the population.

Eligible for support are:

- The model development and implementation of innovative concepts for energy- and resource-efficient neighborhood development and renewal which take into account social impacts;
- The resource-saving conversion of supply infrastructure and waste disposal infrastructure involving mutual synergies and diverse infrastructure areas;
- the documentation and evaluation of corresponding concepts and measures already implemented;
- concepts and strategies for further development of the administrative, institutional and social conditions conducive to the creation of innovative concepts for energetic and resource-saving neighborhood renewal;
- the further evolution of planning methodology, process quality, and instruments for energy- and resource-saving neighborhood development;
- new approaches to participation by neighborhood populations in energy- and resource-saving neighborhood development;
- innovative methods and concepts for education and training, communication and qualification.

7. Reduction of CO₂ emissions in energy-intensive industries

By the year 2050, emissions of greenhouse gases in Germany are to be reduced by about 80-95% compared to 1990 levels. This is slated to involve (among other aspects) a 50% reduction in primary energy consumption, and an increase of 60% in the portion of the energy supply provided by renewable energies. The energy-intensive companies play a central part in this process, whereby the steel- and metalworking industries and the pit-and-quarry industry are of special importance to the DBU. The support is aimed, particularly in small and mid-sized companies in this industry, at reducing energy consumption in all processes including related operational technology, reducing the energy consumption of the manufactured products, and encouraging sustainable management and use of the operational technologies.

Eligible for support are:

- development and model implementation of solutions for reduction of energy consumption in main- and auxiliary processes, in particular through more efficient energy conversion and –consumption, and by energetic optimization;
- development and model implementation of solutions for the reduction of energy-related CO₂ emissions through adaptation to altered energy carriers and a fluctuating energy supply;
- development and model implementation of solutions for the reduction of energy consumption in the relevant operational technologies (ventilation-, pump-, motor- and compressed air systems);
- further development toward reduction of energy consumption in the manufacture, utilization and recycling of products, particularly via the optimization of material usage;
- alteration/adaptation/optimization of division of labor in manufacturing processes, aimed at reduction of energy consumption in shipping and logistics;
- new kinds of training, qualification, education and advanced training, and motivation of company employees including new management methods, with the goal of reducing energy consumption during the operational implementation, management and utilization of products and processes.

8. Resource efficiency through innovative materials engineering

The reduction of raw materials- and materials consumption and the minimization of harmful emissions are crucial challenges in reaching the goal of sustainable economic activity. Material compounds are taking on increasing significance in the raising of product efficiency, especially in the "use phase". The intelligent combination of the qualities found in various materials allows improvement in performance characteristics with increased resource efficiency. Still, exactly these material compounds can create new environmental problems in the manufacture phase, and especially in the post-use phase as waste. The support work is aimed at the resource efficiency of materials compounds over the entire lifecycle and takes account of, for example - in addition to new types of separation processes - new solutional approaches to the consideration of the traceability of the materials even at the product development stage, such as marker procedures for the identification of product components, intentionally soluble adhesive bonds, compatible materials selection etc. Here, the support aims at innovative and practically-applicable research projects, pre-competitive development projects, and model solutional approaches with the widest possible systemic holistic view.

Eligible for support are:

- materials- and coating-related projects toward the significant reduction of resource consumption in both the manufacture and use phases of products;
- materials- or coating-related developments which enable the closing of material cycles;
- new processes and means of production which increase resource efficiency in material-intensive processes and applications throughout the entire value chain;
- materials- or surface-related developments for the prevention or replacement of harmful materials and their emissions;
- projects which replace (especially) scarce or problematic materials with unproblematic ones, while considering quantitative relevance.

9. Cycle management and efficient utilization of phosphorus and environmentally critical metals

The production of raw materials is closely linked to substantial environmental damage. Fine distribution of the materials, for a wide variety of consumer goods, often stands in opposition to the recycling of the materials after the use phase. In order to create a sustainable economic practice, therefore, efficient use and strict cycle management of difficult-to-replace raw materials are essential. This is particularly true of environmentally critical materials such as certain metals needed in high tech- and environmental technologies, and of phosphorus, which is essential for the food security of a growing world population. Thus the cycle management of (in particular) platinum group metals, indium, cobalt and rare earth metals should be accelerated. Additionally: environmentally-friendly processes for the recovery of recyclable phosphorus from relevant waste flows should be developed and implemented. New concepts should improve recycling and minimize negative ecological impacts. In the case of the previously-named raw materials there is a pressing need to strengthen the circulatory principle, and related systemic thinking and practice, in order to meet the highly complex recycling conditions.

Eligible for support are:

- educational and training concepts for the encouragement of systemic thinking based on the example of the environmentally critical materials cited;
- projects which reduce the use of environmentally critical metals and prevent their fine distribution, or by means of which environmentally critical metals are replaced by environmentally-friendly exploitable materials;
- projects for the recovery and processing of environmentally critical metals;
- projects for the increase of phosphorus efficiency in industry and agriculture;
- development of measures for the environmentally compatible material use of material flows containing phosphorus (sludge, organic waste, agricultural farm manure among others);
- development of environmentally-friendly phosphorus recovery processes: where applicable, also with consideration of additional nutrients (waste water/sludge, animal residues).

10. Reduction of nitrogen emissions in agriculture

As a primary component of protein, nitrogen is one of the most important building blocks of life and a motor of all biological growth. But reactive nitrogen compounds play a part in complex environmental impacts such as nitrate pollution of groundwater, eutrophication, the release of laughing gas and ammonia, and negative effects on biodiversity. The harm from reactive nitrogen compounds exceeds the safety zone for planetary limits by a wider margin than all other environmental problems. Although nitrogen is essential as a nutrient, unintentional discharge into the environment must be avoided to the greatest extent possible. Thus far, efforts have failed. The nitrogen surplus in Germany amounts to around 100 kg per hectare each year. Action is urgently needed to increase the efficiency of mineral- and organic nitrogen fertilizers and to reduce losses from reactive nitrogen compounds. This is only possible by means of a package of measures which address the various emission sources.

Eligible for support are:

- technological- and process developments toward the avoidance of nitrogen losses in stable facilities and in the storage and output of farm manures, especially through separation- and treatment processes for excrements;
- improvement of processes for temporally- and spatially targeted fertilizer application, conditional upon plant requirements;
- measures for more efficient exploitation of existing nitrogen deposits in the soil;
- development of information- and advisement/consultation strategies for various interested parties (farmers, companies involved in stable construction, ventilation technology etc.);
- target group-specific dissemination of new findings (animal husbandry professionals, crop farmers, water protection area consultants etc.).

11. Integrated concepts and measures for the protection and management of groundwater and surface waters

Infiltrated substances from point sources and diffuse inputs worsen the quality of surface waters and groundwater reserves. Changes in the waters' hydromorphology can lead to structural poverty and thus to the loss of riverine living spaces, biodiversity, and ecosystem performance.

Thus for the protection of surface waters and groundwater reserves, an integrated concept of the catchment areas of selected waters, as a system-oriented approach, is essential. Factors contributing to a solution may be: material flow models, decision support systems, and concrete measures for the reduction of anthropogenic influences and for the structural optimization of waters in urban and rural areas. Interdisciplinary concepts of education, further training, and advanced training serve an optimized provision and dissemination of information, and the development of expert competencies. The project's goal is the improvement of water quality and the ecological water status.

Eligible for support are:

- development and application of model decision support systems, and quality- and quantity models from the operational- to the catchment area level;
- development and testing of exemplary integrated solutional approaches and systems, and technical measures including further development of system technology designed for waste water treatment to improve water quality and secure ecosystem performance;
- development and model implementation of water-improving, integrative, practically applicable concepts for the reuse of water with related energetic and material potential in settlement areas;
- development and model implementation of measures and concepts for dynamic flood management and protection;
- development and testing of model measures for the education and training, qualification, and participation of those in related roles and professions.

12. Nature conservation and sustainable use of nature in human-modified environments and protected areas

Nature-themed cultivated landscapes are of major significance for biological diversity, which is to a great extent dependent on the way these landscapes are managed. The intensification and standardization of land use are contributing to a continuing loss of biodiversity which is unchecked to date, and which must be stopped with appropriate measures in close cooperation with all relevant actors. Extensively-farmed landscapes can play an important role as networking elements between these commercial landscapes and protected natural landscapes, and should be supported through appropriate concepts for sustainable regional development and actual implementation projects.

Further action is also needed to realize appropriate measures which can ensure an increase in the efficacy of protected areas beyond the regulatory sphere. Such action must meet the requirements represented by current ecological and social developments.

Eligible for support are:

- concepts and instruments for the packaging and prioritization of regional nature protection goals and their operationalization at the landscape- and plant level, also in the context of sustainable regional development;
- development and establishment of farming- and forestry-related biotope management measures, in particular for extensively used and/or semi-natural habitats and open landscapes;
- further development and implementation of innovative technologies for the optimization of farming- and forestry-related production processes, adequate for effective natural protection;
- new forms of informational dissemination and provision of expertise for land use groups, consultants and authorities with the participation of various civil actors;
- development and implementation of biotope network systems and structures and of measures for species- and biotope protection;
- concepts and instruments for wilderness development;
- innovative education and training concepts, advanced training- and advisement/consulting concepts, and innovative public information- and dissemination concepts, in particular for children and young people.

13. Conservation and securing of valuable national cultural assets from harmful environmental effects

Anthropogenic influences on the environment harm not only nature, but also valuable national cultural assets. The extent and types of damage to these have changed in recent years. Among the causes are changes in human-caused emissions, the impact of climate change, and the management of chemicals once introduced as protection. In order to attain sustainable protection of cultural assets, new strategies, methods, processes and products must be developed, implemented in a model fashion, and communicated.

Model projects in the support area follow, as a rule, an interdisciplinary approach with the participation of (in particular) the small- and mid-sized business sphere and application-oriented research groups.

Eligible for support are:

- development and model implementation of new methods, processes and products for the protection of valuable national cultural assets from the effects of anthropogenic immissions;
- creation of strategies and concepts for the securing and preservation of valuable national cultural assets and historic cultivated landscapes from the impacts of anthropogenic climate change;
- development and testing of processes, methods and products for management of harmful past restoration;
- further training options in the field of sustainable protection of cultural assets and historic cultivated landscapes;
- innovative measures for the solution of conflicts within the overlap area between monument-, nature- and cultivated landscape protection, in particular as they relate to urban spaces and energetic utilization claims.

II. Support available in various fields

Beyond these specified support areas, the DBU intends to make possible – to a limited extent – support which is not precisely defined, but oriented to the statutory goals. This would make eligible for support some projects expected to make a major contribution to the solution of environmental problems, but which do not fit precisely into any of the previously-named support areas.

Support will go to statutorily compatible projects for the protection of the environment which are characterized by a particularly positive environmental result. Professionally viable ideas whose successful implementation is not adequately assured can be supported, as can projects which aim for the popularization of model, creative solutions.

Eligible for support are:

- research, development and innovation in the area of environmentally-friendly and healthy processes and products;
- the exchange of environmental knowledge between the spheres of science, the economy, and other public or private interests, and proposals for the dissemination of environmental knowledge;
- preservation and restoral of the nation's natural inheritance.

III. Grounds for disqualification

To avoid applications which are not compatible with DBU support objectives, the DBU has issued this "negative list" for the further orientation of potential applicants.

Support is ruled out for:

- projects which serve the fulfillment of compulsory legal requirements;
- project-unrelated applications from establishments and institutions (institutional support);
- projects with no likelihood of implementation;
- pure investment projects;
- projects already begun;
- projects for the market launch of developed products;
- projects entailing exclusively basic research;
- monitoring of environmental damage;
- studies with no specified focus on implementation;
- replenishing of support funds for other sponsors;
- pure printing- and travel cost subsidies;
- projects which do not correspond to the EU state aid law.