

Overview of the new “Promotion Strategy for
Environmental Research and Environmental
Technology Development
(Policy Recommendation Report)”

Office of Environmental Research and
Technology, Environmental Policy Bureau

Development of the new promotion strategy

- In response to a request for consultation made by the Minister of the Environment based on the status of the development of the Science and Technology Basic Plan and the Basic Environment Plan, the Central Environment Council reports every five years on the future perspective of research and technology development in environmental fields.
- As 5 years had passed since the previous report submitted in 2010, the Minister of the Environment consulted the Central Environment Council in November, 2014, upon which the Advisory Committee on the Promotion Strategy for Environmental Research and Technology Development (Chairman: Itaru YASUI), established under the General Policy Sub-committee of the Council, deliberated on the issue and submitted **a new report on August 20, 2015.**

Framework of the “Promotion Strategy for Environmental Research and Environmental Technology Development (Policy Recommendation Report)”

I. Policy trend and current social circumstances surrounding the environment

- Since the current report on promotion strategy was submitted in 2010, the environmental trend has changed considerably as shown by the release of the IPCC Fifth Assessment Report, disaster response after the Great East Japan Earthquake, adoption of the Aichi Biodiversity Targets, and increase in attention to transboundary air pollution caused by PM2.5 and other pollutants.
- Historically, Japan’s environmental research stems from pollution control and it has extended its target fields according to the policy challenges of the time. For the future it is important that we will continue our efforts to solve environmental issues because that is the key to solving a series of issues in economy and society.

II. Keys to the strategic promotion of environmental research and technology development

- Providing a picture of an ideal society by setting mid and long-term goals to be achieved by around 2025 to 2030 and 2050 respectively, based on the opinions offered by the Central Environment Council in 2014 in “Building a Society through a Comprehensive Approach Integrating Low-Carbon, Sound Material-Cycle and Natural-Symbiosis Policies - Creating an Environmental, Biotic and Civilized Society-”, and relevant factors.
- The national government should take the initiative to tackle the research and technology development in environmental fields in cooperation with the private sector.

III. Key challenges in environmental research and technology development over the next 5 years

- For the realization of the ideal society mentioned in II, a multidisciplinary, integrated research field will be identified to advance cooperation with social scientific fields as well as research/development fields concerning low carbon, sound material cycle, natural symbiosis and assurance of safety and security, and solve multiple challenges including disaster response and regional revitalization. Key challenges to be focused on in environmental research and technology development (hereinafter “key challenges”) will also be presented.
- From FY 2016, the Environment Research and Technology Development Fund, which is a competitive research fund, will start calling for applications with research project proposals based on the key challenges newly presented in this strategy.

IV. For effective promotion of environmental research and technology development

- Provide measures to effectively promote the research and technology development for solving the key challenges mentioned in III, such as:
 - Improving management of the Environment Research and Technology Development Fund (strengthening frameworks in implementation and evaluation; encouraging participation from the private sector)
 - Perspectives to develop the next mid and long-term goals/plans of the National Institute of Environmental Studies (i.e. promoting integrated research to which environmental problem solution will be the key)
 - Enhancing the roles of local environmental research institutes; properly reflecting the outcome of the research and technology development in policies

Framework of the key challenges under the new promotion strategy and examples of research and technology development projects

- 15 key challenges identified based on the current research trend and environmental policy direction
- To be presented as key components of target research fields for the Environment Research and Technology Development Fund application

List of Key Challenges

Examples of research and technology development

<p><Multidisciplinary, integrated field> [newly-established] Key challenge 1: provision of visions/philosophy for the realization of a sustainable society Key challenge 2: triggering changes in people's values and lifestyles to realize a sustainable society Key challenge 3: discovering and utilizing new technological seeds which will contribute to solving environmental problems Key challenge 4: research and technology development to contribute to tackling environmental problems caused by disasters/accidents</p>	<ul style="list-style-type: none"> ● Intellectual contribution to international environmental policies ● Research on environmental education/behavior change ● Optimal technology development conducive to solving regional environmental problems ● Response to environmental problems associated with disasters/accidents
<p><Low-carbon field> Key challenge 5: formulating low-carbon, sustainable scenarios that flexibly respond to climate change Key challenge 6: research and technology development for climate change mitigation Key challenge 7: research and technology development for adaptation to climate change Key challenge 8: elucidating/predicting global warming and evaluating its preventive measures</p>	<ul style="list-style-type: none"> ● Urban development research to realize a low-carbon society ● Advancement and cost reduction of energy-saving/renewable energy technologies ● Evaluation of adaptive technology based on observation/prediction models ● Understanding of global carbon cycle
<p><Sound material-cycle field> Key challenge 9: establishing technical/social system to promote 3R (Reduce, Reuse, and Recycle) Key challenge 10: research and technology development to contribute to proper disposal of waste and to achieve longer operating life/better function of waste disposal facilities Key challenge 11: establishing technology and system to enhance energy recovery from waste such as biomass</p>	<ul style="list-style-type: none"> ● Technology development to recycle useful metal resources ● Proper disposal of hazardous waste such as asbestos and mercury ● Preventive maintenance/fault prediction of waste disposal facilities ● Development of a social system for expanded use of recovered energy such as district heating
<p><Natural-symbiosis field> Key challenge 12: research and technology development for biodiversity conservation and improvement of scientific knowledge which is conducive to it Key challenge 13: research and technology development to maintain/rehabilitate a symbiotic relationship between forests, land, rivers and the sea and to achieve sustainable utilization of ecosystem services</p>	<ul style="list-style-type: none"> ● Accumulation and utilization of information on biodiversity and genetic resources ● Development of an integrated wildlife preservation/management system ● Development of a social system for evaluating, understanding and maintaining ecosystem services in watershed areas ● Evaluation and utilization of green infrastructure in disaster prevention
<p><Safe and security-field> Key challenge 14: research for the promotion of comprehensive risk evaluation/ management of chemical substances Key challenge 15: research for advancing and evaluating/understanding measures and technology to control and improve air/water/soil environment</p>	<ul style="list-style-type: none"> ● Understanding and managing environmental dynamics of multiple/new chemicals ● Tackling global challenges involving mercury and POPs ● Research for securing healthy water cycle ● Evaluation and review of measures against air pollution caused by PM2.5 and other pollutants

Policies for effective promotion of environmental research and technology development under the new promotion strategy

Improving management of the Environment Research and Technology Development Fund (competitive research fund)

- Besides setting **multidisciplinary research themes** including humanities and social sciences, it is important to promote **consortium-based research** merging academic research by national research institutes and universities with, practical research by private companies.
- Besides **expanding support for researchers** in line with the research trend and the policy trend, we need to discuss the Fund's future management framework in a way **that improves convenience for researchers through introducing simpler application procedures and more flexible disbursement of research funds.**

The role of the National Institute for Environmental Studies (NIES)

- NIES is expected to lead the **multidisciplinary, integrated research and technology development**, free from its conventional approach, **with an eye to solving economic and social issues** through solving environmental issues.
- NIES should continue to **provide scientific knowledge which contributes to the planning and implementing of administrative policies** in environmental fields.
- Cooperation with universities, national research institutes, local environmental research institutes and private companies should be strengthened further.
- NIES is expected to contribute to scientific discussion in the international arena including IPCC, IPBES, Future Earth and OECD, and make technical contributions in the formulation of international rules based on Japan's experiences and achievements in environmental measures.

Other policy measures

- Local environmental research bases such as environmental research institutions of local governments should try to make more effective use of research funds and cooperate with NIES and other organs as they play an important role in solving local environmental problems.
- The outcome of the research and technology development should be properly reflected in administration policies and be disseminated and developed at home and abroad, and it is also important to address challenges with an eye on such outcome.
- In light of the trend toward open data, basic information which is vital for environmental research and technology development and policymaking should be disclosed adequately to not just researchers but also administrative organs, private companies, and general public.
- Bolstering outreach activities is necessary to enhance public understanding of environmental problems and environmental research and technology development.
- Follow-ups on the implementation status of this strategy should be done accordingly by utilizing the findings of the progress check of the Basic Environment Plan.

The Members of the Advisory Committee on the Promotion Strategy for Environmental Research and Technology Development

Types	Name	Organization
Committee Member (Chairman)	Itaru Yasui	Honorary Advisor The National Institute of Technology and Evaluation
Committee Member	Mitsumasa Okada	Professor The Open University of Japan
Committee Member	Hiroaki Shiraishi	Fellow The Center for Environmental Risk Research (Center for Environmental Risk Research)
Committee Member	Noriko Takamura	Fellow The National Institute for Environmental Studies (Center for Environmental Biology and Ecosystem Studies)
Temporary Committee Member	Tadashi Otsuka	Professor of Law Waseda University
Temporary Committee Member	Kazuhiko Ogimoto	Project Professor The Collaborative Research Center for Energy Engineering, Institute of Industrial Science, The University of Tokyo
Experts Committee Member	Takashi Ibusuki	Chief Advisor The Japan Environmental Management Association for Industry
Experts Committee Member	Mikiko Kainuma	Senior Research Advisor The Institute for Global Environmental Strategies
Experts Committee Member	Mamoru Taniguchi	Professor Faculty of Engineering, Information and Systems Division of Policy and Planning Sciences, University of Tsukuba
Experts Committee Member	Masanori Tsukahara	Chief Secretary Environment Equipment Department, the Japan Society of Industrial Machinery Manufacturers
Experts Committee Member	Toshihiko Matsuto	Professor Laboratory of Solid Waste Disposal Engineering, Faculty of Engineering, Hokkaido University
Experts Committee Member	Yukihiro Morimoto	Professor Lab. Of Urban Ecology, Faculty of Bio-Environmental Sciences, Kyoto Gakuen University
Experts Committee Member	Koji Yamaguchi	Vice Division Director Sanyu Plant Service Co., LTD