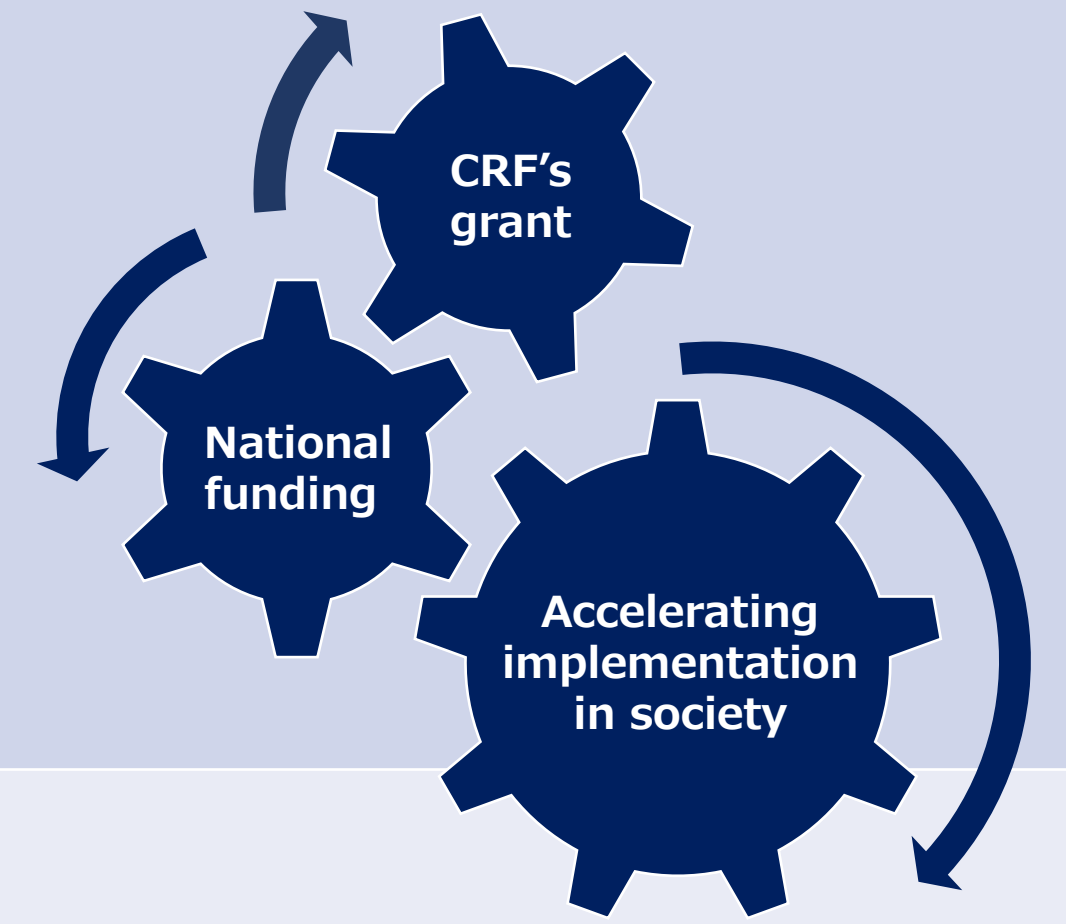# Research Grant

	Features
Eligibility	Researchers or teams affiliated with companies, universities, etc. A startup support framework newly established in FY2022
Research targets	Research on carbon recycling that uses CO_2 (or carbon atoms) as a resource, related technologies, and social science to solve social issues <Expected Fields> 1. CO_2 fixation by mineralization (materials such as concrete) 2. Conversion to fuels 3. Conversion to chemicals 4. Separation and recovery (including direct-air capture) 5. Social science 6. Utilization of CO_2 sinks (soil, forests, blue carbon, biologics, agriculture, forestry and fisheries) 7. Other (H_2 production, geo-engineering, functional materials, medical fields, etc.)
Evaluation points	Creativity, innovativeness, superiority over conventional technologies, method to determine issues, and social realization potential through collaboration with companies
Grant scale	Approx. 10 million yen per case (average: approx. 7 million yen per case)
Number of applications and accepted cases	FY2020～FY2022：（total）165 applications → 40 accepted FY2023: 56 applications → 15 accepted and 31 applications for startup support → 2 accepted FY2024: 78 applications → 13 accepted and 26 applications for startup support → 1 accepted
Attribution of research results	Research results basically belong to researchers

Diagram: CRF's grant — National funding — Accelerating implementation in society

Projects selected as government-funded projects or joint research with companies

Research field	Grantee	Research project name (grant fiscal year)	Principal investigator name (affiliated institution)
Technologies for CO2 fixation	Joint research with companies (verification testing)	Development of a novel CO_2 immobilization technology using microbial fuel cells (FY 2022)	Daisuke SANO (Tohoku University)
	NEDO and MOE	Development of a novelnew CO_2 mineralization method usingfor waste seawater using biogenic amines (FY 2021)	Ko YASUMOTO (Kitasato University)
Technologies for conversion to fuels	JST/OPERA	Breeding to eliminate bottlenecks against practical application of microseaweed-derived biofuel (FY 2021)	Shigeaki HARAYAMA (Chuo University)
Technologies for conversion to chemicals	Green Innovation Fund	Development of super-efficient polyurethane material production method using CO_2 (FY 2021)	Katsuhiko TAKEUCHI (National Institute of Advanced Industrial Science and Technology)
	Joint research with companies, etc.	Development of technology for synthesizing lactic acid and polylactic acid from carbon dioxide　(FY 2021)	Hajime KAWANAMI (National Institute of Advanced Industrial Science and Technology)
	Joint research with companies	Adaptive research on new low-temperature methanol synthesis catalyst to IGCC+CCS (FY 2020)	Noritatsu TSUBAKI (University of Toyama)
Technologies related to CO2 separation and capture	JST/JST-Mirai	Development of CO_2 absorber for low-cost CO2-free hydrogen production (FY 2021)	Kei INUMARU (Hiroshima University)
	Joint research with companies, etc.	Development of highly efficient DAC technology using CO2 absorbing and releasing agents that separate even water (FY 2021)	Fuyuhiko INAGAKI (Kobe Gakuin University)
Social sciences	MOE	Research on the Realization of Setouchi Carbon Recycling Complex (FY 2020)	Takayuki ICHIKAWA (Hiroshima University)
	ERCA (Environment Research and Technology Development Fund)	Regime Change for Carbon-Neutral Agriculture, Forestry, and Fisheries (FY 2023)	Ayu WASHIZU (Waseda University)
Circulation of carbon resources	Launching a startup	Highly-Efficient Conversion of CO_2 Utilizing Biomass, Brown Coal and Metal Ion Media (FY 2020)	Ryuichi ASHIDA (Kyoto University)
Utilization of CO2 sinks	JST/A-STEP (tryout) Launching a startup	Development of a compact horticultural system with atmospheric CO_2 enrichment by membrane separation (FY 2021)	Shigenori FUJIKAWA (Kyushu University)
	JSPS (grants-in-aid for scientific research)	Enhancement of plant CO_2 uptake using a chemical compound (FY 2022)	Yohei TAKAHASHI (Nagoya University)

Research Grant
14 Projects Adopted in FY2024

CARBON RECYCLING FUND INSTITUTE

Field	Study title	Name of Research Representative (Organization)
CO2 separation and capture	Development of DAC system with high CO_2 concentration by zeolite-based pressure swing	Kenta IYOKI (Planet Savers Inc.)
	Investigation of Ion-gel Membranes for Direct Air Capture	Yu KANASAKI (National Institute of Advanced Industrial Science and Technology)
CO2 storage	R&D on CO_2 fixation technology into the goaf of a closed coal mine	Shohei TAKEUCHI (Mikasa City, Hokkaido)
Conversion to fuels or chemicals	Methanol production by electrolytic CO_2 reduction using 1 nanometer copper cluster	Tokuhisa KAWAWAKI (Tokyo University of Science)
	Closing the carbon cycle by using ammonia energy to produce olefins from CO_2	Martin KELLER (National Institute of Advanced Industrial Science and Technology)
	Development of a Chemical Reactor to Produce Synthetic Hydrocarbon Fuels from CO_2 Using an Internal Combustion Engine	Tadanori YANAI (Shizuoka Institute of Science and Technology)
Social sciences	Lifestyle measures to promote lower carbon emission and higher birth rate	Hidenori KOMATSU (Central Research Institute of Electric Power Industry)
Circulation of carbon resources	Resource Recovery of Waste Plastics through Photoreforming	Haruki NAGAKAWA (Ibaraki University)
	[Startup support framework] Catalytic plastic depolymerization and organic waste decomposition into hydrogen	Tadashi KUBO (AC Biode)
Utilization of CO2 sinks	Sugar production on both land and sea by sugar corn, sugar sorghum and sugar eelgrass	Ryushiro KASAHARA (Nagoya University)
	Elucidating the mechanisms and quantifying carbon capture in next generation seaweed farms	Gregory N. NISHIHARA (Nagasaki University)
	Cultivation of biofuel plants for revegetation of abandoned coal mine sites	Shin OKAZAKI (Tokyo University of Agriculture and Technology)
	Development of a forest DX management system that contributes to judgment criteria for logging and planting that can realize a sustainable carbon cycle	Tohru NAKAJIMA (The University of Tokyo)
Conversion to high value-added materials	Development of A Next-Generation Horticulture System Utilizing Atmospheric CO_2	Naomi TANGA (ARCS LLC.)