

# **E** Tokyo Metropolitan Research Institute for Environmental Protection



Tokyo Environmental Public Service Corporation

**Tokyo Metropolitan Research Institute  
for Environmental Protection**

# Roles of Tokyo Metropolitan Research Institute for Environmental Protection(TMRIEP)

## Surveys and Research



▲ Chassis dynamometer for large vehicles

We contribute to the environmental policies of the Tokyo Metropolitan Government. We conduct government-contracted research, joint research with universities and other research institutions, and research funded by public and private companies.

### (1) Research on Automobile Related Environmental Measures

Verifying the emission reduction effect of vehicles that comply with the latest regulations and low-emission vehicles. Ascertaining the emission status of unregulated substances. Evaluation of the reduction in carbon dioxide emissions from hybrid vehicles.

### (2) Research on the recycling of resources

We research the following:(1) recycling of metals and incinerated ash generated from municipal solid waste disposal processes,(2) treatment and management of harmful substances in incinerated exhaust gas, and(3) understanding food waste and analyzing its factors.



▲ Experimental apparatus for adsorption and reaction treatment of gaseous mercury

### (3) Research on reducing the concentration of fine particles

We take concentration measurements and analyze the composition of particulate matter (PM<sub>2.5</sub>). We conduct research on the estimation of particulate matter (PM) sources, clarify the formation mechanism of PM, and understand the state of nanoparticles.

### (4) Research on measures to reduce high concentration photochemical oxidants

We conduct surveys on volatile organic compounds (VOCs), which are considered to be the substance responsible for photochemical oxidants. We also conduct research on the estimation of VOC sources.



▲ PM<sub>2.5</sub> measuring device and analysis

### (5) Research on analytical methods for organic chemical substances and clarification of environmental impact

Persistent organic pollutants pose a risk to humans even in very small amounts because they do not degrade easily and are highly toxic. We conduct surveys and research on them to clarify their impact on the environment and understand their risk to aquatic organisms.



▲ Analysis of organic chemicals

### (6) Research on conservation of water environments

To contribute to improving the environment of waters in the Tokyo metropolitan area, we conduct research to: (1) understand the growth and habitat of aquatic organisms in coastal areas, (2) verify the effects of environmental restoration technologies, and (3) research the distribution and estimate the sources bacteria that are used as indicators for sanitation. We also conduct research on groundwater in the Tokyo metropolitan area.

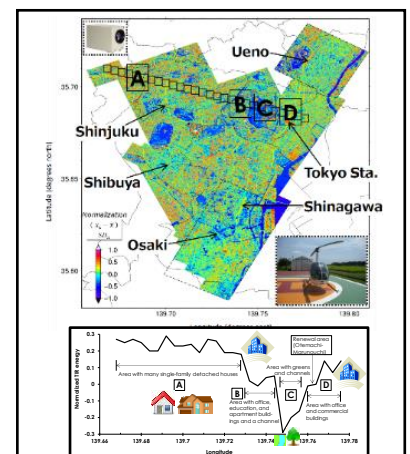


▲ Seawater sampling surveys

### (7) Research on urban heat island (UHI) phenomenon

We conduct observations and numerical simulations on the state and impact of the heat island phenomenon in Tokyo, as well as the effects of heat mitigation in cities that have lots of greenery.

Results of airborne measurements of thermal environment at midday on hot summer days (relative values) ►





We conduct surveys and research required to promote environmental measures in the Tokyo metropolitan area. We also provide scientific knowledge to the Tokyo Metropolitan Government and residents of the Tokyo metropolitan area.



### (8) Survey for town development utilizing hydrogen storage

Hydrogen is considered to be one of the promising next-generation energies. We conduct surveys for the use of CO<sub>2</sub>-free hydrogen in the Tokyo metropolitan area and for the establishment of energy management using hydrogen storage for urban development.



▲ Experimental system for researching hydrogen storage

### (9) Surveys and research for promoting smart energy at Tokyo Metropolitan Government facilities

We conduct research on promoting smart energy at Tokyo Metropolitan Government facilities by analyzing data on energy use at such facilities. We do this by understanding energy consumption trends and identifying factors that promote or hinder energy saving.

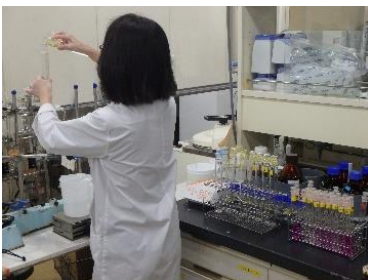
## Technical support

We provide technical support for automobile exhaust gas tests, controlling analytical accuracy, and technical training for government and local authority staff.

### (1) Vehicle exhaust gas tests

We maintain and manage facilities such as vehicle emission planning equipment (chassis dynamometers) and use them for the following tests:

- Vehicle emission tests based on the “Automotive NO<sub>x</sub>-PM Law” for diesel vehicles such as ordinary trucks and large buses.
- Performance tests of vehicle emission reduction devices for large and small vehicles.



▲ Analysis of administrative samples



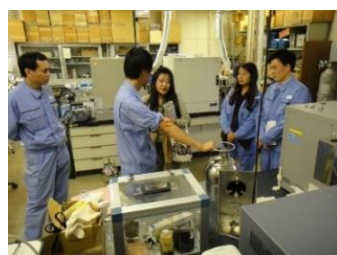
▲ Chassis dynamometer for a light-duty vehicle

### (2) Precision control of administrative samples

We do analysis for and ensure reliability of the monitoring of public water supplies and groundwater and analysis related to water quality regulation of wastewater from business establishments.

### (3) Technical support for government and local authority staff

We conduct training to pass on environment related knowledge and skills. Examples include the introduction and operation of energy facilities, taking VOC measurements, carrying out aquatic organism surveys, and analyzing waste composition.



▲ Introducing research to overseas researchers



▲ Technical support research workshops

### (4) Technical support for international environmental cooperation

We promote international cooperation with cities overseas through advanced and specialized information and technologies in the fields of air quality improvement and climate change.

## Independent research and externally funded research

To advance research based on researcher's proposals, we began public independent research projects from 2015. In September 2016, we were designated as a research institution to be involved in Grants-in-Aid for Scientific Research (KAKENHI) by the Minister of Education, Culture, Sports, Science and Technology. KAKENHI Research has been adopted by us from 2017. We are striving to improve our level of research with the Environment Research and Technology Development Fund of the Environmental Restoration and Conservation Agency of Japan.



## Information

### ● Use of reference room

We allow the browsing and borrowing of environment-related materials.

【Open】 Weekdays 9:30–12:00, 13:00–17:00

【Closed】 Wednesdays, Saturdays, Sundays, public holidays, the year-end and New Year holidays

Tel: 03-3699-1346 (reference service) E-mail: [refer@tokyokankyo.jp](mailto:refer@tokyokankyo.jp)

### ● Tour of research facilities (reservation required)

We accept facility tours for educational institutions and residents of the Tokyo metropolitan area, as well as visits by government staff and overseas trainees, etc. You must make a reservation to tour our research facilities. Please contact us by phone or e-mail.

【Tour hours】 From 10:00 to 16:00 (except from 12:00 to 13:00 daily and Saturdays, Sundays, public holidays and the year-end and New Year holidays)

The standard duration of the tour ranges from 1 hour to 90 minutes. The duration of the tour will be decided upon consultation.

【Number of tour attendees】 About 4 to 20 people

Tel: 03-3699-1333 (Public relations officer) E-mail: [kanken@tokyokankyo.jp](mailto:kanken@tokyokankyo.jp)

### ● Opening of facilities to the public (once a year)

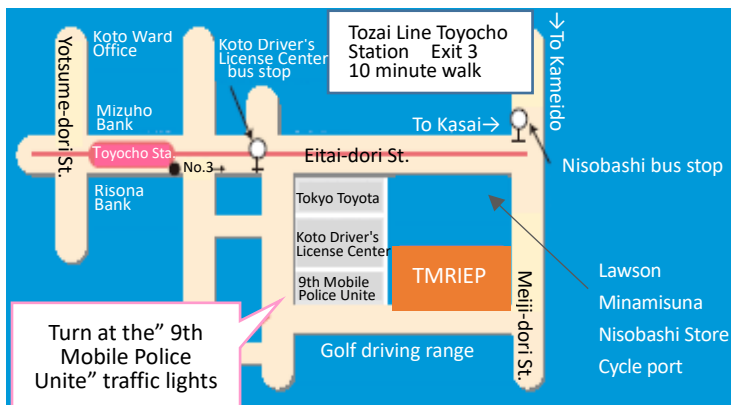
We hold scientific experiment classes run by researchers as well as workshops where visitors can participate. (The schedule of such events is announced on our website.)

### ● Open research presentation conference

We announce our research results between December to January every year. (Details will be announced on our website.)

## History

April 1968	Tokyo Metropolitan Research Institute for Environmental Protection is established. (Yurakucho, Chiyoda-ku) (established as a research institute managed directly by the Tokyo Metropolitan Government)
April 2000	The organization becomes an integrated environmental science research institute that includes waste by integrating with the former Tokyo Metropolitan Research Institute for Public Cleansing.
April 2007	Operations are transferred to Tokyo Environmental Public Service Corporation.
April 2012	Tokyo Environmental Public Service Corporation transitions to a non-profit incorporated foundation from a incorporated foundation.



Tokyo Environmental Public Service Corporation

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