At the Central Research Laboratory we undertake R&D activities in collaboration with the business divisions and group companies to enhance corporate value. The goal of our R&D is to both deepen and broaden our expertise in our core business of cement and concrete while exploring business areas that have significant growth potential such as mineral resources, the environment and international business. In recent years we have also been vigorously developing technologies that contribute to the reconstruction of the areas affected by the 2011 earthquake as well as technologies for infrastructure repair and maintenance.

Breakdown of R&D Expenditure (consolidated, fiscal 2013)

- Ceramics and Electronics: 717 million yen
- Construction Materials: 277 million yen
- Environment: 677 million yen
- Mineral Resources: 559 million yen
- Cement and Concrete: 1.820 billion yen

Total: 4.052 billion yen

In the cement segment, while working to maintain broad market recognition of the quality of Taiheiyo Cement products, we are involved in R&D activities across the various facets of our business such as advancing our innovative quality predictive system, lowering costs, protecting the environment, saving energy and reducing CO₂ emissions in the production of cement, and developing domestic and overseas markets.

In the concrete, construction materials, and building construction and civil engineering segment, we conduct R&D for ultra high strength concrete and ultra high performance ductile concrete under the TBC (Taiheiyo Brand Concrete) brand. We also develop diagnostic and repair technologies as well as technologies for ensuring the safety and security of infrastructure. Furthermore, we are striving to expand the use of concrete as a pavement material and focusing on R&D for environmental conservation and restoration.

In the mineral resources segment our activities are centered on advancing technologies such as those that add value to the limestone and silica resources of our group companies as well as a method for treating contaminated soil.

In the environmental segment we not only develop technologies for recycling waste that is difficult to recycle but also water-related technologies such as for wastewater purification, phosphorus recovery and the removal of material contaminated by radiation.

Concrete Pavement Worksite Tours in Fiscal 2013

First tour: Porous concrete pavement (the Central Research Laboratory)
Second tour: Concrete pavement used for the quick restoration of roads (Sanyo-Onoda City, Yamaguchi Prefecture)
Third tour: Roller compacted concrete pavement using Ecocement (Sodegaura City, Chiba Prefecture)
Fourth tour: Concrete pavement used for the quick restoration of roads (Kobe City, Hyogo Prefecture)

In the energy segment we are focusing on R&D for improving the efficiency and safety of power generation and developing technologies for renewable energy such as solar and wind power.

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Promotion of R&D Activities

Benefiting from the close cooperation between the Central Research Laboratory and each business division, the scope of our R&D encompasses peripheral fields such as mineral resources, the environment, building materials, architecture and civil engineering with a focus on cement and concrete.

● Developing and Deploying the TQPS (Taiheiyo Cement Quality Predictive System) for Our Plants

The TQPS improves the level of accuracy in quality control for cement by analyzing the relationships between various analytical values, production conditions and cement properties. We completed the introduction of the basic components of the system at our directly operated plants in fiscal 2013. In fiscal 2014 we will work on establishing its use at the plants and optimizing its application as well as further extending its use with the cooperation of relevant departments. When we use waste and by-products for the first time at a plant as alternative raw materials and fuels for cement, the TQPS will enable us to quickly predict changes in product quality, take immediate action and optimize the operating conditions. It is therefore expected to promote the recycling of resources and further stabilize the quality of our products.

● Developing Phosphorus Recovery Technology

Although phosphorus is essential for food production, Japan lacks phosphorus resources and global phosphorus sources are expected to become rapidly depleted. The company developed Rintol® as a material for recovering phosphorus from sewers, excrement and wastewater in the livestock industry for use as fertilizer. Its phosphorus recovery performance has been verified by testing conducted at sewage treatment plants and pig farms. The new technology is expected to encourage phosphorus recycling in the future.

● SPLITTON Association Japan

During a November 2013 visit to review the status of reconstruction in areas damaged by the earthquake in Tohoku, SPLITTON Association Japan confirmed the usefulness of concrete blocks. The association also leads the industry in technologies for reducing the brightness of revetment blocks as well as studies concerning texture that have recently attracted attention in the study of river environments.